Geotechnical

GEOENVIRONMENTAL APPRAISAL REPORT

Land off Woolley Colliery Road, Darton

For Gleeson Homes

Date: **July 2024**

Report reference: C10128

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C10128/01	Site Location Plan	1:25,000
C10128/02	Site Features Plan	NTS
C10128/03	Preliminary Conceptual Site Model	NTS
C10128/04A	Exploratory Hole Location Plan - Northern Area	1:1,000
C10128/04B	Exploratory Hole Location Plan - Northern Area with Proposed Layout	1:1,000
C10128/04C	Exploratory Hole Location Plan - Southern Area	1:1,000
C10128/04D	Exploratory Hole Location Plan - Southern Area with Proposed Layout	1:1,000
C10128/05	Revised Conceptual Site Model	NTS
C10128/06	Geological Cross Section - Northern Site Area	NTS
C10128/07	Geological Cross Section - Southern Site Area	NTS
1328.05	Proposed Sketch Layout + M4(3) (PRA Architecture Drawing)	1:500
10701-HBL-XX-XX-XX-X-SK04	Proposed Levels Appraisal Sheets 1 to 3 (HBL Drawings)	1:500

Executive Summary

Proposed Development	Sirius Geotechnical Ltd was commissioned by Gleeson Homes to undertake a geoenvironmental appraisal of Land off Woolley Colliery Road, Darton. It is understood that consideration is being given to development of the site with 2 storey residential properties and associated infrastructure.
The Site	The site comprises two disused parcels of land, with the majority of the site comprising rough grass and areas of dense trees and bushes, with areas of concrete and asphalt hard standing. The northern site area slopes down to the west from the adjacent Woolley Colliery Road, before rising up towards the west. The southern site area is flat lying towards the east, with the west sloping down towards the northwest. A steep slope is present to the southwest of the southern site area, with an active railway line at its base.
Site History	The site remained undeveloped throughout the 19th Century, with a watercourse present on the northern site area. By 1907, railway lines associated with the adjacent Woolley Colliery were present on the northern site area, with spoil heaps shown on site by the 1930s. Further spoil heaps were shown on site in the 1950s, which were further extended by the 1990s.
Ground & Groundwater Conditions	The investigation has identified topsoil, concrete or asphalt locally, underlain by made ground, mostly comprising red mudstone, or general granular made ground. In the northern site area, made ground was present to depths of up to c. 5m below ground level (bgl), but up to c. 8.5m in bgl the far north and west, underlain by residual cohesive soils, or locally, alluvium (soft to firm clay). In the southern site area, made ground was encountered to c. 1m in the east, and up to c. 4.8m bgl in the west (c. 6m bgl during previous investigation). Rockhead was encountered from depths of c. 2m bgl in the northern site area, and from a minimum of 0.3m bgl in the southern site area.
Slope Stability	A preliminary quantitative slope stability assessment has been undertaken on the southwestern slope. This has determined, based on limited data, that parts of the slope may not be stable following development of the site, and further surveys are recommended in order to assess slope stability, once final development layout and levels are confirmed.
Excavation Stability	All soils should be assumed to be unstable in the short term within all excavations to any depth, and appropriate support should be provided to all excavations.
Coal Mining	The risk of surface instability resulting from shallow coal mine workings is considered to be low across the large majority of the site. However, the location of a Coal Authority recorded mine adit was confirmed in the east of the southern site area, with a maximum recorded height of 2m and present at depths of between c. 10m and 15m bgl, deepening towards the northeast. An apparently localised area of broken ground was encountered at the same depth as the adit, a short distance to the northwest. These features will require stabilisation by drill and grout methods. It would also be considered prudent to carry out proof drilling of plots in the west of the southern site area, once unrestricted access is available, and more specifically where pile foundations are proposed for plots, as these will require socketing into competent bedrock, thereby reducing the rock cover over the Top Haigh Moor Coal seam / potential unrecorded shallow mine workings within the seam. Deep made ground was encountered in the far north of the northern site area, apparently associated with opencast / crop working of the thick Barnsley Coal seam. There is also potential for unrecorded bell pits / crop workings / day holes, etc., to the northeast of the

	outcrop of the Barnsley Coal seam, which could require treatment and constrain foundation solutions in this area.
Foundations and Floor Slabs	Conventional spread foundations (i.e. strip or trench fill foundations) may be feasible within around half of the southern site area, and a limited part of the northern site area. Due to the combined depth of existing made ground and newly placed fill, alternative foundations (e.g., piles, rafts on fully re-engineered fill, or vibro stone columns) will be required across the rest of the site. Some localised deepening of foundations may be required within the zone of influence of trees, or where coal is encountered at shallow depth. Alternative foundation solutions should be further assessed once the precise structural loadings and other factors such as proposed ground levels and influence of trees on foundation depth for the proposed development are known. Suspended floor slabs are likely to be required across most of the site.
Concrete Protection	All ground types encountered on site are considered potentially aggressive to sub-surface concrete; therefore, concrete protection measures will be required.
Soil and Groundwater Contamination	Elevated concentrations (when compared to applicable human health risk screening values) of arsenic and naphthalene were recorded within made ground across the site (including arsenic in topsoil, where locally present), along with copper, lead and benzo(a)pyrene locally. Exceedances of potential contaminants in groundwater have been confirmed for cadmium, copper, nickel, and zinc and ammonia in relation to environmental quality standards (EQS values). However, these concentrations are considered typical of an urban / post-industrial area such as this, and pose a low risk to controlled waters.
Asbestos	Asbestos cement fragments have been observed on the ground surface within the northern site area.
Asphalt	Laboratory testing suggests that at least some of the asphalt present in the southern site area may contain coal tar binder. Further testing may be required to determine which material may contain coal tar, as this may require disposal as Hazardous Waste.
Settlement and Ground Improvement	A settlement assessment has shown the potential for settlement of made ground soils from self-weight (creep) and consolidation due to loading from placement of fill to raise ground levels. Excavation and re-engineering of made ground is likely to be required to mitigate settlement and to remove existing concrete slabs / obstructions.
Remediation Requirements	Removal and disposal of all asbestos fragments from the ground surface. Provision of a 600mm thick clean cover soil system (including 150mm of imported topsoil) where made ground remains within areas of gardens and landscaping.
Soakaway Drainage	Based on the ground conditions encountered during the site investigation soakaway drainage is considered unlikely to be viable at the site.
Ground Gas	The results of monitoring to date indicate a minimum classification of Characteristic Situation 2 (CS2), which would necessitate gas protection measures. Further monitoring is currently ongoing, and a full ground risk assessment will be issued upon completion of the monitoring. Additionally, basic radon protective measures are required within the southern site area (only).
Invasive and Protected Species	It is understood that ecological surveys have been carried out at the site and that habitats are present on the site which are of importance for wildlife. No evidence for the presence of any invasive plants has been observed by Sirius, or is noted within the ecology report, however the potential presence of these was not fully ruled out due to the dense vegetation on site. Should they be identified, the treatment of any invasive plant species should be undertaken prior to construction.

Further Works	The following works are recommended in order to confirm the risk to the site from contamination and mining and confirm ground conditions where access was limited during this investigation: • Additional ground investigation in the north of the northern site area, to determine the possible presence of bell pits / crop workings associated with the Barnsley Coal seam, once vegetation in this area has been removed, to allow unhindered access. • Additional ground investigation in the southwest of the northern site area to confirm ground conditions in areas currently inaccessible due to the presence of dense vegetation. • Further ground investigation / survey to allow a more detailed quantitative slope stability assessment for the slope in the southwest of the southern site area, where development is proposed adjacent to this slope. • Production of a Remediation Strategy confirming the remedial proposals to mitigate the risks from elevated contaminants within the site. • Production of an MMP for the site to cover the reuse of soils within the site (this requires a Remediation Strategy that has been agreed with the local authority).

The executive summary is an overview of the key findings and conclusions of the report. There may be other information contained in the body of the report which puts into context the findings of the executive summary. No reliance should be placed on the executive summary in isolation, particularly when deriving design detail/abnormal costs.

1. Introduction

1.1 Authorisation

Sirius Geotechnical Ltd (Sirius) was commissioned by Gleeson Homes to undertake a geoenvironmental appraisal of land off Woolley Colliery Road, Darton (the "site"). It is understood that consideration is being given to development of the site for a residential with private gardens end use.

1.2 Development Plans

Proposals for the site include the construction of 115 semi-detached and detached 2 storey, residential units with private gardens, garages and drives, as well as new access roads. The site is split over two parcels of land; for the purposes of this report these are referred to as the 'northern site area' and the 'southern site area'. Proposed SuDS basins are shown in the far north of the northern site area, and to the north of the southern site area. The investigation boundary is shown in Figure 1.1, as extracted from PRA Architecture drawing No. 1329.05, dated 06.12.23, included within Appendix A to this report.

Initial proposed development levels have been provided by the client (HBL drawings included in Appendix A). These show that finished levels across the majority of the northern site area are to be raised by between c. 0.5m and 3.0m above current levels, with levels being reduced locally. Across the southern site area, levels are proposed to be raised by between c. 0.5m and 1.0m across the east, or reduced locally, and across the west of this area to either remain as current, or be raised by up to c. 2.0m.

Where proposed plot numbers are referenced within this report, these numbers are taken from the PRA Architecture drawing shown below, and not from the HBL drawings, where the plot numbers differ slightly.

Figure 1.1 – Site Boundary Plan

1.3 Objectives

The objectives of this appraisal were to:

- Review purchased and publicly available geological, environmental, waste, pollution, hydrological, hydrogeological and mining data. Review of purchased historical and environmental sensitivity mapping.
- Preparation of a Preliminary Contaminated Land Risk Assessment and Conceptual Site Model based on the above information.
- Intrusive investigation of soil, rock and groundwater conditions.
- Provision of exploratory hole logs.
- Completion of a Generic Quantitative Risk Assessment (GQRA) and Revised Conceptual Site Model.
- Determine the potential risks posed by any ground contamination and provide recommendations on remedial measures to manage such risks.
- Establish the risks associated with hazardous ground gas.
- Establish the risks associated with historic mine workings beneath the site and discuss outline mitigation recommendations.
- Provide outline advice relating to geotechnical issues associated with the site.
- Provide outline foundation and other built environment considerations and recommendations.

This report, which was designed to meet the requirements of relevant current guidance, presents the factual information available during this appraisal, an interpretation of the data obtained and recommendations relevant to the defined objectives.

1.4 Limitations

It is assumed that the site layout and changes in ground levels from existing will be as described in Section 1.2 of this report. If this is not the case, then amendments to the recommendations made in this report may be required.

Where the report refers to the potential presence of invasive plants (such as Japanese Knotweed) or asbestos-containing materials (ACMs), such observations are for information only and should be verified by a suitably qualified expert.

The comments and opinions presented in this report are based on the findings of the desk study, ground conditions encountered during intrusive investigation works performed by Sirius and the results of tests carried out within one or more laboratories. There may be other conditions prevailing on the site which have not been revealed by this investigation and which have not been taken into account by this report. Responsibility cannot be accepted for any ground conditions/risks not revealed by this investigation. Any diagram or opinion on the possible configuration of strata, contamination or other spatially variable features between or beyond investigation positions is conjectured and given for guidance only. Confirmation of ground conditions between exploratory holes should be undertaken if deemed necessary. Evaluation of ground gas and groundwater is based on observations made at the time of the investigation and monitoring visits. It should be noted that ground gas and groundwater levels and quality may vary due to seasonal and other effects.

All marked site features (including historical features, mining features (i.e. opencast boundaries and mine entries)), potential contaminant constraints, and any other potential constraint or feature of note) shown on the appended drawings are given for indicative purposes only. Enclosed drawings should not be underlaid in isolation to determine proposed development layouts. Reference should be made to the text enclosed within this report for commentary on the potential location of these features including coordinates if available and any further works required to locate features.

Please note that this investigation has not been designed to classify waste soils. It is likely that further testing will be required once waste soils have been identified or generated. Any mention of waste classification within this report is indicative only.

No information pertaining to the potential flood risk of the site is included as part of this appraisal. It is recommended that a detailed flood risk assessment for the site is undertaken by an appropriate flood risk consultant.

Potential risk to site construction / maintenance workers have not been considered within this appraisal on the basis that any risks to workers would be dealt with under the Health and Safety at Work Act (1974) and regulations made under the Act. It is recommended that the relevant findings of this report are made available to site construction/maintenance workers to enable appropriate risk assessment to be undertaken to mitigate the risk to site construction / maintenance workers from potential contaminants identified within the site.

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1.5 Sources of Information

Table 1.1 details the sources of information which have been used to prepare this report. They are referred to by the reference number provided. Standard terms of reference for guidance and legislation are included in Appendix J and have been used for general reference to compile this report.

Table 1.1 - Sources of Information

Ref	References
A.	Envirocheck Reports Ref. 347386087_1_1 and 347388847_1_1, dated 20th May 2024, enclosed within Appendix B-1 (northern site area) and B-2 (southern site area).
B.	Coal Authority Mining Reports Ref. 51003425842001 and 51003425846001, dated 20th May 2024, enclosed within Appendix B-1 and B-2.
C.	British Geological Survey (BGS) 1:10,000 scale geological map (SE31SW, Woolley, Solid and Drift edition, 2005).
D.	BGS 1:50,000 scale geological map (Sheet 87, Barnsley, Bedrock and Superficial Geology edition, 2008).
E.	BGS Memoir: Geology of the Barnsley district — a brief explanation of the geological map Sheet 87 Barnsley, 2007.
F.	BGS GeoIndex
G.	BGS Lexicon of Named Rock Units
H.	Coal Authority online interactive map viewer
I.	Barnsley Council. Local Plan Map. Available at: https://www.barnsley.gov.uk/barnsley-maps/local-plan-map/ Accessed 17/06/2024.
J.	Environment Agency (EA) Catchment Data Explorer
K.	UK radon online mapping
L.	Zetica UXO – www.zeticauxo.com

M.	Coal Authority abandonment plans for North Gawber Colliery, Refs. NE868 (Top Haigh Moor) and NE979 (Low Haigh Moor), included in Appendix B-1.
N.	Flood Risk Assessment and Surface Water Management Strategy for a Proposed Development at Woolley Colliery, Woolley Colliery Road, Darton. iD Civils Design report ref. 5125/FRA01, dated June 2022.

2. Desk Study

2.1 Introduction

The following section summarises the pertinent information reviewed to inform the Desk Study part of this appraisal using the sources outlined within Table 1.1 in Section 1.5.

2.2 Site Details

A summary of the pertinent site details as shown on site plans and from a walkover undertaken by a Sirius engineer on 24th May 2024 is summarised in Table 2.1, below.

Table 2.1 - Site Details

Location	A site location plan is provided as Drawing No. C10128/01 within Appendix A. The site is located to the west of Woolley Colliery Road, Darton, c. 5km northwest of Barnsley town centre.
Site Area	The total site area is c. 4.4 ha, with the northern site area covering c. 2.9 ha and the southern site area covering c. 1.5 ha.
National Grid Ref.	Centre of northern site area: 431190, 410780. Centre of southern site area: 431120, 410440.
Site Boundaries	The investigation boundary is limited to the area denoted by the red line boundary shown in Figure 1.1, and on PRA Architecture Drawing No. 1329.05, enclosed within Appendix A. The site boundaries are defined by the following features: **Northern site area:** North: Wooden fence. South: Metal post and mesh fence. East and West: No physical boundaries. **Southern site area:** North: Metal post and mesh fence. South: Metal palisade fence / soil bund. East: Soil bund. West: No physical boundary.
Site Description	**Northern site area:** The north of this area slopes gently down towards the west, from c. 82m above Ordnance Datum (AOD) to c. 76m AOD. Further south, the site is relatively flat lying, however the southwest is raised by c. 2m, and the centre / west of the site slopes up towards the west, to a maximum elevation of c. 87m AOD. This area is disused, with the majority surfaced with grass, or with trees / bushes (especially towards the west and southwest of the site). The centre and part of the south is surfaced with concrete. From visual inspection, the raised land in the west and southwest appears to comprise colliery spoil. In the centre of the site there is an area of mounded material, plus an area of concrete boulders. There is anecdotal evidence of a culvert beneath the centre of this area, see Section 2.6. **Southern site area:** The eastern end of this area is flat lying, at c. 80m AOD, with the site sloping gently down towards the northwest, to c. 77m AOD. Parallel to the southwestern boundary, the site is raised to c. 82m AOD, with a steep slope being present beyond, which

	slopes down to the adjacent active railway line at a level of 68m AOD (approximate, based on topographic levels obtained on adjacent land to the west). The southern site area is also disused. The east of this area is open, and roughly surfaced with poor quality asphalt. The remainder of the site is mostly covered with trees and bushes, with clear areas, used as informal tracks, running through the centre and southwest. Soil at the surface appears to comprise colliery spoil, which is mounded to either side of the tracks to heights of up to c. 2m.
Evidence of Fly-Tipping on Site?	During the walkover survey, an area of relatively recent-looking fly tipped material was noted close to the entrance of the northern site. Other minor amounts of fly-tipped rubbish were present on the northern and southern areas. Fragments of presumed asbestos-cement pipe were noted on the northern site area (see Drawing No. C10128/02 in Appendix A).
Site Surroundings	Land between the northern and southern site areas comprises a sports ground (North Gawber Colliery FC and Woolley Miners Cricket Club). To the north is the residential development of Woolley Grange. To the south is a railway, with the River Dearne and the M1 motorway beyond. Land to the east comprises rough grassland and arable farmland. Land to the west is contiguous with both site areas, and is surfaced with rough grass, trees and bushes, with areas of exposed colliery spoil.

2.3 Site History

Table 2.2 presents a summary of the site history from 1854 to date, using historical maps presented in the Envirocheck report obtained for the site (ref. A) and aerial imagery. It is not the intention of this report to describe in detail all of the changes that have occurred on or adjacent to the site, only those pertinent to the proposed development.

Table 2.2 - Site History

Map Dates	On-Site Features	Pertinent Off-Site Features (within 500m of the site boundary)
1854	The north part of the **northern** site area, and land immediately to the north is wooded, with a watercourse crossing the centre of the site from NW-SE. The **southern** site area is undeveloped agricultural land.	Old Quarry (Sandstone) shown adjacent to the southeast of the **southern** site area, with a railway line adjacent to the southwestern boundary.
1893-94	Railway sidings are shown to be present in the far north of the **northern** site area. No significant changes to the **southern** site area.	Woolley Colliery c. 200m to the northwest of the **northern** site area, with associated railway lines, shaft, reservoir, cottages and gas works (150m west). Old Coal Pit, Old Air Shaft and Old Dayhole shown from c. 120m east of the **northern** site area. Old Quarry is no longer shown adjacent to the **southern** site area. Southwestern boundary of the **southern** site area shown as a rock face, leading down to the railway line.

Map Dates	On-Site Features	Pertinent Off-Site Features (within 500m of the site boundary)
1906-07	Railway sidings extend further onto **northern** site area.	No significant changes shown.
1918	No significant changes shown.	Sewage Works shown adjacent to northwestern boundary of **northern** site area. Pyewood Colliery shown immediately adjacent to the southeast of the **southern** site area.
1930-48	Railway sidings extend the full length of **northern** site area, with associated buildings shown in the far north. Buildings shown on the east of the **southern** site area, with spoil heaps shown along the southwestern boundary.	Large area to the west of the **northern** site area shown as spoil heaps. Darton Main Colliery shown c. 350m southwest of the **southern** site area.
1955-56	Spoil heaps shown to the west of the **northern** site area now extend onto the southwest of the site.	Darton Main Colliery shown as disused.
1961-66	Watercourse no longer shown crossing **northern** site area. Spoil heap on **southern** site area shown to be larger.	Sewage works shown to be larger.
1970-74	Further railway sidings shown on **northern** site area, with weigh bridges shown in the southern part.	Reservoirs to the east of the **northern** site area no longer shown and assumed to have been infilled.
1978 (southern site area only)	(On and off site) Much of rock face on southwestern boundary now shown as an embankment, leading down to the railway line.	
1980-84	No significant changes shown to **northern** site area. West and centre of **southern** site area shown as stockpiles, buildings no longer shown in the east.	Area of spoil heaps across and to the west of the **northern** site area is now contiguous with those on the **southern** site area.
1991-93	Railway sidings no longer shown on the **northern** site area, with the spoil heaps also shown across the north of this area. No significant changes shown to **southern** site area.	No significant changes shown.
2000	No significant changes shown to **northern** site area. Whole of **southern** site area shown as stockpiles.	Woolley Colliery no longer shown.

Map Dates	On-Site Features	Pertinent Off-Site Features (within 500m of the site boundary)
2024	Both site areas shown as undeveloped land.	Residential development of Woolley Grange shown to north of **northern** site area.

In summary the site was undeveloped until the second half of the 19th Century, with the northern site area being used as railway sidings, and with buildings being present on the southern site area. Spoil heaps are shown encroaching across both site areas since the middle of the 20th Century.

2.4 Geological Setting

A summary of geological information reviewed in this assessment is provided in Table 2.3.

Table 2.3 - Geological Summary

Information Sources	A, C, D, E, F, G
Made Ground	Entire site shown to be underlain by made ground (described as 'mainly colliery spoil and landfill').
Superficial Deposits	None shown underlying the site.
Solid Geology	Pennine Middle Coal Measures Formation (mostly interbedded mudstone, siltstone, sandstone and coal seams), with the Haigh Moor Rock sandstone shown to underlie the majority of the southern site area. Three coal seams shown outcropping on / adjacent to the site (see Section 2.5, below). Bedrock / coal seams shown to be dipping c. 5° to the northeast.
Faults	One fault is shown crossing the far northwestern corner of the northern site area, trending southwest-northeast, downthrowing towards the southeast.
Stability	The Envirocheck reports (Ref. A) contain information on potential ground stability hazards. Of the references which relate to the site, all are assessed as No Hazard, Very Low or Low Hazard. One reference to a Moderate risk to ground stability from landslides relates to land immediately south of the southern site area, and is assumed to relate to the railway cutting in this vicinity.

2.5 Mining and Quarrying

A summary of mining and quarrying information reviewed in this assessment is provided in Table 2.4.

Table 2.4 - Mining and Quarrying

Information Sources	A, B, C, D, E, F, H, I
Coal Seams	The Top Haigh Moor and the underlying Low Haigh Moor coal seams are shown outcropping to the southwest of the site, dipping towards the northeast and therefore present beneath the entire site area. The Low Haigh Moor is shown to lie c. 9m below the Top Haigh Moor. A note on the BGS 1:10,560 map indicates the presence of a 1.3m thick coal seam within the railway cutting to the south of the site (likely the Top Haigh Moor). The Barnsley Coal seam is shown outcropping across the north of the northern site area, and will be present to the northeast of this outcrop.

	The Barnsley Coal is noted as being up to 3.9m thick. The Top Haigh Moor Coal and Low Haigh Moor Coals are recorded as being up to 4.3m and 2.6m thick respectively, both with significant dirt partings. There are four other thin (0.3 – 0.4m thick) coal seams shown to lie between the Top Haigh Moor Coal and the Barnsley Coal on the Generalised Vertical Section of Ref. C, although these are not mapped as outcropping within the site.
Recorded Coal Mining	Northern site area: Ref. B notes recorded historical coal workings beneath the site from shallow (i.e. < 30m) to 290m depth in six seams of coal, and last worked in 1983. Ref. H also shows an area of unlicensed opencast workings recorded in the far north of the site, associated with the Barnsley Seam and illustrated on Drawing C10128/04A in Appendix A, with other areas shown off-site, to the northwest and east of the site. The Coal Authority holds records of mine workings within the Top Haigh Moor Coal and Low Haigh Moor Coal beneath the northern site area, as illustrated on mine abandonment plans included in Appendix B-1 (see Ref. M). Southern site area: Ref. B notes recorded historical coal workings beneath the site from shallow to 240m depth in four seams of coal, and last worked in 1982. No workings are shown on the abandonment plans below the southern site area; however, an adit is shown beneath this area, giving access to deeper workings beneath the northern site area (see also Mine Entries section, below).
Unrecorded Coal Mining	Ref. H shows that there is potential for unrecorded shallow mine workings in the northern end of the site, corresponding to the outcrop of the Barnsley Coal seam, and also in the far south, corresponding with the outcrop of the Top Haigh Moor seam.
Other Mining	No records of mining of other mineral commodities have been identified.
Mine Entries	No shafts are recorded on the site itself. Ref. M shows an adit (CA Ref. 431410-001) to be present beneath the southeast of the southern site area, trending southwest-northeast, giving access to the recorded mine workings in the Top Haigh Moor seam, with a second, parallel, adit (CA Ref. 431410-002) present off site, to the southeast. Information previously received from South Yorkshire Mining Advisory Service (SYMAS) dated 1988 states that the on-site adit was subject to treatment, comprising complete excavation and backfilling of the portals and an initial length of the adit. Beyond the excavated section, the intact adit was backfilled with sandstone debris, 2m of concrete, and 1m of clay. However, it cannot be determined from the plan provided with the information exactly where the treated section of the adit is in relation to the current development site.
Quarrying/ Opencast Mining	As noted above, an area of unlicensed opencast mining is shown associated with the Barnsley Coal in the far north of the site. Historical maps show an Old Quarry (sandstone) was located immediately east of the southern site area in 1854.
Mineral Safe-Guarding	There are no areas in the vicinity of the site which are noted as being safeguarded for mineral extraction under Barnsley's local plan (see Ref. I).

2.6 Environmental Setting

A summary of relevant available information pertaining to the environmental setting of the site is provided in Table 2.5.

Table 2.5 - Environmental Summary

Category	Data Source	Summary
Landfilling and Waste	A	No landfill sites recorded within 500m of the site.
Hydrology	A, J	**Classified watercourses (within 500m)** River Dearne present c. 125m west of the site. **Unclassified watercourses, OS water network lines (within 500m)** Information contained within Ref. N suggests the presence of a culvert beneath the northern site area, taking the former watercourse which crossed the site, reported to be collapsed beneath the site. An unnamed stream / drain is present adjacent to the northern boundary of the northern site area (dry at the time of the walkover survey). An apparent culverted watercourse is also present c. 70m north of the northern site area. **Licensed surface water abstractions (within 1000m)** There are no current surface water licences noted. **Other surface water features (Canals, Ponds, Lakes, etc.) (within 250m)** A number of large ponds are shown c. 250m to the northwest of the site, understood to be related to a mine water treatment scheme.
Hydrogeology	A	**Licensed Abstractions (within 1000m)** A license for groundwater abstraction for pump and treat pollution remediation is shown c. 330m northwest of the northern site area. A license for groundwater abstraction for a commercial use is shown c. 695m south of the southern site area. **Source protection zones (within 500m)** None shown in the vicinity of the site. **Springs** None recorded. **Aquifer status** Secondary A Aquifer.
Ecology		It is understood from the Client's ecologist that habitats are present on the site which are of importance for invertebrates (butterflies), birds, bats, reptiles, etc. No site investigation could be carried out within areas specified by the Client's ecologist, including areas of trees / bushes in the north, west and south of the northern site area, plus the areas of mounded material and concrete boulders in the centre of the northern site area, with some limited access available into areas of trees / bushes under ecological supervision within the southern site area. No evidence for the presence of any invasive plants has been observed by Sirius, or is noted within the ecological report, however the potential presence of these was not fully ruled out due to the dense vegetation on site.
Radon	A	The northern site area is in a Lower Probability Radon Area, and no radon protective measures are required for new dwellings.

Category	Data Source	Summary
		The southern site area is in an Intermediate and Lower Probability radon area, and as such basic radon protective measures are required for part of the site.
UXO	L	The site lies within a low risk area for unexploded WWII bombs.
Ground Gas Risk Assessment Required?		Yes. Due to the potential presence of deep made ground, on and off-site opencast mine workings, recorded and potential unrecorded shallow mine workings and mine entries.

2.7 Other Potentially Contaminative Activities

Other potentially contaminative activities or environmental constraints are listed in Table 2.6 below. The entries relate to activities within approximately 250m of the site, with the exception of COMAH facilities where the assessment is extended to a distance of approximately 1km from the site. Only entries which are considered to potentially impact the site are listed in the below table.

Table 2.6 - Other Potentially Contaminative Activities

Category	Data Source	Summary
Pollution Incidents to controlled waters (on site or upstream of site)	A	The Envirocheck report provides details of two pollution incidents to controlled waters on the site. One was a Category 3 (minor) incident of diesel spillage into a watercourse in 1995 (possibly the stream / ditch adjacent to the site's northern boundary). The second was a Category 2 (significant) incident of discharge from a sewage treatment works into a stream in 1993 (likely related to the former sewage treatment works to the west of the northern site area).
Local Authority Pollution Prevention and Controls (within 250m)	A	All of the Local Authority Pollution Prevention and Controls records in the vicinity of the site relate to processes at the former Woolley Colliery, such as coal, coke and coal product processes.
Substantiated Pollution Incident Register (within 250m)	A	There is one Substantiated Pollution Incident Register record within 250m of the site, relating to a Category 2 (Significant) incident, of crude sewage affecting water. This is shown c. 80m west of the site's north-western corner, and is likely to relate to the small watercourse in this area, downstream of the site.
Contemporary Trade Directory Entries (within 250m)	A	The nearest Contemporary Trade Directory Entries relate to generator sales and servicing, road haulage and building block manufacture. None are located on the site itself.
Discharge Consents (within 250m)	A	There are no active discharge consents noted within the Envirocheck report. There are former consents, all relating to Woolley Colliery, north and

Category	Data Source	Summary
		northwest of the site, for sewage and mineral workings discharge into the River Dearne.

2.8 Previous Investigation Findings

Sirius has previously undertaken ground investigation works at the site, in 2019 and 2023. It is understood that Gleeson Homes does not have reliance on these reports; however, the factual data presented in those reports has been used in order to supplement the understanding of the ground conditions present at the site. Pertinent information presented in those reports is summarised below.

Sirius Geoenvironmental Appraisal Report - Northern Area, Former Woolley Grange Colliery, Barnsley - Ref. C8292/GA/N/Rev A - Dated August 2019

This report was prepared for the same area as covered by the current northern site area, for a proposed low rise residential development.

The exploratory investigation comprised the excavation of 31 trial pits, and the drilling of five cable percussion boreholes, seven windowless sampler boreholes and 10 rotary open hole boreholes. In addition, gas / groundwater monitoring wells were installed within selected boreholes. Site investigation locations were restricted by ecological constraints. Some of the monitoring wells are still present and remain serviceable; where this is the case, these are shown on the current Exploratory Hole Location Plans, presented in Appendix A to this report.

Ground Conditions:

Made ground was present to depths of up to 2.4m bgl in the southern and central northern parts, and up to 9.4m within the central, western and far northern areas.

The made ground varied between granular and cohesive in behaviour and of variable composition, including mudstone gravel, ash rich soils, coal washings and reworked natural soils.

Surface and subsurface reinforced concrete slabs, between 0.2m and 0.5m thick, were encountered within the central and southern parts of the site.

The made ground was typically underlain by strata of the Pennine Middle Coal Measures Formation, comprising a sequence of residual soils over destructured bedrock, over extremely weak and weak sandstone, mudstone and occasional siltstone.

In the eastern part of the site, the made ground was underlain by alluvial soils, recorded as very soft and firm clay, at depths of 2.9m and 3.4m bgl. The alluvium was found to be 1.35m thick, where the full thickness of the material was proven.

Coal Seams / Mining:

The majority of site was found to be underlain by three, intact, thin, un-named seams of coal at depths of between 7.3m and 37m bgl. The shallowest evidence of potential mine workings (broken / soft ground and void) was encountered at depths of between 42m and 48m bgl, in the south west of the site, which corresponds to recorded mine workings within the Top and Low Haigh Moor Coal seams.

Based on the recorded ground conditions, it was considered that sufficient competent rock cover exists above the thin coal seams and the worked coal seam to mitigate the risk to surface stability from potential / identified mine workings within these seams.

A fourth coal seam, considered to be representative of the Barnsley Coal, was found to underlie the far northern part of the site at shallow depth, and was conjectured to outcrop across the northern third. Although no evidence of mining was recorded within the Barnsley Coal Seam as part of the intrusive works, it was considered that the seam encountered is of workable thickness, and hence the possibility that coal "pillars" were encountered during drilling could not be discounted. It was recommended that further rotary probing be undertaken within the northern part of the site, in order to confirm whether unrecorded shallow mine workings are present, and to determine the need for ground stabilisation.

It was concluded that the possibility of localised unrecorded crop workings / bell pits and mine entries could not be discounted in the northern part of the site.

Soil and Groundwater Contamination:

Chemical testing determined the presence of elevated arsenic concentrations in 9 out of 14 samples of various types of made ground, along with elevated water-soluble sulphate concentrations (15 out of 21 samples) and acidic pH values (5 out of 21 samples). Elevated concentrations of genotoxic polycyclic aromatic hydrocarbons (PAHs) and naphthalene were encountered in one sample from the south-centre of the site, out of 14 tested. Testing of natural clay observed to have a hydrocarbon / phenolic odour did not find any elevated concentrations of hydrocarbons.

Combustibility testing determined all samples tested to be non-combustible.

Testing of groundwater determined the presence of generally low (locally moderately) elevated concentrations of a range of substances; however, no evidence of free-phase hydrocarbons was identified during the site investigation.

Ground Gas Risk Assessment:

A resultant ground gas risk assessment (ref. C8292/RC/9206) concluded that the site falls within Characteristic Situation 2 (CS2) and therefore ground gas protection measures would be required for the development.

Sirius Geoenvironmental Appraisal Report - Southern Area, Former Woolley Grange Colliery, Barnsley - Ref. C8292/GA/S - Dated August 2019

This report was prepared for a similar area as covered by the current southern site area, however the former red line boundary also included an area of woodland in the southeast which is excluded from the current site area. This previous report was also prepared for a proposed low rise residential development.

The exploratory investigation comprised the excavation of nine trial pits and the drilling of three cable percussion boreholes, seven windowless sampler boreholes and 19 rotary open hole boreholes. In addition, gas / groundwater monitoring wells were installed within selected boreholes. Site investigation locations were restricted by ecological constraints and dense vegetation. Some of the monitoring wells are still present and remain serviceable; where this is the case these are shown on the current Exploratory Hole Location Plans, presented in Appendix A to this report.

Ground Conditions:

Made ground was encountered across the whole site, ranging in thickness from 0.05m to 6m, being thickest adjacent to the western / south western site boundary and in the north of the site, and thinnest in the centre of the site. Predominant made ground types were gravels of mudstone and sandstone, with topsoil, clay and other gravel materials were also locally present.

Made ground was typically underlain by extremely weak to weak sandstone, with an intervening layer of natural clay (residual bedrock) locally present in the east and north.

Coal Seams / Mining:

Two coal seams were encountered, considered to be representative of Top Haigh Moor and Low Haigh Moor seams. The Top Haigh Moor Coal was encountered at depths of between 12m and 15m bgl and was typically recorded as between 0.2m and 1.5m thick (locally consisting of up to three leaves of coal, with combined thickness (including partings) of between 1.5m and 2.0m). The Low Haigh Moor Coal was recorded to be between 1.0m and 1.5m thick and was encountered at depths of between 21.6m and 24m bgl.

Evidence of mine workings / associated features was identified in the south eastern part of the site. The depth to the base of these features was between 14.4m and 16.5m bgl, generally corresponding with location of the recorded mine adit, and the conjectured depth of the Top Haigh Moor coal seam. No evidence of mine workings was encountered within the Low Haigh Moor coal seam, and it was considered that sufficient competent rock cover exists above the Low Haigh Moor coal seam to mitigate the risk to surface stability from potential mine workings within that seam.

It was considered that a risk to surface stability exists in the southeast of the site, and consolidation through drilling and pressure grouting would be required where development is proposed. Elsewhere, although no evidence of historical mining was recorded, it was recommended that further rotary probing be carried out to confirm the extent of the identified coal workings / adits, and better determine the risk from unrecorded mine workings site wide following vegetation clearance, when unrestricted access would be available.

Soil and Groundwater Contamination:

Chemical testing determined the presence of elevated arsenic concentrations in 5 out of 10 samples of various types of made ground, along with elevated water-soluble sulphate concentrations (6 out of 10 samples) and acidic pH values (5 out of 10 samples).

Combustibility testing determined all samples tested to be non-combustible.

In the absence of significant recoverable quantities of groundwater, soil leachate testing was carried out. The testing determined the presence of generally low (locally moderately) elevated concentrations of a range of substances, however, no evidence of free-phase hydrocarbons was identified during the site investigation.

Ground Gas Risk Assessment:

A resultant ground gas risk assessment (ref. C8292/RC/9211) concluded that the site falls within CS2 and therefore ground gas protection measures would be required for the development.

Sirius Geoenvironmental Appraisal Report - Former Woolley Colliery, Darton - Ref. C9744 - Dated June 2023

This report was prepared for a similar area as covered by the current site area, covering both the northern and southern site areas.

The site investigation comprised the excavation of 29 trial pits and the drilling of 2 cable percussion boreholes, 14 windowless sampler boreholes and 30 rotary open hole boreholes. In addition, gas / groundwater monitoring wells were installed within selected boreholes. Site investigation locations were restricted by ecological constraints and dense vegetation. Some of the monitoring wells are still present and remain serviceable; where this is the case these are shown on the current Exploratory Hole Location Plans, presented in Appendix A to this report.

Ground Conditions:

Ground conditions encountered were similar to those found previously, albeit the depths of made ground proven were slightly shallower.

In the far north of the northern site area, brick and concrete rubble was encountered, which prevented excavation beyond 2.4m bgl and 3.0m bgl in two separate trial pits. In another trial pit, a railway line was encountered at 2.1m bgl which required extension of the pit to allow further excavation.

Groundwater Levels:

Recorded groundwater levels at the site are generally restricted to natural strata, or within the base of the made ground. Groundwater levels recorded in the vicinity of the steep slope which forms the western boundary of the southern site area (as referenced within the slope stability assessment) were recorded at c. 71.5m AOD, or 7.5m bgl in that area.

Coal Seams / Mining:

Similar to previously, in the northern site area, coal (up to 4m thick) was encountered at shallow depth in the north, associated with the Barnsley Coal seam. Beneath the remainder of the northern area, three (unnamed) seams of coal of between c. 0.2m and 0.5m in thickness were encountered, underlying the Barnsley Coal. In the far northeast of the site, beyond the outcrop of the Barnsley Coal, rock was encountered overlying intact coal. However, in one location within that area made ground was encountered to 6.5m bgl, which also corresponds to the estimated base of the Barnsley Coal in that location. Subsequently, a trial pit was excavated in this area to investigate further. This encountered very dense brick / concrete rubble at 2.1m bgl. This could potentially indicate the presence of backfilled surface mine workings (further opencast), or alternatively a bell pit, mine entry or collapsed workings. Given this, it is considered that there is also the possibility of underground coal workings extending beyond the line of opencast / crop workings in this area.

In the southern site area, two seams of coal were encountered, separated by c. 9m, interpreted as representing the Top Haigh Moor Coal (encountered up to 1.2m in thickness) and Low Haigh Moor Coal (encountered up to 1.0m in thickness) at depths of between c. 13.2 and 18.4m bgl, and 22.6m and 26.8m bgl respectively.

Broken ground / voids were encountered in the east of the southern site area, considered to be associated with the former mine adit recorded in this location.

Soil and Groundwater Contamination:

Chemical testing determined the presence of elevated arsenic within one sample of made ground topsoil (from the north-centre of the northern site), within cohesive made ground (one sample from the west of the northern site) and granular made ground obtained from across the northern and southern site areas. In addition, elevated concentrations of benzo(a)pyrene and naphthalene and pH were observed within made ground obtained from both the northern and southern site areas. One sample of suspected asbestos-cement pipe obtained from adjacent to the entrance to the northern site was tested and confirmed to contain chrysotile and crocidolite asbestos. One sample of asphalt taken from the southern site area was found likely to contain a bitumen-based binding agent, rather than coal tar.

Combustibility testing determined all samples of made ground tested to be non-combustible, however it was noted that any in situ coal should be assumed to be potentially combustible.

Testing of groundwater samples determined exceedances of a number of metals, plus ammoniacal nitrogen. Although, based on the environmental sensitivity of the site and the recorded concentrations the risk to controlled waters was considered to be low.

Ground Gas Risk Assessment:

A resultant ground gas risk assessment (ref. C9744/AL/10253) concluded that the site falls within CS2 conditions and therefore ground gas protection measures would be required for the development.

Slope Stability:

An outline slope stability assessment undertaken on the southwestern boundary to the southern site area suggested that there may be the potential for slope instability, especially where made ground materials were present close to the slope crest and / or at steeper sections of the slope, due to anticipated surcharge from provision of gardens / roads. Any proposed site uplift within this area would increase the risk of instability further.

Soil Volume Change Potential:

It was concluded that cohesive soils should be considered to have 'medium' volume change potential.

3. Preliminary Risk Assessment

3.1 Preliminary Conceptual Site Model

Based on the desk study information, a combined preliminary conceptual site model (PCSM) has been developed for the proposed future land use (residential with gardens). This summarises the current understanding of surface and sub-surface features and the potential contaminant sources, transport pathways and receptors present to identify potential contaminant linkages.

A qualitative risk assessment has also been made of each identified contaminant linkage following the methodology described in Appendix C. The schematic and tabulated PCSM is included as Drawing No. C10128-03 in Appendix A.

Site construction / maintenance workers have not been considered in the PCSM on the basis that any risks to workers would be dealt with under the Health and Safety at Work Act (1974) and regulations made under the Act.

3.2 Potential Sources of Contamination

A review of the site's history, current condition and environmental setting has identified a number of potential contaminant sources for the site and surrounding area, as summarised in Table 3.1.

Table 3.1 - Contaminant Sources

Source	Potential Contaminants	Location
Made ground associated with former Colliery / infilled opencast excavations / railway lines.	Heavy metals, hydrocarbons (including PAHs), pH, sulphates, asbestos, combustibility, ground gases.	On site.
Shallow former mine workings.	Ground gases.	On site.
Offsite infilled opencast.	Ground gases	Off site (to northwest and east).

3.3 Potential Receptors and Exposure Pathways

The potential receptors and associated pathways that have been identified through this desk-based assessment are summarised in Table 3.2.

Table 3.2 - Contaminant Pathways

Receptor	Pathway
Future residents.	Dermal contact, direct and indirect ingestion and inhalation of dusts, vapours and asbestos fibres. Migration and accumulation of hazardous ground gases.
Adjacent land users (residents, workers).	Dermal contact, ingestion and inhalation of dusts, vapours and asbestos fibres. Migration and accumulation of hazardous ground gases.

Receptor	Pathway
Future property (buildings and buried services, including drinking water supply pipes).	Chemical attack of buried concrete. Chemical degradation of underground services including water supply pipes. Combustion of carbon rich soils
Controlled Waters (surface water – drainage ditch).	Lateral migration of leachable contaminants in shallow groundwater. Transport of contaminants via surface runoff.
Controlled Waters (Groundwater – Secondary 'A' Aquifer).	Vertical and lateral migration of contaminants in leachate moving beyond site boundary.

3.4 Potential Contaminant Linkage Risk Assessment

The above potential contaminant sources and pathways have been assessed to determine the likelihood of a linkage between the contaminant source and the receptor. The risk assessment is detailed in a table included with a schematic drawing of the PCSM (Drawing No. C10128/03) in Appendix A.

In summary, the PCSM has identified the following potential pollutant linkages which could result in an unacceptable risk to the proposed end-use, denoted as moderate or higher risk in the table included on Drawing C10128/03:

- Direct contact, ingestion and inhalation of dust / particles / vapours by future site users with heavy metals, hydrocarbons and PAH present in made ground. The risk has been assessed as Moderate.
- Leaching and migration of contamination from made ground to controlled waters (Secondary A Aquifer and drainage ditch) has been assessed to have a Low to Moderate risk.
- Direct contact of contaminated made ground with future construction materials (e.g. buried concrete) has been assessed as a Moderate risk.
- Plant uptake of phytotoxic contaminants is assessed as Low to Moderate risk.
- Hazardous ground gas migration and accumulation in buildings / confined spaces has been assessed to represent a High risk to residents of the site and adjacent land.
- Damage to proposed infrastructure from combustion of potentially combustible soils has been assessed as a Low to Moderate risk.

3.5 Assumptions and Data Gaps

In the production of the preliminary conceptual site model the following significant assumptions have been made:

- Historical use of the site may have resulted in contamination locally.

The following significant uncertainties with the model have been identified which cannot be ascertained from desk based information:

- The thickness and nature of superficial deposits / made ground, which could influence or create preferential gas flow pathways.
- The presence of unrecorded mine workings at shallow depth beneath the site, which may act as a source of ground gas.
- The presence of unrecorded mine entries, bell pits and fissures, etc., which could act as pathways for mines gases migration.

4. Fieldwork

4.1 Scope of Investigation

The information contained in this report is limited to areas of land accessible during the investigation within the site boundary. Exploratory hole location plans are presented as Drawing Nos. C10128/04A to /04D in Appendix A. All exploratory hole / sampling locations from the current investigation were surveyed using survey-grade GPS equipment.

The investigation, which was supervised by a Sirius Geoenvironmental Engineer, took place between 28th May and 3rd June 2024 and comprised:

- Excavation of 26 No. machine-excavated trial pits (TP301N to TP312N and TP301S to TP314S) to a maximum depth of 3.9m bgl;
- Drilling of 19 No. window sample boreholes (WS301N to WS311N and WS301S to WS308S) to a maximum depth of 9m bgl; and
- Drilling of 18 No. rotary openhole boreholes (RO301N to RO309N and RO301S to RO309S) to a maximum depth of 36.5m bgl.

Permanent monitoring installations for both groundwater and ground gas were installed into a combination of made ground and natural soils, in 4 No. window sample boreholes (WS301N, WS301S, WS302S, WS304S) and 1 No. rotary borehole (RO303S) and a programme of ground gas and groundwater level monitoring is ongoing. This programme also includes taking readings from wells in the following exploratory holes, installed by Sirius during previous ground investigation works at the site and which remain serviceable: CP01, CP02, CP03, CP04, CP05, CPS02, WS04, WS05, WS06, WS201, WS202, WS205, RO04, RO202, RO213 and RS2. Construction details of the monitoring wells installed are summarised within Tables 5.9 and 5.10 to this report.

Investigation could not be undertaken in various areas across the two sites due to the presence of ecological receptors (areas of protected trees / vegetation, invertebrates, and nesting birds). Access into some of these areas was however undertaken locally, under the supervision of a consultant ecologist. In addition, mounded / undulating ground in the southern site area restricted access, where present.

4.2 Exploratory Hole Locations

The exploratory hole locations were selected using the findings of the preliminary conceptual site model in order to achieve general site coverage, target specific areas of interest and resolve key uncertainties. The principles given in Ref 21, Appendix J were followed when determining exploratory hole locations.

Table 4.1 – Exploratory Hole Position Rationale

Exploratory Hole	Rationale
TP301N to TP304N, WS307N to WS310N and RO301N to RO304N	Excavated / drilled in the vicinity of the outcrop of the Barnsley Coal seam, in the north of the northern site area, to investigate the outcrop location, seam thickness, potential workings, etc.
WS301N and WS302N	To investigate areas of deeper made ground.
RO301S	Rotary borehole drilled in the vicinity of the mine adit in the southern site area.
WS302S, WS303S, RO304S and RO305S	Window sample and rotary boreholes drilled at the crest of the slope forming the southwestern boundary of the southern site area to investigate strata profile, to inform slope stability analysis.

Exploratory Hole	Rationale
Remaining trial pits / window sample boreholes	General coverage.
Remaining rotary boreholes	Rotary boreholes drilled across the site to investigate depth to rock head and to establish coal seam geometry and establish presence / absence of shallow mine workings.

4.3 Strata Description

Strata descriptions were logged in accordance with Ref 4, Ref 5 and Ref 6, Appendix J. Detailed descriptions of strata and groundwater observations made during investigation works, together with samples recovered and the results of all in situ field testing, are presented on the Engineer's records in Appendix D. The depths of strata on the record sheets are recorded from current ground levels at each location, unless indicated otherwise.

4.4 Geotechnical Testing

Geotechnical laboratory testing on selected samples was carried out under subcontract by The Testing Lab, a UKAS-accredited laboratory.

Geotechnical test results are included within Appendix E of this report.

4.5 Chemical Testing

Selected samples of the made ground, natural soils and groundwater were tested for a range of potential contaminants under subcontract Eurofins Chemtest, a UKAS accredited laboratory, with MCERTS accredited analysis methods used where available.

The potential contaminants of concern identified by the preliminary risk assessment and outlined in Section 6 were selected as the analytes for the samples recovered from the site.

In addition, a sample of asphalt surfacing taken from the southern site area was tested for PAHs, to determine the likely nature of the binding agent used (i.e. bitumen or coal tar).

The results of the chemical analysis, as received from the laboratory, are presented in Appendix F of this report.

5. Ground Conditions

5.1 Ground Model Summary

The following information is based on the records of exploratory holes completed as part of this investigation. Descriptions and strata depths for made ground and superficial deposits are derived from trial pits and window sample boreholes. The method of drilling of rotary openhole boreholes does not allow detailed descriptions of superficial strata nor accurate recording of the depths of bands of unconsolidated materials. Any such information regarding superficial strata derived from rotary boreholes presented below or on the exploratory hole logs should be viewed as indicative only.

Table 5.1 – Ground Model Summary

Stratum	Depth Range (m bgl) (Thickness Range m)	Description
Made Ground		
Topsoil (Made Ground)	From surface (0.1 - 0.4)	No natural topsoil encountered. Locally a thin layer of made ground topsoil was present at surface, comprising friable clay with gravel of sandstone, mudstone, brick, etc.
Asphalt	From surface (0.1)	Present at the surface in the eastern end of the southern site area.
Concrete	From surface – 1.2 (0.1 - 0.38)	Present at surface locally within the northern site area, extending beneath made ground within the southwest of that area, with further made ground present below the concrete. In the southern site area, present at surface, or below asphalt layer, in the eastern end.
Made Ground	From surface (0.6 – 8.5)	Present beneath surfacing materials across the whole of the site. <u>Northern site area:</u> Made ground was proven to depths of between 0.6m and 8.5m bgl, with the thickest material being present adjacent to the western boundary (although proven to c. 9.4m bgl during previous ground investigation), and with up to 5.5m of made ground present in the far north of the site, considered likely to represent backfill to opencast extraction of the Barnsley Coal seam. The made ground was mostly granular, comprising gravel of mudstone, sandstone, coal, ash, brick, and locally slag. Locally including fragments of wood and metal. Locally the granular made ground was recorded to be black with a significant proportion of gravel sized fragments of ash and coal. Where cohesive made ground was present, this generally comprised slightly sandy gravelly clay, with gravel of sandstone, mudstone, coal, brick, concrete, etc. As noted above, in the southwest of the northern site area, shallow made ground was underlain by an intact concrete slab, with further made ground present to a depth of c. 2m bgl.

Stratum	Depth Range (m bgl) (Thickness Range m)	Description
		Boulders of sandstone and concrete were locally present within the northern area's made ground, leading to slow excavation through that material. <u>Southern site area:</u> Across the southern site area, made ground was generally relatively thin across the east (c. 1m) increasing to c. 3m towards the west, with a maximum recorded thickness of c. 4.8m adjacent to the south-western boundary (previously up to c. 6m recorded locally). Much of the made ground was granular in nature, comprising gravel of mudstone, sandstone, coal, ash, slag, brick, etc. In the eastern end of this site area, red coloured gravel of mudstone was present. Where cohesive made ground was present, this generally comprised slightly sandy slightly gravelly clay, with gravel of sandstone, mudstone, coal, brick, etc.
Natural Superficial Deposits		
Cohesive Alluvium	1.6 - 2.5 (1.1 - 1.45)	<u>Northern site area only:</u> Soft to firm, low to medium strength clay (considered to represent alluvium associated with the former watercourse) was recorded locally within the northern site area (TP311N and WS311N).
Weathering Profile and Solid Geology		
Residual Soils	0.4 - 8.5 (0.15 - 1.5)	Natural soils present beneath the made ground, and overlying competent bedrock, mostly comprised firm to stiff, medium to high strength slightly sandy gravelly clay, with gravel predominantly comprising sandstone, mudstone and coal. These soils are mostly considered to represent in situ fully weathered Coal Measures mudstone.
Competent Bedrock	1.4 – 9.0 (North) 0.3 - 4.85 (South) (Not Proven)	<u>Bedrock - Northern site area:</u> Competent bedrock comprising mudstone, sandstone and coal was encountered at depths typically ranging between 1.4m and 5.3m bgl within the northern site area, with the exception of the western area where competent bedrock was encountered between 6.5m and 9.0m bgl. <u>Bedrock - Southern site area:</u> Within the southern area, competent bedrock mostly comprised sandstone near surface, and was encountered from depths ranging between ground level and c. 2.2m bgl within the eastern and northern parts of the southern site area, and becoming deeper towards the west where the competent bedrock was encountered between 2.7m and 4.85m bgl.

Stratum	Depth Range (m bgl) (Thickness Range m)	Description
Coal	4.3 - 28.4 (0.1 - 2.0)	For a detailed discussion of the coal seam geometry beneath the site, see Section 5.4, below. Northern site area: Thick coal was encountered at shallow depth in the north, associated with the Barnsley Coal seam (Previously, up to 4m of coal was encountered in this area). Beneath the remainder of the northern area, up to five (unnamed) seams of coal of between c. 0.1m and 0.5m in thickness (locally 1.0m in RO305N) were encountered, underlying the Barnsley Coal. Southern site area: Two seams of coal were encountered, separated by c. 9m, interpreted as representing the Top Haigh Moor Coal (encountered up to 2.0m in thickness, with two leaves separated by a 0.3m mudstone parting) and Low Haigh Moor Coal (encountered up to 1.0m in thickness).

5.2 Material Properties

5.2.1 Topsoil

Owing to the shallow nature of topsoil, and its assumed inherent unsuitability for use as an engineering material, no geotechnical testing has been carried out on this stratum.

5.2.2 Made Ground

Granular Made Ground

The results of in situ standard penetration tests (SPTs) and laboratory testing undertaken on granular deposits are summarised in Table 5.2 and Figure 5.1, below.

Table 5.2 - Strata Summary - Granular Made Ground

Test / Parameter	No. of Tests	Range of Results		Commentary		
In Situ Tests						
SPT N60 Values[A]		Min.	Max.	Median	Mean	Relative Density
1m bgl	8	6	13	9	9	Loose to Medium dense
2m bgl	7	2	9	6	6	Very loose to Loose
3m bgl	4	5	10	6	7	Loose
Over 3m bgl	10	3	18	10	10	Very loose to Medium dense
Laboratory Tests						
		Min.	Max.			
CBR (%) (Laboratory Remoulded)	2	12	21			
		Individual PSD test results		Indicative Description*		
Particle Size Distribution (wet sieve method)	3	0% Cobbles 35% Gravel 36% Sand 29% Silt/Clay		Made Ground: Clayey silty SAND & GRAVEL.		
		0% Cobbles 33% Gravel 33% Sand 34% Silt/Clay		Made Ground: Clayey silty SAND & GRAVEL.		
		0% Cobbles 56% Gravel 25% Sand 20% Silt/Clay		Made Ground: Clayey silty very sandy GRAVEL.		

[A]N60 calculation: N Value x Energy Ratio (%) x Rod Length Factor λ / 60. Value given to nearest whole number. Shear strength calculated using unrounded N60 value. The SPT Hammer Energy Test Report for the hammer used is enclosed within Appendix D.
*Indicative description from PSD results based on soil proportion ranges in BS5930:2015 and engineering judgement.

Granular Made Ground (Graphical Summary)

Figure 5.1, below summarises the in situ data for granular made ground soils within the site.

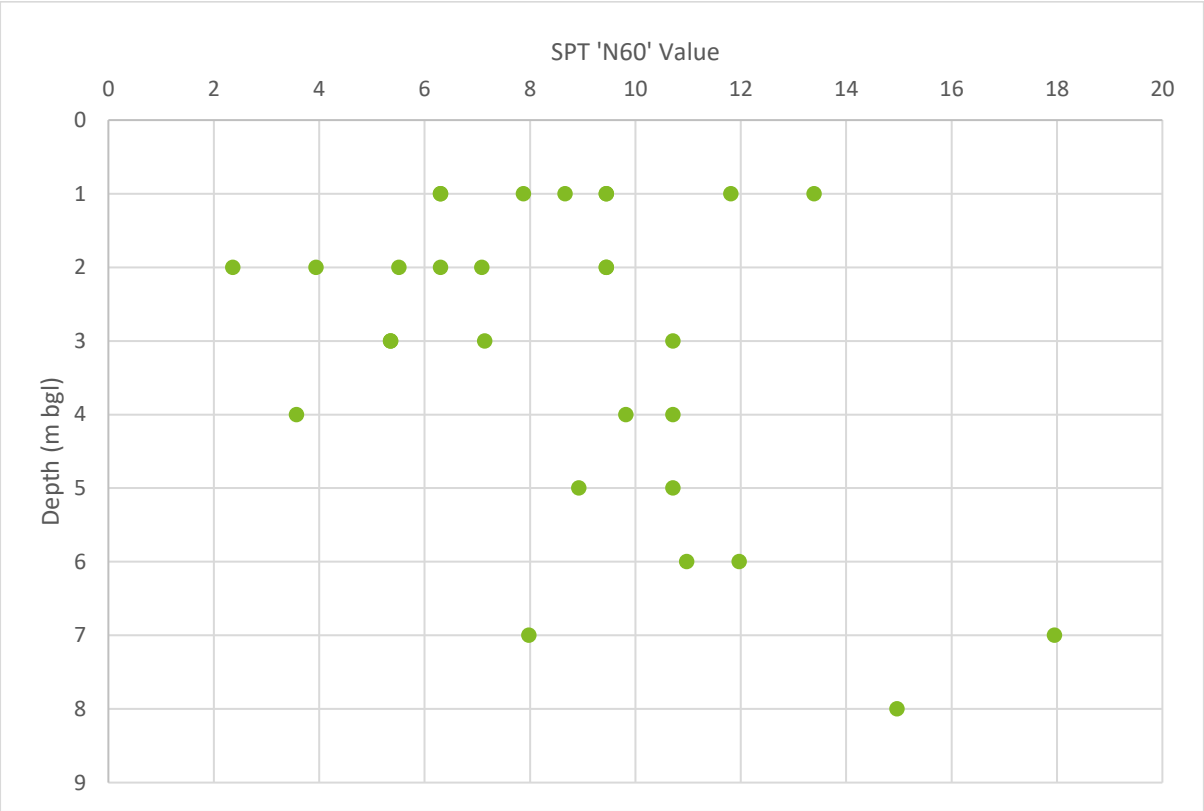

Figure 5.1 SPT 'N60' Value with Depth - Granular Made Ground

Cohesive Made Ground

The results of in situ SPTs are summarised in Table 5.3, along with a summary of hand shear vane values and laboratory testing. Correlation with laboratory plasticity indices enables a factor (f1) to be derived (Ref. 29, Appendix J), allowing undrained shear strength to be calculated as the product of f1 and SPT N values. In this instance, an average plasticity index of 15% is determined for the cohesive superficial deposits, leading to an f1 value of 6.5. Indicative mass shear strengths are given in Table 5.3. It should be recognised, however, that in accordance with Eurocode 7, the use of SPTs has a low applicability for assessing undrained shear strength within cohesive soils. In view of this, the results of the SPTs should be considered only tentatively and, typically, greater emphasis is given to the results of hand shear vane test results.

Table 5.3 - Strata Summary – Cohesive Made Ground

Test / Parameter	No. of Tests	Range of Results				Commentary	
In Situ Tests							
SPT N60 Values[A]		Min.	Max.	Median	Mean	Indicative undrained shear strength (kPa)	
1m bgl	4	4	12	5	7	31 - 77	Low to high strength
2m bgl	1	7	-	-	-	46	Medium strength
Hand Shear Vane Results, kPa		Min.	Max.	Median	Mean	Characteristic undrained shear strength (kPa)	
0 – 1m bgl	3	50	62	56	58	55	Medium strength
1.01 – 2m bgl	1	66	-	-	-	66	Medium strength
Laboratory Tests							
		Min.		Max.			
Natural Moisture Content (NMC) (%)	3	14		25			
Liquid Limit (%)	3	33		37			
Plastic Limit (%)	3	20		22			
Plasticity Index (PI) (%)	3	13		16		Calculation of the modified PI, in accordance with NHBC Standards, indicates these soils to have a low volume change potential, or to be non-shrinkable.	
Consistency Index (Ic)	3	0.62		1.5		The Ic values for the samples tested indicate the material to be of firm to very stiff consistency.	
CBR (%) (Laboratory Remoulded)	1	2.7%				Test undertaken on a bulk sample of cohesive made ground.	
		Individual PSD test results				Indicative Description*	

Test / Parameter	No. of Tests	Range of Results	Commentary
Particle Size Distribution (wet sieve method)	1	0% Cobbles 28% Gravel 14% Sand 58% Silt/Clay	Made Ground: Silty sandy very gravelly CLAY.

[A]N60 calculation: N Value x Energy Ratio (%) x Rod Length Factor λ / 60. Value given to nearest whole number. Shear strength calculated using unrounded N60 value. The SPT Hammer Energy Test Report for the hammer used is enclosed within Appendix D.
*Indicative description from PSD results based on soil proportion ranges in BS5930:2015 and engineering judgement.

Cohesive Made Ground (Graphical Summary)

Figures 5.2 and 5.3 below summarise the in situ data and laboratory testing for cohesive made ground soils within the site.

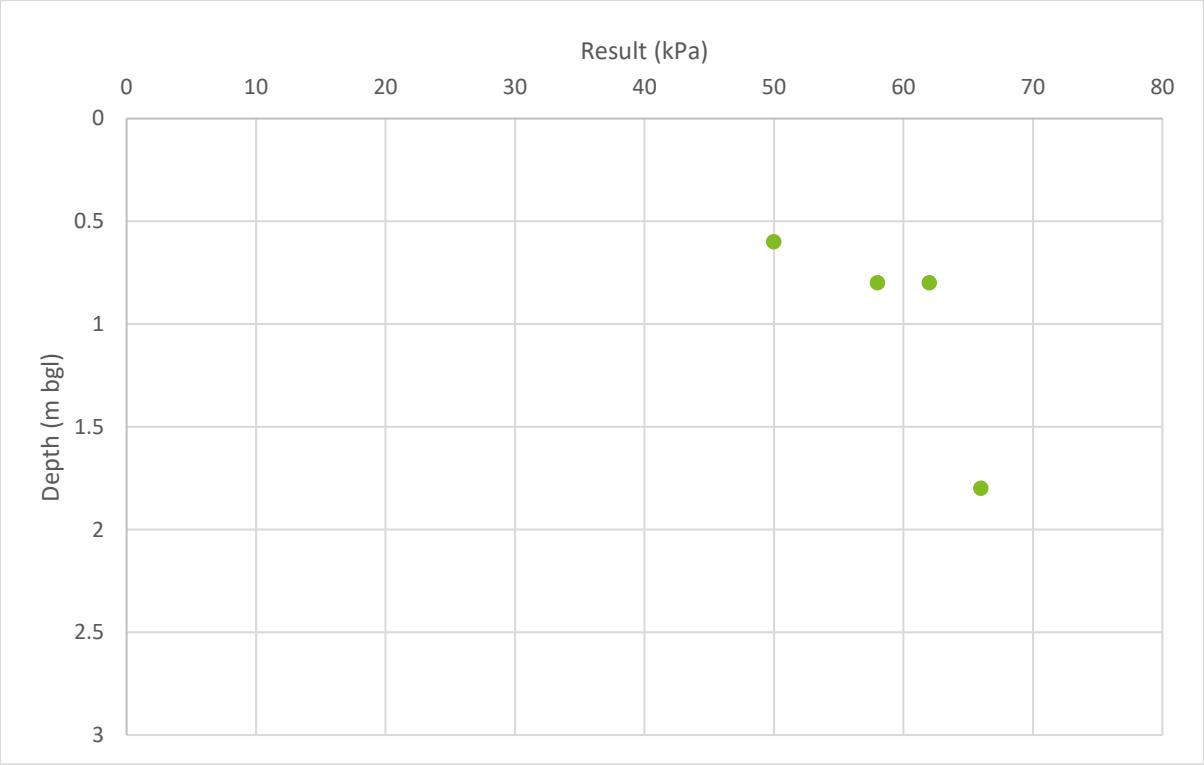

Figure 5.2 Plot of HSV Results with Depth - Cohesive Made Ground Soils

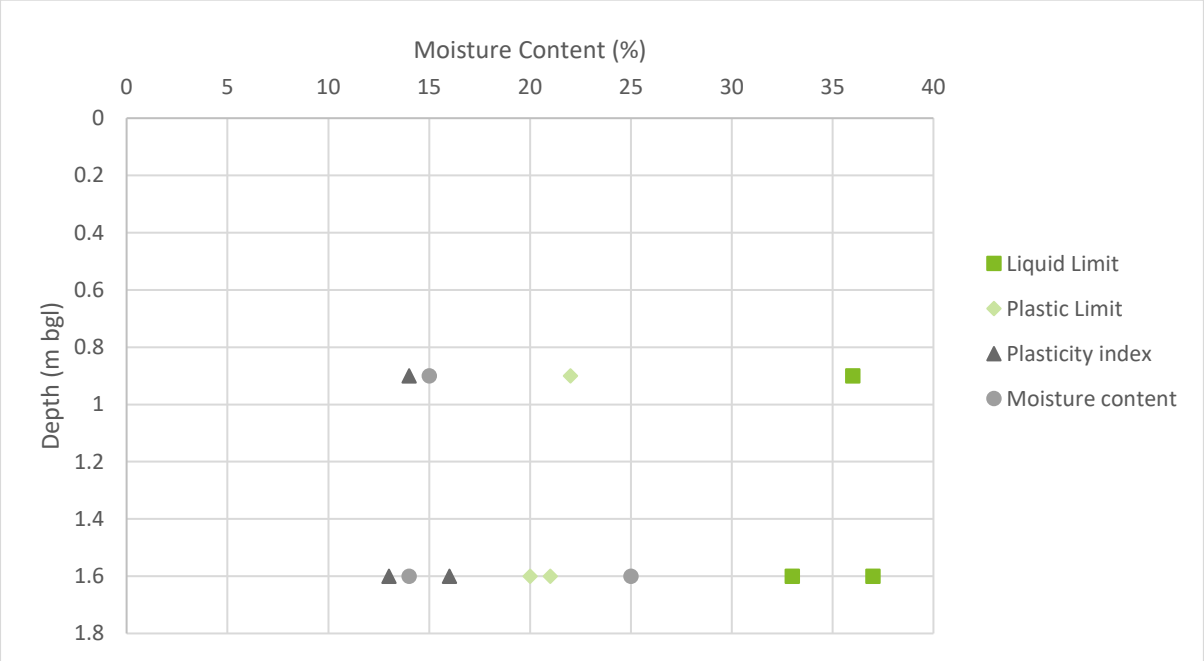

Figure 5.3 Atterberg Limit Results - Cohesive made ground soils

5.2.3 Natural Soils

Cohesive Alluvium and Cohesive Residual Strata

The results of in situ SPTs within natural cohesive soils are summarised in Table 5.4, along with a summary of hand shear vane values and laboratory testing. In this instance, an average plasticity index of 15% is determined for the cohesive alluvial and residual strata, leading to an f1 value of 6.5. Indicative mass shear strengths are given in Table 5.4.

Table 5.4 - Strata Summary – Natural Cohesive Strata

Test / Parameter	No. of Tests	Range of Results				Commentary	
In Situ Tests							
SPT N60 Values (Alluvium)[A]		Min.	Max.	Median	Mean	Indicative undrained shear strength (kPa)	
1m bgl	0	-	-	-	-	-	
2m bgl	0	-	-	-	-	-	
3m bgl	1	3	-	-	-	23	Low
Over 3m bgl	0	-	-	-	-	-	
SPT N60 Values (Residual)[A]		Min.	Max.	Median	Mean	Indicative characteristic undrained shear strength (kPa)	
1m bgl	3	8	22	11	13	51 - 143	Medium to high
2m bgl	3	7	17	8	11	46 - 113	Medium to high

Test / Parameter	No. of Tests	Range of Results				Commentary	
3m bgl	4	8	22	12	13	52 - 145	Medium to high
Over 3m bgl	3	12	41	18	24	81 - 267	High to very high
Hand Shear Vane Results (Alluvium), kPa		Min.	Max.	Median	Mean	Characteristic undrained shear strength (kPa)	
0 – 1m bgl	0	-	-	-	-	-	
1.01 – 2m bgl	3	32	42	38	37	37	Low
2.01 – 3m bgl	0	-	-	-	-	-	
Over 3m bgl	1	28	-	-	-	28	Low
Hand Shear Vane Results (Residual), kPa		Min.	Max.	Median	Mean	Characteristic undrained shear strength (kPa)	
0 – 1m bgl	6	80	98	88	88	85	High strength
1.01 – 2m bgl	8	74	94	84	84	80	High strength
2.01 – 3m bgl	12	48	94	76	73	75	Medium to High strength
Over 3m bgl	10	38	94	85	82	75	High strength
Laboratory Tests							
		Min.		Max.			
Natural Moisture Content (NMC) (%)	2 (alluvium) 7 (residual)	25 12		27 23			
Liquid Limit (%)	2 (alluvium) 7 (residual)	37 27		40 43			
Plastic Limit (%)	2 (alluvium) 7 (residual)	23 19		25 27			
Plasticity Index (PI) (%)	2 (alluvium) 7 (residual)	14 8		15 17		Calculation of the modified PI, in accordance with NHBC standards, indicates these soils to have a low volume change potential, or to be non-shrinkable.	
Consistency Index (Ic)	2 (alluvium) 7 (residual)	0.71 0.91		1.0 1.71		The Ic values for the samples tested indicate the alluvium to be of firm and stiff consistency, and the	

Test / Parameter	No. of Tests	Range of Results	Commentary
			residual soils to be of stiff to very stiff consistency.
CBR (%) (Laboratory Remoulded)	1	2.1 - 2.6%	Test undertaken on bulk sample of cohesive residual clay.

[A]N60 calculation: N Value x Energy Ratio (%) x Rod Length Factor λ / 60. Value given to nearest whole number. Shear strength calculated using unrounded N60 value. The SPT Hammer Energy Test Report for the hammer used is enclosed within Appendix D.

Cohesive Natural Deposits (Graphical Summary)

Figures 5.4 and 5.5 below summarise the in situ data and laboratory testing for cohesive soils within the site.

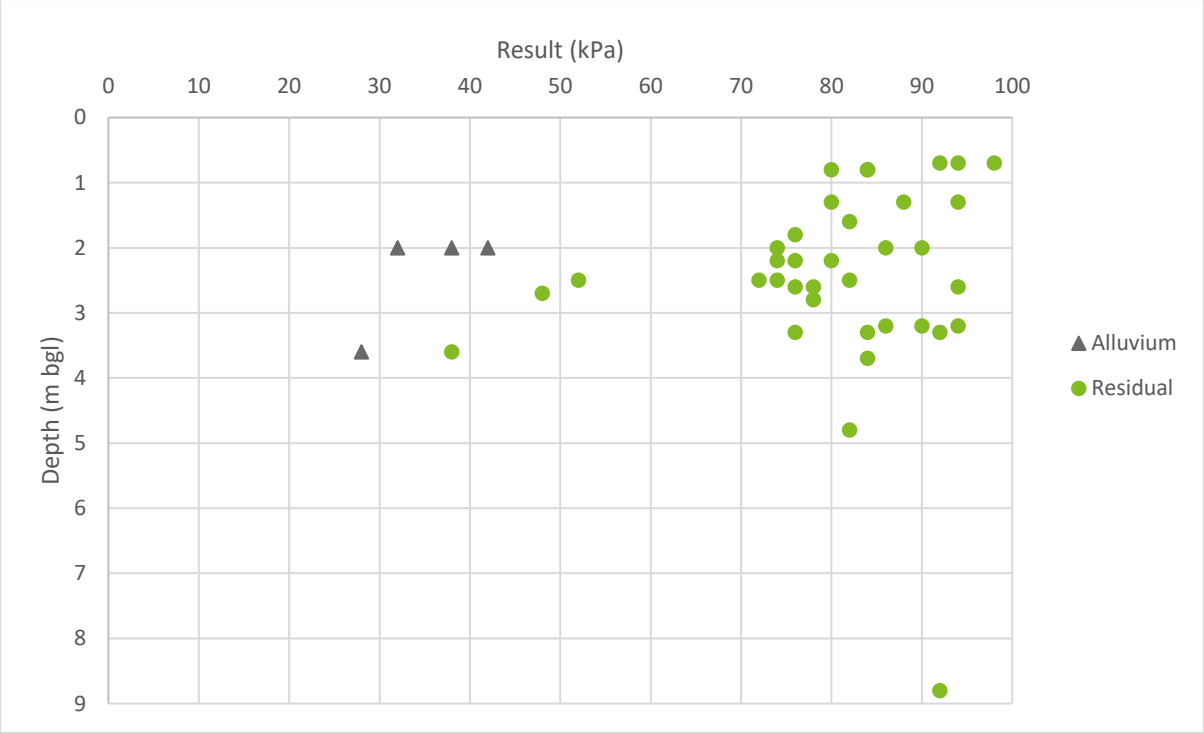

Figure 5.4 Plot of HSV with Depth - Natural cohesive strata

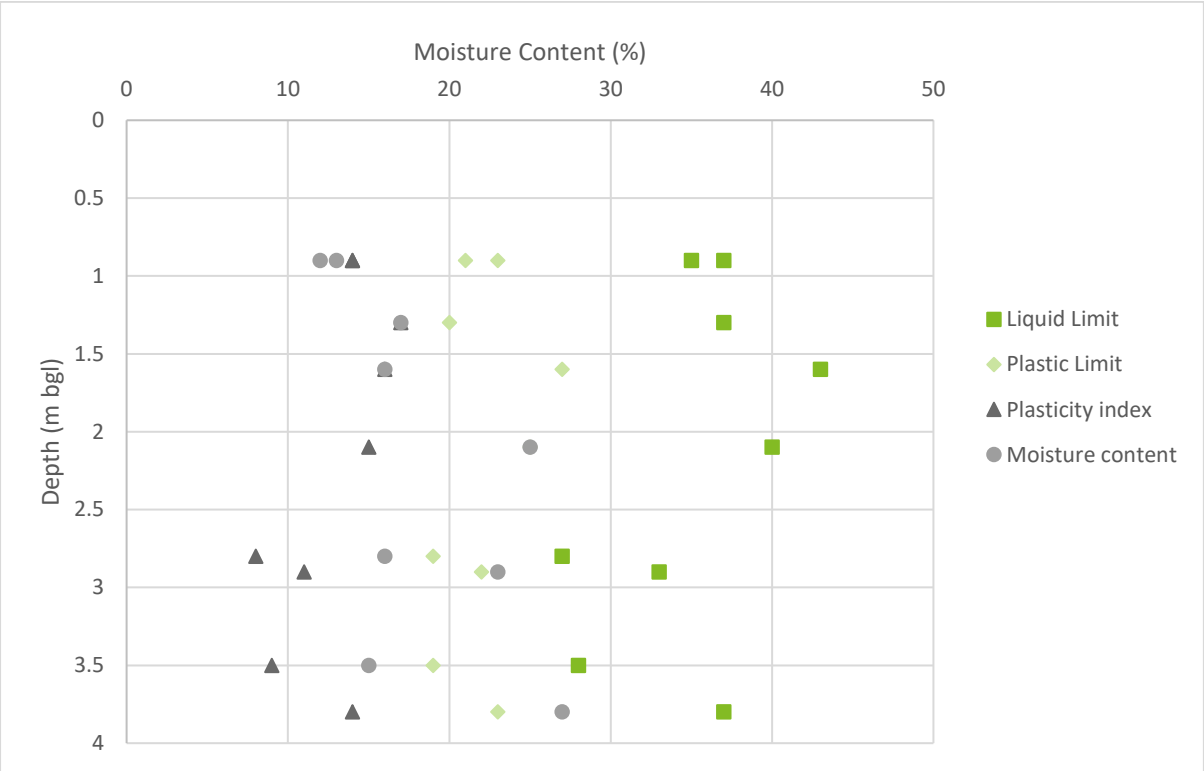

Figure 5.5 Atterberg Limit Results - Natural cohesive strata

5.2.4 Solid Geology

The results of 20 SPTs carried out within sandstone bedrock returned values of N = 17 to N >50 (N60 = 13 to N60 >50). An assessment of those SPTs which were terminated at 50 blows shows that, for the penetration achieved for 50 blows, indicative rock strengths of between 0.52 MPa and 0.88 MPa were derived, equivalent to extremely weak rock.

One SPT carried out within coal, from WS308N at 5m bgl, returned a value of N = 14 (N60 = 12).

5.2.5 Geochemical Analysis

The results of water-soluble sulphate (SO4) and pH analyses performed on soil samples are presented in Table 5.5, below, along with the Design Sulphate Class and ACEC Class for buried concrete structures in contact with the referenced strata in accordance with BRE (Ref. 14 in Appendix J) based on the samples tested.

It should be noted that higher classifications were previously obtained for some of the soil types shown below. Recommended Design Sulphate Classes and ACEC Classes based on all investigations are given in Section 7.1.9 to this report.

Table 5.5 - Water-Soluble Sulphate and pH Analysis Results

Soil Type	No. of Tests	Range of Results (Characteristic Value)		Concrete Classification*	
		Water Soluble Sulphate (mg/l)	pH	Design Sulphate Class	ACEC Class
Granular Made Ground	18	<10 - 1,700 (1,625)	<4 - 8.0 (>4.0)	DS-4	AC-5**
Red Mudstone Made Ground	5	<10 - 1,600 (1,600)	5.7 - 8.0 (5.7)	DS-4	AC-5**
Cohesive Made Ground	2	18 - 50 (50)	6.8 - 8.1 (6.8)	DS-1	AC-1
Cohesive Natural Strata (Residual Clay)	3	360 - 1,500 (1,500)	5.4 - 8.2 (5.4)	DS-2	AC-4z

*Mobile groundwater for brownfield locations, including an assessment of the characteristic values of pH and SO4 as outlined in BRE SD1.
**Classification increased due to likely presence of pyrite.

5.3 Earthworks

Table 5.6 below summarises the earthworks parameters for the laboratory testing undertaken on samples of cohesive and granular made ground soils within the site.

Table 5.6 – Earthworks Parameters

Sample Location	Depth (m)	Highways England MCHW Earthworks Class	Optimum Moisture Content (%)	Maximum Dry Density (Mg/m^3)	Moisture Content (%)	Suitable Moisture Content Range (%)		Comments
MADE GROUND: Clay								
TP306N	0.4	2C	13	1.88	16	13	17	Within optimal range.
MADE GROUND: Gravel								
TP307S	0.3	2C*	15	1.27	15	13.5	18	Within optimal range.
TP308N	0.5	2C*	13	1.54	16	13	18.5	Within optimal range.
TP311S	0.6	2C*	10	1.69	9.7	8	13.5	Within optimal range.

*Material classified as granular in accordance with BS5930 (ref. 8), but as stony cohesive fill in accordance with the Specification for Highway Works (ref. 18).

5.4 Mine Workings

5.4.1 Shallow Mine Workings

A programme of rotary drilling was undertaken to investigate the presence of shallow mine workings and / or confirm the presence, depth of shallow coal seams beneath the site. The findings are summarised in Table 5.7. All depths are given as metres below ground level at the time of the investigation. Adopted thicknesses of the seams are based on ground investigation and desk study data for the relevant seams: the Barnsley Coal and thin coal seams are based on ground investigation data from the site, from this and previous investigations; the Top and Low Haigh Moor seam thicknesses are based on the intact (extractable) seam thicknesses shown on the abandonment plans for these seams, where worked in the nearby North Gawber Colliery (ref. M in Table 1.1, and included within Appendix B-1), as these are considered the most representative data.

Table 5.7 - Shallow Mine Workings Investigation

BH ID	Depth to Rockhead (m) [Elevation (m AOD)]	Depth to Base of Coal Seam / Workings [Elevation (m AOD)]	Coal Seam / Workings Thickness (m)	Adopted Site Thickness of Seam	Rock Cover Ratio per Borehole using Adopted Thickness of Seam*	Description and Interpreted Seam Name
Northern Site Area						
RO301N	5.0 [74.64]	No coal encountered	n/a	n/a	n/a	No coal or workings recorded to 36m bgl, 43.64m AOD.
RO302N	4.0 [73.08]	17.80 [59.28]	0.3	0.3	1:45	Intact Coal Thin seam no. 2
RO303N	5.5 [75.83]	6.50 [74.83]	1.0	3.0	**1:0.7**	Intact Coal Barnsley seam
		14.80 [66.53]	0.8	0.8	1:10.6	Intact Coal Thin seam no. 1
RO304N	2.0 [76.42]	No coal encountered	n/a	n/a	n/a	No coal or workings recorded to 32m bgl, 46.42m AOD.
RO305N	5.3 [73.31]	6.50 [72.11]	0.2	0.8	**1:0.5**	Intact Coal Thin seam no. 1
		28.50 [50.11]	1.0	1.0	1:22	Intact Coal Thin seam no. 4
RO306N	6.5 [77.86]	15.30 [69.06]	0.3	0.3	1:28	Intact Coal Thin seam no. 2
		17.60 [66.76]	0.1	0.3	1:36	Intact Coal Thin seam no. 3
		23.70 [60.66]	0.3	1.0	1:16	Intact Coal Thin seam no. 4
RO307N	2.3 [82.24]	12.40 [72.14]	0.3	0.3	1:33	Intact Coal Thin seam no. 2

BH ID	Depth to Rockhead (m) [Elevation (m AOD)]	Depth to Base of Coal Seam / Workings [Elevation (m AOD)]	Coal Seam / Workings Thickness (m)	Adopted Site Thickness of Seam	Rock Cover Ratio per Borehole using Adopted Thickness of Seam*	Description and Interpreted Seam Name
		15.10 [69.44]	0.2	0.3	1:41	Intact Coal Thin seam no. 3
		21.00 [63.54]	0.3	1.0	1:17	Intact Coal Thin seam no. 4
		28.80 [55.74]	0.4	0.5	1:52	Intact Coal Thin seam no. 5
RO308N	2.8 [82.33]	11.20 [73.93]	0.2	0.3	1:27	Intact Coal Thin seam no. 2
		13.80 [71.33]	0.3	0.3	1:35	Intact Coal Thin seam no. 3
		20.30 [64.83]	0.3	1.0	1:16	Intact Coal Thin seam no. 4
		27.70 [57.43]	0.5	0.5	1:49	Intact Coal Thin seam no. 5
RO309N	5.2 [74.74]	No coal encountered	n/a	n/a	n/a	No coal or workings recorded to 36m bgl, 43.94m AOD.
WS308N	5.0 [74.54]	5.0 [73.84]	1.0	3.0	NA	Intact Coal Barnsley seam
Southern Site Area						
RO301S	0.0 [79.92]	12.00 [67.92]	2.0	2.0	**1:5**	Broken Ground (adit) Top Haigh Moor
RO302S	1.0 [78.76]	15.20 [64.56]	1.0**	1.0	1:13	Intact Coal Top Haigh Moor
		24.20 [55.56]	0.7	0.7	1:32	Intact Coal Low Haigh Moor
RO303S	0.3 [79.12]	17.80 [61.62]	1.3**	1.0	1:16	Intact Coal Top Haigh Moor
RO304S	3.0 [78.09]	No coal encountered - drilled to 12m for slope assessment	n/a	n/a	n/a	No coal or workings recorded to 12m bgl, 69.09m AOD.
RO305S	4.8 [76.06]	No coal encountered - drilled to 12m	n/a	n/a	n/a	No coal or workings recorded to 12m bgl, 68.86m AOD.

BH ID	Depth to Rockhead (m) [Elevation (m AOD)]	Depth to Base of Coal Seam / Workings [Elevation (m AOD)]	Coal Seam / Workings Thickness (m)	Adopted Site Thickness of Seam	Rock Cover Ratio per Borehole using Adopted Thickness of Seam*	Description and Interpreted Seam Name
		for slope assessment				
RO306S	2.4 [77.36]	17.00 [62.76]	2.0**	1.0	1:13	Intact Coal Top Haigh Moor
		26.40 [53.36]	0.9	0.7	1:33	Intact Coal Low Haigh Moor
RO307S	3.0 [75.46]	14.50 [63.69]	1.5**	1.0	1:10.5	Intact Coal Top Haigh Moor
		23.50 [54.96]	1.0	0.7	1:28	Intact Coal Low Haigh Moor
RO308S	3.2 [74.20]	14.80 [62.60]	1.3**	1.0	1:10.6	Intact Coal Top Haigh Moor
		23.20 [54.20]	0.4	0.7	1:27	Intact Coal Low Haigh Moor
RO309S	3.0 [74.72]	16.00 [61.72]	1.0	1.0	1:12	Intact Coal Top Haigh Moor
		25.20 [52.52]	0.7	0.7	1:30	Intact Coal Low Haigh Moor

* Ratio does not take account of the interaction of multiple worked seams.
** Including parting of mudstone.

From the above table, it can be seen that, based on the adopted site thicknesses of the seams encountered, all of the locations recorded a rock cover of greater than 10 times the adopted seam thicknesses, except where the recorded adit was encountered beneath the southern site area (see Drawing No. C10128/04D for approximate location of the adit), and where deep made ground (i.e. deeper rock head) was present in the north of the northern site area. It should however be noted that, where deeper made ground was present in the southwest of the southern site, the greater depth to bedrock in this area would reduce the depth of competent rock cover in that area, therefore an area adjacent to the steep slope in this site area would also be expected to have a ratio of rock cover to adopted seam thickness of <1:10. Previous investigation also encountered a localised area of broken ground was encountered at the same depth as the adit, a short distance to the northwest. Adjacent probeholes did not encounter any further evidence that this extended further south, west or north, and is considered most likely to represent a short spur off the adit.

Within the southern site area, a number of rotary boreholes were noted to encounter areas of fractured rock, with drilling flush being partially lost at those depths in five of these. An assessment of the main zones of fractured rock shows that these were not located at depths at which coal / mine workings would be expected to be present, and it is therefore concluded that these zones represent zones of more brittle sandstone within the sequence of strata, as opposed to unrecorded shallow mine workings.

Data obtained from the exploratory holes which encountered the Barnsley, Top Haigh Moor and Low Haigh Moor coals was assessed in order to determine the dip direction and magnitude of the coal seams. This was determined to be c. 6 - 7°, towards the northeast.

Assessment of the coal seam geometry in relation to the ground surface indicates that the outcrop of the Top Haigh Moor seam is likely to lie close to the base of the slope adjacent to the southern site area's southwestern boundary, with the Low Haigh Moor being further southwest, beyond the railway.

The outcrop of the Barnsley seam (i.e. the natural outcrop, prior to any coal extraction) was determined to be across the northern part of the northern site area, although slightly further south than that shown on BGS mapping and being closer to the outcrop indicated on CA mapping. It should be noted that coal will not necessarily be encountered as far southwest as this original outcrop location any more, due to historical crop working of shallow coal in this area. As noted above, deep made ground was encountered in the vicinity of the Barnsley Coal seam outcrop, which corresponds to the projected former base of the coal, indicative of backfilling to historical crop workings.

As also noted in Section 2.8, previous site investigation identified potential evidence for the presence of backfilled collapsed unrecorded shallow underground coal workings in the far northeast of the site, associated with the Barnsley seam.

Geological cross sections illustrating the coal seam geometry are included as Drawing Nos. C10128/06 and C10128/07 in Appendix A.

A coal mining risk assessment has been carried out based on the above data and is presented in Section 7.1.1, below.

5.4.2 Recorded Mine Adit

Investigation was undertaken to determine the location of the CA recorded mine adit within the site boundary. This comprised rotary drilling, records of which are in Appendix D.

The findings of the investigation are shown on Drawing No. C10128/04D in Appendix A, which indicates the presence of the adit in the far southeast of the southern site area. A summary of the findings from the boreholes is included in Table 5.7, above, which shows that broken ground of up to 2m in thickness, was present at a proven depth of between c. 10m to 12m bgl.

Previous targeted site investigation for the recorded mine adit broken ground and voids were encountered from between c. 13m to 15m bgl, deepening towards the northeast. In addition, an apparently localised area of broken ground was encountered at the same depth as the adit, a short distance to the northwest. Adjacent probeholes did not encounter any further evidence that this extended further south, west or north, and is considered most likely to represent a short spur off the adit.

5.4.3 Opencast Mining

As noted in Section 2.5, an area of unlicensed opencast mining is recorded by the CA, associated with the Barnsley Coal in the far north of the site. The recorded extents of this opencast are included on Drawing No. C10128/04.

Previous investigation by Sirius encountered deep made ground (>3.7m deep) in this area, and during this investigation RO303N encountered 5.5m of made ground with a partial coal seam at its base, which is considered likely to represent material backfilling the former opencast. Deep made ground was also encountered outside of the recorded opencast boundary. From the previous investigation works, in several exploratory holes, the base of the made ground corresponds with the likely former base of the Barnsley seam, as interpreted from those exploratory holes in which coal was encountered. This suggests that the former opencast coal extraction extends beyond the shown recorded limits.

Furthermore, areas of made ground, deeper than the expected depth of the Barnsley Coal, were encountered in this area, for example within RO305N, where 5.3m of made ground was observed. This suggests that excavation / infilling has occurred in this area which may not have been just for coal extraction (for example extraction of fireclay).

It should be noted that no 'highwall' to opencast excavations has been encountered during these works. Further trial trenching may be required to identify the presence of such features with reference to the locations of proposed new structures.

5.5 Obstructions

Concrete slabs were present at surface across the centre and southeast of the northern site area. To the southwest of these areas, the concrete slabs were encountered beneath the shallow made ground (and underlain by further made ground), at depths of c. 0.8m to 2m bgl and were found to be c. 0.2m to 0.3m thick; these are considered to represent a continuation of the concrete slabs at surface elsewhere.

Across parts of the site, especially the eastern end of the southern site area, competent bedrock was encountered at shallow depths, which may have consequences for deeper excavations during construction works (e.g. site drainage runs).

In the northeast of the northern site area, boulders were present within made ground at c. 2.6m bgl which resulted in slow excavation at that depth.

5.6 Shallow Ground Stability

Trial pits and boreholes were generally recorded to be stable during excavation / drilling, with the exception of TP308S and TP309S, where made ground was noted to be loose and collapsing from c. 2.5m and 2.0m bgl respectively.

5.7 Groundwater

Tables 5.8 and 5.9 summarise groundwater observations made during the investigation and in subsequent monitoring visits. Monitoring results for 3 visits undertaken to date are included in Appendix G.

It should be noted that air-mist and water flush drilling techniques may mask groundwater strikes within rotary boreholes.

Table 5.8 - Summary of Groundwater Observations Encountered During Site Investigation

Exploratory Hole	Depth Encountered (m bgl)	Description	Stratum
WS301N	7	Wet sample liners.	Base of granular made ground.
WS302N	8	Wet sample liners.	Granular made ground.
WS311N	4	Wet sample liners.	Residual clay strata.

Table 5.9 - Summary of Groundwater Levels During Monitoring

Exploratory Hole	Depth Encountered (m bgl)	Depth Encountered (m AOD)	Response Zone (m bgl)	Stratum
Northern Site Area				
CP01	2.9 - >3.0	78.13 - <77.99	2.5 - 3m	Cohesive Made Ground / Residual CLAY
CP02	6.48 - 6.62	77.74 - 77.88	6.5 - 7.55m	Cohesive Made Ground / Residual CLAY
CP03	1.97 - >3.0	82.54 - <81.67	2.5 - 3m	Residual CLAY
CP04	8.02 - >8.37	76.97 - <76.62	2 – 8.37m	Granular & Cohesive Made Ground
CP05	3.00 - >3.65	75.90 - <75.25	1 – 3.65m	Granular Made Ground
RO04	4.24 - 4.29	74.76 - 74.81	3 - 5m	COAL
RO213	14.38 - 14.90	69.92 - 69.40	2 – 20.81m	Made Ground / MUDSTONE / COAL / SANDSTONE
WS04	2.05 - 3.03	78.51 - 77.53	1 – 3.95	Granular & Cohesive Made Ground / Residual CLAY
WS05	0.89 - >2.23	79.39 - <78.05	0.5 - 2m	Granular Made Ground / Residual CLAY / MUDSTONE
WS06	2.78 - >2.84	77.88 - <77.82	0.75 - 2.84m	Granular Made Ground
WS205	2.27 - >2.78	77.41 - <76.90	1 - 2.78m	Cohesive Made Ground / Residual CLAY / SANDSTONE
WS301N	6.96 - 6.98	76.82 - 76.80	1 - 7.31m	Granular & Cohesive Made Ground / Residual CLAY / SANDSTONE
Southern Site Area				
CPS02	DRY	DRY	1 - 7.54m	Cohesive Made Ground / SANDSTONE
RO202	15.18 - 15.50	64.15 - 63.83	1 – 16.3m	Made Ground / SANDSTONE / Broken Ground
RO303S	DRY	DRY	1 – 4.42m	SANDSTONE / COAL / MUDSTONE
RS2	DRY	DRY	7 – 12.38m	SANDSTONE / COAL / MUDSTONE
WS201	DRY	DRY	1 - 2.9m	Granular Made Ground / SANDSTONE
WS202	2.96 - >3.01	77.97 - <77.91	1 - 3m	Cohesive Made Ground / SANDSTONE
WS301S	0.61 - >1.00	79.09 - <78.70	0.5 - 1m	SANDSTONE
WS302S	DRY	DRY	1 - 3.62m	Granular Made Ground / Residual CLAY / SANDSTONE
WS304S	DRY	DRY	1 – 4.1m	Granular Made Ground / Residual CLAY / SANDSTONE

5.8 Evidence of Contamination

No visual or olfactory evidence of gross hydrocarbon or similar contamination was noted during fieldwork.

Materials such as ash and slag were present locally within made ground. These materials can indicate the possible presence of metals and PAHs.

5.9 Ground Gas

The ground gas monitoring programme comprises a total of 6 visits over a 3 month period. The interim results are summarised below. On completion of the monitoring programme the full set of results and final ground gas risk assessment will be issued under separate cover.

5.9.1 Monitoring Results to Date

Ground gas monitoring has been carried out on 3 occasions to date, and the interim results are summarised in Table 5.10. Full details of ground gas monitoring results to date are included within Appendix G.

As the programme of ground gas monitoring is ongoing at the time of writing, and particularly in light of the limited data available for some wells owing to the presence of shallow groundwater precluding full monitoring, the following results should be considered as interim only, and are subject to change.

Table 5.10 - Summary of Gas Monitoring Results to Date

BH ID	Response Zone (m bgl)	Methane (peak) %v/v	Carbon Dioxide range (steady state) %v/v	Oxygen Range (minimum) %v/v	Peak Flow Rate (range) l/hr	Steady State Flow Rate l/hr
Northern Site Area						
CP01	2.5 - 3m	ND	3.1 - 4.4	16.3 - 18.6	ND	ND
CP02	6.5 - 7.55m	ND	ND - 0.8	19.4 - 19.9	ND	ND
CP03	2.5 - 3m	ND	0.8 - 8.1	6.5 - 20.1	ND	ND
CP04	2 - 8.37m	ND	ND - 4.0	15.6 - 20.8	ND	ND
CP05	1 - 3.65m	ND	4.5 - 6.7	ND - 0.5	ND	ND
RO04	3 - 5m	ND	4.2 - 15.3	4.5 - 12.9	ND	ND
RO213	2 - 20.81m	ND	4.3 - 7.2	8.6 - 11.0	ND	ND
WS04	1 - 3.95m	ND	ND - 6.4	11.1 - 20.8	ND	ND
WS05	0.5 - 2m	ND	0.7 - 2.4	17.2 - 19.9	ND	ND
WS06	0.75 - 2.84m	ND	0.8 - 9.4	1.0 - 19.7	ND	ND
WS205	1 - 2.78m	ND	7.7 - 8.6	8.2 - 9.1	ND	ND
WS301N	1 - 7.31m	ND	3.2 - 5.5	14.0 - 18.0	-0.2 - ND	ND
Southern Site Area						
CPS02	1 - 7.54m	ND	ND - 0.2	20.1 - 20.7	ND - 1.2	ND
RO202	1 - 16.3m	ND	ND - 1.2	17.4 - 20.2	ND	ND
RO303S	1 - 28.5m	ND	0.3 - 0.7	19.1 - 19.9	ND	ND
RS2	7 - 24m	ND	ND - 0.4	19.9 - 20.3	NR - 0.9	ND
WS201	1 - 2.9m	ND	ND - 0.7	19.0 - 20.3	ND	ND
WS202	1 - 3m	ND	0.4 - 2.2	17.6 - 19.9	ND	ND
WS301S	0.5 - 1m	ND	0.8 - 4.2	16.3 - 19.5	ND	ND
WS302S	1 - 3.62m	ND	0.4 - 0.8	19.2 - 20.5	ND	ND
WS304S	1 - 4.1m	ND	2.7 - 4.4	11.6 - 12.6	ND	ND

ND - Not detected. NR - Not recorded.

Very low, or non-detectable, concentrations (<2ppm) of hydrogen sulphide and carbon monoxide have been recorded to date, with no detectable concentrations in most wells. In addition, no detectable concentrations of VOCs have been recorded in any well.

6. Generic Quantitative Risk Assessment

6.1 Assessment Methodology

6.1.1 Soil Data

The laboratory test data for the relevant soil strata and averaging area were reviewed for completeness and consistency.

For each potential contaminant of concern, analytical data were evaluated against the relevant Generic Assessment Criterion (GAC), taking account of the soil organic matter (SOM) content. For this site, measured values were compared to GACs derived for a residential with gardens end use. Source data for all GACs are provided in Appendix H.

If any samples recorded contaminant concentrations that exceeded that GAC, then consideration was given to the applicability of statistical data evaluation in line with the methods described in CL:AIRE, 2020 [Ref 20 in Appendix J]. A statistical approach is only adopted where a sufficient number of analytical results are available and the results of such an approach is useful to assist the decision-making process.

Soil samples were tested for the below test suites as outlined in Table 6.1 below:

- **Sirius Soil Suite**: metals (arsenic, cadmium, chromium (total and hexavalent), copper, lead, mercury, selenium, nickel and zinc), phenol, pH and water-soluble sulphate, total organic carbon (TOC) and speciated PAHs.
- **Asbestos ID**.
- **Hydrocarbon Suite:** Aliphatic and aromatic TPHCWG bands, MTBE, benzene, toluene, ethylbenzene and xylene.
- **Cairney Screen:** Test to determine the combustibility of soil material.
- **pH and Water-Soluble Sulphate.**
- **BRE Sulphates Suite:** pH, water-soluble sulphate, total sulphur, and acid-soluble sulphate.

6.1.2 Groundwater Data

The Sirius GAC values for controlled waters risk assessment, included within Appendix H are based on two distinct sets of criteria; Environmental Quality Standards (EQS) values for surface water ecosystem receptors, and Drinking Water Standards (DWS) for potable groundwater and surface water sources.

The site is located over strata which are classified as a Secondary A Aquifer, but is not within a groundwater Source Protection Zone, nor close to any registered potable groundwater abstraction points. A surface watercourse / drain is present adjacent to the northern boundary of the site, with a second c. 70m to the north. Therefore, results of groundwater analysis have been evaluated against GAC values based on EQS values in the first instance.

6.1.3 Soil Leachate Data

In addition to the above soil and groundwater analysis, three soil samples were tested for a suite of leachable parameters. This testing was undertaken to supplement the groundwater analysis; due to the small amount of groundwater present in monitoring wells, only 1 no. groundwater sample being taken.

The three soil samples chosen for leachate analysis were those which generally recorded higher concentrations of potential contaminants during the soil laboratory analysis, and were chosen to give coverage across the two site areas. The results were compared to the GAC based on EQS values as described above for groundwater samples.

6.2 Averaging Areas

The assessment of contaminated land risk undertaken in this report seeks to consider uncertainty via the interpretation of average values rather than on single measurements. As such the risk assessment classification decisions are based on the following averaging areas. A summary of the testing undertaken for each averaging area is provided in Table 6.1.

Table 6.1 - Summary of Averaging Areas

Averaging Area	Description	Analytical Testing	No. of Samples
Northern Site Area	Samples of made ground obtained across area of former colliery.	Sirius Soil Suite	13
		Asbestos ID	4
		Hydrocarbon Suite	2
		Cairney Screen	2
		BRE Sulphate Suite	1
	Natural soils	BRE Sulphate Suite	1
Southern Site Area	Samples of made ground obtained across area of former colliery.	Sirius Soil Suite	11
		Asbestos ID	4
		Hydrocarbon Suite	2
		Cairney Screen	1
		BRE Sulphate Suite	2
	Natural soils	pH & Sulphate	2

6.3 Soil Analysis

The following section presents a summary of the analytical results highlighting where exceedances of the relevant GAC have been recorded only. The full data set is included in Appendix F. Commentary on the assessment of risk is provided in Section 7.2 below.

Most of the samples returned concentrations of TOC exceeding the GAC. TOC is a measure of organic carbon within the material and is not a determinand that directly poses a risk to human health. These results are used primarily to determine the classification of material for removal from site to a licensed disposal facility, if required. The TOC is also used to derive the relevant SOM for the soils, necessary to derive an appropriate GAC for some organic determinands. TOC is therefore not considered further in respect of human health risk assessment.

For this site, it can be demonstrated that the use of benzo(a)pyrene as a surrogate marker for other genotoxic PAHs is appropriate. It is recognised that in a small number of samples which contained PAH compounds which would usually be assessed using the benzo(a)pyrene surrogate method did not contain concentrations of benzo(a)pyrene greater than the laboratory's limit of detection; for these samples, each PAH compound was assessed individually.

6.3.1 Made Ground

Results returned on samples of made ground for determinands which exceed the applicable GAC are summarised in Tables 6.2 to 6.5, below.

Made Ground: Topsoil

Recorded SOM concentrations within this material were 11% and 24%; therefore, GAC for a 5% SOM content were used in the first instance.

Table 6.2 - Summary of Soil Analysis - Made Ground Topsoil GAC Exceedances

Analyte	No. of Samples Tested	Range of Results	GAC	No. of Samples >GAC	Samples Exceeding GAC (location and depth)
Metals and Metalloids					
Arsenic (mg/kg)	2	21 - 79	37	1	TP305S - 0.1m

Made Ground: Red Mudstone

In the east of the southern site area and locally within the northern site area, a distinct made ground type was present, comprising red gravel of mudstone. This has been assessed separately from the remainder of the granular made ground.

For this material, SOM values were between 1% and 41%, with an average of 13%; therefore, GAC for a 5% SOM content were used in the first instance.

Table 6.3 - Summary of Soil Analysis - Made Ground: Red Mudstone GAC Exceedances

Analyte	No. of Samples Tested	Range of Results	GAC	No. of Samples >GAC	Samples Exceeding GAC (location and depth)
Metals and Metalloids					
Arsenic (mg/kg)	5	17 - 160	37	3	TP312N - 0.9m TP302S - 0.5m TP314S - 0.3m
Organics - Polycyclic Aromatic Hydrocarbons					
Naphthalene (mg/kg)	5	<0.1 - 6.3	4.6	1	TP310N - 0.4m
Others					
Water-soluble Sulphate (g/l)	5	<0.01 - 1.6	0.5	3	TP310N - 0.4m TP312N - 0.9m TP303S - 0.3m

Granular Made Ground

Across both the northern and southern site areas the large majority of made ground at shallower depth comprised granular made ground; this is assessed below, omitting results for the red mudstone made ground.

For this material, SOM values were between 3% and 90%, with an average of 46%, therefore GAC for a 5% SOM content were used in the first instance.

Table 6.4 - Summary of Soil Analysis - Granular Made Ground GAC Exceedances

Analyte	No. of Samples Tested	Range of Results	GAC	No. of Samples >GAC	Samples Exceeding GAC (location and depth)
Metals and Metalloids					
Arsenic (mg/kg)	15	9.5 - 110	37	7	TP301N - 1.1m TP302N - 0.5m TP305N - 0.7m WS302N - 0.3m TP309S - 0.2m TP310S - 0.3m TP312S - 0.9m
Copper (mg/kg)	15	21 - 240	200	1	TP305N - 0.7m
Lead (mg/kg)	15	19 - 370	200	1	TP305N - 0.7m
Organics - Polycyclic Aromatic Hydrocarbons					
Naphthalene (mg/kg)	15	1.8 - 73	4.6	8	TP302N - 0.5m WS301N - 2.7m WS303S – 0.3m TP309S - 0.2m TP310S - 0.3m TP311S - 0.4m TP312S - 0.9m TP313S - 0.3m
Benzo(a)pyrene (mg/kg)	15	0.2 - 5.2	2.2	2	TP305N - 0.7m TP309S - 0.2m*
Others					
pH	15	<4 - 7.5	<5 - >9	4	TP306S - 0.5m TP310S - 0.3m TP311S - 0.4m TP312S - 0.9m
Water-soluble Sulphate (g/l)	18	<0.01 - 1.7	0.5	8	TP306N - 1.2m WS302N - 0.3m WS303N - 0.4m TP309S - 0.2m TP310S - 0.3m TP311S - 0.4m TP312S - 0.9m TP313S - 0.3m

* Benzo(a)pyrene concentration of 2.8 mg/kg is greater than the Sirius Stage 1 GAC, but less than the Stage 2 GAC of 4.9 mg/kg.

Combustibility

Three samples of granular made ground, which were recorded to be black in colour and ash rich, were subjected to Cairney combustion susceptibility classification testing, which involves exposing a subsample of the material to temperatures of 650 – 700^{0}C and recording the behaviour of the sample. The combustion susceptibility is graded from A (most susceptible) to F (least susceptible), as follows:

A) Sample ignites and continues to burn vigorously after heat withdrawn

B) Sample ignites and burns weakly or smoulders after heat withdrawn

C) Sample ignites but does not persist burning after heat withdrawn

D) Volatiles (e.g., gaseous fumes) emitted, some bubbling, material does not ignite (inert material)

E) Sample glows but does not ignite (inert material)

F) Sample does not glow – slight crackling (inert material)

Samples classified as A) or B) above are considered combustible, and may be subjected to further analysis. Samples classified as C) to F) above are considered not susceptible to combustion.

Each of the samples of this made ground analysed were classified as F, i.e., not susceptible to combustion.

Cohesive Made Ground

No exceedances of any determinands tested for were recorded within tested samples of cohesive made ground.

6.3.2 Natural Cohesive Soils

Results returned on samples of natural cohesive soils for determinands which exceed the applicable GAC are summarised in Table 6.5 below.

Table 6.5 - Summary of Soil Analysis – Natural Cohesive GAC Exceedances

Analyte	No. of Samples Tested	Range of Results	GAC	No. of Samples >GAC	Samples Exceeding GAC (location and depth)
Others					
Water-soluble Sulphate (g/l)	3	0.36 - 1.50	0.5	2	TP303N - 2.0m WS304S - 2.6m

6.3.3 Asbestos

Visible fragments of ACMs were also noted during the intrusive works, on the ground surface adjacent to the entrance to the northern site area, comprising fragments of drain pipe. This material was previously tested and found to contain chrysotile and crocidolite asbestos.

6.3.4 Asphalt

One sample of bound macadam surfacing (TP301S at 0.05m bgl) taken from the southern site area, was tested for speciated PAHs, including coronene, to ascertain the likely chemistry of the binding agent, i.e., whether it is a coal tar or bitumen-based product.

The results of that testing returned a total PAH concentration of 320mg/kg. These results would suggest that the binding agent may be coal tar based, rather than bitumen based.

6.3.5 Summary of Soil Contamination Testing

In summary, Made Ground Topsoil was found to contain an exceedance of arsenic only. The Red Mudstone Made Ground was found to contain exceedances of arsenic, with one exceedance of naphthalene, and also exceedances of water-soluble sulphate. The remainder of the Granular Made Ground contained exceedances of arsenic, copper, lead, naphthalene, benzo(a)pyrene, pH and water-soluble sulphate. Natural cohesive soils also contained exceedances of water-soluble sulphate.

It should be noted that water-soluble sulphate is not considered to pose a risk to human health, but is included as it can pose a risk to the built environment (i.e. sub-surface concrete). These risks are assessed in Section 5.2.5 to this report.

6.4 Groundwater / Leachability Analysis

The following section presents a summary of the analytical results for groundwater and leachability testing, highlighting where exceedances of the relevant GAC have been recorded only. The full data set is included in Appendix F. Commentary on the assessment of risk is provided in Section 7.2 below.

Limited groundwater has been encountered during this and previous investigations. During the current investigation, only one monitoring well, in the northern site area (RO213), contained sufficient groundwater to obtain a sample. Therefore, in order to obtain further data, three samples of made ground soils were selected for leachate testing, one from the northern site area and two from the southern site area.

The samples selected for leachate testing were those in which laboratory analysis had determined the presence of higher total concentrations of potential contaminants; these were all granular made ground containing a significant proportion of ash.

Groundwater / leachate samples were tested for the below analysis suite:

- **Sirius Leachate/Water Suite**: metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, and zinc), phenol, pH, sulphate, electrical conductivity (groundwater only), ammoniacal nitrogen (groundwater only) and speciated PAHs.

Results returned on the analysed samples of groundwater / soil leachate for determinands which exceed the applicable GAC are summarised in Tables 6.6 and 6.7, below, respectively.

Table 6.6 - Summary of Groundwater Analysis – GAC Exceedances

Analyte	No. of Samples Tested	Results (µg/l)	GAC (EQS values) (µg/l)	No. of Samples >GAC	Samples Exceeding GAC (EQS)
Metals					
Cadmium	1	0.16	0.09*	1	RO213 (North)
Copper	1	1.6	1.0**	1	RO213 (North)
Nickel	1	59	4.0**	1	RO213 (North)
Zinc	1	13	10.9**	1	RO213 (North)

* Environment Agency data indicates the hardness of the nearest major watercourse (River Dearne) to be c. 80 - 120 mg/l, therefore GAC for the 50-100 mg/l $CaCO_3$ range used as a conservative assumption[1].
** Refers to bioavailable concentration.

[1] Environment Agency, 2021. Water Quality Data Archive for Dearne at Haigh Roundabout. Available at: https://environment.data.gov.uk/water-quality/view/sampling-point/NE-49301411 Accessed 08/07/2024.

Table 6.7 - Summary of Leachability Analysis – GAC Exceedances

Analyte	No. of Samples Tested	Results (µg/l)	GAC (EQS values) (µg/l)	No. of Samples >GAC	Samples Exceeding GAC (EQS)
Metals					
Cadmium	3	<0.11 - 0.60	0.09*	2	TP309S - 0.2m TP310S - 0.3m
Copper	3	0.58 - 9.6	1.0**	1	TP310S - 0.3m
Nickel	3	<0.5 - 63	4.0**	2	TP309S - 0.2m TP310S - 0.3m
Zinc	3	<2.5 - 65	10.9**	2	TP309S - 0.2m TP310S - 0.3m

* Environment Agency data indicates the hardness of the nearest major watercourse (River Dearne) to be c. 80 - 120 mg/l, therefore GAC for the 50-100 mg/l $CaCO_3$ range used as a conservative assumption.
** Refers to bioavailable concentration.

From the above Tables, it can be seen that the leachate samples generally contained higher concentrations than the groundwater sample; this has also been determined during previous investigations.

It is generally accepted that contaminant leachability testing can over-estimate potential contaminant concentrations within groundwater (due to the “aggressive” nature of the test) and hence any contaminant concentrations naturally leaching from the made ground are likely to be lower than indicated from the leachate testing, as indicated by the groundwater results obtained.

As also noted above, the samples selected for leachate testing were those in which higher total concentrations of potential contaminants were detected in soils, and therefore these may not be representative of the made ground in general.

7. Conclusions and Recommendations

7.1 Geotechnical

7.1.1 Coal Mining Risk Assessment

SHALLOW UNDERGROUND MINING

Based on the findings of this and the previous investigations, across the centre and south of the northern site area, and across the southern site area (except for the vicinity of the observed adit), the risk of surface instability resulting from potential shallow unrecorded and recorded mine workings beneath the site is considered to be low.

NORTHERN SITE AREA

The Coal Authority holds records of mine workings within the Top Haigh Moor Coal and Low Haigh Moor Coal beneath the northern site area (see mine abandonment plans in Appendix B-1). Rotary boreholes drilled across the northern site area did not encounter evidence of workings, or these two coal seams, within 30m of rockhead in this area. Based on an assumed intact seam thickness of 1.0m for the shallower seam (Top Haigh Moor), taken from the abandonment plan for this seam, the ground investigation data has identified a seam thickness to overlying competent rock cover ratio of at least 20. For typical Coal Measures strata, it is generally accepted that there is a risk of surface instability where the thickness of competent bedrock above the worked coal seam is less than 10 times the seam thickness. Therefore, it is considered there is low risk of instability at the surface from these recorded workings.

An assessment of the exploratory holes from the far north of the northern site area has shown that the outcrop of the Barnsley Coal is likely to extend further south than shown on published geological plans, as described in Section 5.4.1). Therefore, foundations for plots in this area will require consideration of the seam's location / depth.

The current and previous investigations have identified apparent crop-working of the Barnsley Coal close to the outcrop, with the attendant potential for the presence of shallow underground mine workings (e.g., day-holes / bell pits) beyond the crop workings. During previous GI works, one borehole in that area did encounter deep made ground, which may indicate the presence of a backfilled bell pit or crownhole; however, given the significant depth of made ground in that area, exploratory trial pits excavated in the same area during the current and previous investigations could not reach to the same depth. Therefore currently, the origin of this deep made ground has not been determined.

Should bell pits / shallow workings be present, then that area would require treatment, by either full excavation and re-engineering of the made ground (where the bell pits are sufficiently shallow) or should bell pits / workings be shown to be deeper than c. 5m below existing ground level, treatment would need to be by drilling and grouting. It is currently considered that this could affect a small number of plots in the far north, plus adjacent highways and at least part of the proposed surface water attenuation feature.

In order to investigate the potential presence of bell pits / crownholes, the made ground in that area could be excavated down to natural ground during enabling works, and the resultant excavation examined for evidence of mining features (this could require excavation of c. 3-5m of made ground over the potentially affected area, using a large tracked excavator). Alternatively, proof drilling on a close spacing to identify any potential unrecorded mining features / workings could be undertaken within the footprint of proposed plots, highways and attenuation pond.

Due to the recorded thicknesses and the inconsistent nature of the thin un-named coal seams (see cross section drawing C10128/06), it is considered that the risk of instability from unrecorded pillar and stall mine workings in the coal seams that lie between the outcrops of the Top Haigh Moor and Barnsley Coal seams, beneath the

northern site area, is low. However, a potential risk to surface stability from the extraction of these seams by means of crop workings/bell pits still exists within the central and northern parts of the northern site area.

SOUTHERN SITE AREA

In the east of the southern site area, the existence of the CA-recorded adit was proven. Additionally, previous GI works also identified an adjacent localised area of broken ground, considered to be associated with the recorded adit. These features will require treatment by drilling and grouting where overlain by buildings, roads, surface water attenuation infrastructure, high retaining walls, etc.

Across the remainder of the southern site area (outside of the adit and adjacent broken ground), the rotary boreholes drilled encountered only intact coal, considered to represent the Top Haigh Moor and Low Haigh Moor coal seams, and did not encounter any evidence of potential workings (e.g. voids or broken ground). Based on the adopted seam thickness for the Top Haigh Moor coal across the site (1.0m), should workings have been encountered within this area, then competent rock cover is anticipated to be present above the coal at a greater thickness than ten times the seam thickness, except for in the far west of this area (area of Plots 85 and 87 to 101 on PRA Architecture drawing No. 1329.05), where previous GI works identified deep made ground of up to c. 6m bgl, with an associated deeper rockhead meaning that rock cover of less than 10 times seam thickness would be anticipated in this area.

It is therefore concluded that overall, outside of the line of the adit and the adjacent broken ground, there is a low risk of surface instability resulting from unrecorded shallow mine workings. However, it would be considered prudent to undertaken confirmatory proof drilling of the above noted plots, especially in the west of this area, during the proposed treatment works of the recorded adit, when unrestricted access is available (i.e. following clearance of vegetation and mounded spoil), more specifically where piled foundations are proposed for plots (see Section 7.1.4, below) as this will reduce the ratio of competent rock overlying the Top Haigh Moor Coal, given the requirement to socket the pile into competent rock. It should be noted that proof drilling across the southern part of the west of the site is likely to require liaison with Network Rail, as Plots 94 to 101 are within 50m of Network Rail land.

COAL AUTHORITY ADVICE

As part of a previous GI for the site, dialogue was held with the CA to obtain pre-planning advice relating to the requirement for treatment of the adit area.

Firstly, the CA confirmed that the identified location of the adit corresponds well with historical data held by the CA for adit reference 431410-001 (the more northerly of the two adits). The CA also confirmed that they have no objection to treatment of the adit by grouting, provided it is undertaken in line with CIRIA C758D, and a verification report is issued demonstrating the satisfactory completion of the works.

The CA noted that proposals for foundation design / overbuild will require review through an engineering appraisal by them, and that the final engineered solution should be designed to cope with residual settlements, and this may require some structural precautions to affected buildings, roads, driveways, etc.

The CA confirmed that it would be its preference for the adit to be treated, which would likely be required through a pre-commencement planning condition imposed by the local planning authority. Should treatment not be proposed to the adit, then it is likely that only public open space would be permissible within the affected area.

The CA notes that only one adit is to be treated; it should be noted that this is because the second adit in this area (reference 431410-002) is understood to lie outside of the site boundary. This comment was made in reference to adit treatment potentially affecting mine water flows, however the CA's hydrogeologist has confirmed that sealing one of the adits should not cause problems.

It is considered likely that Network Rail's Asset Management team would need prior notification of any treatment works undertaken within 50m of the nearby railway. It is therefore recommended that early

consultation is made with the CA in relation to future development plans, to ensure the proposals are acceptable to them.

SURFACE (OPENCAST) MINING

As noted above, a small area of unlicensed opencast coal workings is recorded by the CA close to the outcrop of the Barnsley Coal seam. Investigation undertaken by Sirius has confirmed the presence of deep made ground in this area, apparently associated with backfilling of opencast workings.

No further evidence for quarrying or opencast workings has been found within the remainder of the site; however, deep deposits of colliery spoil made ground have been encountered across the centre of the northern site area (up to c. 9m in thickness) and west / northwest of the southern site area (up to c. 6m in thickness).

MINE ENTRIES

Apart from the above-referenced adits, no further mine entries are recorded to be on site or within 20m of the site boundary by the CA. However, the possibility of encountering unrecorded mine entries cannot be discounted. It is therefore recommended that all excavations are inspected for mine entries / features (including bell pits and crop workings). If a mine entry, mine workings or ground disturbance is suspected, advice regarding treatment / foundation precautions should be sought immediately from a suitably qualified engineer.

7.1.2 Other Resource Extraction

No other resource extraction activities (quarrying etc.) are recorded to be on site. A small area of sandstone quarrying was formerly shown off-site, to the southeast of the southern site area; however, no evidence has been found to suggest that this extends onto the site.

7.1.3 Mineral Safeguarding

The site is not known to be located within a mineral safeguarding area such that the potential for sterilisation of mineral resources arising from the proposed development has not been considered further.

7.1.4 Earthworks

Laboratory testing undertaken on samples of cohesive and granular made ground materials within the site suggests the material would be classed as class 2C (i.e. stony cohesive fill) in accordance with Ref. 18 within Appendix J.

Laboratory analysis undertaken as part of this GI determined that all of the samples tested were in an acceptable moisture content range to allow for compaction to >95% maximum dry density and <5% air voids. It should be noted that previous testing determined that some material was slightly dry of the optimal range.

Red mudstone made ground was identified within the east of the southern site area and locally within the northern site area. Geotechnical issues known to relate to this material include: potential for self-combustion (Cairney testing has demonstrated this material to not be susceptible to combustion), potential for high sulphate content due to pyrite (laboratory testing has shown a high sulphate content), and potential for being highly susceptible to frost heave. Given this, it is recommended that if the red mudstone is to be used as a fill material on site, it should not be used at shallow depth (i.e. within 450mm of ground surface) to avoid frost damage, and should not be used beneath roads and structures, due to the potential for damage to concrete and potential for heave due to chemical reaction of the sulphates present (especially if it would require stabilisation with addition of cement).

7.1.5 Settlement Assessment

An assessment of potential settlements related to the above-noted areas of made ground has been undertaken. Proposed site levels supplied by the Client indicate that ground levels are likely to be raised across most of both

site areas, by up to c. 3m towards the west of the northern site area, and by up to c. 2m in the west of the southern site area. If this is not the case, then the following assessment / conclusions will require amendment.

Table 7.1 below summarises the anticipated settlements within the made ground present on site.

Table 7.1 - Summary of Settlement Analysis

Settlement Mechanism	Made Ground Thickness used for Assessment (m)		Anticipated Settlements (mm)		Source Data
	North	South	North	South	
Self-Weight (Creep)	9.5*	6.0*	35	15	Investigation and Desk Based Assessment
Primary Consolidation	7.0**	5.0**	85	20	Investigation and Desk Based Assessment
Inundation	N/A	N/A	N/A	N/A	Investigation and Desk Based Assessment
Total Anticipated Settlement	-	-	**120**	**35**	-

* Deepest areas of made ground proven during past / current site investigations.
** Deepest area of made ground where raising by placement of fill is proposed (west of northern site area, in vicinity of TP308N and RO306N / west of southern site area, near WS303S).

CREEP / SELF-WEIGHT SETTLEMENT

The calculation of creep settlement has been undertaken assuming a maximum depth of fill of c. 9.5m in the northern site area (although most of the site has been shown to have less than 7m of fill), and 6m in the southern site area. This assessment also assumes that future settlement will occur over a further 50 years (typical design lifespan of private residential development). Historical mapping shows that placement of the existing fill on the northern site area last occurred in the early 1990s (i.e. 30 years ago), although fill was first shown to be placed from the early 1950s (70 years ago). Therefore, for the northern site area, settlement calculations have been carried out presuming that half of the fill was placed 70 years ago, and half was placed more recently. In the southern site area, historical mapping shows fill being placed in the 1960s (60 years ago), therefore this age has been used for that site area.

For these calculations, an alpha value of 1% has been applied, based on settlement of colliery spoil, in line with Reference 31, Appendix J.

CONSOLIDATION SETTLEMENT

Approximate, proposed ground levels have been supplied by the Client. These suggest that site levels may be raised in the northern site area by up to c. 3m above existing (towards the western boundary), and in the southern site area by up to c. 2m above existing (in the west of that area).

Where ground levels are raised, placed fill will impose surcharge loading to the underlying made ground, resulting in immediate settlements in granular material, with primary consolidation settlement of cohesive soils also occurring. Preliminary settlement analysis suggests that, for the northern site area, an increase in fill thickness of 3m (i.e. an assumed increase in load of 60 kPa) would lead to an estimated consolidation settlement within underlying soils in the order of c. 85mm. For the southern site area, an increase in fill thickness of 2m would lead to an estimated consolidation settlement of c. 20mm. The above calculations were based on approximate coefficient of volume compressibility (m_v) values which were determined from plasticity index laboratory testing results for the materials assessed, using the correlation given in Stroud, 1975 (Ref. 29).

Across most of the site the majority of the made ground is mostly granular in nature. Therefore, most of this settlement will occur immediately, during the fill placement / compaction process. However, there are localised areas, such as in the far west of the northern site area, and in the north of the southern site area, where greater thicknesses of cohesive made ground were encountered previously, where ground improvement works may be required to reduce longer-term consolidation settlement (see ground improvement options appraisal, below).

INUNDATION SETTLEMENT / COLLAPSE COMPRESSION

Ref. 31 indicates that inundation settlement / collapse compression can be the most damaging settlement hazard for buildings on fill. This type of settlement mechanism occurs particularly when cohesive soils, compacted dry of optimum, become wetted. Collapse compression can also occur in granular soils; however, this usually occurs much more rapidly than within cohesive soils.

Assessment of the colliery spoil present on site has shown that the large majority of this material comprises is granular, with lesser quantities of cohesive material, mostly present at shallower depths. As noted above, this material was recorded as being emplaced between the 1950s and 1990s, and has therefore been in place for between c. 80 and 30 years.

Recorded groundwater levels at the site are generally restricted to natural strata, or within the base of the made ground. This means that the made ground is not saturated, and therefore possibly susceptible of settling due to inundation. However, given the significant age of the material, there has been time for significant amounts of rainfall to infiltrate through the material in the past. Furthermore, there is no reason to believe that groundwater levels would rise significantly higher than recorded to date, thus inundating the material from below.

Overall, given the thicknesses of material present (mostly <5m), the age of the material, and its granular nature, it is considered that there is a low risk of inundation settlement affecting made ground at the site.

GROUND IMPROVEMENT

Based on the above preliminary settlement assessment, it is considered that given the apparent potential risk associated with settlement of made ground soils, particularly within the west of the northern site area, and the northwest of the southern site area, ground improvement / treatment is likely to be required prior to development, to mitigate (i.e. not completely remove), the effect of the settlement mechanisms described above on site features such as highways, hardstanding and major service alignments. It is assumed that plots within areas of deep made ground will be constructed on pile foundations or vibro treated ground which will protect the structures from excessive ground movements.

The most effective method of ground improvement will be dependent on a number of factors including the proposed development layout and levels, the underlying soil profile, groundwater regime, and potential constraints imposed by the presence/sensitive nature of neighbouring structures / infrastructure. Therefore, it is recommended that these preliminary settlement calculations and the ground improvement / treatment strategy should be re-assessed once development levels and layout have been finalised.

However, at this stage and based on current proposed development levels, it is considered that the most practical and economic option may be the excavation of made ground to a typical depth of say 2 - 3m below existing or proposed levels (whichever is the deeper), to reduce potential future settlements to an acceptable magnitude, and to allow breaking out of concrete slabs / obstructions. Made ground should be excavated to the required depth, obstructions broken out and removed for processing, and replaced with suitable engineered fill, placed to an approved earthworks specification.

It should be noted that the depth of excavation / treatment may need to be increased dependent on proposed development levels and proposed foundation design.

Notwithstanding the above, the remedial / earthwork proposals should be discussed with the local authority highways department in the event highways are to be adopted as part of a Section 38 agreement.

The potential for settlements within garden areas should also be discussed with the warranty provider (e.g. NHBC), to ensure that these will be within tolerable limits.

7.1.6 Foundations

The following discussion is given on the understanding that the site is to be developed with low rise houses, in which structural loads are assumed to be relatively light i.e. in the order of 80kN/m run. Initial proposed ground levels have been provided by the Client and have been taken into consideration in the below assessment; consequently, this assessment may require revision should proposed development levels be revised.

The discussion assumes that risks from historical underground mine workings will be adequately mitigated, in accordance with recommendations given in Section 7.1.1, above. All foundations which overlie treated shallow coal workings should be suitably reinforced to mitigate potential residual settlement of the stabilised ground.

This investigation has identified localised made ground topsoil, asphalt and concrete at surface, underlain by mixed cohesive and granular made ground. Elsewhere, made ground was encountered from surface, mostly directly overlying bedrock of sandstone, mudstone or coal (northern site area only), locally with an intervening stratum of natural clay, representing fully weathered (residual) bedrock, or locally with superficial deposits of alluvium (low to medium strength clay) within the northern site area. Natural residual soils which are considered to have adequate bearing resistance to support foundations to low rise housing were encountered within a depth of 2.5m of the ground surface only in limited parts of the site. Furthermore, proposed site raising may increase the total depth of made ground / fill / low strength natural soils to greater than 2.5m from finished levels in places, therefore where the combined depth of these strata approach 2.5m, consideration should be given to the effects of earthworks on foundation depths.

The made ground soils are considered unsuitable as bearing strata for structural loads in their current conditions, due to the potential for excessive total and differential settlements. Based on these typical conditions, it is considered that conventional spread foundations (i.e. strip or trench fill foundations), taken down through made ground to bear upon underlying natural ground of adequate bearing resistance, may be feasible in parts of the site where made ground is less than c. 2.5m thick.

However, alternative foundations, such as piles, rafts, or shallow reinforced strip foundations constructed in ground improved by vibro-stone columns (VSCs), will be required across the rest of the site. Indicative foundation zones are shown on Drawing Nos. C10128/04B and /04D, and are discussed in further detail below.

SHALLOW SPREAD FOUNDATIONS

The natural residual clay soils are considered to have a characteristic undrained shear strength (Cu) of at least 75 kPa at a typical minimum founding depth of 0.9m below existing ground levels.

By way of example, based on Eurocode 7 compliant calculations, a 600mm wide strip foundation a depth of 0.9m bgl bearing on the natural residual clay with a characteristic undrained shear strength of at least 75 kPa, could support a line load of 100 kN/m run. The application of such a line load is expected to induce settlement of 25mm or less.

Based on findings from the current and previous investigations, the cohesive soils on this site should be considered to range from ‘low’ to ‘medium’ volume change potential as defined in NHBC Standards, Chapter 4.2. Strip / trench fill foundations placed into natural clay deposits soils (or taken through cohesive made ground) should therefore be a minimum of 0.9m deep (below finished or original ground levels, whichever is the lower).

Trees and shrubs may affect the moisture content of clays to greater depths and as such, foundations may be required to extend to greater depths to penetrate to a moisture stable level within the area of influence of existing or proposed trees and shrubs. A tree survey was not included in the scope of this investigation, but should be carried out prior to the production of a detailed plot-specific foundation schedule and the presence of existing and proposed trees should be taken into account during detailed foundation design.

In particular, based on observations at the time of the investigation, it is anticipated that foundations to plots around the perimeter of the northern site area, and most of the west and centre of the southern site area, may require to be deepened to mitigate the effects of trees.

ALTERNATIVE FOUNDATION SOLUTIONS

In the far north and across the west and centre of the northern site area, deep made ground is present (up to c. 9.5m bgl), underlain locally by low strength natural alluvium. Furthermore, in the far north, significant thicknesses of coal are present, associated with the Barnsley Coal seam. Across the northwest and west of the southern site area, deep made ground is present to depths of c. 6m bgl.

Alternative foundation solutions, such as piled foundations, or raft foundations constructed on re-engineered fill, may be considered as an alternative foundation solution for plots within these areas. The foundation solution for these areas of the site should be further assessed once the precise structural loading arrangement and other factors, such as proposed ground levels and influence of trees on foundation depth for the proposed development, are known.

A potential alternative to piled foundations could be shallow reinforced strip foundations constructed on ground improved with vibro stone columns. It should be noted however, that there are ground conditions locally that may preclude the use of vibro stone columns, i.e., made ground deeper than c. 8m, and low strength (Cu <30 kPa) cohesive made ground and / or alluvial soils. Furthermore, in the southern site area, the area of deepest made ground is adjacent to the steep boundary slope, and it should be ensured that foundation loadings are not transmitted into soils near / on the slope. Therefore, it is assumed that plots adjacent to the slope will require piling, rather than vibro stone columns.

Where ground conditions are unsuitable for the use of vibro stone columns due to excessive depth of material to be treated, and / or presence of low strength soils, the use of controlled modulus columns could be considered, although it should be noted that this solution is not currently universally accepted by all building warranty providers, and would not be considered suitable for plots adjacent to the boundary slope in the southern site area.

If such solutions are to be considered, it is recommended that early discussions are held with specialist ground improvement contractors.

The extreme north of the site, affected by the Barnsley Coal outcrop and associated workings, requires particularly careful consideration with regards to suitable foundation solutions. In likely order from west to east, the following foundation solutions could be considered:

- Intact coal >2.5m thick at or near surface: excavate to remove coal, then rafts on re-engineered fill, or reinforced strip foundations on vibro stone columns.
- Seam has been fully or partially removed by opencast or crop workings (i.e., no bearing stratum above the coal): trench-fill founding on natural competent strata could be viable (if <2.5m bgl to base of coal), or otherwise, piles, reinforced strips on vibro stone columns, or rafts on re-engineered fill could be considered.
- Plots affected by bell pits: fully excavate the workings, then reinforced strips on vibro stone columns or rafts on fully re-engineered fill could be considered. Alternatively, the use of piles (penetrating to found beneath the base of the Barnsley Coal) could be considered.
- Plots affected by very shallow underground workings (<5m of rock cover): drill and grout the working and raft foundation OR pile foundations taken through the treated mine workings.

Notwithstanding the above, should intact coal be encountered within a traditional foundation excavation then the foundation should be deepened to penetrate through the coal to found within underlying competent strata. If the depth to the base of the coal increases to greater than 2.5m bgl within the foundation excavation, then an alternative engineering designed foundation solution may be required.

ADDITIONAL COMMENTS

Notwithstanding the above comments, there is a potential that in some areas of the site, a combination of granular and cohesive soils may be exposed in the base of foundation excavations, particularly where foundation depths are required to be extended to mitigate the effects of trees.

The settlement characteristics of granular and cohesive soils are fundamentally different. Owing to the different settlement mechanisms between these soil types, some potential for differential and total settlement may exist within and between individual plots. In light of this, strip footings which straddle both cohesive and granular soils should be avoided, with individual plots bearing upon a consistent stratum where possible. This may require some deepening of foundations locally.

As an alternative, where foundation excavations reveal a combination of cohesive and granular soils at the base, the foundation could be suitably reinforced to mitigate the potential effects of differential settlements. Foundation reinforcement should be designed by a competent structural engineer to be adequate to mitigate the effects of potential differential settlement.

The above calculations are based on theoretical foundations. Settlements of foundations upon granular and cohesive materials are dependent on foundation loading and dimensions. It is therefore recommended that foundation settlements are reviewed once final loading arrangements and foundation sizes are known.

In some areas of the site, competent rockhead is to be expected at depths as shallow as c. 0.3m. Subject to requirements for extending foundations in depth to mitigate the effects of trees, rockhead may be at or above the scheduled founding elevation for part of some plots.

If foundation excavations encounter bedrock, then it is recommended that all of the foundation bears upon rock and thus limits the potential for unacceptable differential settlements. Foundations bearing solely onto competent rockhead may have similar dimensions and load bearing capacity to those designed for the overlying soils without further design calculations.

Where foundations (including piles) are within the zone of influence of trees which are to remain or be removed, heave precautions should be considered, as given in Table 8 of NHBC Standards, Chapter 4.2. These include collapsible void forming material to the inside faces of external wall foundations deeper than 1.5m, plus to faces of external and internal ground beams.

Where foundations are placed directly into materials with no volume change potential, i.e., the granular residual soils, or rock, the minimum founding depth is 450mm below ground level, for frost protection.

It should be ensured that piles do not introduce any preferential pathways for the migration of contaminants. In view of this any pile design and installation on the site should be undertaken in accordance with a risk assessment in accordance with relevant EA guidance.

Additionally, the presence of obstructions should be considered when designing a piling scheme for the development.

It is recommended that a plot specific foundation schedule is prepared, to enable detailed design of individual foundations for the exact line loads, ground conditions, and effects of trees, and site elevations for each plot, once final site levels are known.

Foundations should be taken below a line drawn up at 45° from the base of any existing or proposed services. The layout of foundations should also consider any relict foundations, substructures or other potential obstructions on site. Similarly, if any areas of deep made ground are encountered which were previously not identified (i.e. within the vicinity of the former buildings and the recorded mine entry), alternative foundation solutions may be required.

It should be noted that any groundwater encountered may have an adverse effect on foundation construction and performance (such as softening/loosening of founding materials, instability of excavation walls, etc.), particularly in wet weather. This should be considered when designing foundations.

The above foundation recommendations assume that slope stability issues can be adequately addressed, and will not affect proposed plots, etc. Furthermore, the design of any foundations should ensure that no further stresses are imposed upon the existing slopes.

7.1.7 Floors

Based on proven ground conditions and in accordance with current NHBC Standards, it is considered that suspended floor slabs will be required across most of the site, due to made ground being predominantly in excess of 600mm thick and / or due to the influence of trees.

7.1.8 Outline Slope Stability Assessment

INTRODUCTION

A c. 12m high, heavily vegetated, steep slope, including a section of vertical rock face, is present immediately adjacent to the southwestern boundary of the southern site area. An active railway line runs adjacent to the toe of the slope, and the large majority of the slope is understood to be within the ownership / management of Network Rail. Due to site constraints, including dense vegetation on the slope and the presence of inaccessible railway land, only a limited visual inspection could be carried out. Limited topographical levels were obtained, from the crest of the slope and from land adjacent to the slope, on the far side of the railway.

The preliminary inspection suggests that the overall gradient of the slope is c. 22 to 55 degrees (around 1v to 2.5h, to 1.4v to 1h). The rock face (shown as a cutting on historical maps) is partially present in the southern section, whereas no rock is visible towards the north of the slope. The historical maps suggest that the rock face continues along the whole of this slope; however, spoil heaps from the former colliery appear to have been tipped over the northern section of the slope in the 1960s / 70s, mantling the rock face in this area. Proposed Plot numbers 93 and 95 to 103 (as shown on PRA Architecture drawing No. 1329.05) are proposed to be constructed in proximity to the slope crest, with some plots being less than 5m from the edge.

Based on the above, it is considered that potential slope instability associated with the site could affect the proposed development, plus assets owned by Network Rail. In order to have an indication of the slope stability associated with the proposed development, a preliminary quantitative slope stability assessment has been undertaken and is discussed below.

Given the limited topographic and geotechnical data available, the assessment has been undertaken using conservative assumptions where accurate data was not available / able to be obtained, therefore the conclusions should be assumed to be equally conservative. It should also be noted that the modelling method used cannot take into consideration the effect of vegetation on the slope, which generally increases the stability of such slopes.

GROUND MODEL

Two example cross sections were established for the outline assessment, towards the northern end (Section A - A') and southern ends (Section B - B') of the slope. The indicative ground models were established based on current and former ground investigation data obtained at the slope crest, observations taken on site, the limited topographic data obtained, plus information from historical maps. In summary, the ground model shows the slope is underlain by mostly granular made ground of up to c. 6m in thickness, overlying sandstone, with a coal seam (Top Haigh Moor) present at the toe of the slope. The rock below the coal seam is anticipated to be mudstone.

MATERIAL PROPERTIES

Based on the ground investigation data, and taking into account the uncertainly of reliable soil/rock properties, geotechnical properties for the various strata anticipated to be present within / below the slope have been collated. These are included in Table I1, included within Appendix I, which shows the soil / rock properties

which have been adopted in the preliminary slope stability assessment. For sandstone and mudstone, both Mohr-Columb and Hoek-Brown models are adopted, representing properties of soil and rock, respectively.

Based on the findings of the ground investigation, the groundwater level is anticipated to be within the bedrock (previously recorded at c. 71.5m AOD). In the assessment, a design groundwater level of 72.5m AOD has been allowed within the modelling. In addition, an alternative model within which a pore water pressure (PWP) of Ru = 0.1 is assumed, to conservatively assess the potential for porewater pressure within the granular made ground.

LOADING

A standard 10 kN/m^2 (variable loading) has been adopted in the model to allow for loading of external areas (e.g. gardens / parking areas at the slope crest) as a general practice in accordance with BS 8002:2015 and CIRIA C760.

No loading due to foundations has been allowed for at the slope crest, with the assumption being that loads will be transferred through the made ground into underlying competent strata, and will ensure that loads are not transferred into the slope (see assumptions included in Appendix I).

ASSESSMENT METHODOLOGY

The slope stability assessment was undertaken by Sirius using 2D commercial software Slope/W version 2018 R2 by Geostudio. The assessment was carried out using Morgenstern-Price method and adopted Eurocode 7 (EC7) Design Approach 1 Combinations 1 and 2. Output from the modelling is included within Appendix I.

Circular failure planes in the cross sections were identified in the analysis. Notwithstanding this, the non-circular failure plane was determined based on the critical circular failure plane.

Various iterations of the models were assessed, with models using different soil/rock properties, as well as groundwater conditions, to allow for variations / uncertainties of ground and groundwater conditions. Full results from the various models are shown in Table I2, in Appendix I. Where the Overdesign Factor (ODF) is less than 1.0, in accordance with the EC7 Design Approach 1 Combinations 1 & 2, the model results indicate that the slope may be unstable for that combination of rock model / design approach / groundwater condition.

For Section A - A', six of the eight model variations indicated that the ODF would be less than 1.0 (0.81 - 0.99) for that slope section. For Section B - B', two of the modelling variations indicated that the ODF would be less than 1.0 (0.89 - 0.96) for that slope section.

RESULTS AND DISCUSSION

This assessment shows some ODF values at the critical failure plane being less than 1.0, indicating the potential for slope instability. Those low ODFs are generally recorded within the granular made ground at the slope crest. In general, the ODFs calculated from Combination 2 are lower than those calculated from Combination 1.

Section A-A', where made ground is thicker, records lower ODFs than Section B-B', where made ground is thinner.

Notwithstanding the above, the results suggest that the rock section is anticipated to have sufficient sliding resistance, subject to assumption that the in-situ rock is generally intact (i.e. not highly weathered).

GEOTECHNICAL CONSIDERATIONS ASSOCIATED WITH SLOPE STABILITY

Based on the above, conservative, outline slope stability assessment, the existing slope profile for the proposed development, in particular the made ground close to the slope crest and / or at the steeper slope section, will not be sufficient to meet the design requirements of Eurocode 7, and instability of the slope is a possibility, which could potentially affect gardens / parking areas adjacent to the crest of the slope.

It should be noted that the aim of this preliminary assessment is not to determine if the existing slope will fail, but to determine whether, given the parameters available, there is the potential for the slope to fail (i.e. actual slope failure will be determined by traditional global factor of safety (FoS) < 1.0 and signs of slope instability).

Based on the current outline assessment, the equivalent global FoS could be just slightly over 1.0, as there are no obvious signs of current instability (although visual inspection of the slope is limited by the existing vegetation). However, the ODF / FoS is a function of the material properties of the made ground, the gradient of the slope and groundwater level within the soils; if the slope is found to be steeper and / or with a shallower groundwater level within the made ground, as well as loading at the crest increasing, the ODF / FoS could reduce.

Furthermore, the preliminary assessment undertaken does not include any significant raising of ground levels in the vicinity of the slope crest (excepting that to provide gardens / parking areas). Should ground levels be raised to a greater extent than modelled, then the risk of instability will increase from that described above.

Owing to the loose / soft nature of made ground, there is a risk of shallow failure; however, there is also the possibility of wedge failure occurring in the made ground spoil near the slope if heavy loading occurs close to the slope.

It should be noted that no ground investigation was carried out on the slope or at its toe. Only limited ground investigation was undertaken at the crest of the slope, and no rock core data has been obtained. Therefore, in order to provide a less conservative assessment, it is considered that further detailed assessment and investigation should be undertaken.

However, owing to the access restrictions of the steep slope and land ownership, it is considered that it will not be viable to undertake investigation works on, or at the toe, of the slope, and it is therefore considered that the following additional survey may currently be possible, and would be beneficial for both slope stability assessment and also for design of piled foundations in rock:

- Topographic survey of the slope;
- Slope inspection and rock geological mapping and assessment by a qualified geologist (although anticipated to be limited due to access restrictions on Network Rail land and the presence of dense vegetation);
- Supplementary ground investigation including rotary boreholes, with rock coring to a minimum of 5m below the toe of the slope.

It is considered likely that, following re-assessment of the slope stability using the above-mentioned further information / data, the slope could be demonstrated to be stable, even allowing for some loading at the slope crest. However, if this was not the case then potential remedial works to ensure the slope stability may be required. Possible options could include, but not be limited to, the following:

- Detailed design of gardens / parking areas near the slope, to avoid surcharging the slope;
- Reprofiling of the crest of the slope (i.e. limiting the amount of ground raising required);
- Ground improvement to improve the strength and stiffness of made ground;
- Allow for reinforced earth soils or traditional retaining wall at the crest of the slope.

It is noted that the supplied site levels plan shows a 3.9m high retaining wall towards the northern end of the slope. Further comment relating to this and other proposed retaining walls is given within Section 7.1.12.

The proposed foundation solution should take into account building near to the slope. Piled foundations would transfer the loading into competent bedrock, meaning no load imposed below the pile tip would affect the slope.

If it is proposed to use shallow foundations on improved ground or shallow bedrock, the bearing resistance could be reduced due to the effect of the nearby slope, and the additional surcharge could increase the destabilising force on the slope, therefore special consideration will be required. If the foundation is to be founded on bedrock, an assessment of the rock mass / discontinuities will be required for detailed assessment. A safe distance to the slope and suitable foundation depth should be allowed.

The proposed development profile, elevation and loading adopted in the assessment should be verified as part of the detailed slope stability design.

7.1.9 Concrete Risk to Chemical Attack

Based on the samples tested during the current and previous investigations, a Design Sulphate Class and ACEC Class of DS-4 and AC-5 should be used for buried concrete structures in contact with made ground. Should any concrete be in contact with natural soils only, then based on data from this and previous investigations, a classification of DS-3 and AC-5 could be assumed.

7.1.10 Groundworks, Excavation Stability and Groundwater

Given the presence of shallow obstructions, especially concrete slabs beneath the northern site area, consideration should be given to undertaking a partial turnover of the made ground (e.g. top 2-3m), in order to remove obstructions and facilitate provision of foundations, services, etc. Hard materials could be crushed on site to form a secondary aggregate for re-use (along with the concrete boulders from the area in the centre of the northern site area).

Excavations into the soils present across the site should be assumed to be unstable, even in the short term, and it is recommended that allowance is made for provision of support to all excavations including for drainage and foundation construction.

No personnel entry into unsupported excavations shall be allowed without an appropriate risk assessment. Reference to Ref 11 and Ref 12 within Appendix J, should be made to establish suitable means of support or battering of excavation sides.

Shallow rock is unlikely to be problematic for construction of foundations, which may bear directly onto the surface of competent rock. However, especially within the eastern end of the southern site, hydraulic breakers may be required to penetrate more competent bedrock for even shallow domestic service connections and especially deep excavations, for example deep drainage or attenuation tanks.

Based on the results of this investigation, significant groundwater seepages or inflows within shallow (<3.0m) excavations are considered unlikely. It should be possible to deal with seepages through normal site pumping practices for any shallow excavations open for short periods of time. Disposal / discharge of water will require appropriate treatment / consent.

It is recommended that an adequate drainage system for surface water be installed by a competent contractor in order to prevent surface water ponding or collecting both during and post construction, as this may lead to deterioration of the founding stratum.

It is recommended that, in order to reduce the possibility of softening or swelling of cohesive soils at the base of foundation trenches as a result of exposure to rain or groundwater, these should be suitably blinded with concrete in the event foundation concrete is not poured immediately following excavation of the foundation trench.

7.1.11 Pavements and Highways

Laboratory testing has returned remoulded CBR values of 2.7% for the cohesive made ground soils and from 12% to 21% for the granular made ground soils.

Assessment of subgrade surface modulus (SSM) is established from CBR values. The following values of SSM are determined from the above CBR values using Equation 2.4 of Ref. 13. For a derived CBR value of 2.7%, the equivalent SSM value of 33 MPa is calculated for a subgrade comprising cohesive made ground, with granular made ground being greater than this. However, from testing previously undertaken at the site, it should be assumed that the SSM for made ground soils could be less than 30 MPa.

Where SSM values fall below 30 MPa, the subgrade is considered unsuitable to support pavement construction. Note 2 of Ref 13 indicates remedial solutions for when the SSM of <30 MPa can comprise the following:

- Excavation and replacement of between 500mm and 1000mm of soft subgrade with granular fill.

- Use of mechanical stabilisation (geotextiles and geogrids).
- Soil stabilisation.

Notwithstanding the above, it is recommended that in situ CBR testing is carried out within proposed highways following completion of the enabling works, at final formation levels, to give the final design CBR values.

All road design should be discussed with the relevant local authority if highways are to be subject to a Section 38 agreement.

As noted above, part of the identified adit appears to pass beneath part of the proposed access road alignment. It is therefore likely that parts of the proposed highway overlying the adit will require stabilisation by grouting. Furthermore, if identified, shallow mine workings / mine entries beneath the footprint of adoptable highways and paved areas in the northern part of the northern site area will require treatment by drilling and grouting.

The details of any stabilisation works undertaken on adoptable highways should be agreed in advance with the CA and local highways authority.

7.1.12 Retaining Walls

The Proposed Levels drawing shows that retaining walls are proposed locally across the northern and southern site areas; no retaining wall types are shown; however, heights are indicated.

Across the north and east of the northern site area, retaining wall heights are generally less than 1.0m. Across the centre, and west of the northern site area several walls of 1.0m and higher are shown, being up to 3.6m in height.

Across the southern site area, retaining walls are shown as less than 1.0m, apart from a short section adjacent to the northern boundary of up to 1.1m in height, and one wall in the far northwest, adjacent to the existing steep slope in this area, which is shown as 3.9m in height.

In accordance with NHBC Standards, Chapter 10.2 (Ref. 17), all retaining structures more than 600mm high should be designed by an engineer in accordance with Technical Requirement R5.

At this stage, the construction details of any proposed retaining walls are not known. The design of the retaining walls will, to varying degrees, be dependent upon a number of factors. For example, the effective strength parameters of the retained material, the strength of founding materials, deformation properties of the founding materials, global stability (i.e., slope stability) and retaining wall type.

Sirius is only able to comment on a very limited number of aspects of retaining wall design at this stage. It is generally recommended that for a gravity wall for example, it would be good practice for the foundations of the retaining wall to be taken through any made ground so as to bear onto the underlying competent natural soils (i.e., residual Coal Measures soils or rock (not coal)). Any gravity retaining walls constructed on areas of deep made ground should be founded on a suitable thickness of re-engineered fill in accordance with an approved earthworks specification.

Further assessment, including supplementary ground investigation of relevance to retaining walls, will be required once the proposed retaining wall details are known. This will be especially important in relation to the 3.9m high retaining wall in the southern site, with detailed assessment of the interaction of the proposed wall with the existing slope being required. Given the geotechnical complexities associated with this wall, it should be noted that an alternative foundation solution may be required for this structure.

7.1.13 Infiltration Testing

No soakaway tests were undertaken as part of this scope of works. Due to the presence of made ground soils, it is considered that soakaway drainage will not be feasible for the large majority of the site area. Furthermore, where low-permeability mudstone bedrock or residual clays underlie the site, infiltration from surface into the bedrock within the site is likely to be limited.

In the far east of the southern site area, sandstone bedrock is present at shallow depth, which could potentially be suitable to accept infiltration drainage. However, given the presence of the nearby steep slope (railway cutting) it would not be considered prudent to allow additional infiltration of surface water to occur in this area, as it may cause outflow of groundwater from the slope, and/or cause instability of the slope itself. This is especially possible, given the location of the identified mine adit in this location.

7.2 Contamination and Ground Gas

7.2.1 Introduction

The results of the chemical testing indicates that potentially unacceptable contaminant linkages exist for future site users, construction workers and future plant growth. Contaminant linkages assessed as a Low or Negligible risk are not considered significant or requiring remedial action and are not discussed further.

Further discussion of the potential contaminants of concern is given in Section 7.2.2 below. The revised conceptual site model showing the residual contaminant linkages is presented within Section 8.0 and on Drawing No. C10128/05, enclosed within Appendix A.

7.2.2 Human Health Risk Assessment

The following contaminants were detected within soils on the site above the applicable GACs. Further discussion on the potential risk to human health is given below. Outline remedial measures are given in Section 9.

Table 7.2 - Summary of Elevated Contaminants above the Applicable GACs

Contaminant	Impacted Soil/ Material Type	Location	Considered to Pose a Potential Risk to Human Health?*
Heavy metals (arsenic – all made ground), (copper and lead - granular made ground only).	Made ground topsoil. Red mudstone made ground. Granular made ground.	Site wide - arsenic. Locally in the northern site area (TP305N) - copper and lead.	Yes (arsenic and lead). No (copper - phytotoxic risk only).
Organic (Naphthalene – all made ground), (Genotoxic PAHs - granular made ground only).	Red mudstone made ground. Granular made ground.	Site wide - naphthalene. Locally in the northern site area (TP305N) - genotoxic PAHs).	Yes.
Asbestos	Ground Surface	ACM fragments identified towards eastern side of northern site area.	Yes
pH (acidic)	Granular made ground.	Southern site area.	Yes
Sulphate	Red mudstone made ground. Granular made ground. Natural cohesive strata.	Site wide	No

*Defined as greater than low risk

Concentrations of benzo(a)pyrene, and by extension other genotoxic PAHs, recorded within two samples of granular made ground, obtained from TP305N at 0.7m and TP309S at 0.2m were greater than the Stage 1 GAC. Based on the results of a source signature double ratio plot (comparison of the ratios of two pairs of PAHs; benzo(a)anthracene to chrysene, and fluoranthene to pyrene), the most likely source of the detected benzo(a)pyrene within both samples is combustion products (i.e. ash) or unburnt coal. Coal / ash derived PAHs are generally accepted to be less mobile and less of concern to human health than other sources i.e. petroleum hydrocarbons. The sample from TP309S exceeded the Stage 1 GAC, but did not exceed the Stage 2 GAC (4.9 mg/kg), and is therefore not considered indicative of a significant risk to human health. However, the sample from TP305N exceeded both the Stage 1 and Stage 2 GACs, and furthermore, other contaminants present within this same soil type (pH, arsenic, lead and naphthalene) are considered to pose an unacceptable risk to human health following development.

One exceedance of copper is not considered to pose a significant risk to human health at the concentration observed, but would pose a phytotoxic risk to future planting.

Acidic pHs have been found in made ground soils across both the northern and southern site areas during the current and previous investigations. These acidic pHs could pose a risk to site end users.

Elevated concentrations of sulphate are only considered to pose a risk to sub-surface concrete, as summarised in Section 7.1.9.

Made ground soils (including topsoil) are not considered suitable to remain at shallow depth within residential gardens or areas of landscaping and remedial action will be required to break potential pollutant linkages. Made ground soils are also considered texturally unsuitable to remain at shallow depth within garden areas. Soil impacted with naphthalene may also pose a risk where present beneath plots, due to a risk from vapours. This risk is considered further in Section 7.2.10, below.

ASBESTOS CONTAINING MATERIALS (ACMs)

Fragments of asbestos cement were identified on the ground surface in the northern site area as part of the previous investigations. These have been noted as remaining on site during the current investigation, and will require removal to a suitably licensed disposal facility.

7.2.3 Asphalt Assessment

Previous investigations determined that the asphalt present in the east of the southern site area may contain a bitumen-based binding agent. However, laboratory testing carried out during the current investigation suggests that at least some of the asphalt may contain coal tar rather than bitumen. On the assumption that this material will be excavated and removed from site as part of the development works, the presence of coal tar within this material is more of a concern with regards to risks to construction workers; however, any such risks can be mitigated by adoption of the measures described in Section 7.2.7, below.

It should be noted that the material tested during this investigation would likely be classified as Hazardous Waste if disposed of to landfill. Therefore, it is recommended that the excavation and stockpiling of this material should be carefully controlled, with further testing undertaken in order to determine which material may contain coal tar, for example by using PAK spray on site.

7.2.4 Phytotoxic Risk Assessment

One exceedance of copper, plus significantly acidic pH levels were detected within made ground soils, which could potentially inhibit the healthy growth of vegetation. However, action to mitigate the potential risks to end users associated with these soils will also act to mitigate any phytotoxic risk.

7.2.5 Controlled Waters Risk Assessment

Exceedances of potential contaminants in groundwater have been identified for cadmium, copper, nickel and zinc in relation to environmental quality standards (EQS values), for both the northern and southern site areas, as part of this and the previous ground investigations.

The nearest water feature to the site is a drain which traverses the northern boundary of the site. Contaminants identified within the northern area of the site are not considered likely to be sufficiently mobile to migrate to this drain, particularly in light of the presence of low permeability clay made ground underlying much of this area of the site. Furthermore, given the very minor nature of this watercourse, the drain is unlikely to be receiving a significant flow of groundwater from the site.

Given the relatively low resource value of the underlying aquifer (Secondary A Aquifer, with no nearby groundwater abstractions), plus the predominantly low permeability nature of the shallow bedrock across much of the site, it is considered that the contaminants which were encountered at greater concentrations than EQS values are unlikely to be sufficiently mobile to significantly affect groundwater resources at the concentrations detected. It is generally accepted that contaminant leachability testing can over-estimate contaminant concentrations (due to the “aggressive” nature of the test) and hence any contaminant concentrations naturally leaching from the made ground may well be lower than indicated from the leachate testing, as indicated by the generally lower groundwater results obtained.

Overall, it is considered that the concentrations of contaminants detected within the groundwater samples are typical of an urban / post-industrial area such as this. Therefore, given the above, and the likely very minor nature of the adjacent watercourse, groundwater remedial works would not be considered feasible on the site which would create any betterment to local groundwater resources.

7.2.6 Utilities Risk Assessment

A formal water pipeline assessment (in accordance with UKWIR) has not been undertaken as part of this investigation.

It is recommended that the results of the chemical testing and details of the proposed remedial works are provided to the appropriate utility companies to determine the necessity for service protection.

7.2.7 Construction and Maintenance Workers Risk Assessment

Contamination may pose a short-term (acute) or long-term (chronic) risk to workers during construction and maintenance. The potential risks must be specifically assessed as part of the health and safety evaluation for the works to be performed in accordance with prevailing legislation. Site practices must conform to the specific legislative requirements and follow appropriate guidance (e.g., HSE, 1991; CIRIA, 1996).

Assessment of the risks to construction and maintenance workers has not been undertaken as part of this report. Notwithstanding, it is noted that elevated concentrations of contaminants as outlined in Table 6.2 above may pose a potentially unacceptable risk to construction and maintenance workers.

It is considered that, subject to appropriate risk assessment to be carried out by the construction or maintenance contractor the risks can be mitigated by appropriate PPE and hygiene precautions and good working and soil management practices. It is recommended that procedures outlined in the HSE document “Protection of Workers and the General Public during Remediation of Contaminated Land” be followed. There will be a requirement to comply with the COSHH (Control of Substances Hazardous to Health) Regulations and the CDM (Construction Design and Management 2007) Regulations during any works.

This report should be forwarded to any contractors undertaking groundworks or maintenance personnel in order for them to assess the risk to their personnel.

Suitable precautions should also be taken to protect workers entering and/or working in confined spaces, including any below ground excavations even where open to the atmosphere, to mitigate the potential risk from ground gas which may be present. This could include gas monitoring of all excavations and/or underground spaces, carried out prior to personnel entry, with continuous monitoring throughout the period of working. Gas monitoring by way of example should include as a minimum: methane, carbon dioxide, carbon monoxide, and oxygen. Gas monitor(s) should emit both audible and visual warnings. Alarm levels should be set with due regard to the relevant Occupational Exposure Limits given in HSE EH40/2005, and for low oxygen concentrations. If any anomalous or significantly elevated/depleted gas concentrations are detected then all personnel should immediately evacuate the area and the advice of an appropriate specialist be obtained before work continues.

7.2.8 Preliminary Ground Gas Risk Assessment

Table 7.3 below summarises the conceptual site model for ground gas. Contaminant linkages for ground gas risk are also shown graphically within Drawing No. C10128/05.

Table 7.3 - Summary of the Conceptual Site Model for Ground Gas

Source	Pathways	Receptors	Discussion
Gases generated in mine workings / radon in bedrock.	Fractures in bedrock, mine adit and possible unrecorded mine entries	Residents	In places, rock was encountered at shallow depth with a limited thickness of overlying cohesive soils to slow transmission of gases.
Made ground deposits and on/off-site infilled opencast	Made ground	Residents	High concentrations of organic matter were determined from chemical testing of the made ground. The made ground was found to be relatively thick across the majority of the site and will therefore mostly remain in situ following development.
Localised naphthalene within made ground	Made ground	Residents	

Preparatory or remedial works for proposed developments, including but not limited to mineworking treatment proposals, foundation solutions and earthwork proposals (cut / fill), have the potential to influence the ground gas regime for the site, which may require reconsideration following these preparatory or remedial works for the site.

The following discussion is based on the results of three ground gas monitoring visits undertaken to date. The scheduled programme of monitoring comprises six visits over a three month period, in accordance with CIRIA C665 and BS 8576 (Ref. 23). The following discussion should therefore be considered as interim, and are subject to change on completion of the full monitoring programme.

No concentrations of methane have been recorded to date from monitoring wells installed within either the northern or southern site areas.

Maximum steady state concentrations of carbon dioxide of 15.3% v/v and 4.4% v/v have been recorded from the northern and southern site areas, respectively.

No positive borehole flows have been recorded from the northern site area, with only one negative peak flow of -0.2 l/hr being recorded from one well. In the southern site area, two peak flows of 0.9 l/hr and 1.2 l/hr have been recorded. No steady flows have been recorded from either site area.

In addition, it is noted that substantially depleted concentrations of oxygen (reaching a minimum of 0% in one well on one occasion), have been recorded from some wells in the northern site area.

On the basis of the results to date, and taking into account CL:AIRE guidance (Ref. 34), as well as the requirement to provide basic radon protection and protection for vapours (naphthalene) at the site, it is recommended at this interim stage that allowance is made for provision of measures sufficient for at least CS2 conditions for both site areas.

8. Revised Conceptual Site Model

8.1 Summary of Residual Contaminant Linkages

The preliminary combined conceptual site model and conceptual exposure model, developed from the desk study information and presented in Section 3, has been revised in light of the ground investigation, chemical analysis and generic quantitative risk assessment presented above.

A revised conceptual site model (RCSM) has been developed for the proposed future land use (residential with private gardens). This summarises the understanding of surface and sub-surface features, the potential contaminant sources, transport pathways and receptors, prior to the implementation of any remedial measures for the site.

The qualitative risk assessment of identified contaminant linkages has also been revised, following the methodology described in Appendix C.

The RCSM is presented in schematic form on Drawing No. C10128/05 in Appendix A.

In summary, the revised CSM has identified the following potential pollutant linkages which could result in an unacceptable risk to the proposed end-use, denoted as moderate or higher risk on the CSM:

- Inhalation of asbestos fibres associated with asbestos cement fragments noted on the ground surface in the east of the northern site area, presenting a **moderate risk** to future residents.
- Ingestion, inhalation of dust and dermal contact with elevated concentrations of contaminants in made ground (site wide - arsenic and naphthalene / locally - copper and benzo(a)pyrene), presenting a potential **moderate risk** to future residents.
- Generation of hazardous ground gases within made ground across the site, from shallow underground coal mine workings, naphthalene within made ground, and naturally occurring radon (southern site area). These gases / vapours have the potential to migrate and accumulate in confined spaces in properties and excavations, and are currently considered to present a **moderate risk** to site end users.
- Phytotoxic effects of acidic site soils across the site, and copper locally, presenting a **low to moderate** risk to gardens and landscaping within the site.
- Direct contact of concrete products with elevated sulphates and low pHs within made ground and natural soils across the site, presenting a **moderate risk** to construction materials.
- The risk of combustion of material within made ground has been determined to present a low risk to site infrastructure; however, a **high risk** from potential combustion of coal remains locally in the northern site area.

9. Outline Remediation Requirements

Outline remedial measures are shown within Table 9.1 below. The actual remedial measures proposed to be undertaken within the site is subject to further discussion with the Client, and regulatory bodies if required, on the preferred remedial options, and preparation of a remediation strategy.

Table 9.1 - Summary of Outline Remedial Measures

Site Area	Impacted Soil/ Material Type	Outline Remedial Measures Summary
East of the northern site area	Ground Surface – ACMs.	Removal and disposal of all ACM fragments from ground surface prior to any other preparatory works or vehicle movements on site.
Northern site area	Concrete at surface / beneath made ground.	Breaking out of relict concrete slabs, including excavation of overlying made ground where required. Removal of concrete / rubble or crush for re-use on site.
Whole of site (where present)	Made Ground Topsoil (present locally, and impacted with arsenic).	Strip all topsoil and place at depth beneath clean cover layer within garden / landscaped areas (but not beneath buildings, roads or utilities), or alternatively, remove from site.
Whole of site	Made Ground (impacted with arsenic and naphthalene). In addition, made ground was found to contain copper, lead and benzo(a)pyrene in concentrations exceeding the GACs locally.	Provision of 600mm clean cover layer (including at least 150mm imported topsoil) and clean subsoil (site-won and / or imported) within garden and landscaped areas where made ground is present. Validation of placed cover soils. OR Where made ground is thin in garden and landscaped areas, potential for excavation and redistribution on site beneath buildings and hardstandings.
Where natural soils or rock remain at surface (possible in the east of the southern site area)	N/A	Provision of a minimum of 100mm imported clean topsoil in line with NHBC requirements where natural soils remain at surface in gardens. Where rock is present at surface, a total of 300mm of topsoil / subsoil should be provided.

GENERAL COMMENTS

It is recommended that a Remediation Strategy is prepared for the site for submission to the Local Planning Authority.

At this stage, it is considered that site-won natural subsoils may be suitable for re-use within a residential development, subject to regulatory approval. However, it is recommended that any site won subsoil is stockpiled and further chemically tested and visually assessed / screened for suitability, as part of the enabling works, before being approved for re-use.

Importation of clean naturally derived subsoil and topsoil to the site from other development sites for use in cover layers should be undertaken in accordance with the CL:AIRE DoWCoP (Ref. 35, Appendix J).

Clean cover will also be required in gardens and landscaped area which are underlain by naturally occurring coal, to mitigate the risk of combustion from e.g. bonfires. Where services (e.g. electricity cables) pass through coal, a corridor of inert material will be required to mitigate against potential combustion of the coal from heating.

9.1 Unexpected Contamination

Should unexpected or more widespread contamination be noted during the construction phase, further assessment may be required and should be undertaken by a suitably experienced geo-environmental consultant to reappraise the potential risks.

9.2 Invasive and Protected Species

It is understood that ecological surveys have been carried out at the site, and that habitats are present on the site which are of importance to invertebrates, birds, bats, etc.

No evidence for the presence of invasive plant was observed during the investigation and Sirius has not been made aware of the presence of such within the site; however, the potential presence of these was not fully ruled out due to the presence of dense vegetation on site. Should they be identified, the treatment of any invasive plant species, should be undertaken prior to construction works commencing.

9.3 Waste and Soil Resource Management

9.3.1 Soils Re-use

Article 4 of the revised EU Waste Framework Directive (Directive 2008/98/EC) sets out five steps for dealing with waste, ranked according to environmental impact - the 'waste hierarchy'. The five steps are prevention, preparing for re-use, recycling, other recovery and as a final option disposal. All site won, imported and exported soils are classified as a waste material unless demonstrated otherwise.

With reference to the Waste Hierarchy, where possible to do so, it is recommended that site won soils should be retained and re-used on site as far as practicable. If re-use is an option, it must be demonstrated by the waste producer that the soils are not a waste and there is certainty of use. This should be done using a Materials Management Plan (MMP) in accordance with the Definition of Waste Code of Practice (DoWCoP). Any surplus natural, uncontaminated soils have the potential to be transferred to other development sites subject to meeting the requirements of the DoWCoP. Contaminated soils and made ground can only be re-used on the site of origin if suitable for use. Where soils are re-used under an MMP a Verification Plan and subsequent Verification Report will be required. It is recommended that consideration of re-use of soil is undertaken as early as possible in the planning process to ensure that the most cost efficient and sustainable options for soil re-use can be explored.

It is noted that alternatives to an MMP are available, such as an Environmental Permit, however an MMP is typically the most suitable option for a residential development.

9.3.2 Topsoil Re-use

No natural topsoil was encountered at the site. Based on the samples obtained during this investigation and subsequent contaminated land risk assessment, it is considered that the localised made ground topsoil will not generally be chemically / texturally suitable for re-use within a residential setting.

9.3.3 Surplus Soils

If any surplus soils or materials are generated during construction which cannot be re-used, they will be regarded as a waste and should be disposed of in accordance with current UK waste legislation to a suitably licenced facility under appropriate Duty of Care. It is the waste producers responsibility to adequately classify the waste, which should be undertaken in accordance with Guidance on the classification and assessment of waste (Ref. 28, Appendix J). Please note that this ground investigation is unlikely to be sufficient to provide a detailed classification of any waste generated on site.

It is recommended that a detailed cut/fill balance is produced for the site in advance of the development to confirm whether surplus soils will be produced.

10. Further Works

It is considered that the following further works are required for the site to confirm the risk to the site from contamination and mining and confirm ground conditions where access was limited during this investigation.

- Additional ground investigation in the north of the northern site area, to determine the possible presence of bell pits / crop workings associated with the Barnsley Coal seam, once vegetation in this area has been removed, to allow unhindered access.
- Additional ground investigation in the southwest of the northern site area to confirm ground conditions in areas currently inaccessible due to the presence of dense vegetation.
- Further ground investigation / survey to allow a more detailed quantitative slope stability assessment for the slope in the southwest of the southern site area, where development is proposed adjacent to this slope.
- Production of a Remediation Strategy confirming the remedial proposals to mitigate the risks from elevated contaminants within the site.
- Production of an MMP for the site to cover the reuse of soils within the site (this requires a Remediation Strategy that has been agreed with the local authority).

11. Regulatory Approvals

The conclusions and recommendations presented above are considered reasonable based on the findings of the site investigation. However, these cannot be guaranteed to gain regulatory approval and, therefore, the report should be passed to the appropriate regulatory authorities and / or other relevant organisations for their comment and approval prior to undertaking any works on site.

APPENDICES

APPENDIX A
Drawings

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NOTES

Site Location

REVISION	
0	For Information
A	>>
B	>>
C	>>
D	>>

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CLIENT	DRAWING NO.	REVISION NO.
Gleeson Homes Ltd	C10128/01	0
SITE: Woolley Colliery Road, Darton	DRAWN BY: AL	APPROVED BY: AL
DRAWING TITLE: Site Location Plan	DATE: June 2024	SCALE: 1:25,000

A4

1. View along northern site boundary showing drainage ditch.

2. View across north of site, showing standing water.

3. View west towards western site boundary.

4. View west showing mounded spoil.

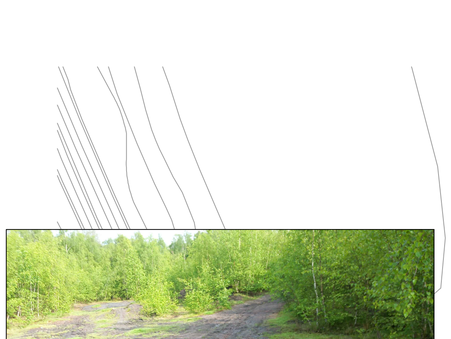
5. View south across north of site.

6. Fly-tipped rubbish near to site entrance.

7. Concrete slabs and ecological exclusion area.

8. View south showing concrete slabs.

9. View west from northern site boundary.



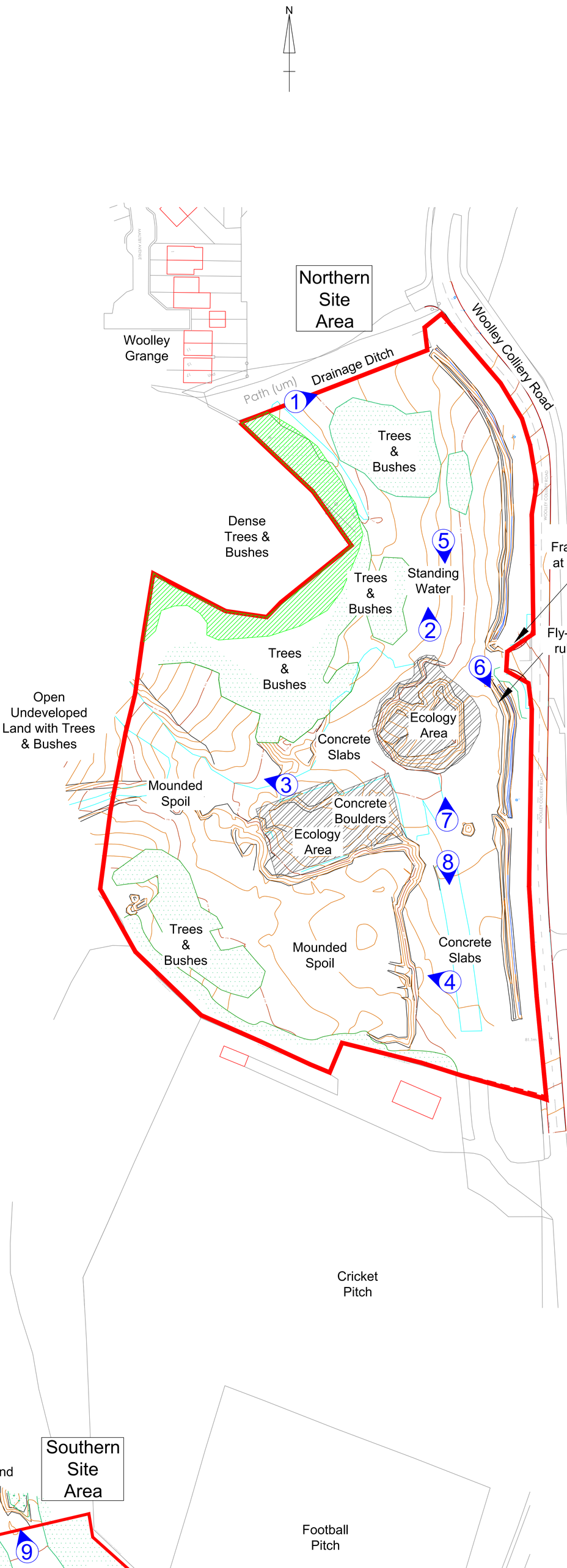
10. Standing water within southern site area.

11. Steep slope adjacent to western site boundary.

12. View southwest, showing central track and mounded spoil.

13. Mounded colliery spoil and trees on southern site area.

14. View across eastern end of southern site area.



NOTES

Notes

1. This drawing should not be viewed in isolation from the accompanying report.
2. All marked site features (including historical features, mining features (i.e., opencast boundaries and mineshafts), potential contaminant constraints, and any other potential constraint or feature of note) shown on this drawing are given for indicative purposes only. This drawing should not be underlaid in isolation to determine proposed development layouts. Reference should be made to the accompanying report for commentary on the potential location of these features including coordinates if available and any further works required to locate features if required.

REVISION		BY	DATE
0	For information	AL	26.06.24
A	>>	>>	>>
B	>>	>>	>>
C	>>	>>	>>
D	>>	>>	>>

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CLIENT

Gleeson Homes Ltd

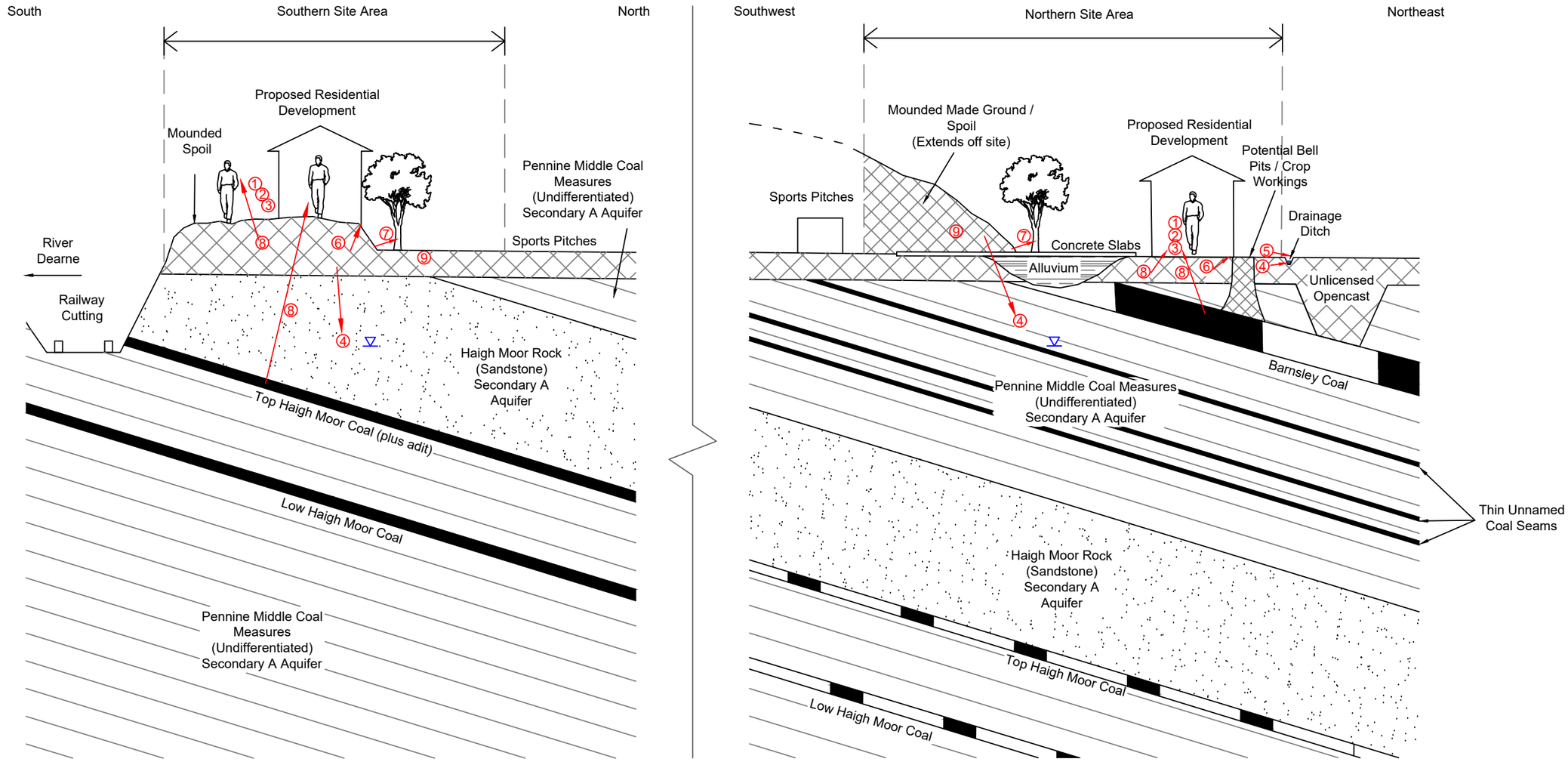
SITE

Woolley Colliery Road, Darton

DRAWING TITLE

Site Features Plan

DRAWING NO.	REVISION NO.
C10128/02	0
DRAWN BY: AL	APPROVED BY: AMG
DATE: June 2024	SCALE: NTS / PAPER SIZE: A0



Contamination Source	Contamination Pathway	Potential Receptors	Risk of Significant Contaminant Linkage
Metals, metalloids, asbestos and organic contaminants (including PAHs and petroleum hydrocarbons) within made ground.	1. Direct and indirect ingestion of soil 2. Inhalation of contaminated dust and vapours 3. Dermal contact	Site end-users / adjacent land users	Moderate
	4. Migration via leaching 5. Surface water run-off	Controlled waters (groundwater) Controlled waters (surface water)	Low to Moderate Low to Moderate
Acids and sulphates within made ground, natural strata and groundwater.	6. Acid / sulphate attack	Concrete substructures to proposed buildings	Moderate
Phytotoxic metals within made ground.	7. Plant uptake	Landscaping within proposed development.	Low to Moderate
Hazardous ground gases from shallow coal workings, on-site made ground and nearby opencast workings.	8. Gas migration / Inhalation	End-users / adjacent land users within buildings	High
Combustible material within made ground.	9. Damage via combustion / smouldering	Proposed development infrastructure	Low to Moderate

NOTES

REVISION		BY	DATE
0	For Information	AL	20/05/24
A	>>	>>	>>
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D	>>	>>	>>

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CLIENT

Gleeson Homes Ltd

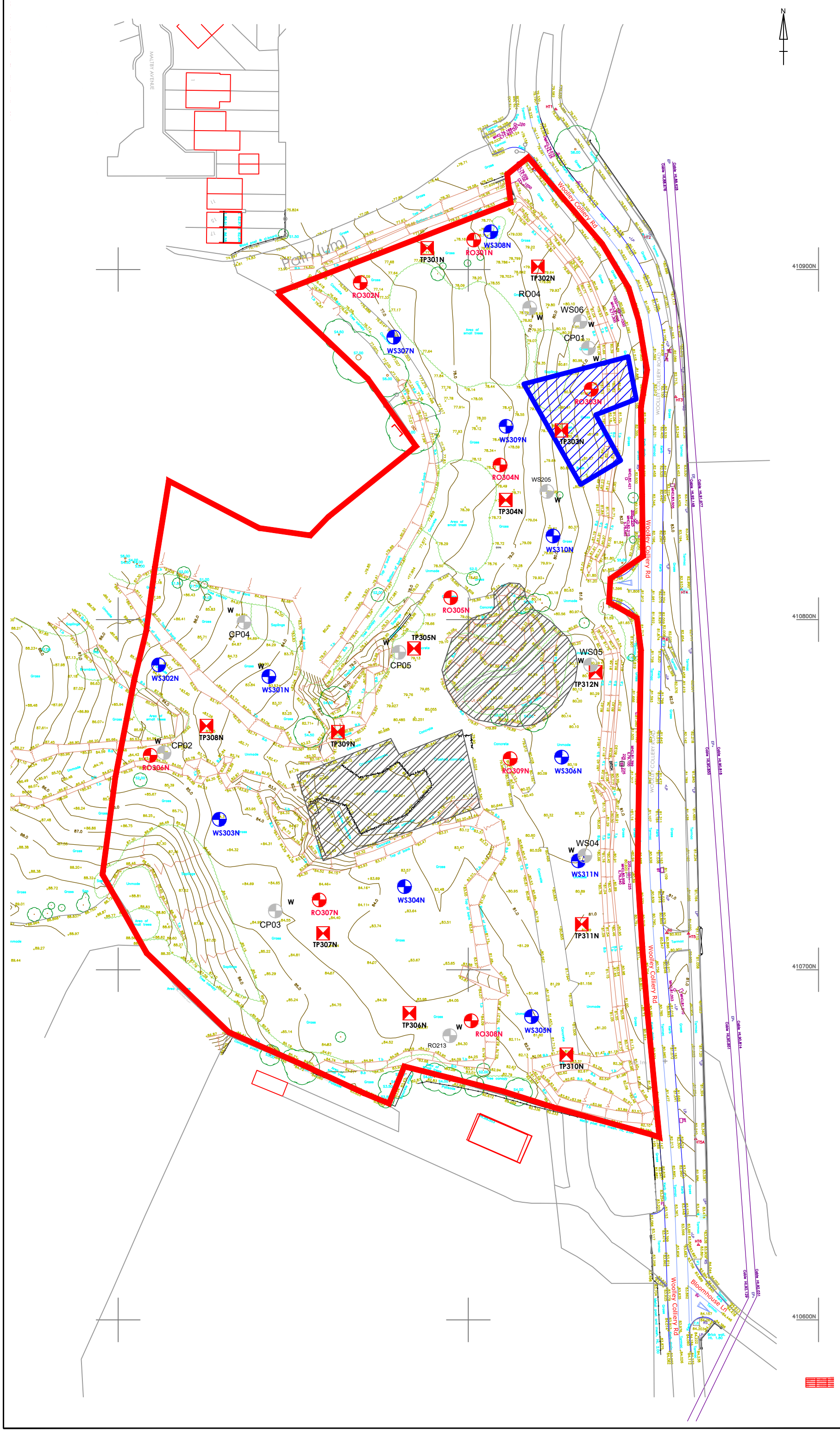
SITE

Woolley Colliery Road, Darton

DRAWING TITLE

Preliminary Conceptual Site Model

DRAWING NO.	REVISION NO.
C10128/03	0
DRAWN BY: AL	APPROVED BY: AMG
DATE: May 2024	SCALE: NTS
PAPER SIZE: A3	



Key:

- TP301 — Trial Pit
- RO301 — Rotary Probehole
- WS303 — Window Sample
- Borehole previously installed as a monitoring well and remains extant
- W — Denotes ground gas / groundwater monitoring well
- Area previously identified as Ecologically Sensitive
- Area of Unlicensed Opencast - taken from Coal Authority records

Notes

1. The locations of services shown on this drawing are approximate and are based on utility plans provided by the client. Locations of services are given for the purposes of indicating constraints to the site investigation only. Reference should be made to original utility plans and HSG47 for locating of services within the site.
2. All marked site features (including historical features, mining features (ie, opencast boundaries and mineshafts), potential contaminant constraints, and any other potential constraint or feature of note) shown on this drawing are given for indicative purposes only. This drawing should not be underlaid in isolation to determine proposed development layouts. Reference should be made to the accompanying report for commentary on the potential location of these features including coordinates if available and any further works required to locate features if required.

REVISION		BY	DATE
0	For information	AL	01/07/24
A	>>	>>	>>
B	>>	>>	>>
C	>>	>>	>>
D	>>	>>	>>

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Thorpe Park,
Leeds
LS15 8GB
www.thesiriusgroup.com
TEL: 0113 264 9960
FAX: 0113 264 9962

CLIENT

Gleeson Homes Ltd

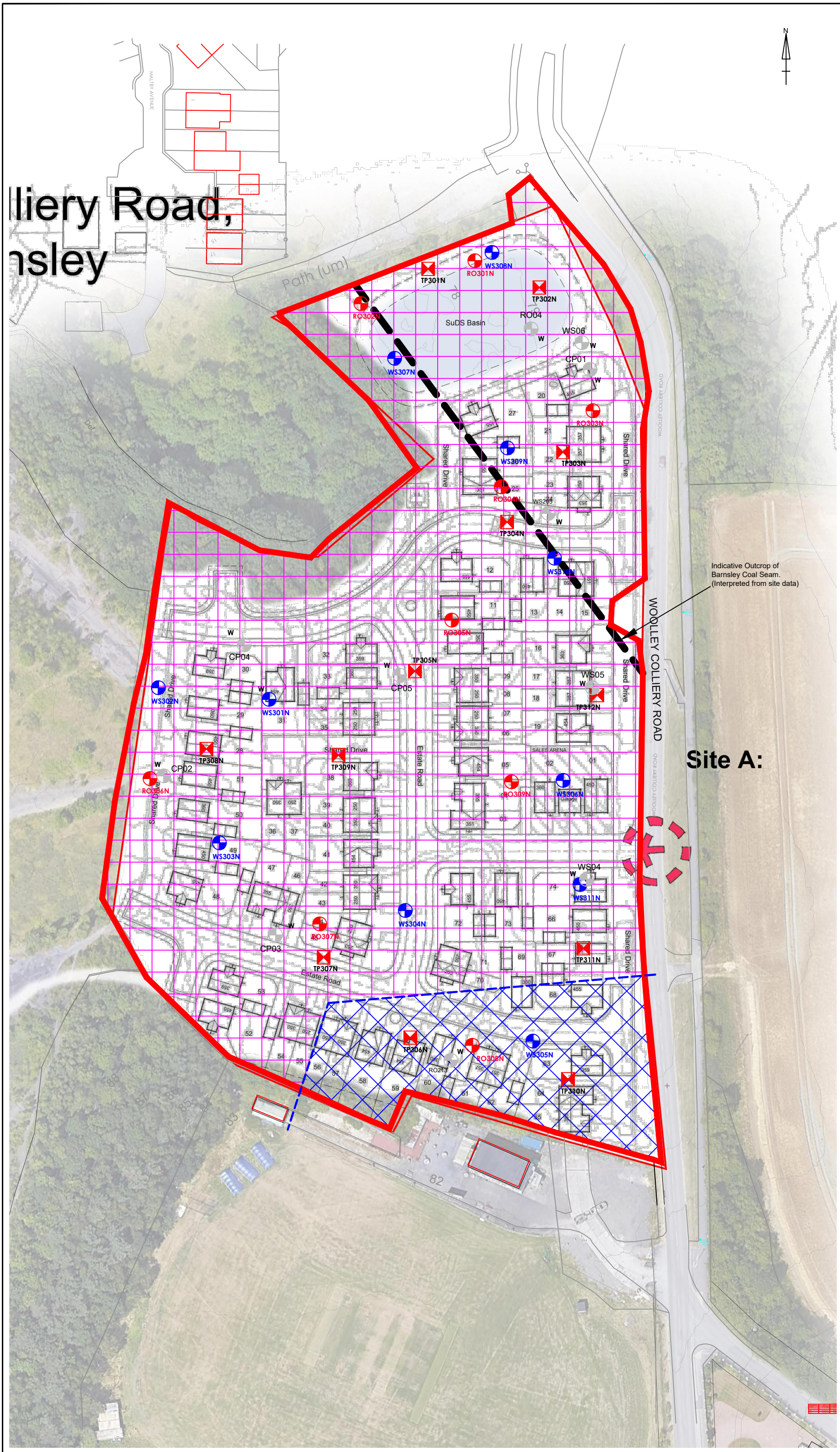
SITE

**Woolley Colliery Road,
Darton
- Northern Area**

DRAWING TITLE

Exploratory Hole Location Plan

DRAWING NO.	REVISION NO.
C10128/04A	0
DRAWN BY: AL	APPROVED BY: AMG
DATE: July 2024	SCALE: 1:1,000	PAPER SIZE: A3



Key:

- TP301 — Trial Pit
- RO301 — Rotary Probehole
- WS303 — Window Sample
- Borehole previously installed as a monitoring well and remains extant
- W — Denotes ground gas / groundwater monitoring well

Indicative foundation areas:

- Made ground plus proposed placed fill generally <2.5m thick. Potential for strip / trench fill. (Proposed earthworks may take full thickness to >2.5m, therefore review will be required once final levels / depth of site turnover confirmed)
- Made ground / alluvial soils plus proposed placed fill generally >2.5m thick. Alternative foundations required.

Proposed layout shown as PRA Architecture Drawing No. 1329.05, dated 06.12.23.

Notes

1. The locations of services shown on this drawing are approximate and are based on utility plans provided by the client. Locations of services are given for the purposes of indicating constraints to the site investigation only. Reference should be made to original utility plans and HSG47 for locating of services within the site.
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REVISION		BY	DATE
0	For information	AL	01/07/24
A	>>	>>	>>
B	>>	>>	>>
C	>>	>>	>>
D	>>	>>	>>

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FAX: 0113 264 9962

CLIENT

Gleeson Homes Ltd

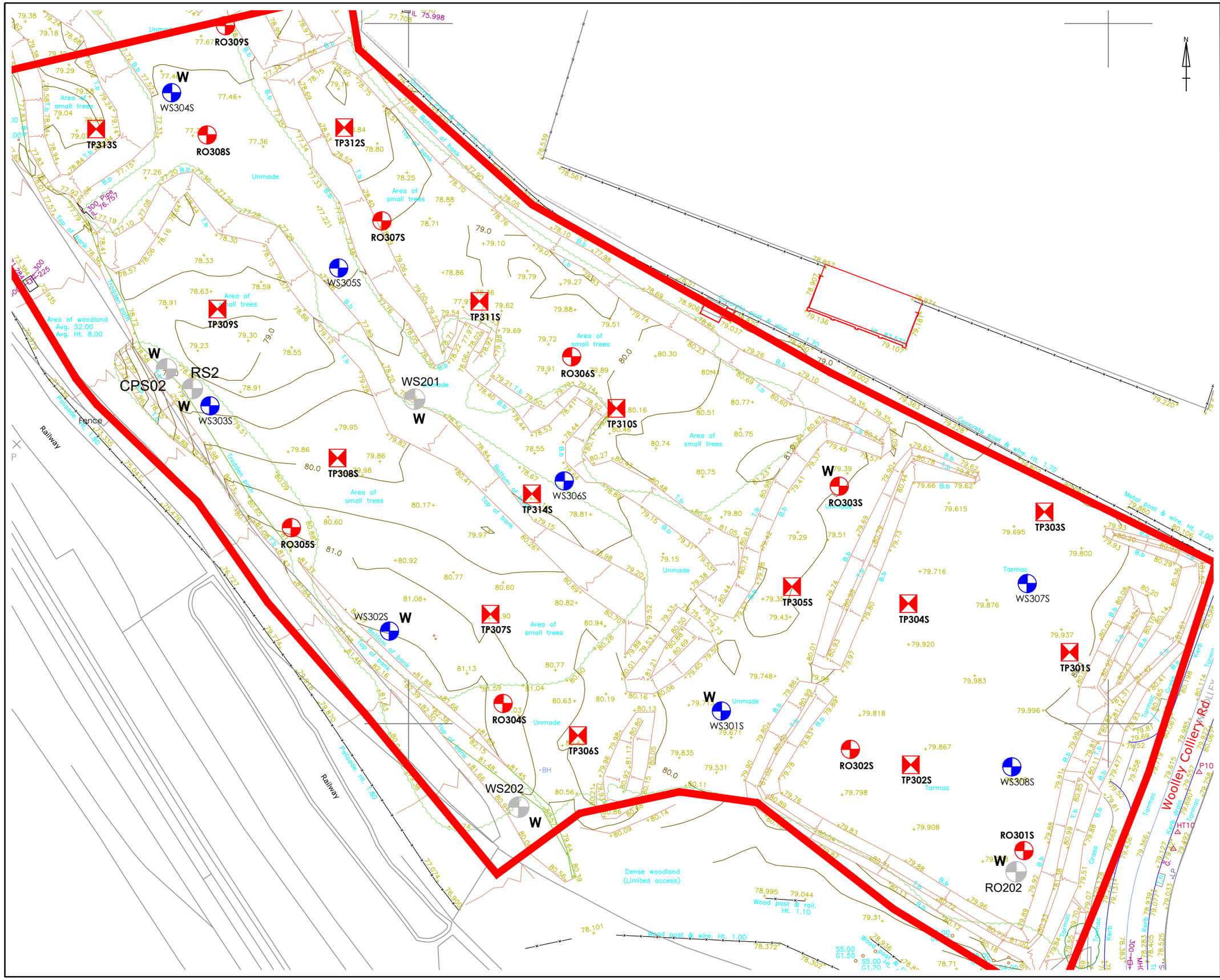
SITE

**Woolley Colliery Road,
Darton
- Northern Area**

DRAWING TITLE

Exploratory Hole Location Plan with Proposed Site Layout

DRAWING NO.	REVISION NO.
C10128/04B	0
DRAWN BY: AL	APPROVED BY: AMG
DATE: July 2024	SCALE: 1:1,000	PAPER SIZE: A3



Key:

- Trial Pit (TP301)
- Rotary Probehole (RO301)
- Window Sample (WS301)
- Borehole previously installed as a monitoring well and remains extant
- W — Denotes ground gas / groundwater monitoring well

Notes

1. The locations of services shown on this drawing are approximate and are based on utility plans provided by the client. Locations of services are given for the purposes of indicating constraints to the site investigation only. Reference should be made to original utility plans and HSG47 for locating of services within the site.
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REVISION		BY	DATE
0	For information	AL	01/07/24
A	>>	>>	>>
B	>>	>>	>>
C	>>	>>	>>
D	>>	>>	>>

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CLIENT

Gleeson Homes Ltd

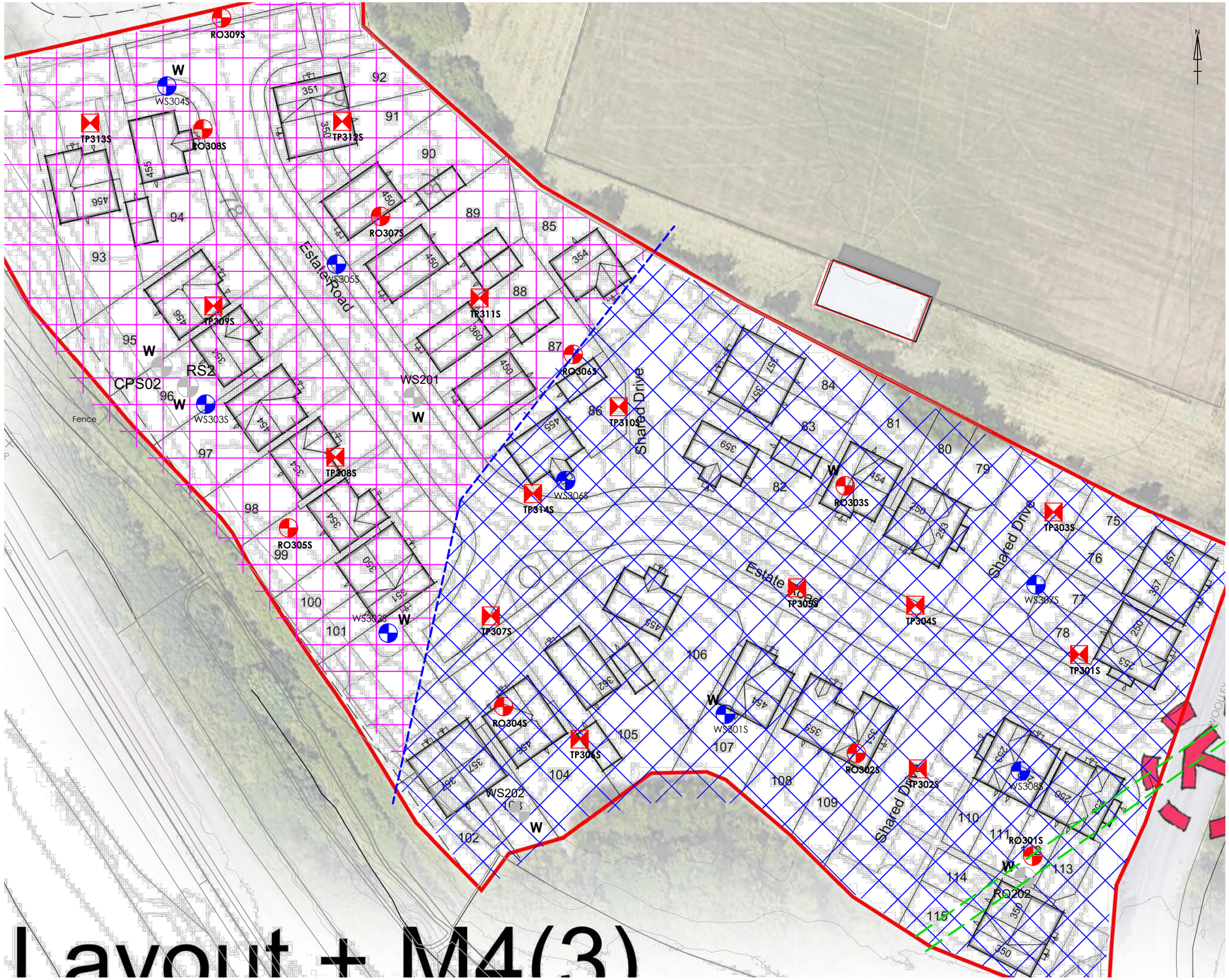
SITE

Woolley Colliery Road, Darton - Southern Area

DRAWING TITLE

Exploratory Hole Location Plan

DRAWING NO.	REVISION NO.
C10128/04C	0
DRAWN BY	APPROVED BY
AL	AMG
DATE	SCALE	PAPER SIZE
July 2024	1:500	A3



Key:

- Trial Pit (TP301)
- Rotary Probehole (RO301)
- Window Sample (WS301)
- Borehole previously installed as a monitoring well and remains extant
- W — Denotes ground gas / groundwater monitoring well
- Indicative location of adit beneath site

Indicative foundation areas:

- Made ground plus proposed placed fill generally <2.5m thick. Potential for strip / trench fill. (Proposed earthworks may take full thickness to >2.5m, therefore review will be required once final levels / depth of site turnover confirmed)
- Made ground plus proposed placed fill generally >2.5m thick. Alternative foundations required.

Proposed layout shown as PRA Architecture Drawing No. 1329.05, dated 06.12.23.

Notes

1. The locations of services shown on this drawing are approximate and are based on utility plans provided by the client. Locations of services are given for the purposes of indicating constraints to the site investigation only. Reference should be made to original utility plans and HSG47 for locating of services within the site.
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REVISION		BY	DATE
0	For information	AL	01/07/24
A	>>	>>	>>
B	>>	>>	>>
C	>>	>>	>>
D	>>	>>	>>

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CLIENT

Gleeson Homes Ltd

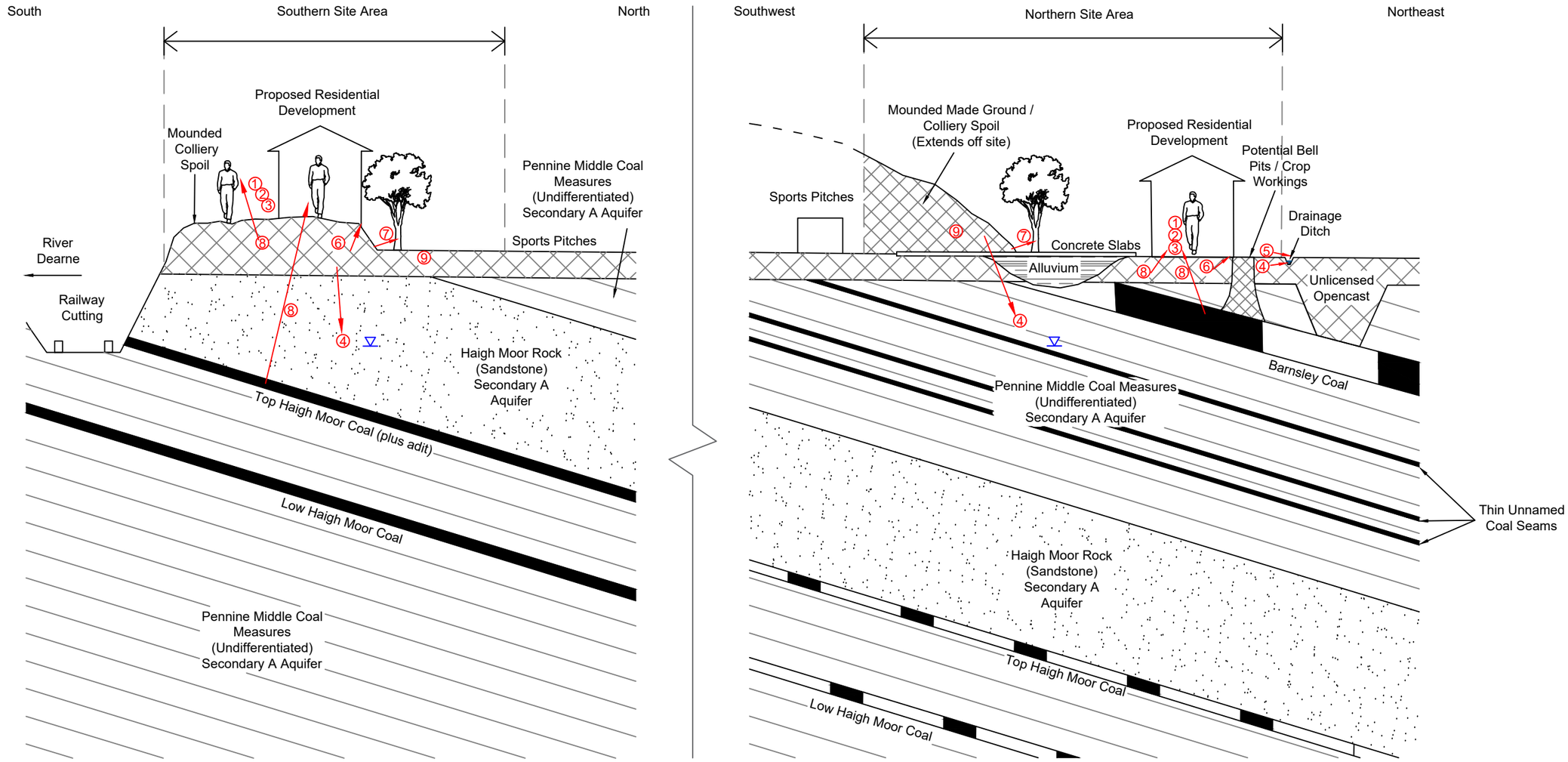
SITE

Woolley Colliery Road, Darton - Southern Area

DRAWING TITLE

Exploratory Hole Location Plan with Proposed Site Layout

DRAWING NO.	REVISION NO.
C10128/04D	0
DRAWN BY: AL	APPROVED BY: AMG
DATE: July 2024	SCALE: 1:500
PAPER SIZE: A3	



Contamination Source	Contamination Pathway	Potential Receptors	Risk of Significant Contaminant Linkage
Arsenic, naphthalene and pH within made ground, localised PAHs and lead, and ACMs on site surface.	1. Direct and indirect ingestion of soil 2. Inhalation of contaminated dust and vapours 3. Dermal contact	Site end-users	Moderate Moderate (ACMs)
	4. Migration via leaching 5. Surface water run-off	Controlled waters (groundwater) Controlled waters (surface water)	Low to Moderate Low to Moderate
Acids and sulphates within made ground, natural strata and groundwater.	6. Acid / sulphate attack	Concrete substructures to proposed buildings	Moderate
Phytotoxic metals and acidic pH within made ground.	7. Plant uptake	Landscaping within proposed development.	Low to Moderate
Hazardous ground gases from shallow coal workings, on-site made ground and nearby opencast workings.	8. Gas migration / Inhalation	End-users	Moderate
Combustible material within made ground (coal).	9. Damage via combustion / smouldering	Proposed development infrastructure	High

NOTES

REVISION		BY	DATE
0	For Information	AL	08/07/24
A	>>	>>	>>
B	>>	>>	>>
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D	>>	>>	>>

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CLIENT

Gleeson Homes Ltd

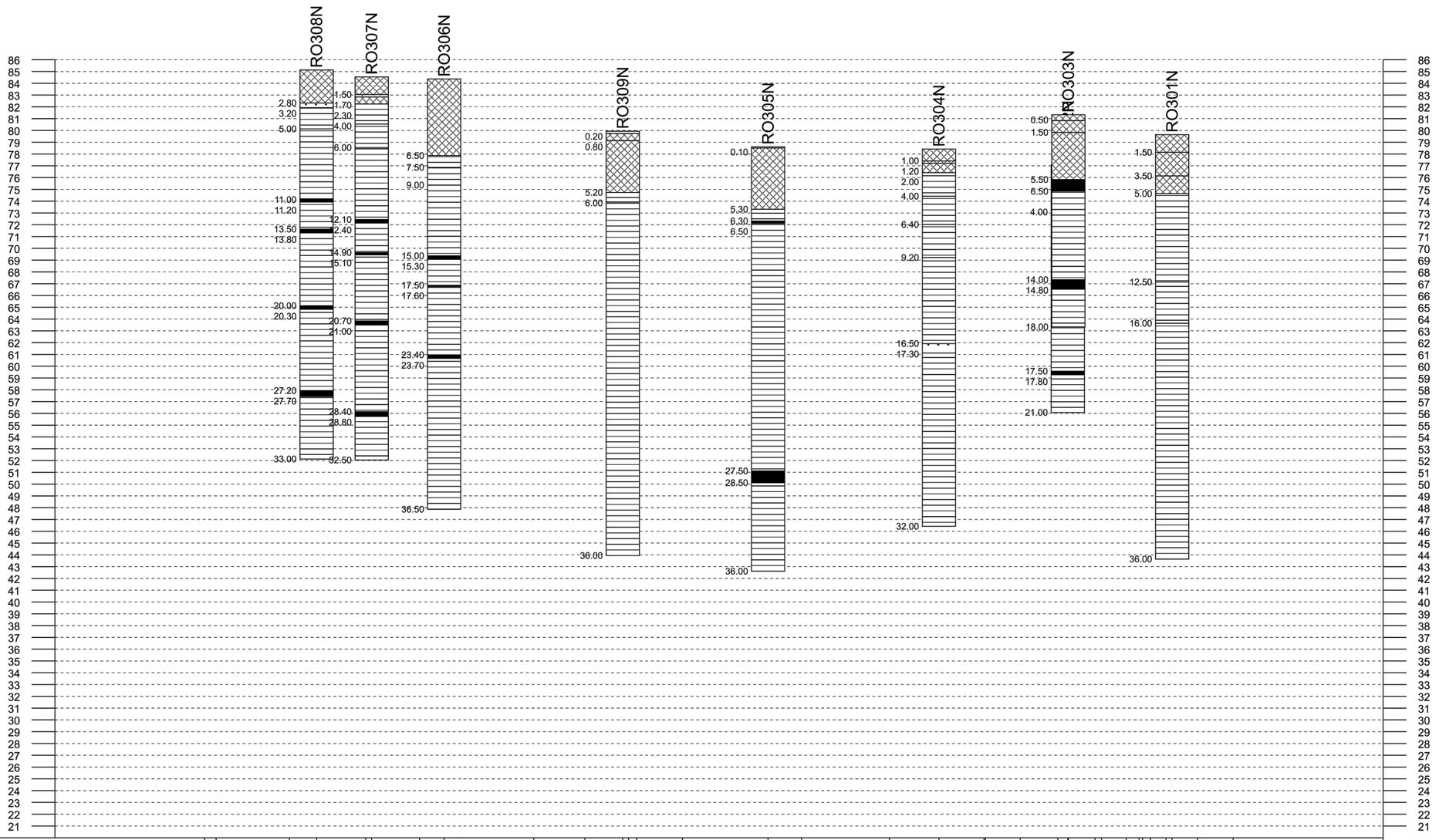
SITE

Woolley Colliery Road, Darton

DRAWING TITLE

Revised Conceptual Site Model

DRAWING NO.	REVISION NO.
C10128/07	0
DRAWN BY	APPROVED BY
AL	AMG
DATE	SCALE	PAPER SIZE
July 2024	NTS	A3

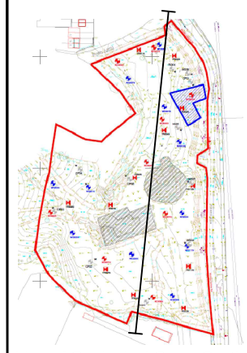


Legend Key

- MADE GROUND
- CONCRETE
- SANDSTONE
- MUDSTONE
- COAL

Chainage (m)	0.00	2.75	20.06	26.50	38.13	38.53	50.90	56.68	78.04	90.14	98.10	100.46	102.40	113.23	133.48	141.41	162.20	173.90	184.60	184.90	193.12	202.02	204.52	210.83	212.37	218.21	221.04	221.35	222.82	223.82	235.10	243.50
Offset (m)	9.31		58.97	62.76	4.26	4.02	17.75	52.28	45.27	8.28	41.34	44.04		0.34	6.42	4.47	26.46	3.32	17.84		2.05	0.67	34.83	3.96	13.83	7.84	35.01	28.52	2.98	30.31	10.74	
Elevation (mAOD)	85.43		84.30	85.13	84.54	84.51	84.10	84.36	83.36	80.98	79.94	80.15	84.95	78.90	78.61	77.97	79.88	78.42	87.98		78.73	79.07	81.06	78.93	81.07	79.05	77.83	78.30	80.26	80.26	79.44	

NOTES



Line of Geological Cross Section

REVISION		BY	DATE
0	For Information	AL	30/07/24
A	>>	>>	>>
B	>>	>>	>>
C	>>	>>	>>
D	>>	>>	>>

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CLIENT

Gleeson Homes Ltd

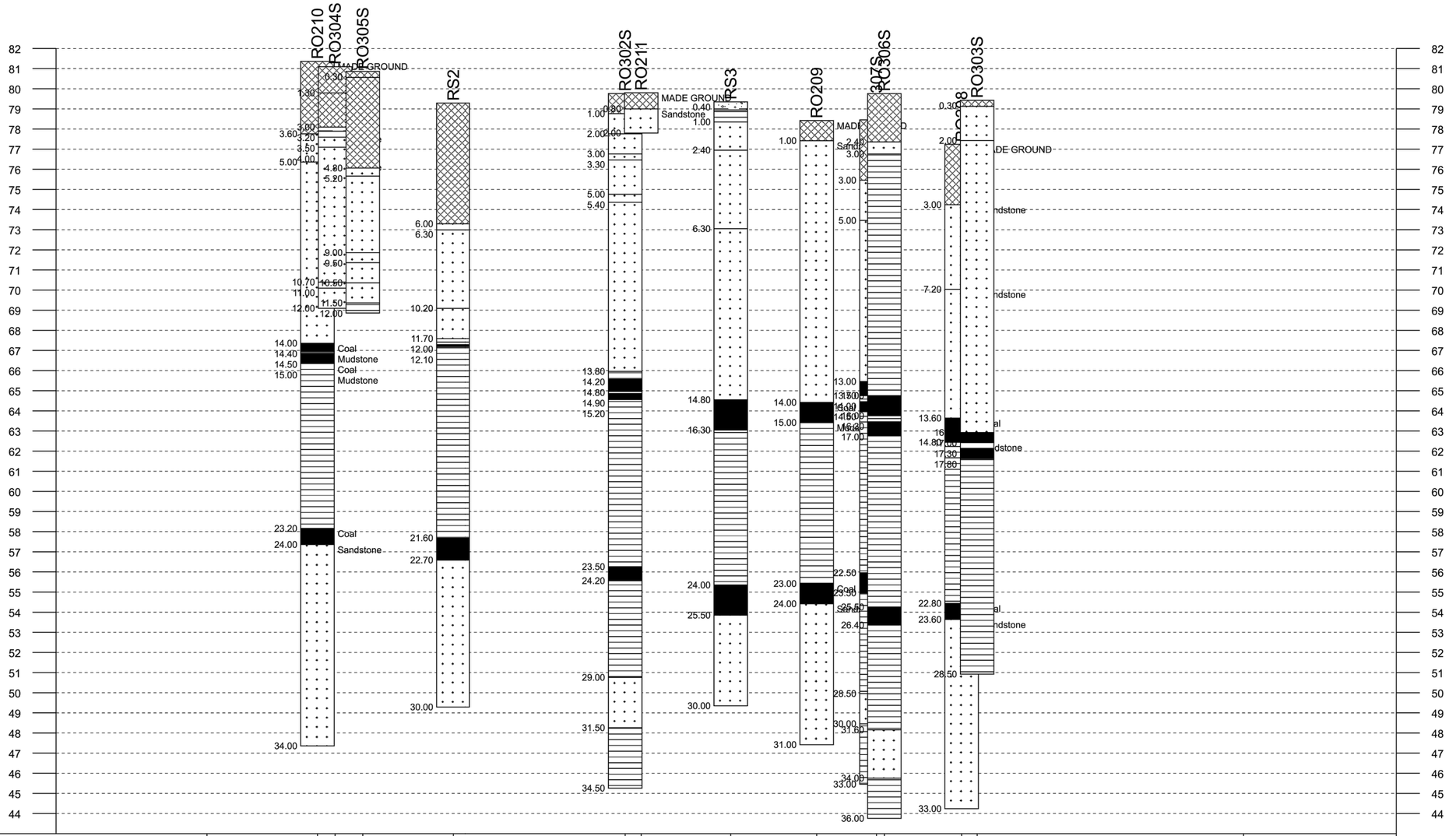
SITE

Woolley Colliery Road, Darton

DRAWING TITLE

Geological Cross Section - Northern site area

DRAWING NO.	REVISION NO.
C10128/06	0
DRAWN BY: AL	APPROVED BY: AMG
DATE: July 2024	SCALE: NTS
PAPER SIZE: A3	


RO210
RO304S
RO305S
RS2
RO302S
RO211
RS3
RO209
RO306S
RO303S
MADE GROUND
Sandstone
Coal
Mudstone
Sandstone
Legend Key
MADE GROUND
Sandy gravelly CLAY
SANDSTONE
MUDSTONE
CLAY
COAL

| | | |

Woolley Colliery Road, Darton, Barnsley

gleeson

NORTH

WOOLLEY COLLIERY ROAD

Site A:

Site B:

(Subject to Tree Survey & Planning)

0 50M

Site A:

Housetype: M4(2)

				Sqft:	No:	
250	Greystones	2B 2St	753	12	20%	
253	Tallow	2B 2St	753	03		
350	Glin	3B 2St	904	11	31%	
351	Cranford	3B 2St	904	03		
355	Neale	3B 2St	904	03		
357	Rosemount	3B 2St	904	06		
354	Strade	3B 2St	904	00	19%	
359	Clifden	3B 2St	984	04		
360	Milford	3B 2St	919	07		
362	M4(3)	3B 2St		01		
363	M4(3)	3B 2St		02		
450	Dalkey	4B 2St	1156	08	30%	
454	Blessington	4B 2St	1149	06		
455	Bantry	4B 2St	1138	08		
		Total:		**74**		

Gross Site Area:
2.920Ha / 7.22 Acres

Nett Developable:
2.094Ha / 5.17 Acres

(35.34 DPH)

Site B:

Housetype: M4(2)

				Sqft:	No:	
250	Greystones	2B 2St	753	04	20%	
253	Tallow	2B 2St	753	04		
350	Glin	3B 2St	904	04	34%	
351	Cranford	3B 2St	904	03		
355	Neale	3B 2St	904	01		
357	Rosemount	3B 2St	904	06		
354	Strade	3B 2St	904	04	17%	
359	Clifden	3B 2St	984	01		
360	Milford	3B 2St	919	01		
362	M4(3)	3B 2St		01		
450	Dalkey	4B 2St	1156	03	29%	
454	Blessington	4B 2St	1149	03		
455	Bantry	4B 2St	1138	03		
456	M4(3)	4B 2St		03		
		Total:		**41**		

Gross Site Area:
1.264Ha / 3.12 Acres

Nett Developable:
1.087Ha / 2.69 Acres

(37.72 DPH)

Combined:

Housetype: M4(2)

				Sqft:	No:	
250	Greystones	2B 2St	753	16	20%	
253	Tallow	2B 2St	753	07		
350	Glin	3B 2St	904	15	32%	
351	Cranford	3B 2St	904	06		
355	Neale	3B 2St	904	04		
357	Rosemount	3B 2St	904	12		
354	Strade	3B 2St	904	04	18%	
359	Clifden	3B 2St	984	05		
360	Milford	3B 2St	919	08		
362	M4(3)	3B 2St		02		
363	M4(3)	3B 2St		02		
450	Dalkey	4B 2St	1156	11	30%	
454	Blessington	4B 2St	1149	09		
455	Bantry	4B 2St	1138	11		
456	M4(3)	4B 2St		03		
		Total:		**115**		

Gross Site Area:
4.184Ha / 10.34 Acres

Nett Developable:
3.181Ha / 7.86 Acres

(36.15 DPH)

Rev	By	Note	Date
Rev	**By**	**Note**	**Date**

Status	**Sketch**				
	Sketch	**Planning**	**Tender**	**Construction**	**As Built**

PRA Architecture
55 The Tannery . Lawrence Street . York . YO10 3WH T:01904 653772
E:mail@pra-architecture.com W: www.pra-architecture.com

PROJECT	Woolley Colliery Road, Darton, Barnsley		
TITLE	Proposed Sketch Layout + M4(3)		
CLIENT	Gleeson		
DATE	06.12.23	SCALE	1:500@A0
DRAWING	1329.05	REVISION	-
DRAWN	SH	CHECKED	SH

Do not scale from this drawing except for planning purposes. This drawing and any designs thereon are the copyright of PRA Architecture Ltd.

Sketch Layout + M4(3)

DO NOT SCALE FROM THIS DRAWING

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER HBL DRAWINGS ISSUED FOR THIS PROJECT

K E Y

- 37.50 — Existing Ground Level
- Proposed FFL
- Retaining Wall (Max Retained Height Shown)
- Extra Facings (150mm Below DPC to Finished ground level (Max Height Shown))
- Tanking

Note:-

- The levels shown on this drawing are approximate and are subject to change at detailed design stage.

- Minor retaining walls and extra facings less than 0.15m not shown.

- Steps may be required to some dwellings, however, these have not been shown at this stage.

- Subject to approval and detailed design

SCHEMATIC DESIGN - SUBJECT TO:

1. APPROVAL OF REGULATORY AUTHORITIES
2. CONFIRMATION OF EXISTING ASSETS (INCLUDING LOCATION, DEPTHS, CONDITION ETC)
3. DETAILED DESIGN AND FURTHER CALCULATIONS.

ALL DESIGN PROPOSALS ARE SUBJECT TO A DETAILED ASSESSMENT BY HBL ASSOCIATES. NO INFORMATION CONTAINED WITHIN THIS DRAWING SHOULD BE USED FOR THE PURPOSES OF CONSTRUCTION. ALL LEVEL INFORMATION IS SUBJECT TO A DETAILED ASSESSMENT OF THE EXISTING FEATURES

REV.	DATE	DRAWN	DESCRIPTION	CHKD	APPRD

STATUS DESCRIPTION: FOR INFORMATION — STATUS: S1

HBL
Brook House
Weybrook Road,
Manchester M19 2QD
+44 (0)161 432 9977 | www.hbl.ltd
Consulting Civil & Structural Engineers

PROJECT: WOOLLEY COLLIERY

DRAWING TITLE: PROPOSED LEVELS APPRAISAL SHEET 1 OF 3

CLIENT: HARRON HOMES

HBL REF.	DATE	SCALE(S)	
10701	JUN'24	1:500	A1

DRAWN	CHECKED	APPROVED
PC	RJ	RJ

DRAWING No.: 10701-HBL-XX-XX-XX-X-SK04 — REV.: P01

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K E Y

37.50 — Existing Ground Level

Proposed FFL

Retaining Wall (Max Retained Height Shown)

Extra Facings (150mm Below DPC to Finished ground level (Max Height Shown)

Tanking

Note:-

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- Subject to approval and detailed design

SCHEMATIC DESIGN - SUBJECT TO:

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REV.	DATE	DRAWN	DESCRIPTION	CHKD	APPRD

STATUS DESCRIPTION: FOR INFORMATION — STATUS: S1

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Weybrook Road,
Manchester M19 2QD
+44 (0)161 432 9977 | www.hbl.ltd
Consulting Civil & Structural Engineers

PROJECT: WOOLLEY COLLIERY

DRAWING TITLE: PROPOSED LEVELS APPRAISAL SHEET 2 OF 3

CLIENT: HARRON HOMES

HBL REF.	DATE	SCALE(S)	
10701	JUN'24	1:500	A1

DRAWN	CHECKED	APPROVED
PC	RJ	RJ

DRAWING No.: 10701-HBL-XX-XX-XX-X-SK05 — REV.: P01

DO NOT SCALE FROM THIS DRAWING

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER HBL DRAWINGS ISSUED FOR THIS PROJECT

KEY

- 37.50 — Existing Ground Level
- Proposed FFL
- Retaining Wall (Max Retained Height Shown)
- Extra Facings (150mm Below DPC to Finished ground level (Max Height Shown))
- Tanking

Note:-

- The levels shown on this drawing are approximate and are subject to change at detailed design stage.

- Minor retaining walls and extra facings less than 0.15m not shown.

- Steps may be required to some dwellings, however, these have not been shown at this stage.

- Subject to approval and detailed design

SCHEMATIC DESIGN - SUBJECT TO:

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REV.	DATE	DRAWN	DESCRIPTION	CHKD	APPRD

STATUS DESCRIPTION: FOR INFORMATION — STATUS: S1

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Consulting Civil & Structural Engineers

PROJECT: WOOLLEY COLLIERY

DRAWING TITLE: PROPOSED LEVELS APPRAISAL SHEET 3 OF 3

CLIENT: HARRON HOMES

HBL REF.	DATE	SCALE(S)	
10701	JUN'24	1:500	A1

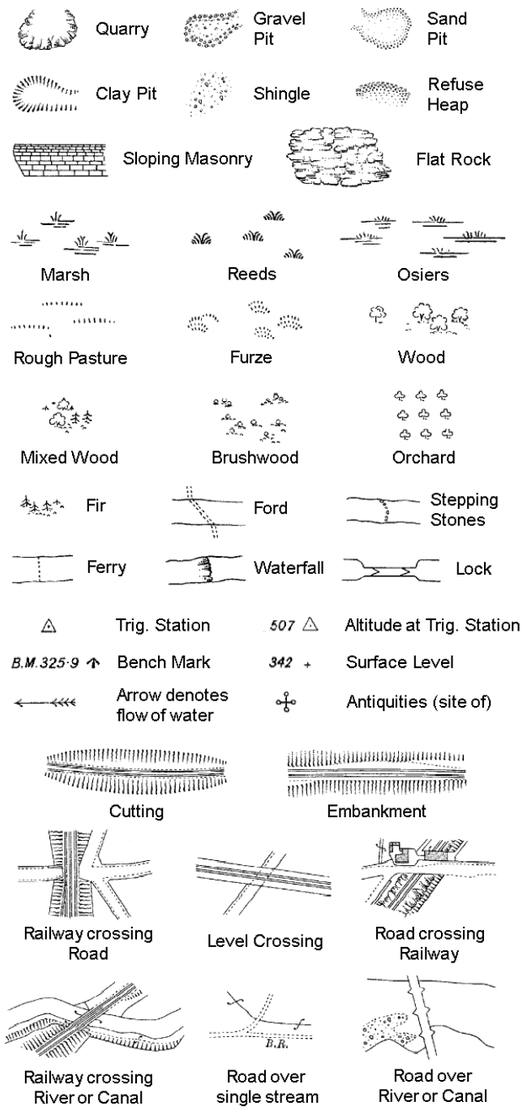
DRAWN	CHECKED	APPROVED
PC	RJ	RJ

DRAWING No.	REV.
10701-HBL-XX-XX-XX-X-SK06	P01

APPENDIX B-1
Desk Study Information (Northern Site Area)

Historical Mapping Legends

Ordnance Survey County Series and Ordnance Survey Plan 1:2,500



County Boundary (Geographical)

County & Civil Parish Boundary

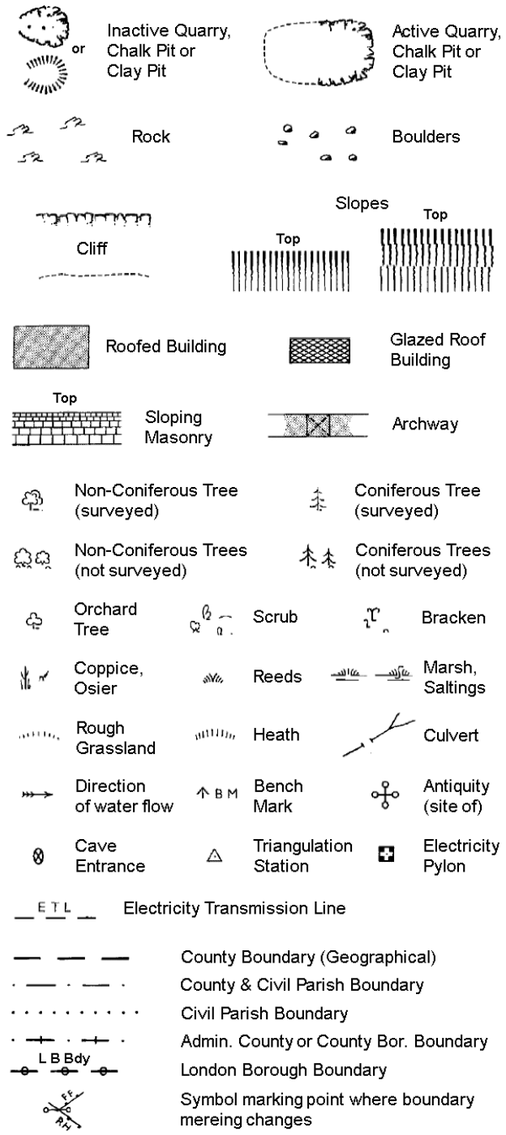
Administrative County & Civil Parish Boundary

Co. Boro. Bdy. County Borough Boundary (England)

Co. Burgh Bdy. County Burgh Boundary (Scotland)

B P B S	Boundary Post or Stone	P.C.B	Police Call Box
B.R.	Bridle Road	P	Pump
E.P	Electricity Pylon	S.P	Signal Post
F.B.	Foot Bridge	St.	Sluice
F.P.	Foot Path	Sp.	Spring
G.P	Guide Post or Board	T.C.B	Telephone Call Box
M.S	Mile Stone	Tr.	Trough
M.P M.R	Mooring Post or Ring	W	Well

Ordnance Survey Plan, Additional SIMs and Supply of Unpublished Survey Information 1:2,500 and 1:1,250



County Boundary (Geographical)

County & Civil Parish Boundary

Civil Parish Boundary

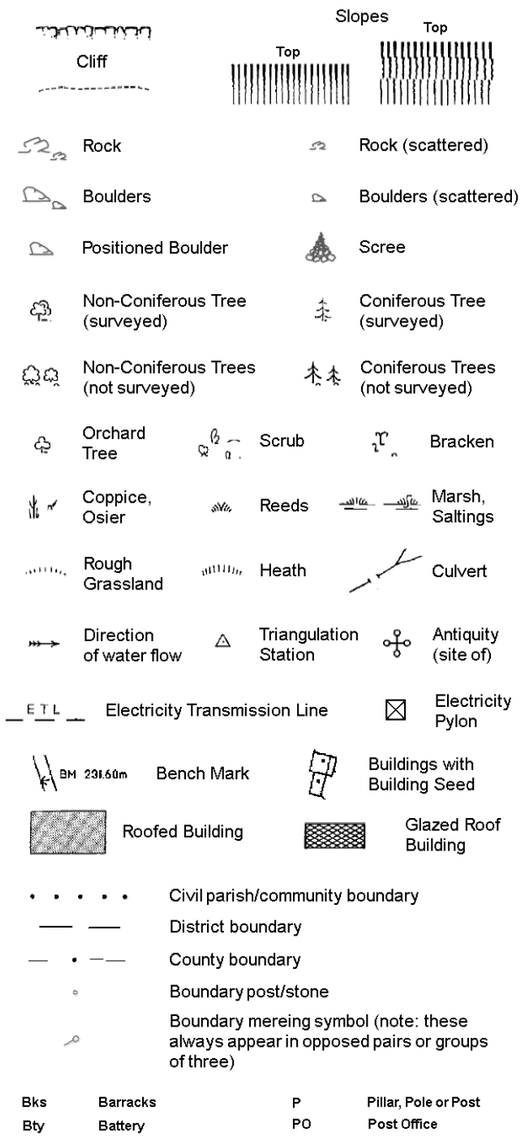
Admin. County or County Bor. Boundary

L B Bdy London Borough Boundary

Symbol marking point where boundary mereing changes

BH	Beer House	P	Pillar, Pole or Post
BP, BS	Boundary Post or Stone	PO	Post Office
Cn, C	Capstan, Crane	PC	Public Convenience
Chy	Chimney	PH	Public House
D Fn	Drinking Fountain	Pp	Pump
El P	Electricity Pillar or Post	SB, S Br	Signal Box or Bridge
FAP	Fire Alarm Pillar	SP, SL	Signal Post or Light
FB	Foot Bridge	Spr	Spring
GP	Guide Post	Tk	Tank or Track
H	Hydrant or Hydraulic	TCB	Telephone Call Box
LC	Level Crossing	TCP	Telephone Call Post
MH	Manhole	Tr	Trough
MP	Mile Post or Mooring Post	Wr Pt, Wr T	Water Point, Water Tap
MS	Mile Stone	W	Well
NTL	Normal Tidal Limit	Wd Pp	Wind Pump

Large-Scale National Grid Data 1:2,500 and 1:1,250



Civil parish/community boundary

District boundary

County boundary

Boundary post/stone

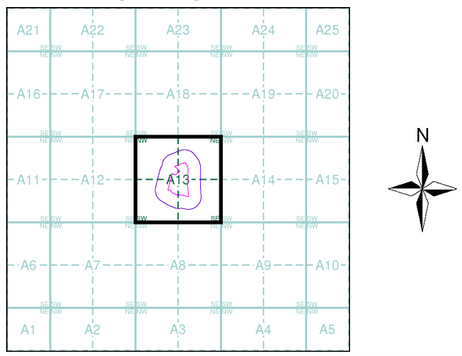
Boundary mereing symbol (note: these always appear in opposed pairs or groups of three)

Bks	Barracks	P	Pillar, Pole or Post
Bty	Battery	PO	Post Office
Cemy	Cemetery	PC	Public Convenience
Chy	Chimney	Pp	Pump
Cis	Cistern	Ppg Sta	Pumping Station
Dismtd Rly	Dismantled Railway	PW	Place of Worship
El Gen Sta	Electricity Generating Station	Sewage Ppg Sta	Sewage Pumping Station
El P	Electricity Pole, Pillar	SB, S Br	Signal Box or Bridge
El Sub Sta	Electricity Sub Station	SP, SL	Signal Post or Light
FB	Filter Bed	Spr	Spring
Fn / D Fn	Fountain / Drinking Ftn.	Tk	Tank or Track
Gas Gov	Gas Valve Compound	Tr	Trough
GVC	Gas Governer	Wd Pp	Wind Pump
GP	Guide Post	Wr Pt, Wr T	Water Point, Water Tap
MH	Manhole	Wks	Works (building or area)
MP, MS	Mile Post or Mile Stone	W	Well

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Yorkshire	1:2,500	1893	2
Yorkshire	1:2,500	1906	3
Yorkshire	1:2,500	1918	4
Ordnance Survey Plan	1:2,500	1961	5
Ordnance Survey Plan	1:2,500	1970 - 1974	6
Ordnance Survey Plan	1:1,250	1978	7
Additional SIMs	1:2,500	1984 - 1989	8
Additional SIMs	1:1,250	1984 - 1990	9
Large-Scale National Grid Data	1:2,500	1993	10
Large-Scale National Grid Data	1:1,250	1993	11
Large-Scale National Grid Data	1:1,250	1993 - 1994	12
Large-Scale National Grid Data	1:1,250	1995	13

Historical Map - Segment A13



Order Details

Order Number:	347386087_1_1
Customer Ref:	C10128
National Grid Reference:	431190, 410780
Slice:	A
Site Area (Ha):	2.95
Search Buffer (m):	100

Site Details

Land off Woolley Colliery Road (North), Darton, BARNSLEY

Landmark INFORMATION GROUP

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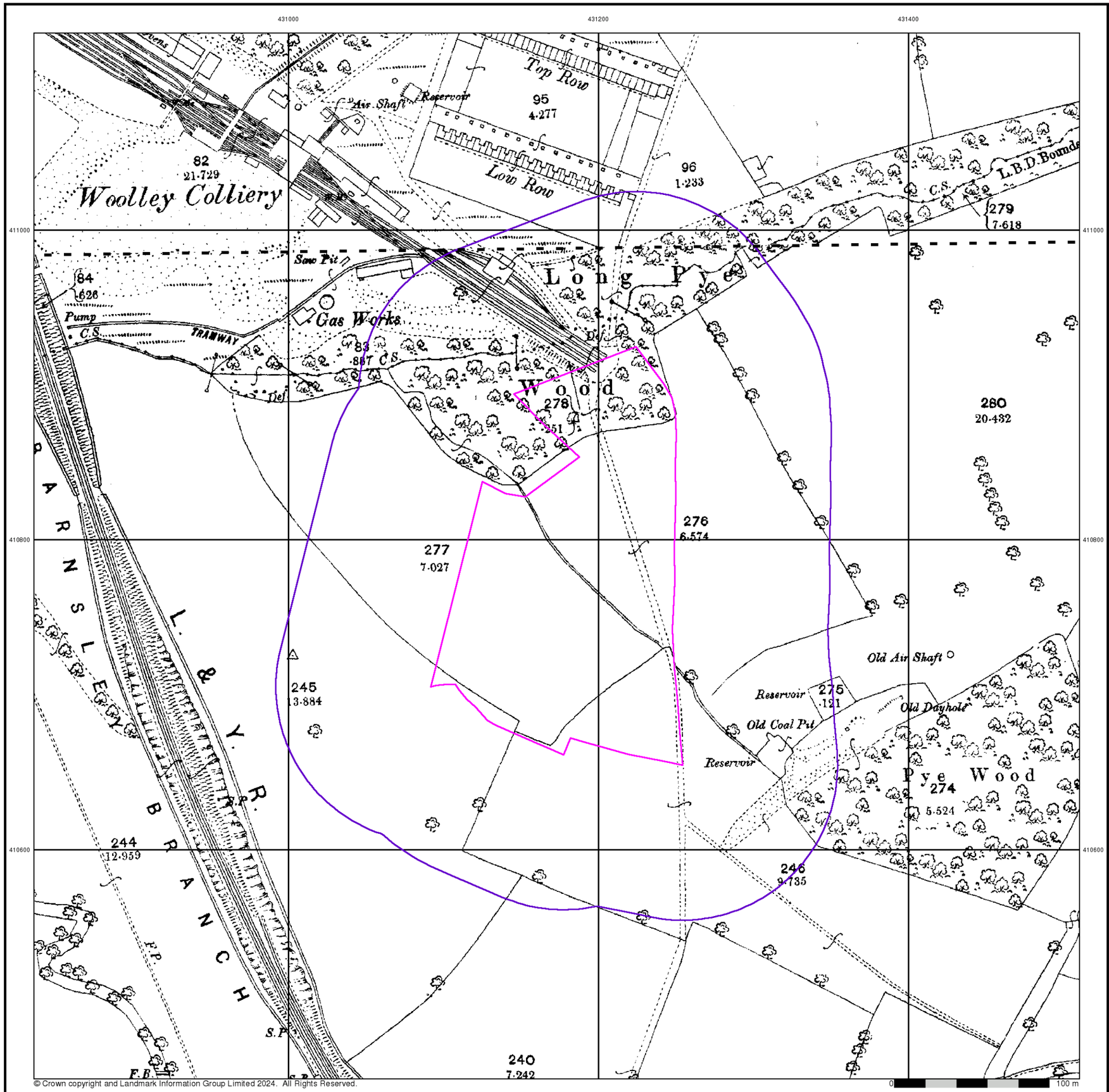

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Yorkshire

Published 1893

Source map scale - 1:2,500

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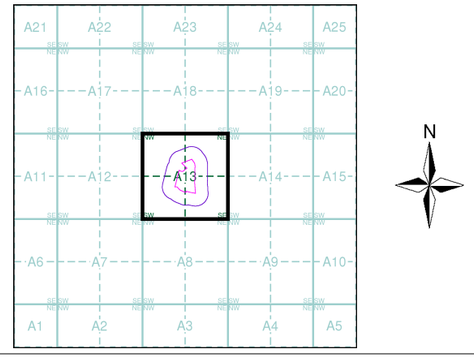
Map Name(s) and Date(s)

262_10
1893
1:2,500

262_14
1893
1:2,500

Historical Map - Segment A13



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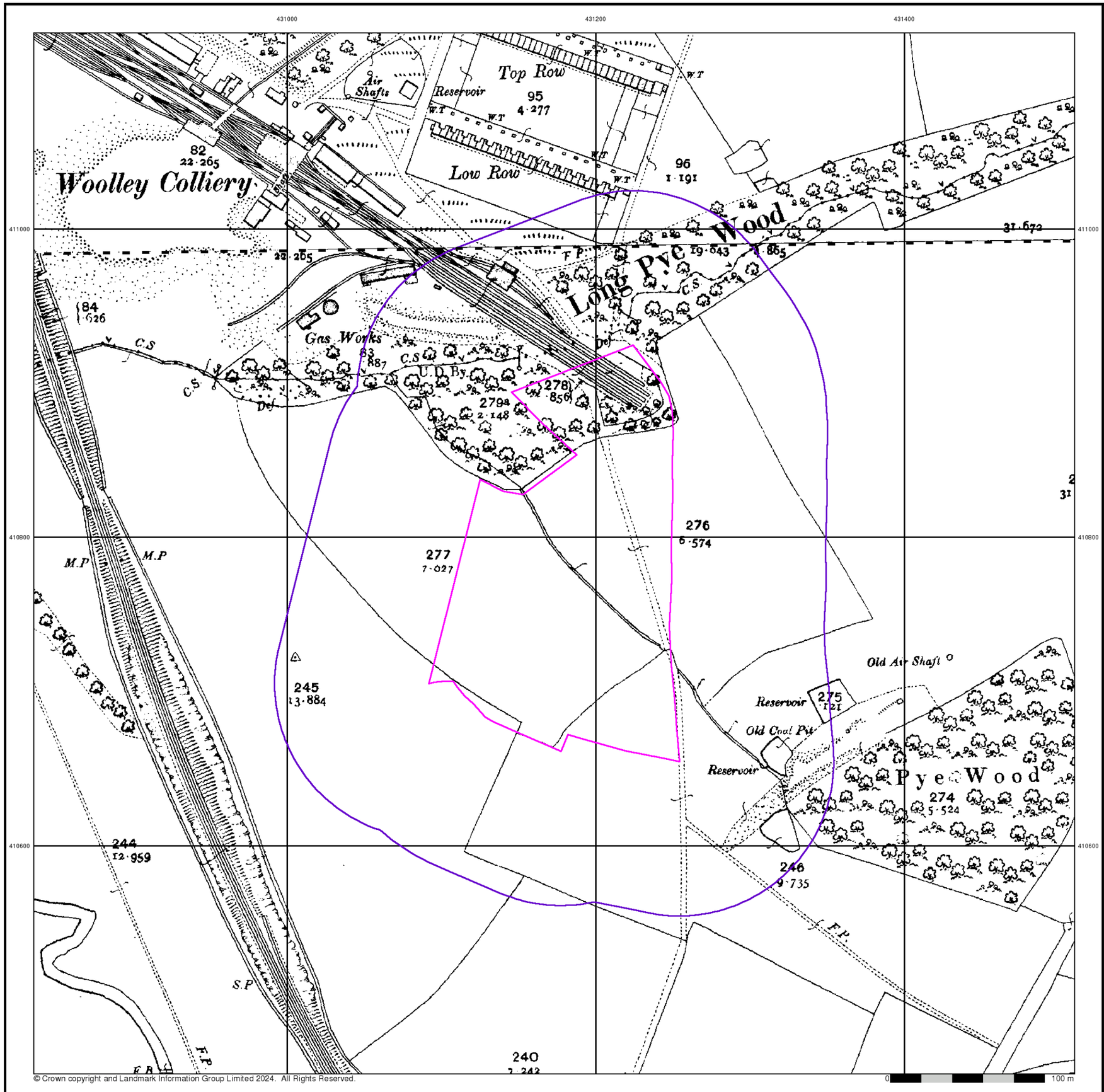

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Yorkshire

Published 1906

Source map scale - 1:2,500

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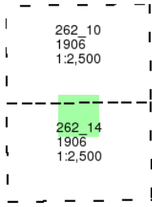
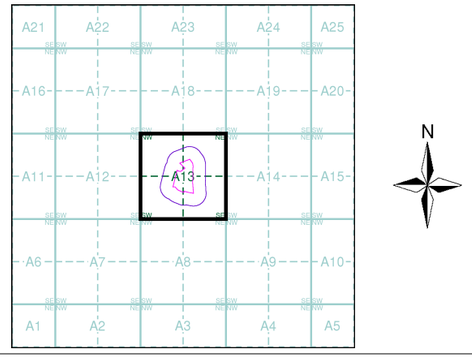
Map Name(s) and Date(s)



Historical Map - Segment A13



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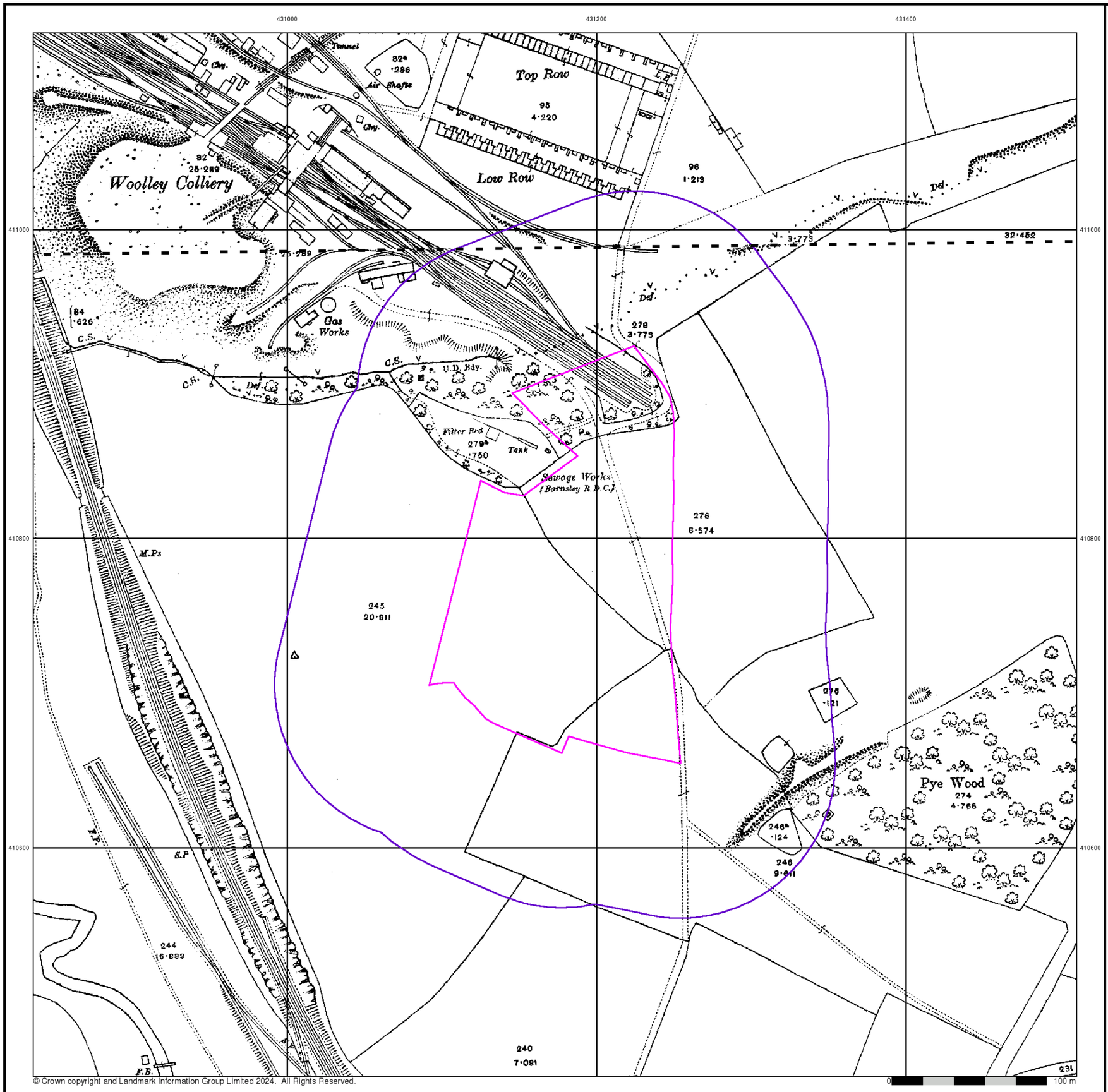

Yorkshire

Published 1918

Source map scale - 1:2,500

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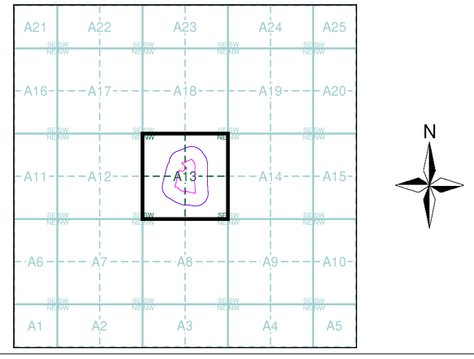
Map Name(s) and Date(s)

262_10
1918
1:2,500

262_14
1918
1:2,500

Historical Map - Segment A13



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Ordnance Survey Plan

Published 1961

Source map scale - 1:2,500

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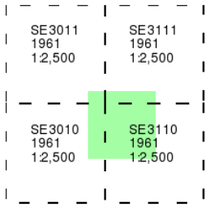
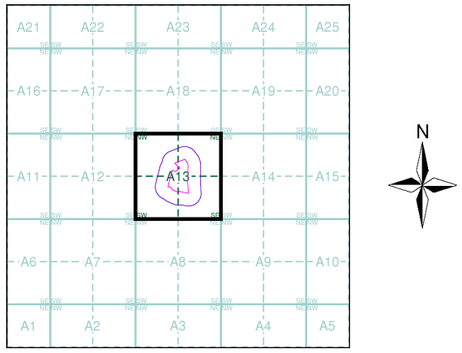
Map Name(s) and Date(s)



Historical Map - Segment A13



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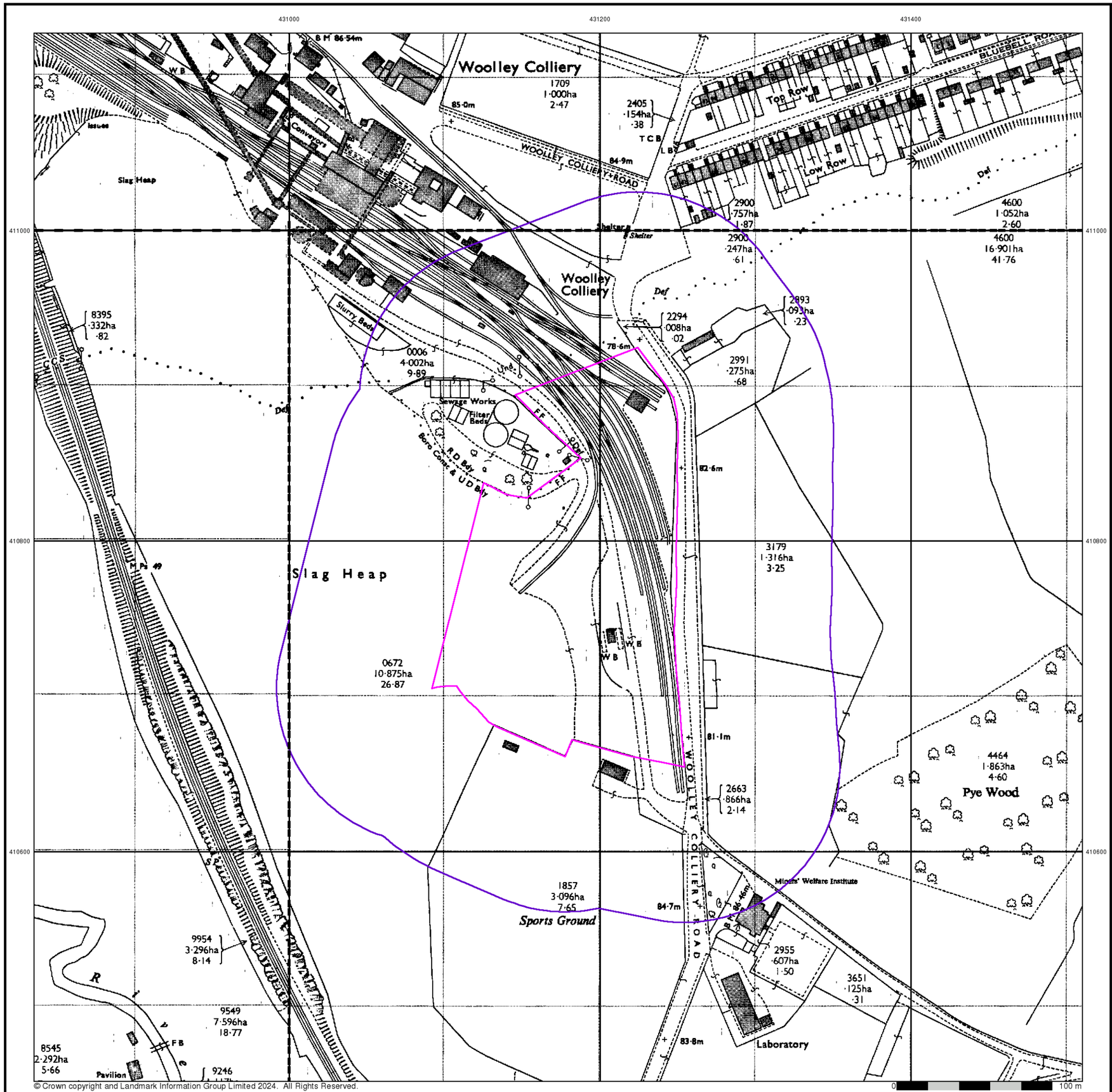


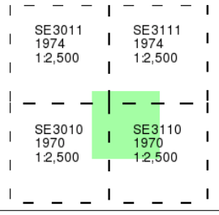
Ordnance Survey Plan

Published 1970 - 1974

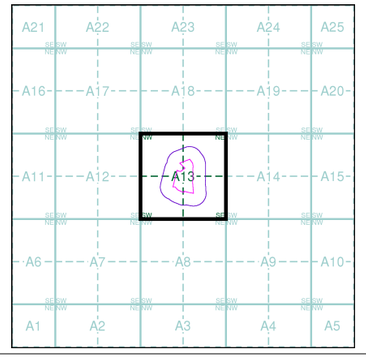
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

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Customer Ref:	C10128
National Grid Reference:	431190, 410780
Slice:	A
Site Area (Ha):	2.95
Search Buffer (m):	100

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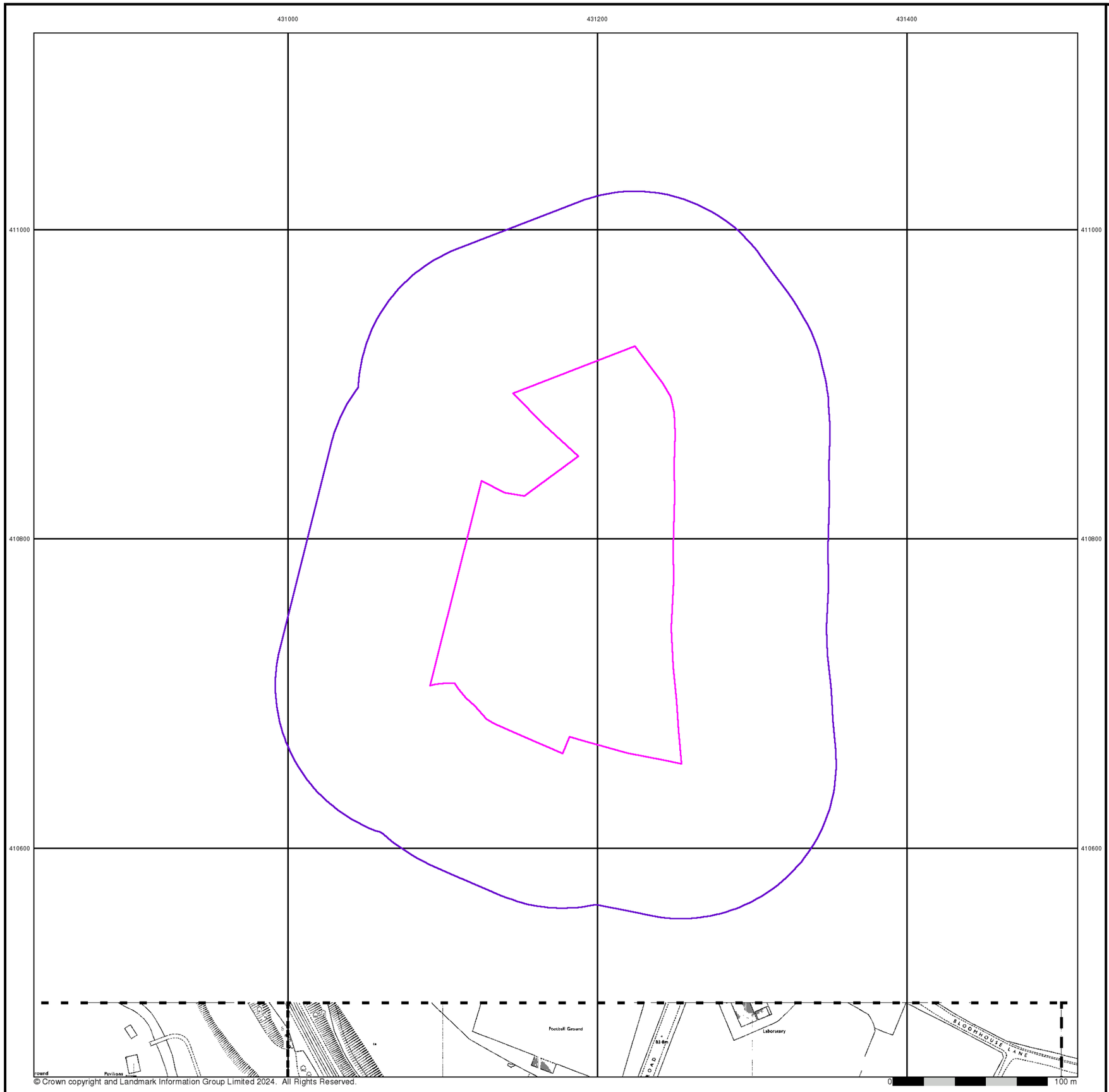

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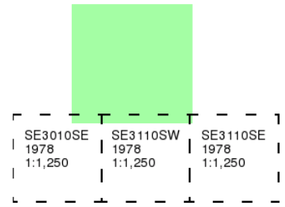
Ordnance Survey Plan

Published 1978

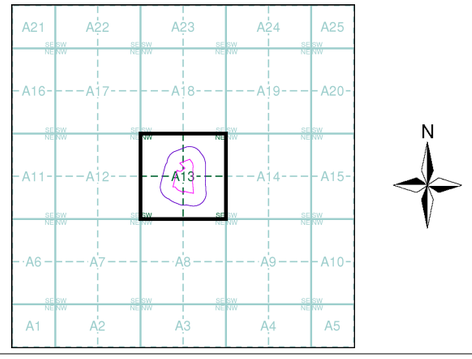
Source map scale - 1:1,250

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number:	347386087_1_1
Customer Ref:	C10128
National Grid Reference:	431190, 410780
Slice:	A
Site Area (Ha):	2.95
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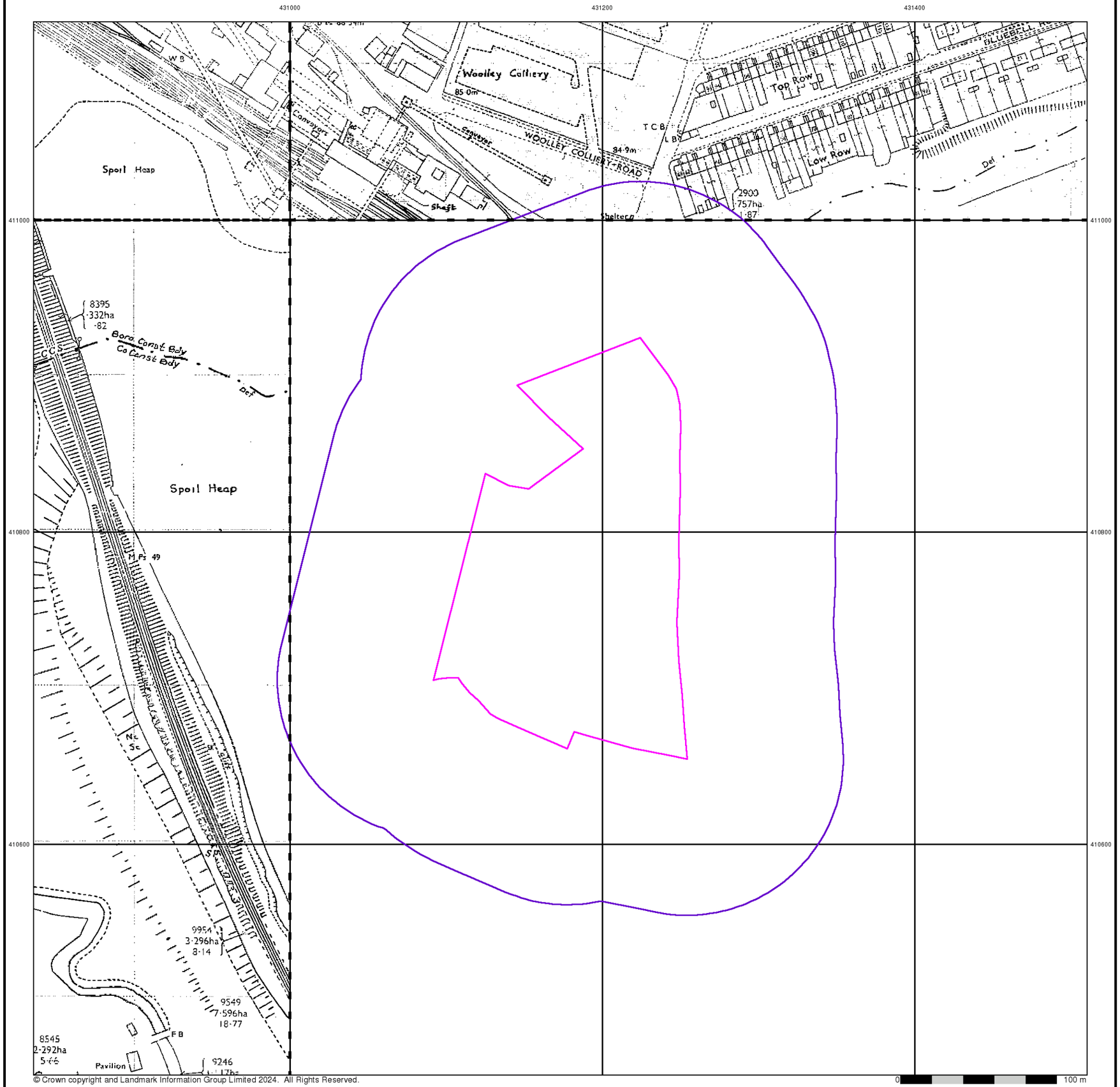

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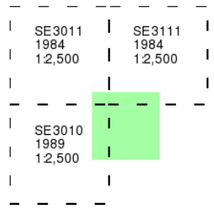
Additional SIMs

Published 1984 - 1989

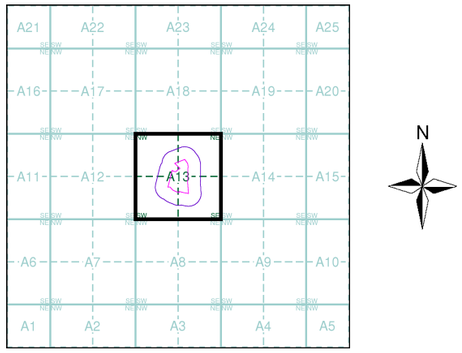
Source map scale - 1:2,500

The SIM cards (Ordnance Survey's `Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number:	347386087_1_1
Customer Ref:	C10128
National Grid Reference:	431190, 410780
Slice:	A
Site Area (Ha):	2.95
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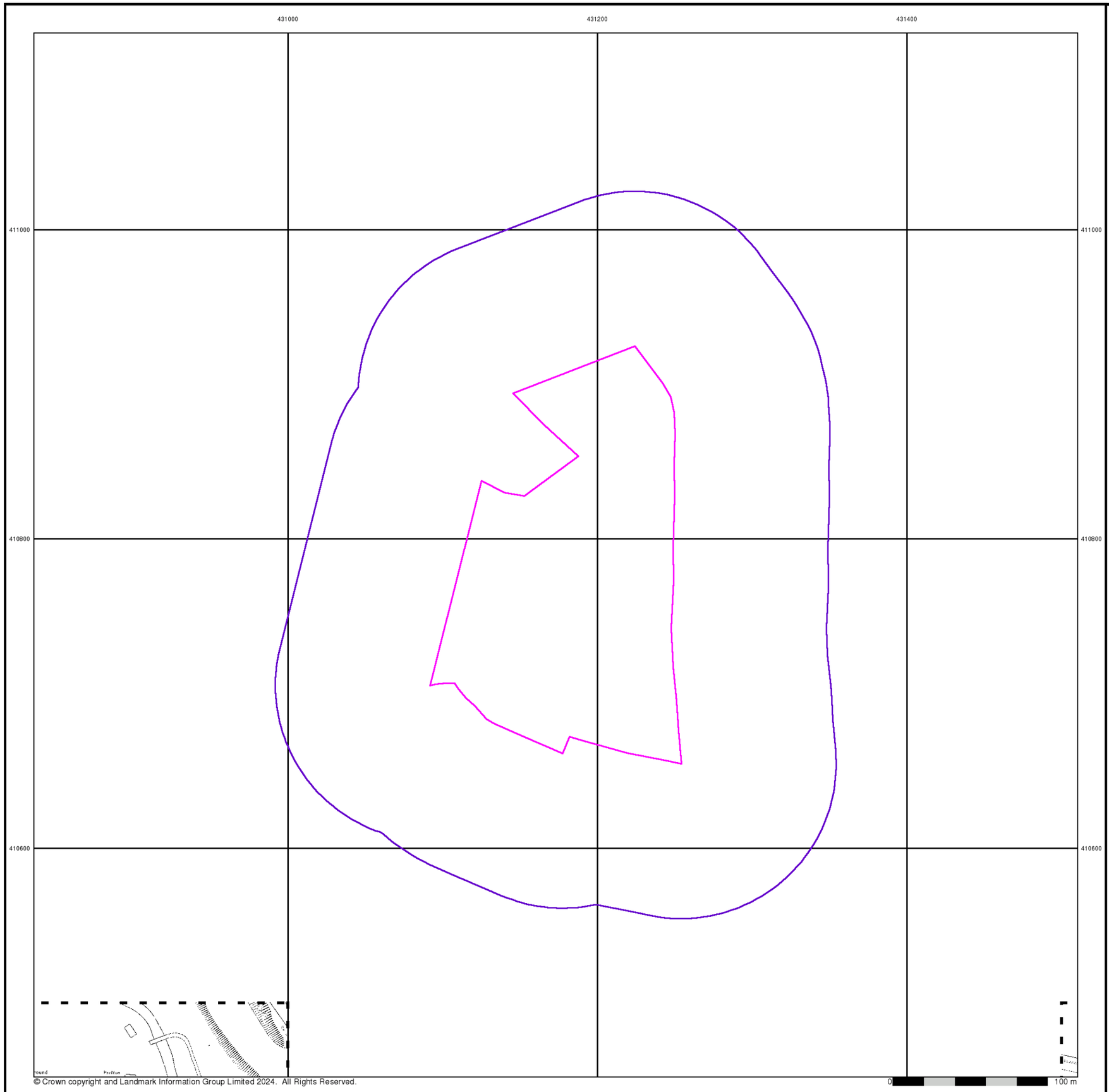

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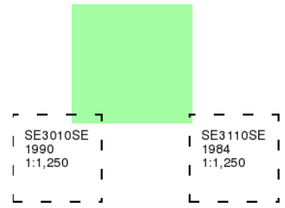
Additional SIMs

Published 1984 - 1990

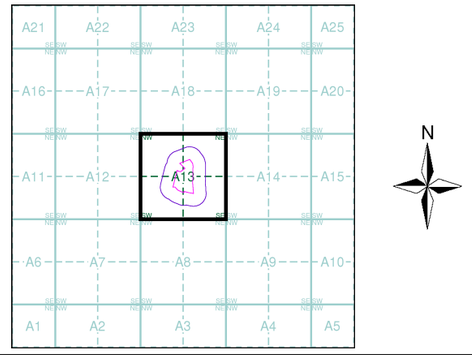
Source map scale - 1:1,250

The SIM cards (Ordnance Survey's `Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



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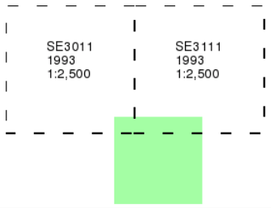
Large-Scale National Grid Data

Published 1993

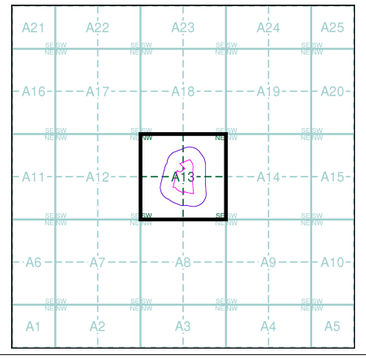
Source map scale - 1:2,500

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



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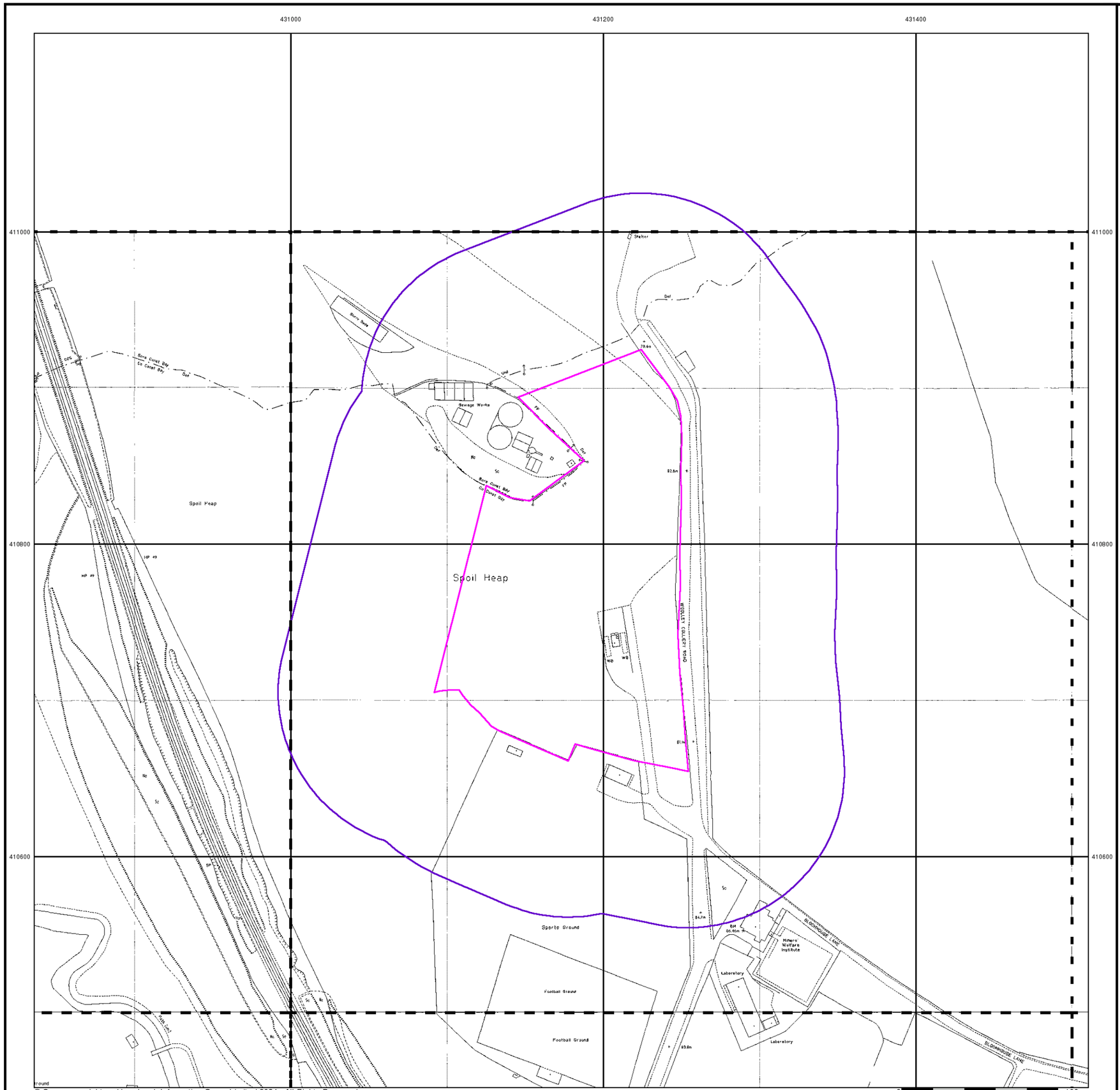

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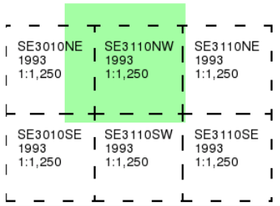
Large-Scale National Grid Data

Published 1993

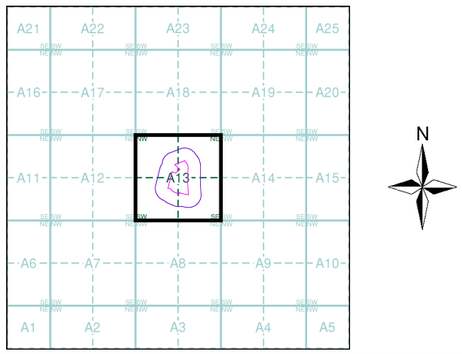
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



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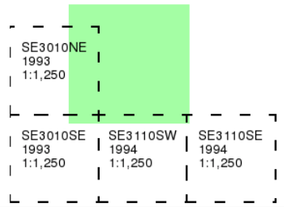
Large-Scale National Grid Data

Published 1993 - 1994

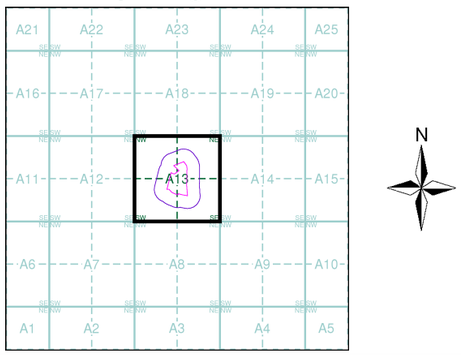
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



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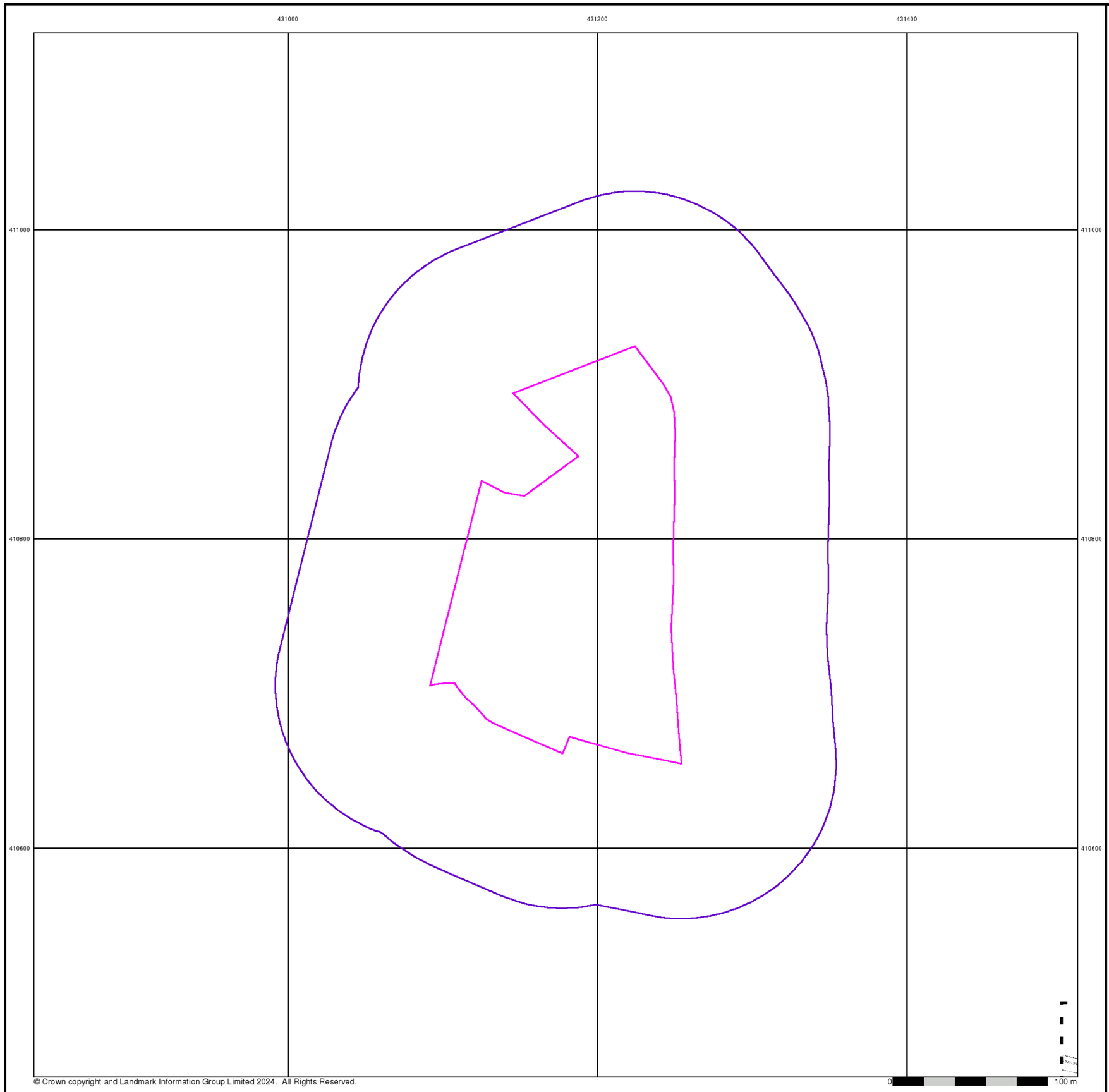
Web: www.envirocheck.co.uk



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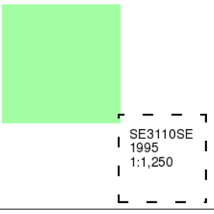
Large-Scale National Grid Data

Published 1995

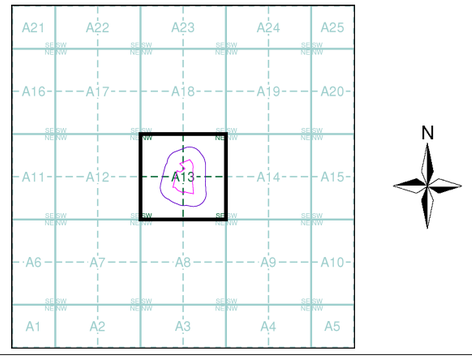
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number:	347386087_1_1
Customer Ref:	C10128
National Grid Reference:	431190, 410780
Slice:	A
Site Area (Ha):	2.95
Search Buffer (m):	100

Site Details

Land off Woolley Colliery Road (North), Darton, BARNSLEY

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Historical Mapping Legends

Ordnance Survey County Series 1:10,560

Gravel Pit
Sand Pit
Other Pits
Quarry
Shingle
Orchard
Osiers
Reeds
Marsh
Mixed Wood
Deciduous
Brushwood
Fir
Furze
Rough Pasture
Arrow denotes flow of water
Trigonometrical Station
Site of Antiquities
Bench Mark
Pump, Guide Post, Signal Post
Well, Spring, Boundary Post
285 Surface Level
Sketched Contour
Instrumental Contour
Main Roads
Fenced
Un-Fenced
Minor Roads
Fenced
Un-Fenced
Sunken Road
Raised Road
Road over Railway
Railway over River
Railway over Road
Level Crossing
Road over River or Canal
Road over Stream
Road over Stream
County Boundary (Geographical)
County & Civil Parish Boundary
Administrative County & Civil Parish Boundary
Co. Boro. Bdy. County Borough Boundary (England)
Co. Burgh Bdy. County Burgh Boundary (Scotland)
R.D. Bdy. Rural District Boundary
Civil Parish Boundary

Ordnance Survey Plan 1:10,000

Chalk Pit, Clay Pit or Quarry
Gravel Pit
Sand Pit
Disused Pit or Quarry
Refuse or Slag Heap
Lake, Loch or Pond
Dunes
Boulders
Coniferous Trees
Non-Coniferous Trees
Orchard
Scrub
Coppice
Bracken
Heath
Rough Grassland
Marsh
Reeds
Saltings
Building
Direction of Flow of Water
Shingle
Sand
Glasshouse
Pylon
Electricity Transmission Line
Pole
Sloping Masonry
Cutting
Embankment
Standard Gauge Multiple Track
Road Under
Road Over
Level Crossing
Foot Bridge
Standard Gauge Single Track
Siding, Tramway or Mineral Line
Narrow Gauge
Geographical County
Administrative County, County Borough or County of City
Municipal Borough, Urban or Rural District, Burgh or District Council
Borough, Burgh or County Constituency
Shown only when not coincident with other boundaries
Civil Parish
Shown alternately when coincidence of boundaries occurs

BP, BS	Boundary Post or Stone	Pol Sta	Police Station
Ch	Church	PO	Post Office
CH	Club House	PC	Public Convenience
F E Sta	Fire Engine Station	PH	Public House
FB	Foot Bridge	SB	Signal Box
Fn	Fountain	Spr	Spring
GP	Guide Post	TCB	Telephone Call Box
MP	Mile Post	TCP	Telephone Call Post
MS	Mile Stone	W	Well

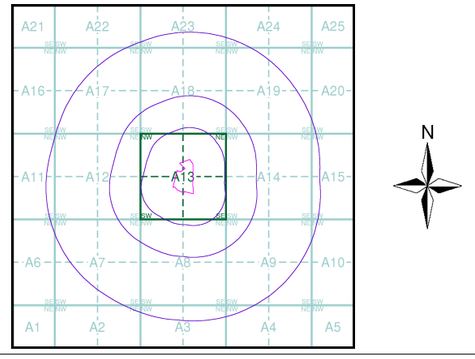
1:10,000 Raster Mapping

Gravel Pit
Refuse tip or slag heap
Rock
Rock (scattered)
Boulders
Boulders (scattered)
Shingle
Mud
Sand
Sand Pit
Slopes
Top of cliff
General detail
Underground detail
Overhead detail
Narrow gauge railway
Multi-track railway
Single track railway
County boundary (England only)
Civil, parish or community boundary
District, Unitary, Metropolitan, London Borough boundary
Constituency boundary
Area of wooded vegetation
Non-coniferous trees
Non-coniferous trees (scattered)
Coniferous trees
Coniferous trees (scattered)
Positioned tree
Orchard
Coppice or Osiers
Rough Grassland
Heath
Scrub
Marsh, Salt Marsh or Reeds
Water feature
Flow arrows
MHW(S) Mean high water (springs)
MLW(S) Mean low water (springs)
Telephone line (where shown)
Electricity transmission line (with poles)
BM 123.45 m Bench mark (where shown)
Triangulation station
Point feature (e.g. Guide Post or Mile Stone)
Pylon, flare stack or lighting tower
Site of (antiquity)
Glasshouse
General Building
Important Building

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Yorkshire	1:10,560	1854	2
Yorkshire	1:10,560	1894	3
Yorkshire	1:10,560	1907	4
Yorkshire	1:10,560	1930	5
Yorkshire	1:10,560	1932	6
Yorkshire	1:10,560	1938	7
Yorkshire	1:10,560	1938 - 1948	8
Yorkshire	1:10,560	1948	9
Ordnance Survey Plan	1:10,000	1955 - 1956	10
Ordnance Survey Plan	1:10,000	1965 - 1966	11
Ordnance Survey Plan	1:10,000	1973	12
Ordnance Survey Plan	1:10,000	1980 - 1984	13
Ordnance Survey Plan	1:10,000	1989	14
Ordnance Survey Plan	1:10,000	1991 - 1993	15
10K Raster Mapping	1:10,000	2000	16
Street View	Variable		17

Historical Map - Slice A



Order Details

Order Number: 347386087_1_1
Customer Ref: C10128
National Grid Reference: 431190, 410780
Slice: A
Site Area (Ha): 2.95
Search Buffer (m): 1000

Site Details

Land off Woolley Colliery Road (North), Darton, BARNSLEY

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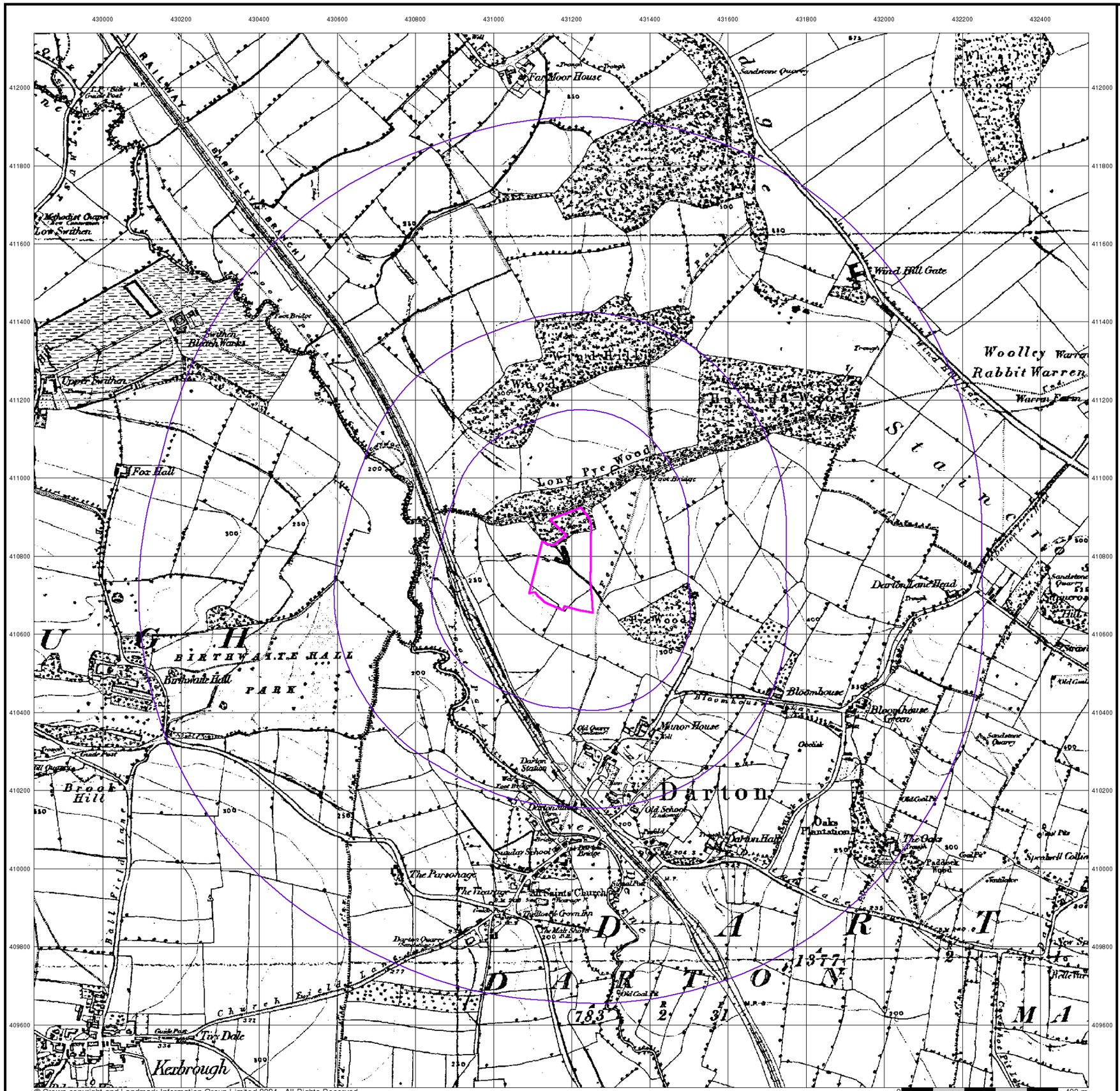

sirius

Yorkshire

Published 1854

Source map scale - 1:10,560

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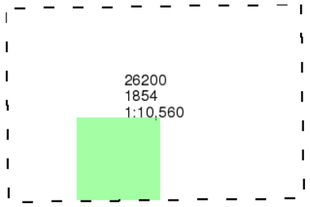
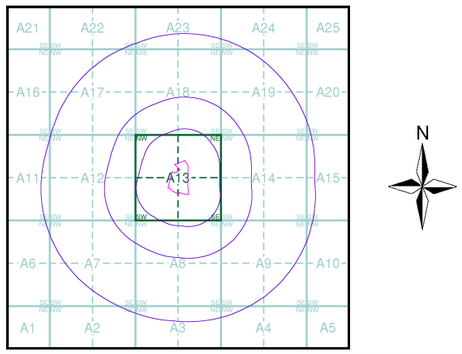
Map Name(s) and Date(s)



Historical Map - Slice A



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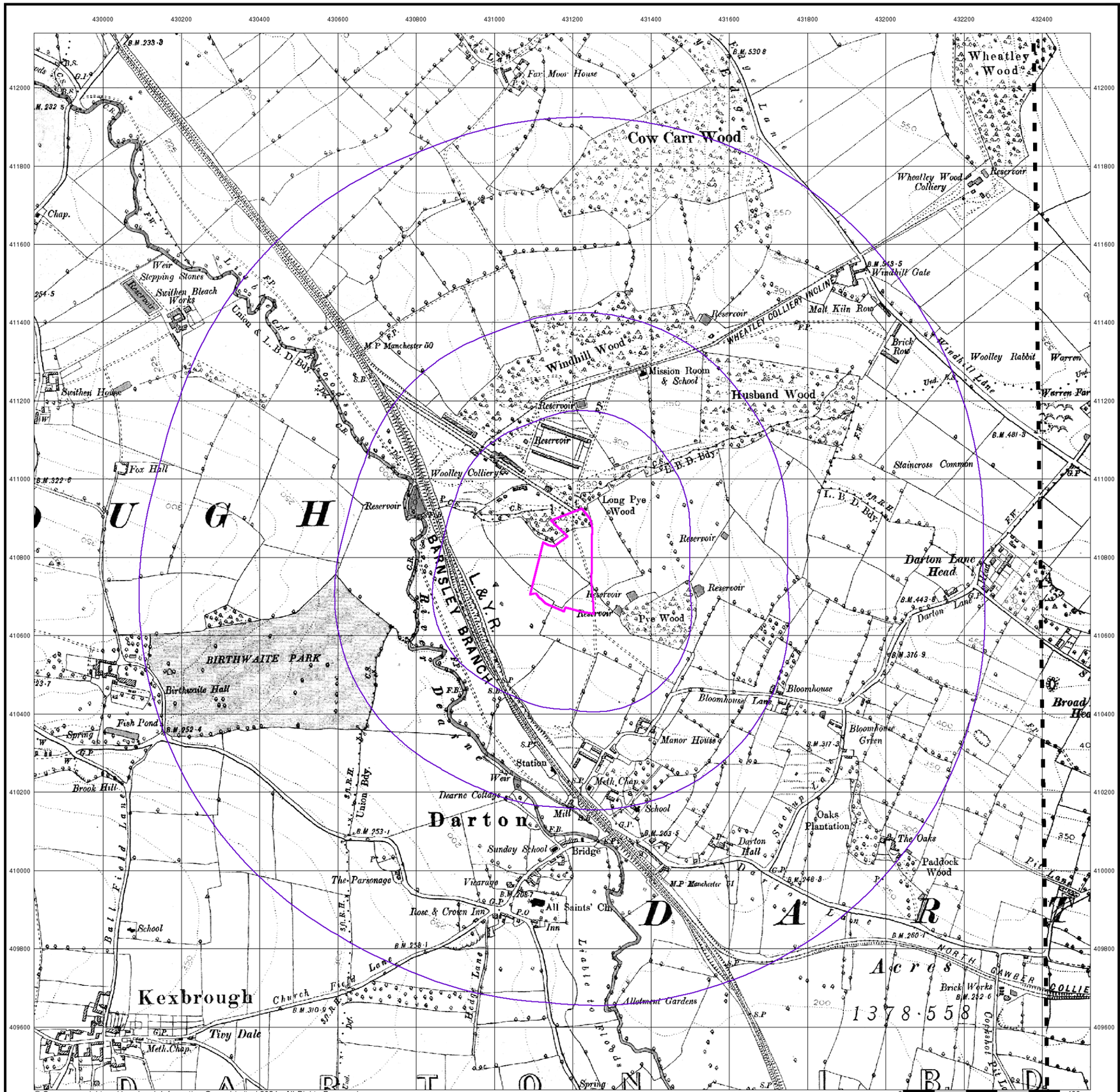

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Yorkshire

Published 1894

Source map scale - 1:10,560

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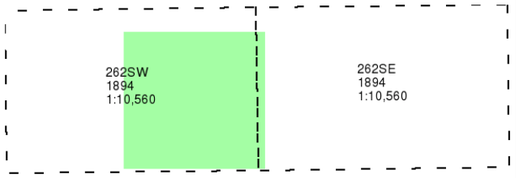
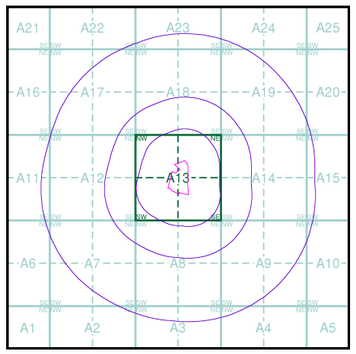


Historical Map - Slice A



Order Details

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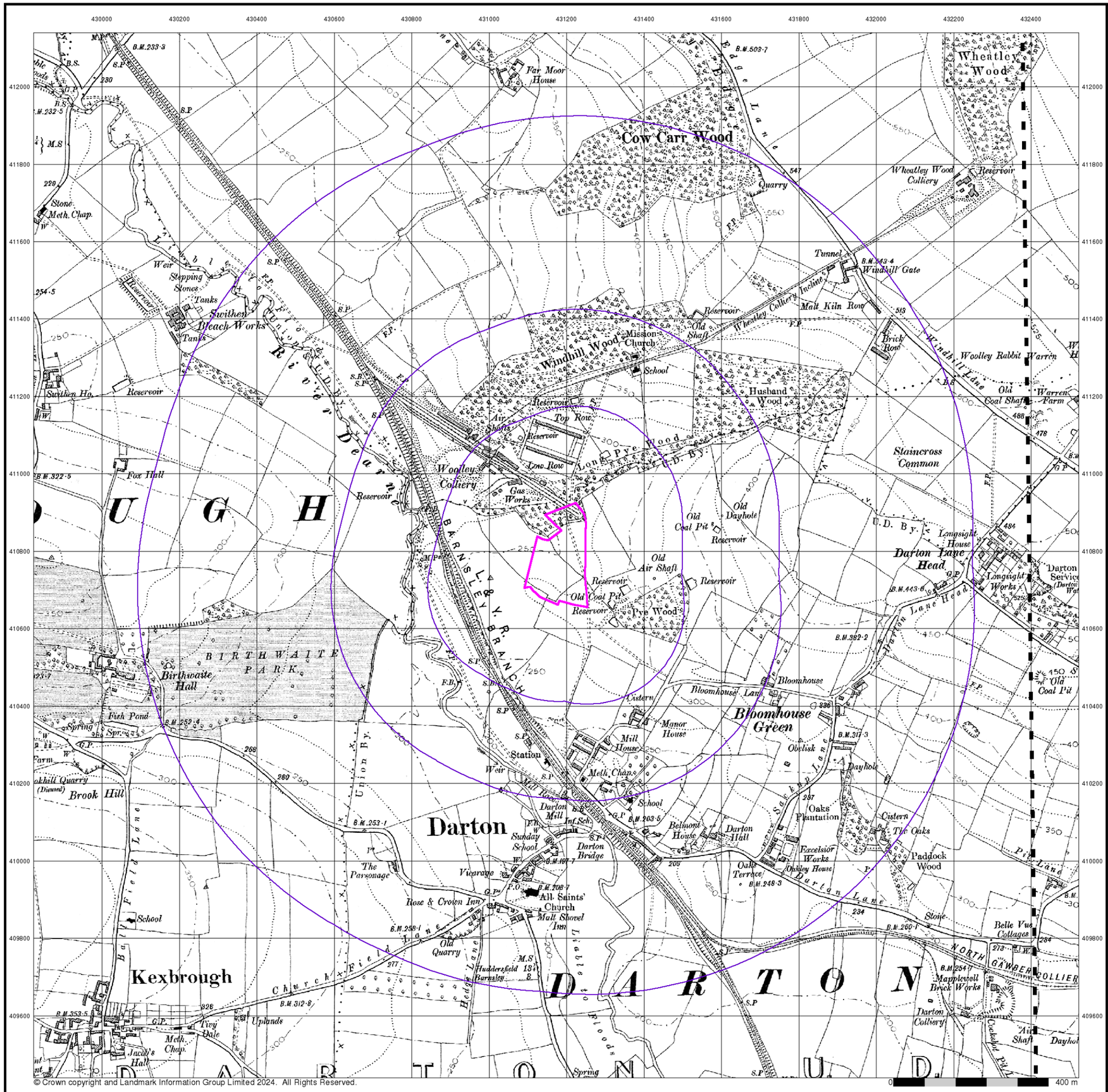

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Yorkshire

Published 1907

Source map scale - 1:10,560

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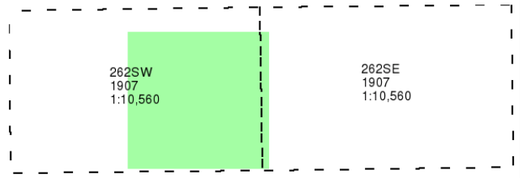
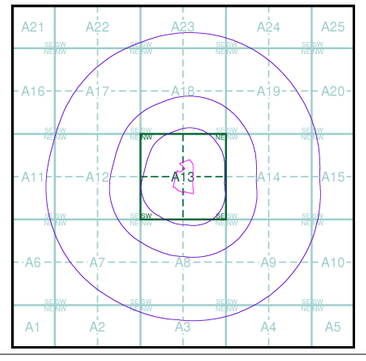


Historical Map - Slice A



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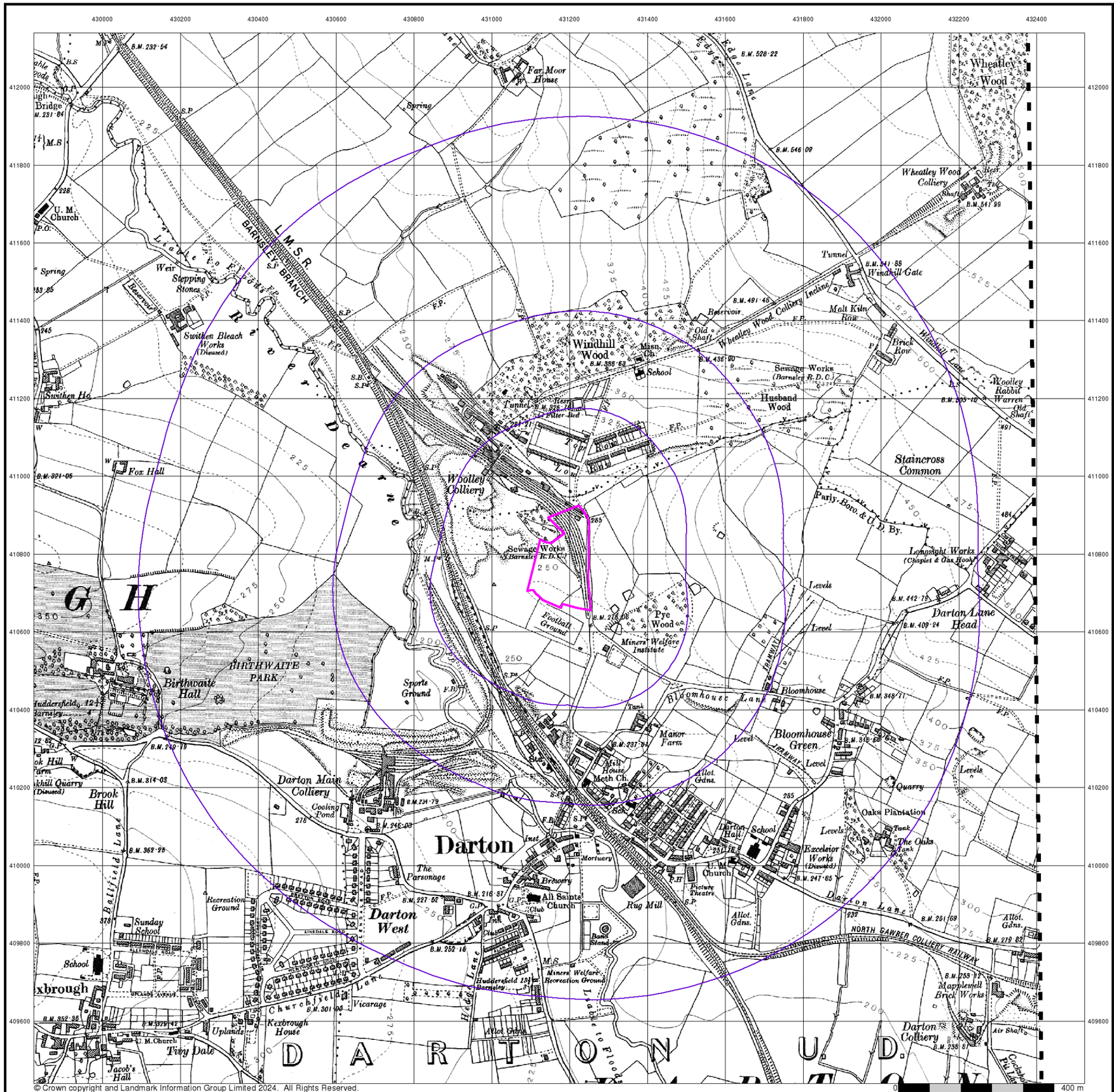

Yorkshire

Published 1930

Source map scale - 1:10,560

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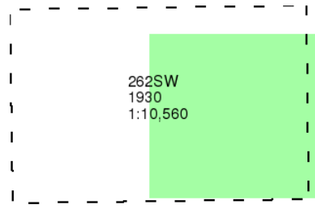
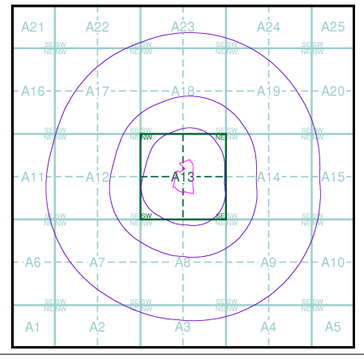
Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

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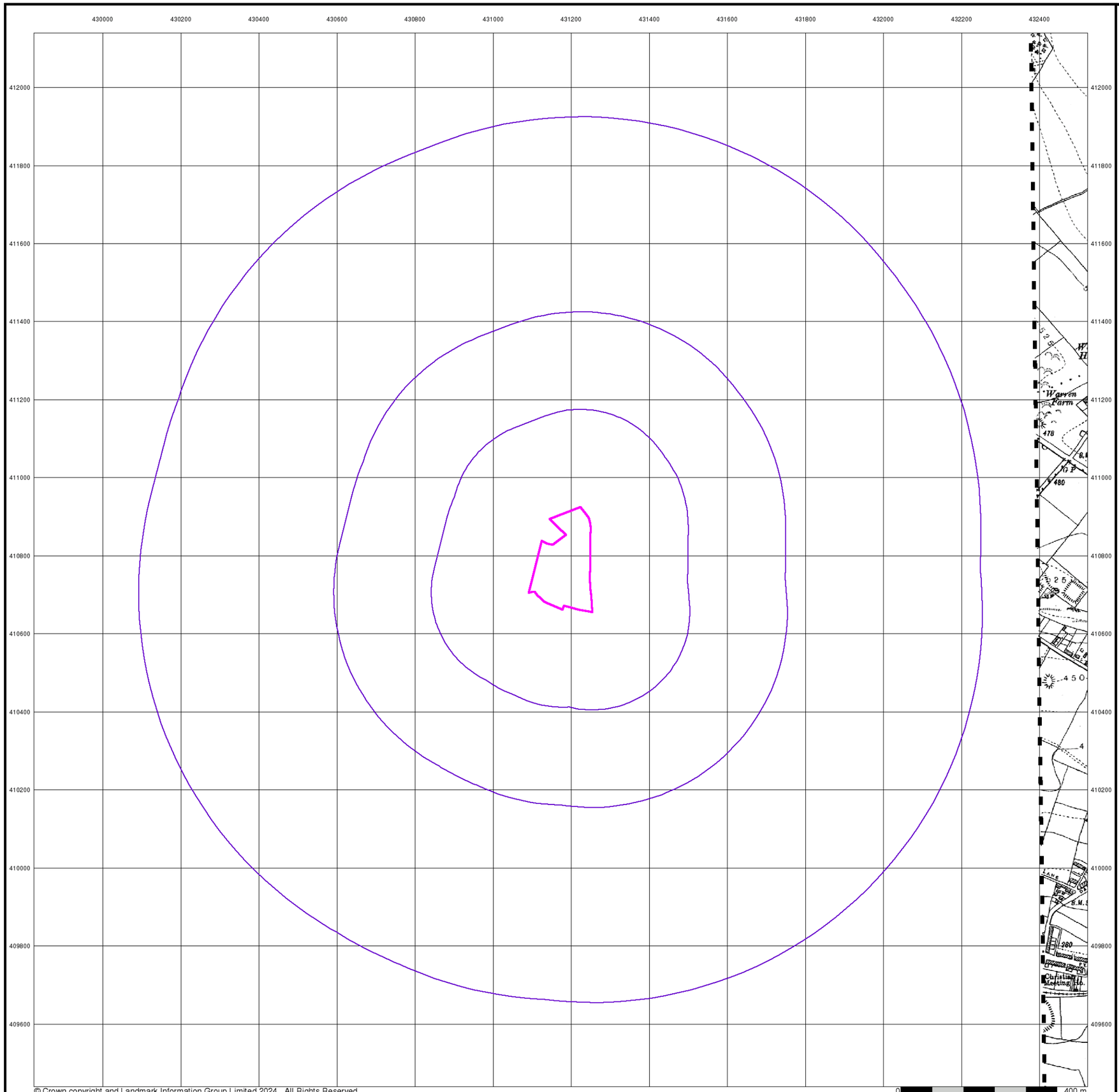

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Yorkshire

Published 1932

Source map scale - 1:10,560

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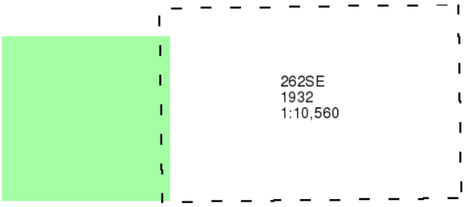
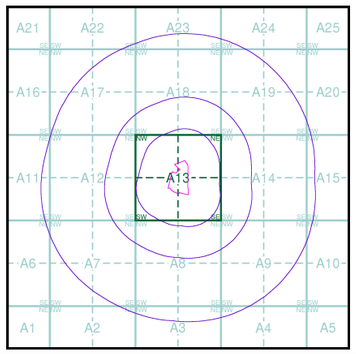
Map Name(s) and Date(s)



Historical Map - Slice A



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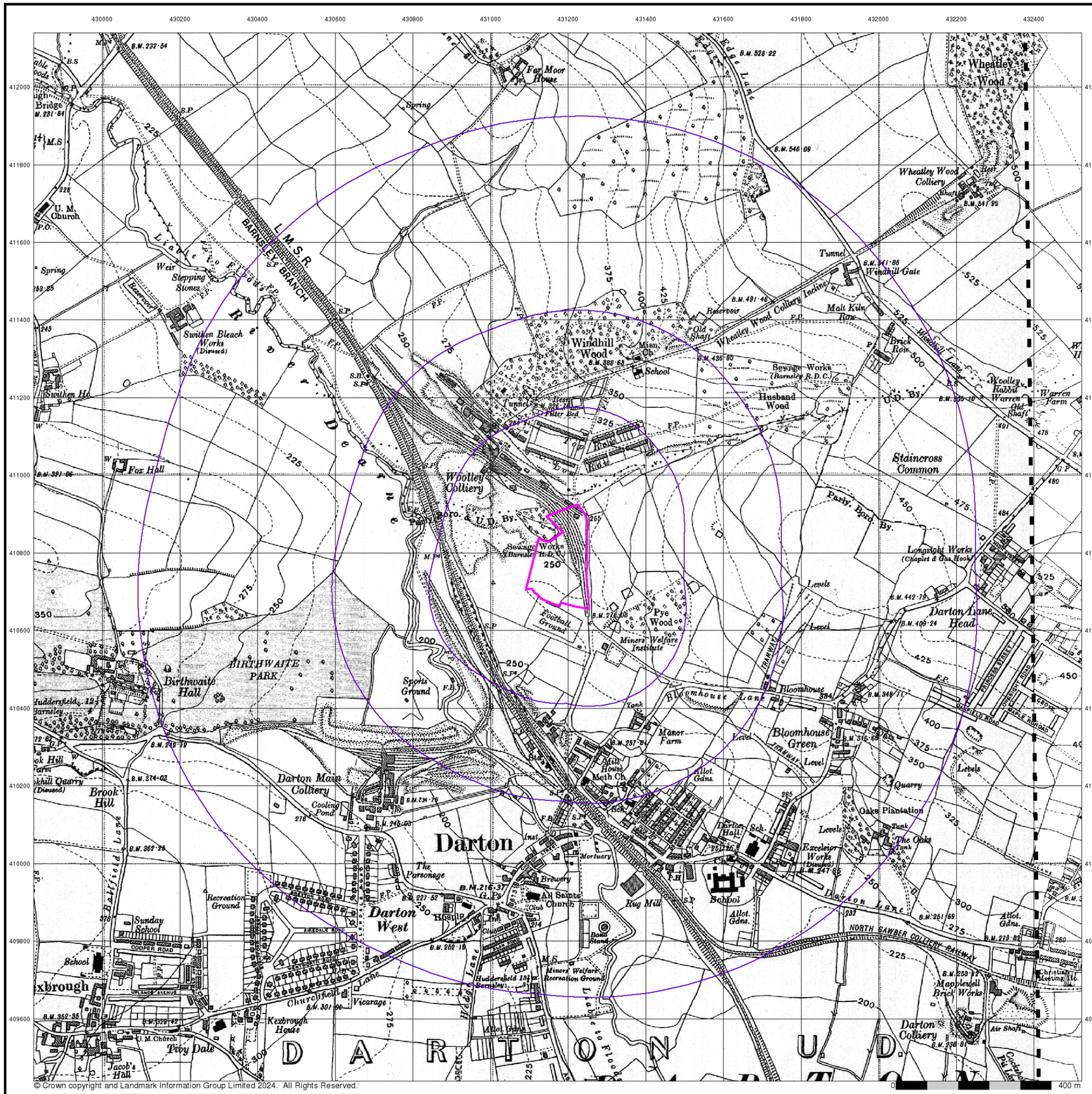
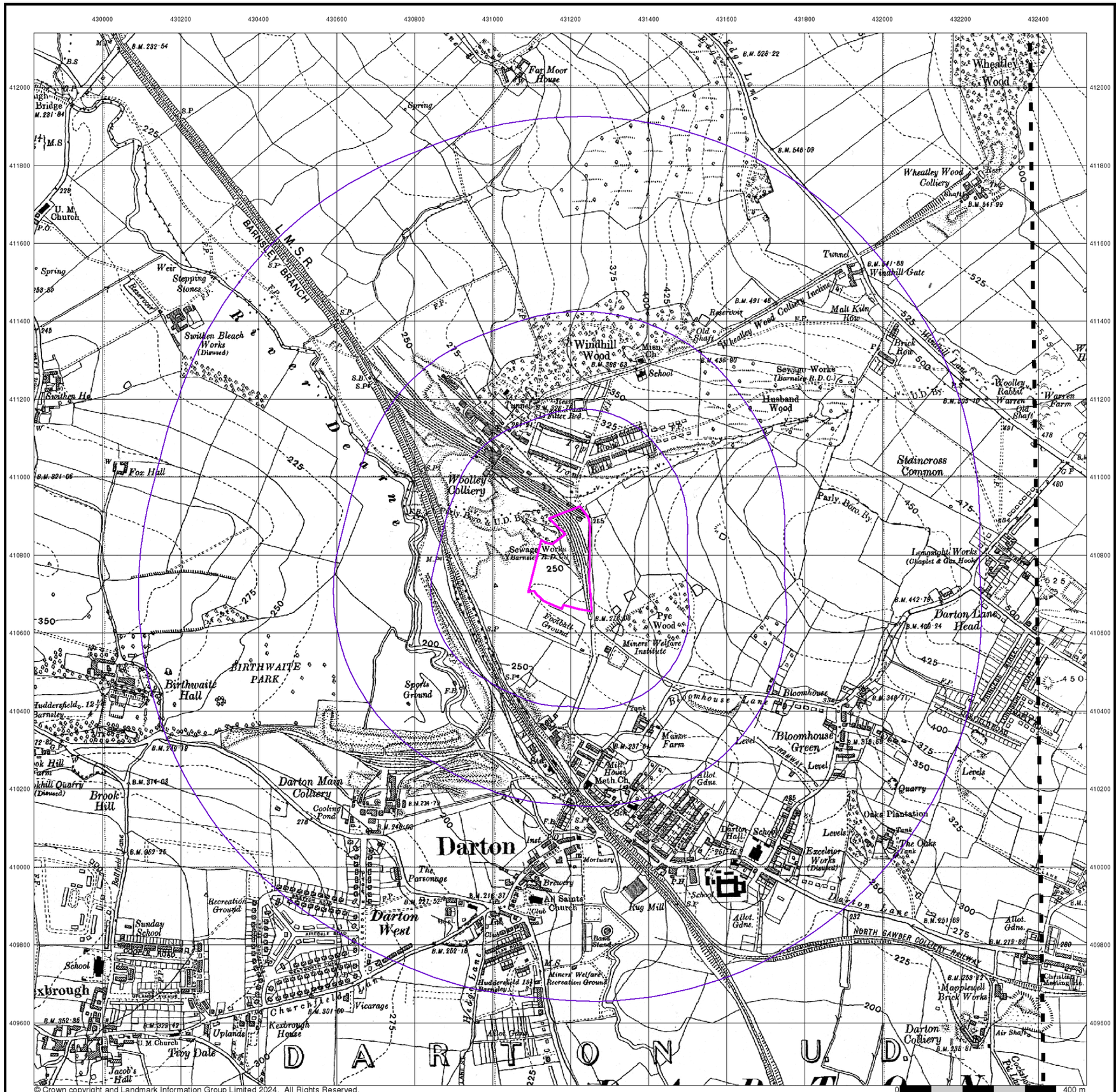

Darton
Darton West
Darton Main Colliery
Woolley Colliery
Windhill Wood
Wheatley Wood
Wheatley Wood Colliery
Staincross Common
Darton Lane Head
Bloomhouse Green
Darton Colliery
Birthwaite Hall
BIRTHWAITE PARK
Brook Hill
Fox Hall
Swillen Ho.
Swillen Bleach Works (Disused)
Fox Moor House
Husband Wood
Pye Wood
Oaks Plantation
Longsight Works (Chaplet & Gas Hook)
Mapplewell Brick Works
Exceleior Works (Disused)
Sewage Works (Barnsley R.D.C.)
Sewage Works (Barnsley R.D.C.)
Malt Kiln Row
Brick Row
Windhill Gate
Windhill Lane
Woolley Rabbit Warren
Warren Farm
Bloomhouse Lane
Darton Lane
Wheatley Wood Colliery Incline
Woolley Colliery Railway
North Gawber Colliery Railway
L.M.S.R. BARNSLEY BRANCH
Manor Farm
Mill House Meth. Ch.
Rug Mill
Dye House
Tunnel
Quarry
Reservoir
Old Shaft
Air Shaft
Sports Ground
Football Ground
Miners' Welfare Institute
Miners' Welfare Recreation Ground
Cooling Pond
Sewage Filter Bed
Band Stand
Tramway
Levels
Spring
Stepping Stones
Weir
Beamond
Recreation Ground
Sunday School
School
Hospl.
Vicarage
Kexbrough House
Troy Dale
Jacob's Hall
Mortuary
Brewery
The Parsonage
All Saints' Church
Darton Hall
Manor Farm
Allot. Gdns.
Tramway
Tunnel
Tunnel
Tunnel


Fox Moor House
Wheatley Wood
Wheatley Wood Colliery
Tunnel
Windhill Gate
Malt Kiln Row
Brick Row
Windhill Lane
Windhill Wood
Old Shaft
Wheatley Wood Colliery Incline
Reservoir
Sewage Works (Barnsley R.D.C.)
School
Husband Wood
Woolley Rabbit Warren
Warren Farm
Stidincross Common
Woolley Colliery
Parly. Boro. By.
Parly. Boro. & U.D. By.
Sewage Works (Barnsley R.D.C.)
Lumsight Works (Chaplet & Gas Hook)
Darton Lane Head
Pye Wood
Miners' Welfare Institute
Footbath Ground
Bloomhouse Lane
Bloomhouse
Bloomhouse Green
Manor Farm
Quarry
Levels
Oaks Plantation
The Oaks
Darton Hall
Excelsior Works (Disused)
Allot. Gdns.
Darton
Darton West
Darton Main Colliery
Cooling Pond
Brook Hill
Brook Hill Quarry (Disused)
Birthwaite Hall
BIRTHWAITE PARK
Sports Ground
Miners' Welfare Recreation Ground
All Saints Church
The Parsonage
Vicarage
Mortuary
Brewery
Fog Mill
Recreation Ground
Sunday School
Kexbrough
Kexbrough House
Uplands
Troy Dale
Jacob's Hall
Churchfield Lane
Darton Lane
NORTH GAWBER COLLIERY RAILWAY
Mapplewell Brick Works
Darton Colliery
Air Shaft
Cockshot Pot
Footbath
Spring
Weir
Stepping Stones
Reservoir
Swillden Bleach Works (Disused)
Swithen Ho.
Fox Hall
U. M. Church
Bridge
L M S R
BARNSLEY BRANCH
River Dearne
Tunnel
Rly.
Rly. Boro. & U.D. By.
Huddersfield & Barnsley
Huddersfield 184 Barnsley
Tank
Level
Levels
Allot Gdns
Inst.
Ch.
Sch.
Meth. Ch.
Mill
Club
Band Stand
Air Shaft
Christian Meeting Rm.
Tramway
Path
Ford
Bridge
Footbridge
Ruin
Pond
Quarry
Old Shaft
Tank
Reservoir
Sewage Works
Mill
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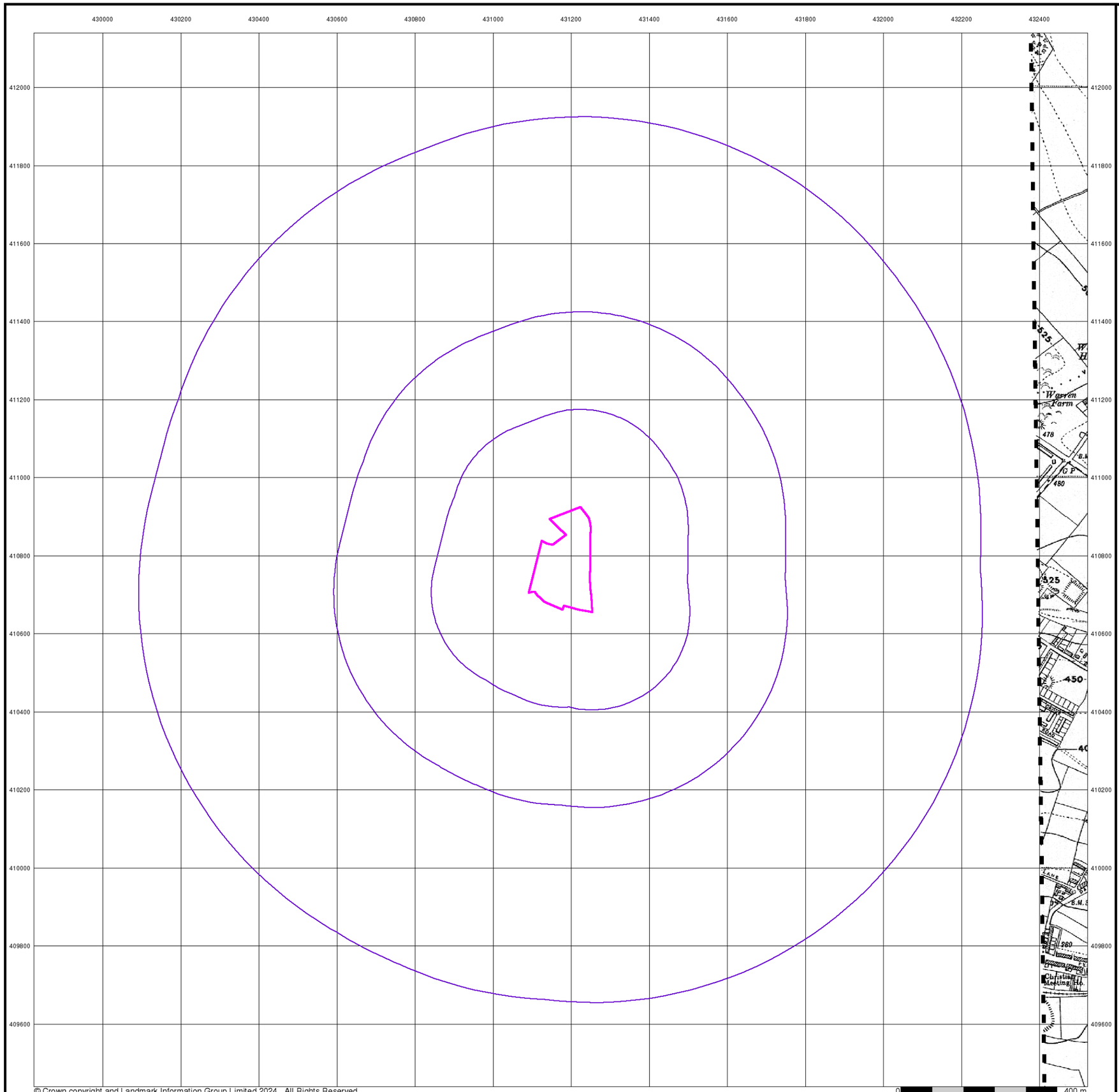

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Yorkshire

Published 1948

Source map scale - 1:10,560

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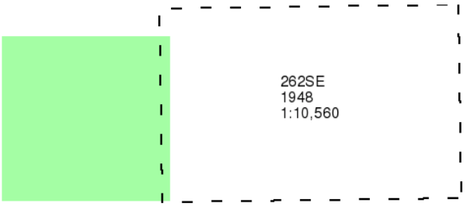
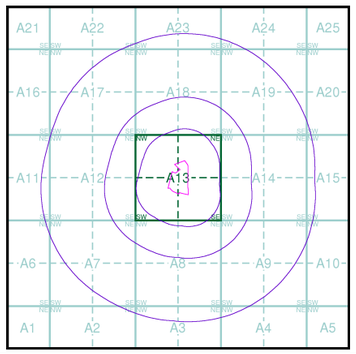
Map Name(s) and Date(s)



Historical Map - Slice A



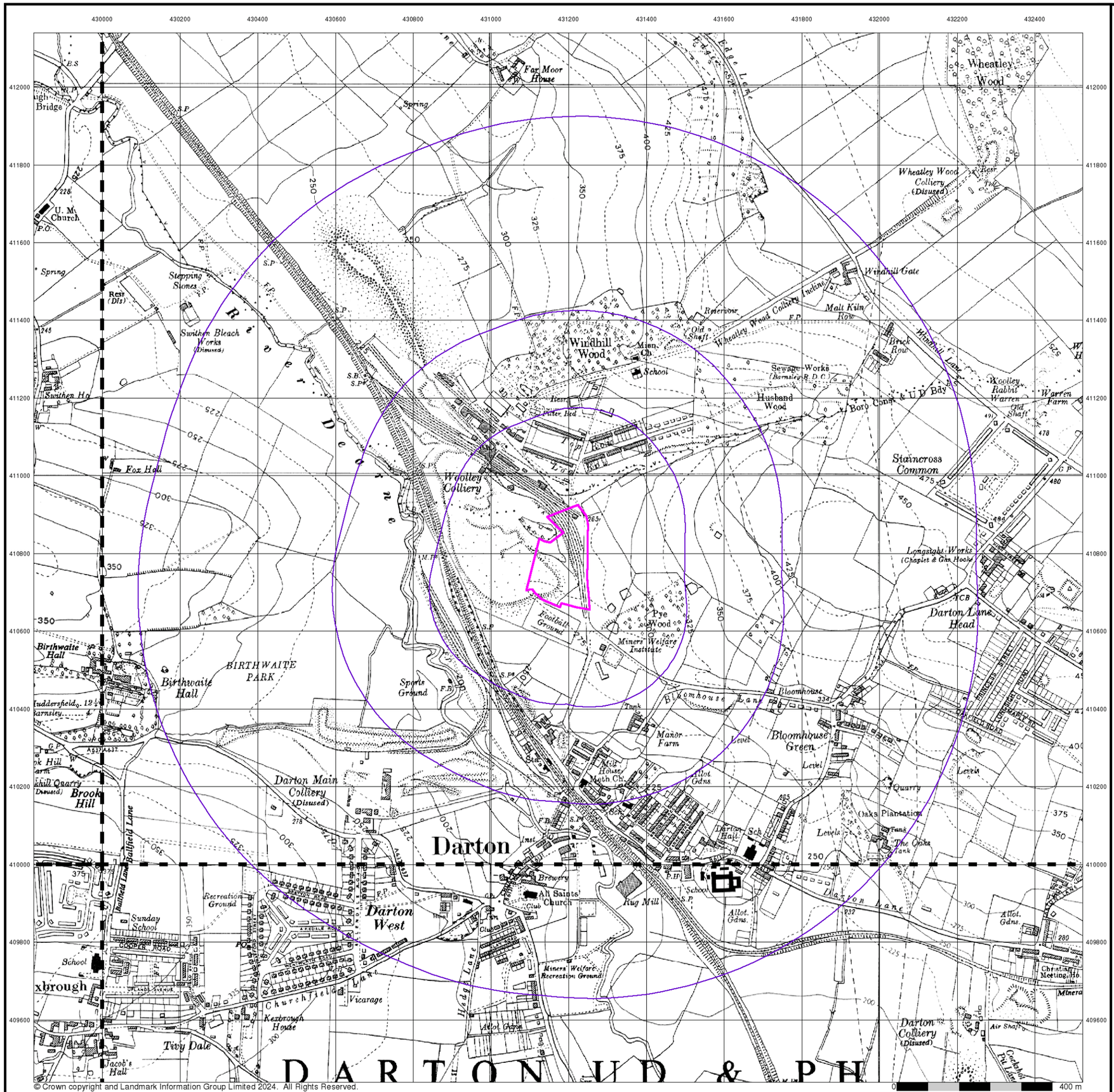
Order Details

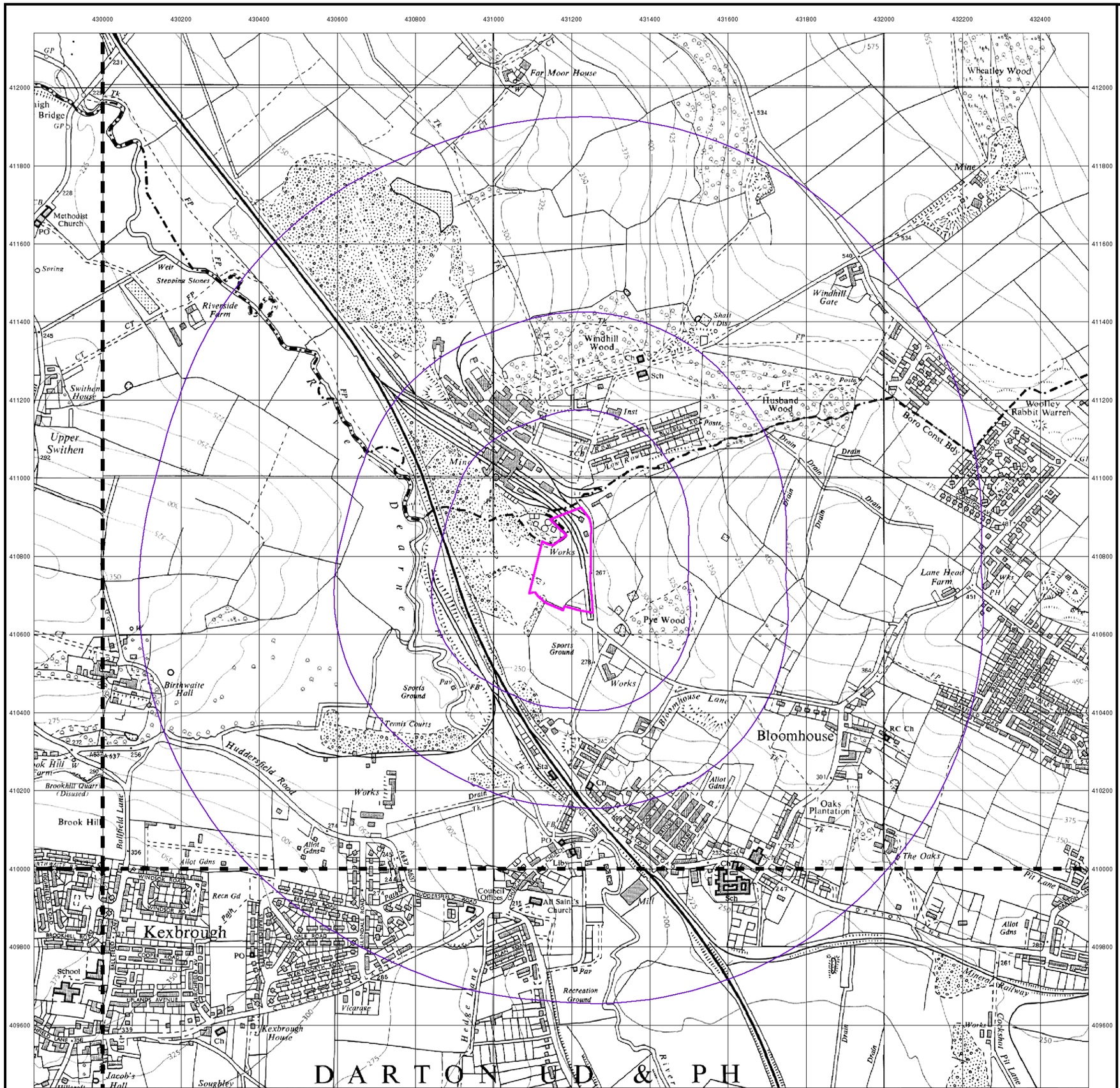
Order Number:	347386087_1_1
Customer Ref:	C10128
National Grid Reference:	431190, 410780
Slice:	A
Site Area (Ha):	2.95
Search Buffer (m):	1000

Site Details

Land off Woolley Colliery Road (North), Darton, BARNSLEY

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk


Far Moor House
Wheatley Wood
Wheatley Wood Colliery (Disused)
Windhill Gate
Malt Kiln Row
Windhill Wood
Woolley Colliery
Husband Wood
Stainforth Common
Longsight Works (Chaplet & Gas Hooks)
Darton Lane Head
Pye Wood
Miners' Welfare Institute
Birthwaite Hall
BIRTHWAITE PARK
Darton Main Colliery (Disused)
Darton
Darton West
All Saints' Church
Rug Mill
Manor Farm
Bloomhouse Green
Oaks Plantation
Darton Colliery (Disused)
Woolley Rabbit Warren
Warren Farm
Sewage Works (Barnsley B.D.C.)
Swithen Bleach Works (Disused)
Stepping Stones
Fox Hall
Brook Hill
Ballfield Lane
Recreation Ground
Sunday School
Churchfield Lane
Vicarage
Kexbrough House
Tivy Dale
Jacob's Hall
Miners' Welfare Recreation Ground
Football Ground
Sports Ground
Bloomhouse Lane
Darton Lane
Wheatley Wood Colliery Incline
Reservoir
Old Shaft
Brick Row
Windhill Lane
Woolley Colliery Road
Doncaster Road
Barnsley Road
Princess Street
Longcroft Road
Maple Rd
Birch Rd
Oak Rd
Elm Rd
Ash Rd
Beech Road
Ash Grove
Oakdale Avenue
Orchard Rise
Orchard Close
Orchard Avenue
Orchard Crescent
Orchard Road
Orchard Drive
Orchard Gardens
Orchard Mount
Orchard Terrace
Orchard Way
Orchard Court
Orchard Lane
Orchard Place
Orchard Square
Orchard Street
Orchard Walk
Orchard Wood
Orchard Yard
Orchard Cottages
Orchard Farm
Orchard House
Orchard Lodge
Orchard Manor
Orchard Park
Orchard Rise
Orchard Road
Orchard Street
Orchard Terrace
Orchard Way



Ordnance Survey Plan

Published 1965 - 1966

Source map scale - 1:10,000

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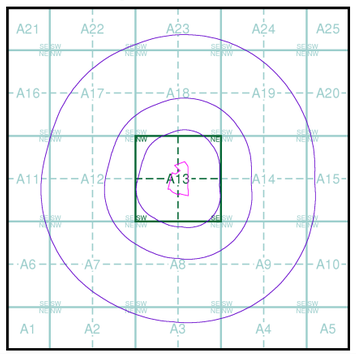
Map Name(s) and Date(s)

SE21SE 1966 1:10,560	SE31SW 1965 1:10,560
SE20NE 1965 1:10,560	SE30NW 1966 1:10,560

Historical Map - Slice A



Order Details

Order Number:	347386087_1_1
Customer Ref:	C10128
National Grid Reference:	431190, 410780
Slice:	A
Site Area (Ha):	2.95
Search Buffer (m):	1000

Site Details

Land off Woolley Colliery Road (North), Darton, BARNSLEY

Landmark INFORMATION GROUP

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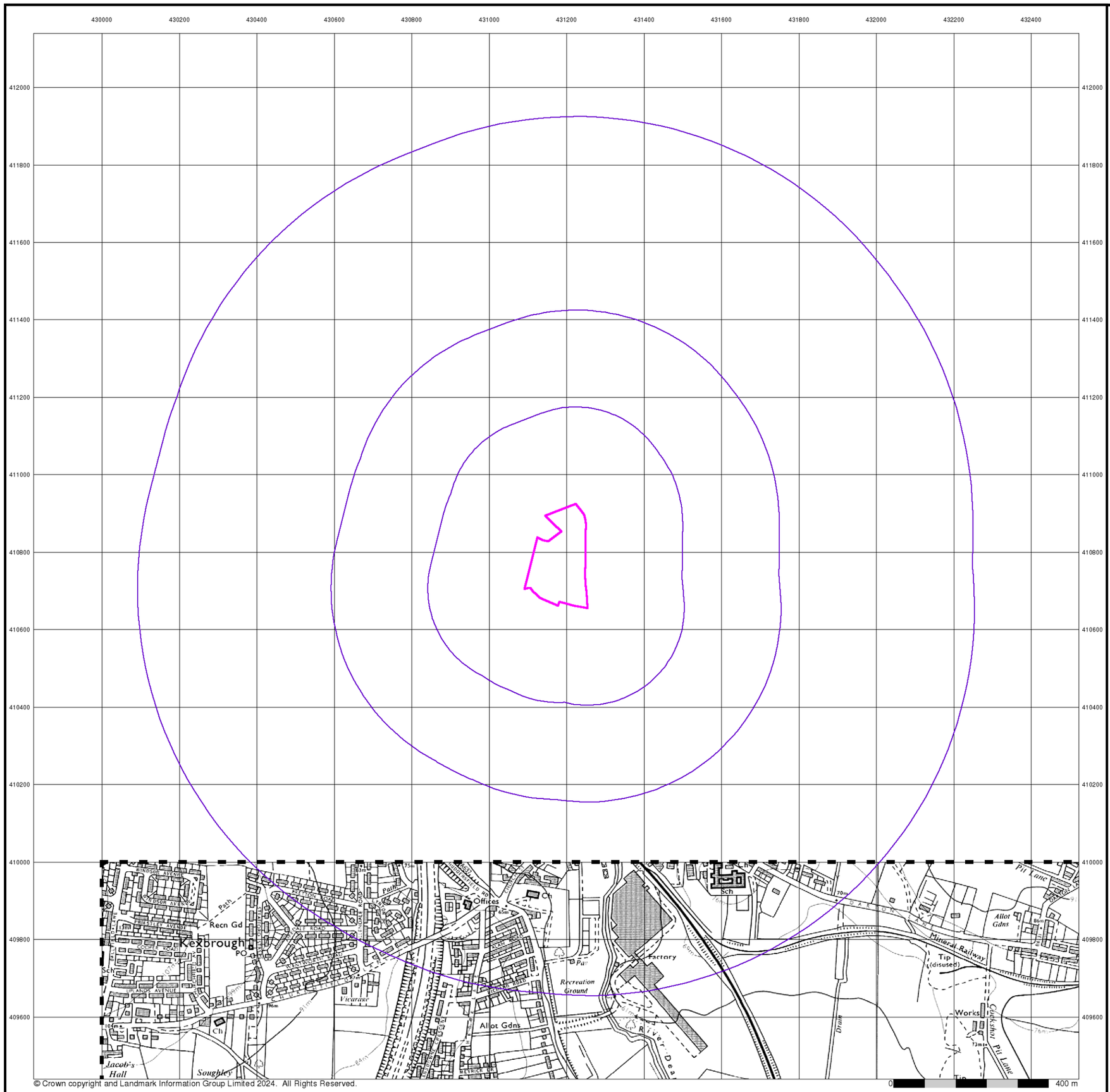

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Ordnance Survey Plan

Published 1973

Source map scale - 1:10,000

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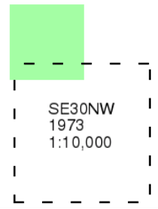
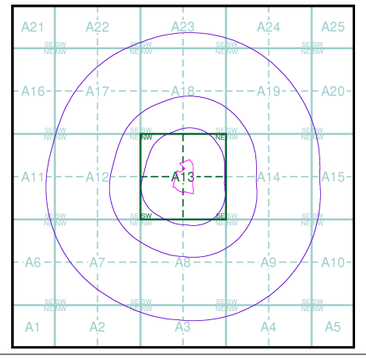
Map Name(s) and Date(s)



Historical Map - Slice A



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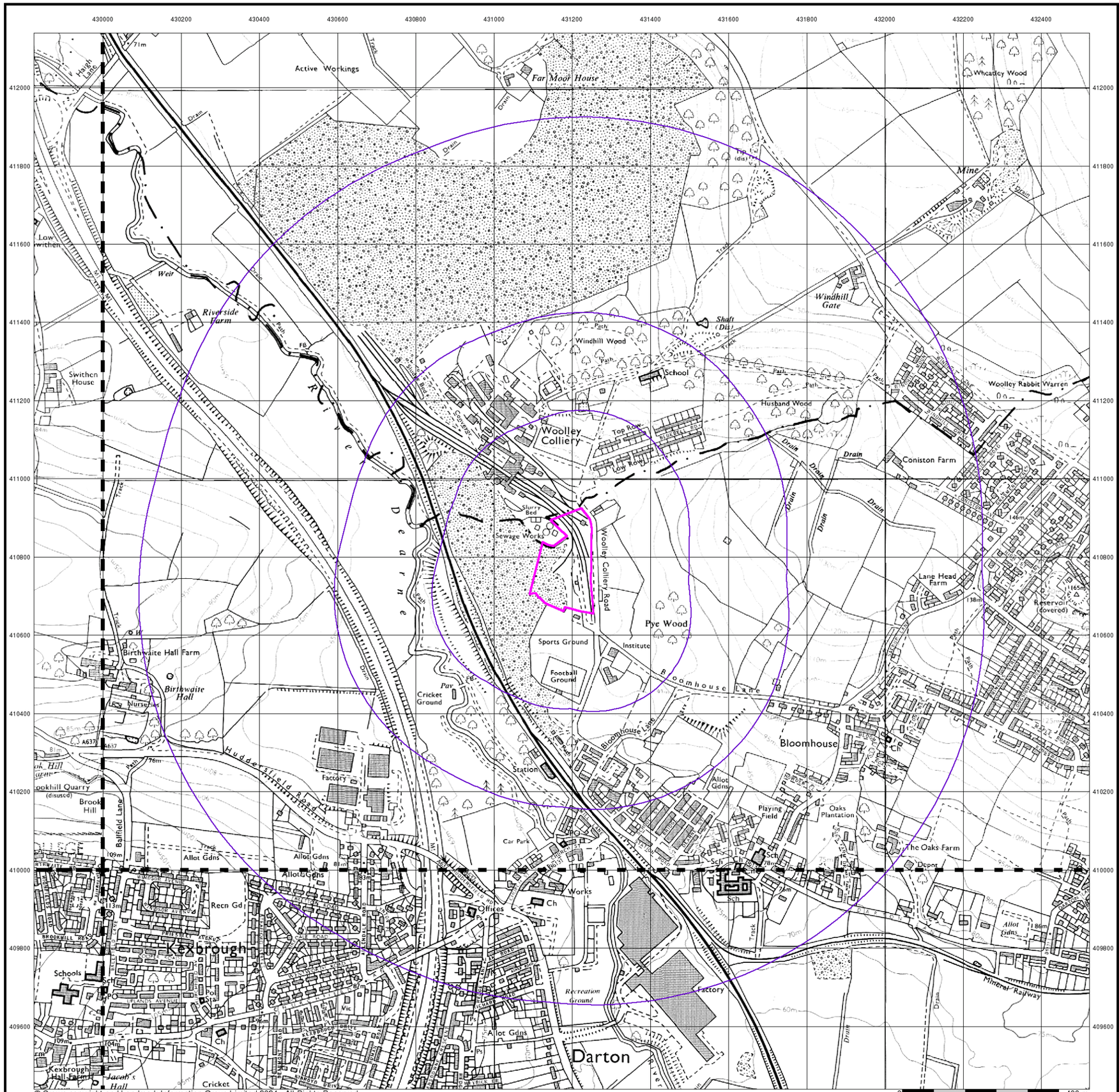

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Ordnance Survey Plan

Published 1980 - 1984

Source map scale - 1:10,000

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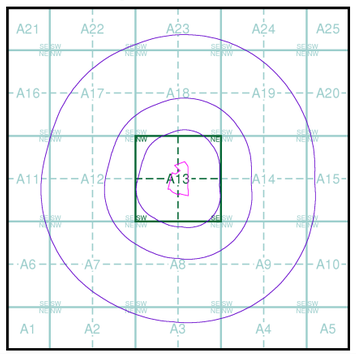
Map Name(s) and Date(s)

SE21SE 1983 1:10,000	SE31SW 1980 1:10,000
SE20NE 1984 1:10,000	SE30NW 1983 1:10,000

Historical Map - Slice A



Order Details

Order Number:	347386087_1_1
Customer Ref:	C10128
National Grid Reference:	431190, 410780
Slice:	A
Site Area (Ha):	2.95
Search Buffer (m):	1000

Site Details

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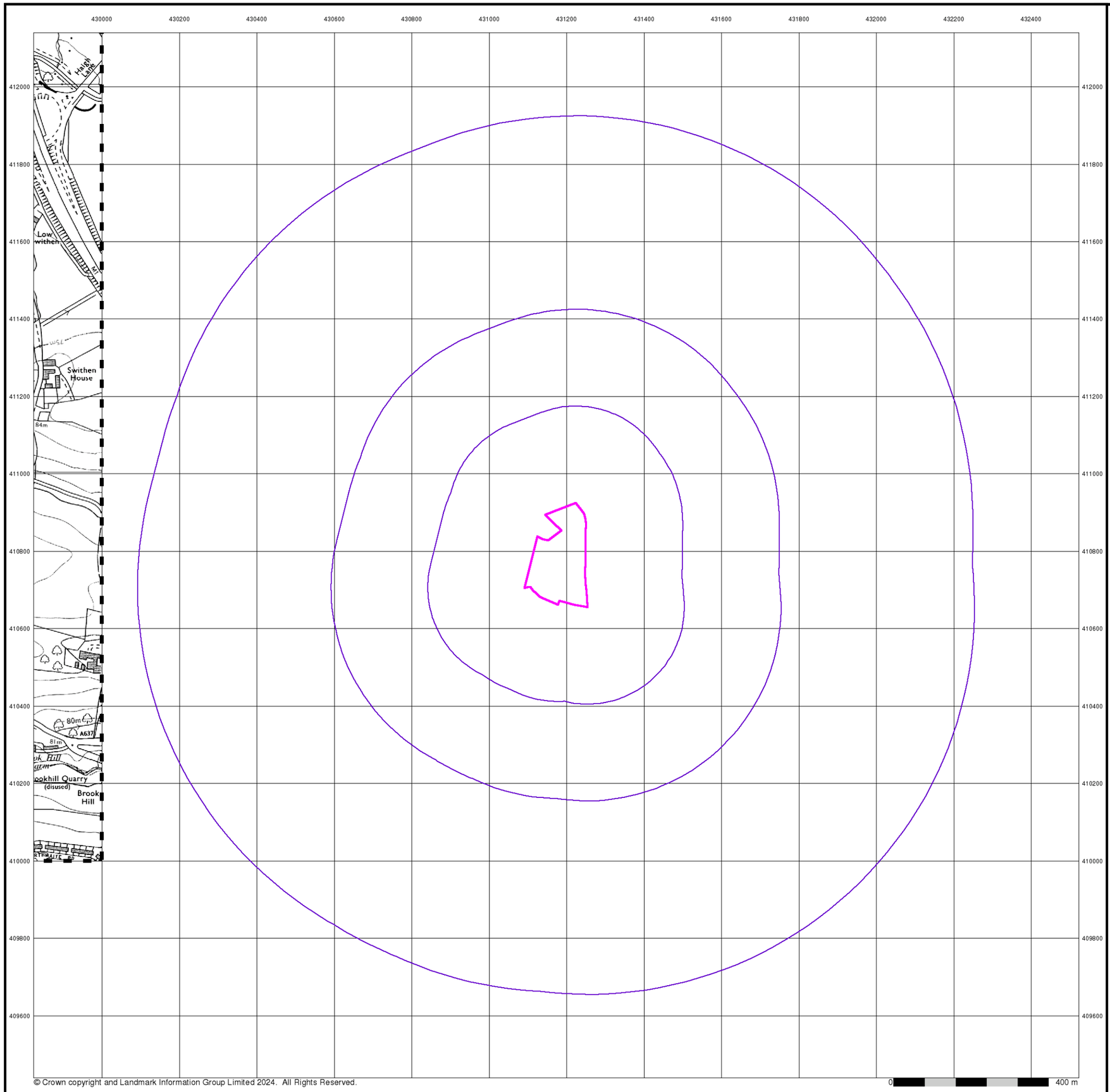

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sirius

Ordnance Survey Plan

Published 1989

Source map scale - 1:10,000

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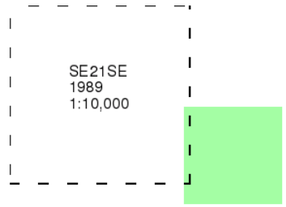
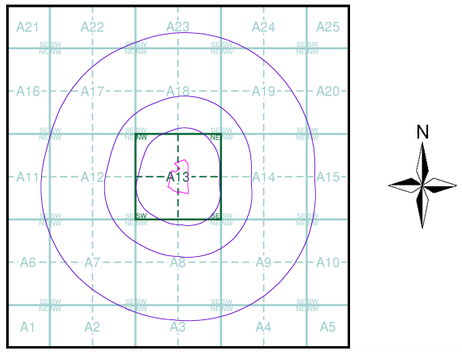
Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

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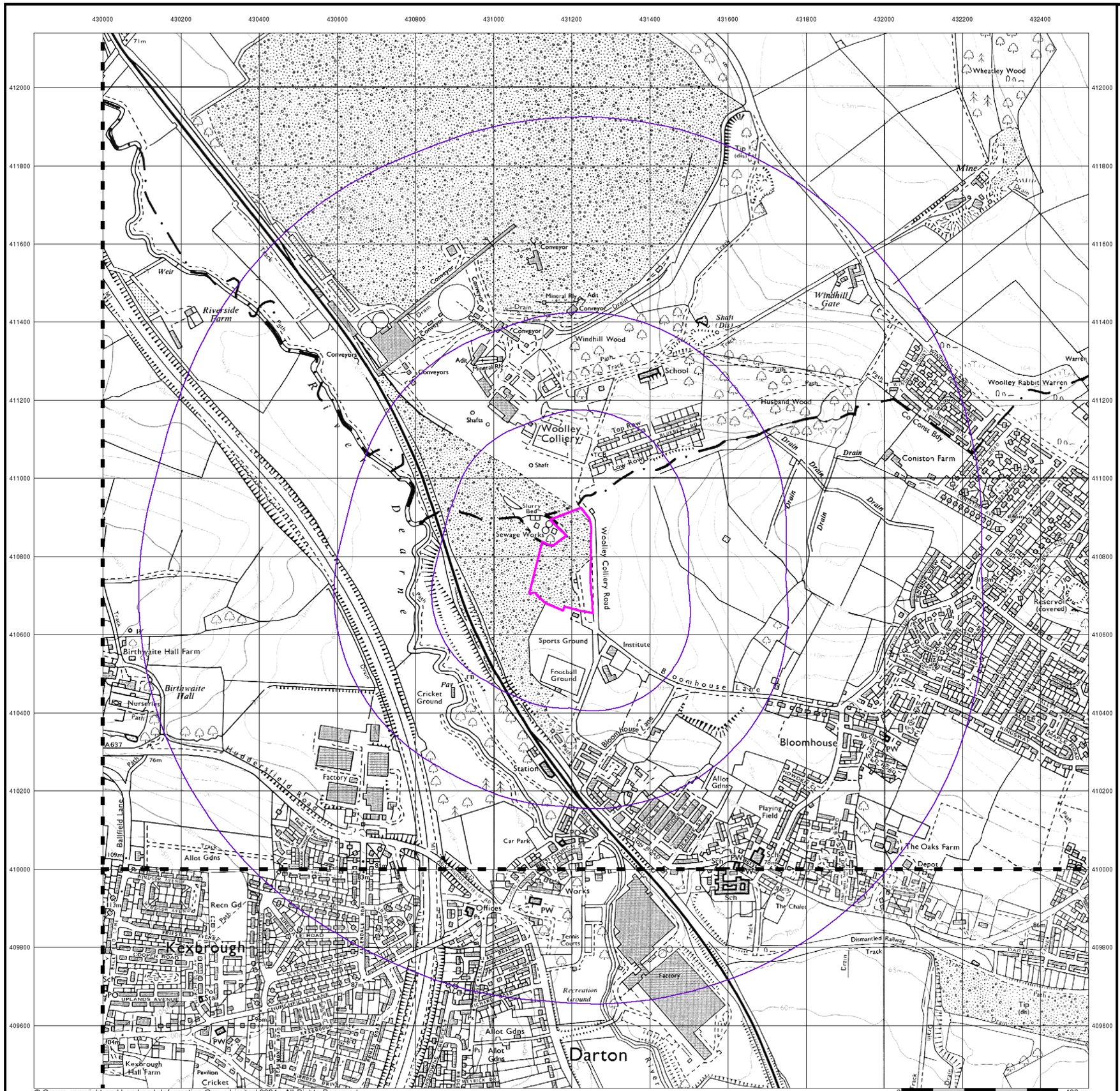

Ordnance Survey Plan

Published 1991 - 1993

Source map scale - 1:10,000

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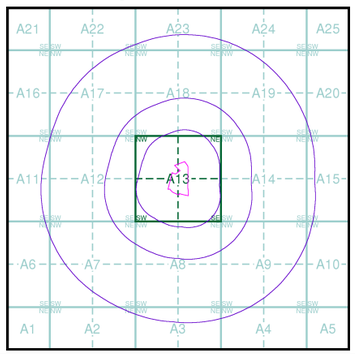
Map Name(s) and Date(s)

SE31SW
1991
1:10,000

SE30NW
1993
1:10,000

Historical Map - Slice A



Order Details

Order Number:	347386087_1_1
Customer Ref:	C10128
National Grid Reference:	431190, 410780
Slice:	A
Site Area (Ha):	2.95
Search Buffer (m):	1000

Site Details

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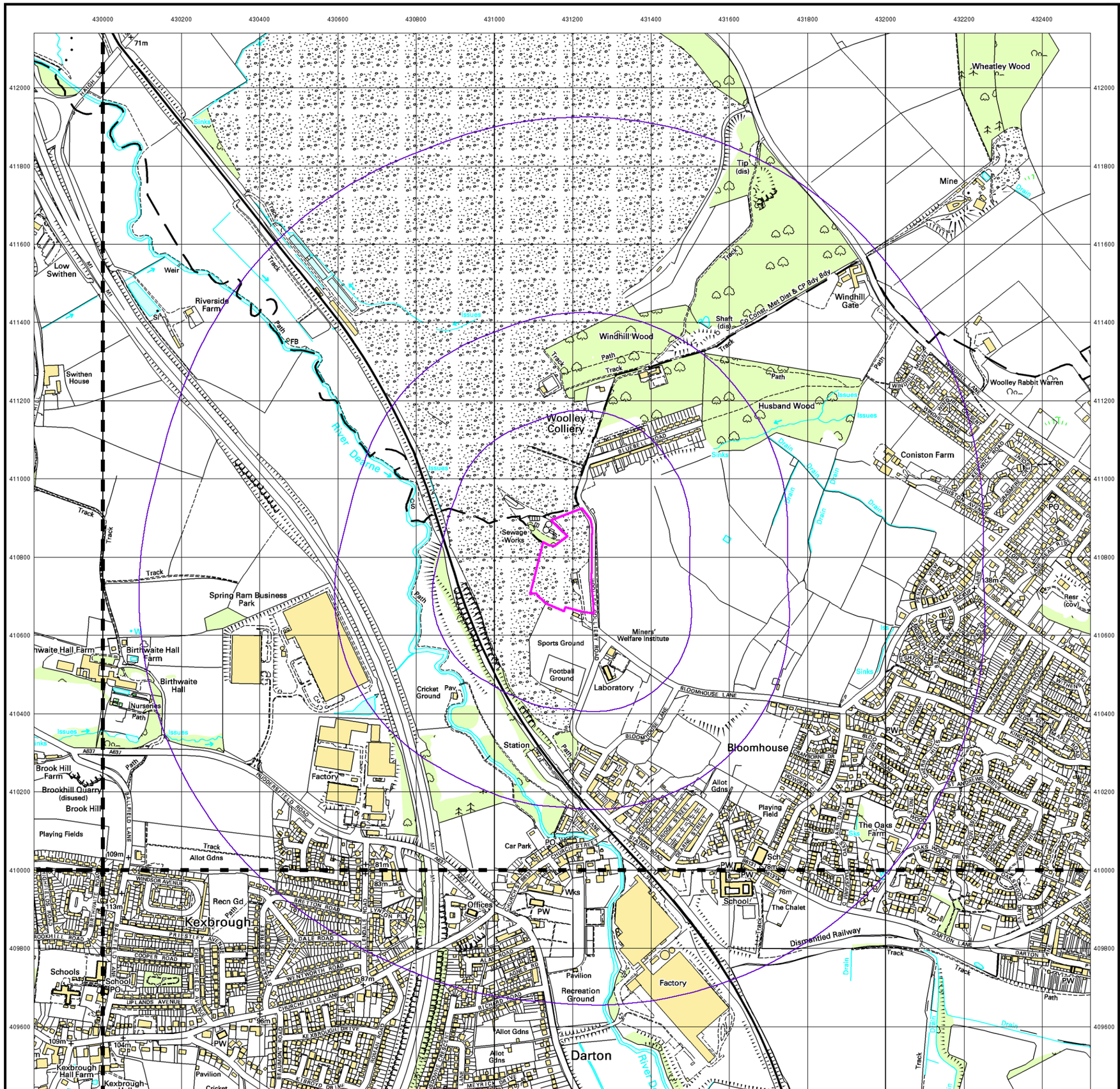

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sirius

10k Raster Mapping

Published 2000

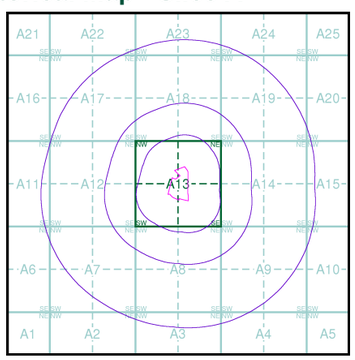
Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey`s 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

Map Name(s) and Date(s)

SE21SE 2000 1:10,000	SE31SW 2000 1:10,000
SE20NE 2000 1:10,000	SE30NW 2000 1:10,000

Historical Map - Slice A



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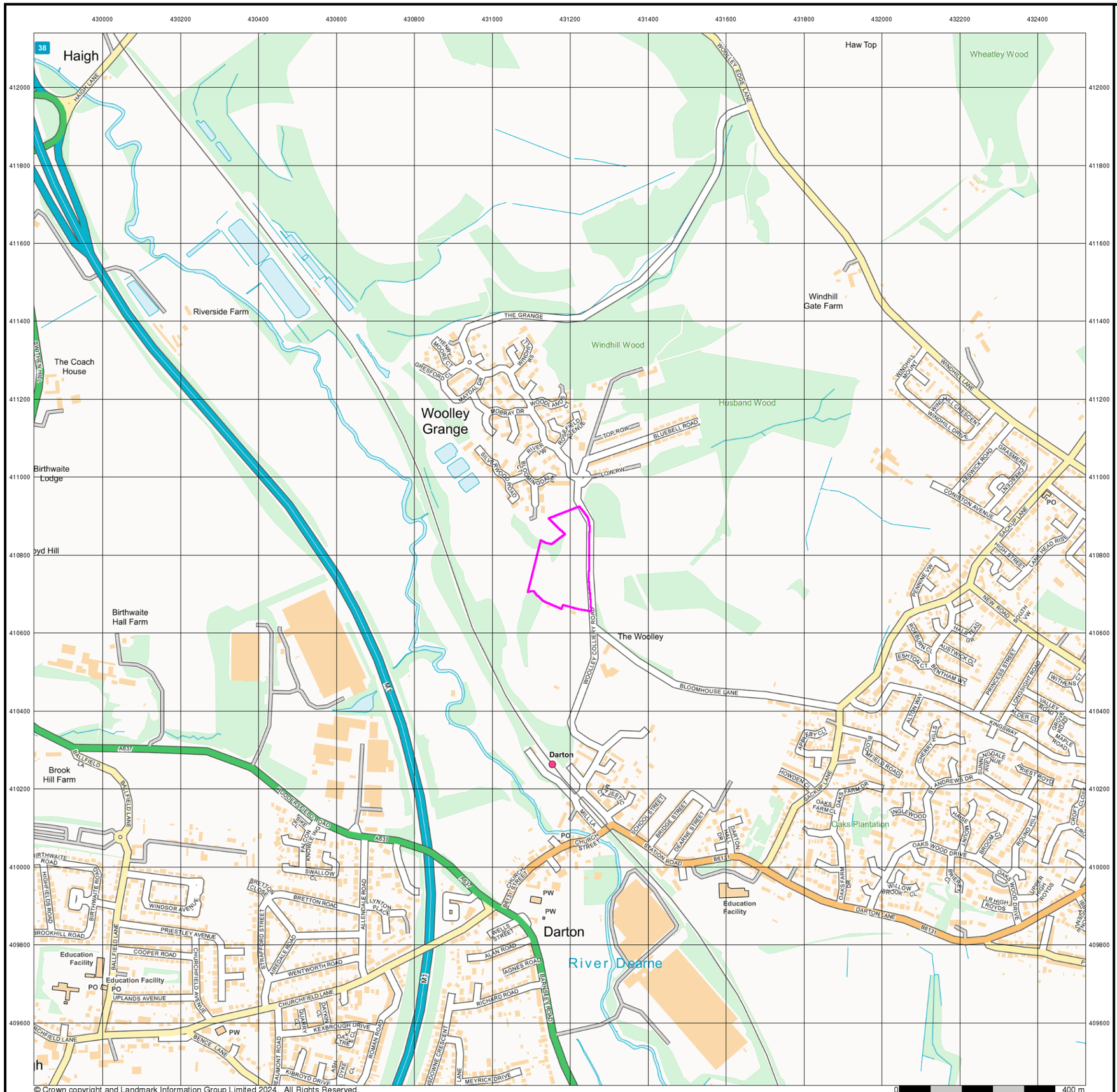


Street View

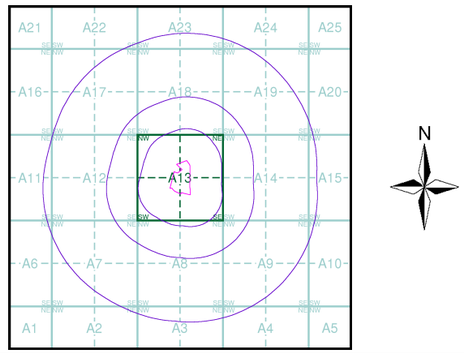
Published 2024

Source map scale - 1:10,000

Street View is a street-level map for the whole of Great Britain produced by the Ordnance Survey. These maps are provided at a nominal scale of 1:10,000

Map Name(s) and Date(s)

Street View Map - Slice A



Order Details

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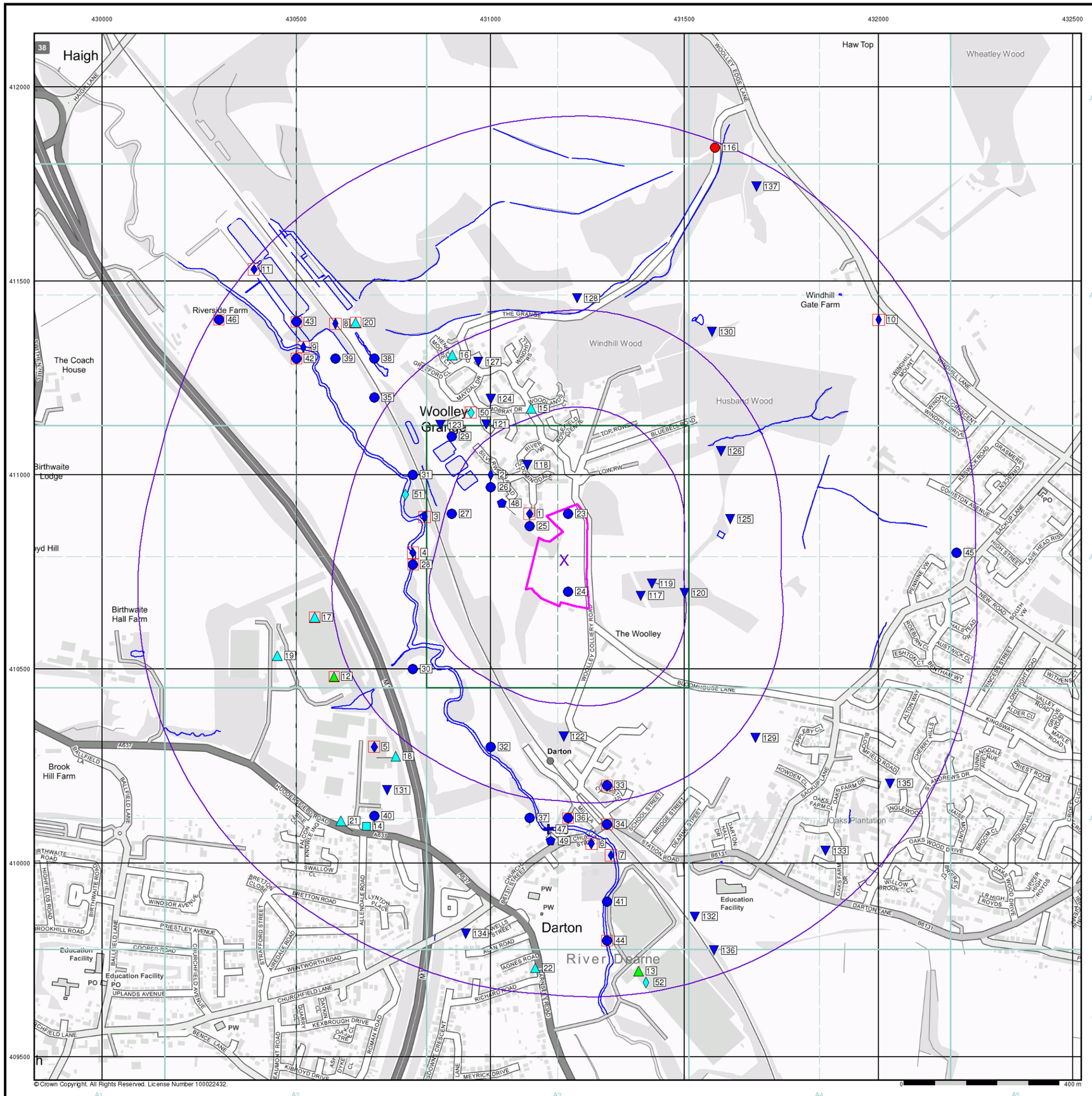
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A4
A5
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Haigh
HAIGH LANE
Haw Top
Wheatley Wood
WOOLLEY EDGE LANE
Riverside Farm
The Coach House
SWITHENS HILL
Windhill Gate Farm
Windhill Wood
Husband Wood
THE GRANGE
GRETFORD CL
MAYDALE DR
WOODLANDS CL
COBRAY DR
Woolley Grange
ROSEFIELD AVENUE
TOP ROW
BLUEBELL ROAD
RIVER VIEW
SILKSTONE ROAD
LOWER W
WINDHILL MOUNT
WINDHILL CRESCENT
WINDHILL DRIVE
KESWICK ROAD
ORASMERE
COLWYN AVENUE
COLWYN CRESCENT
COLWYN DRIVE
COLWYN GARDENS
COLWYN GROVE
COLWYN MOUNT
COLWYN PLACE
COLWYN ROAD
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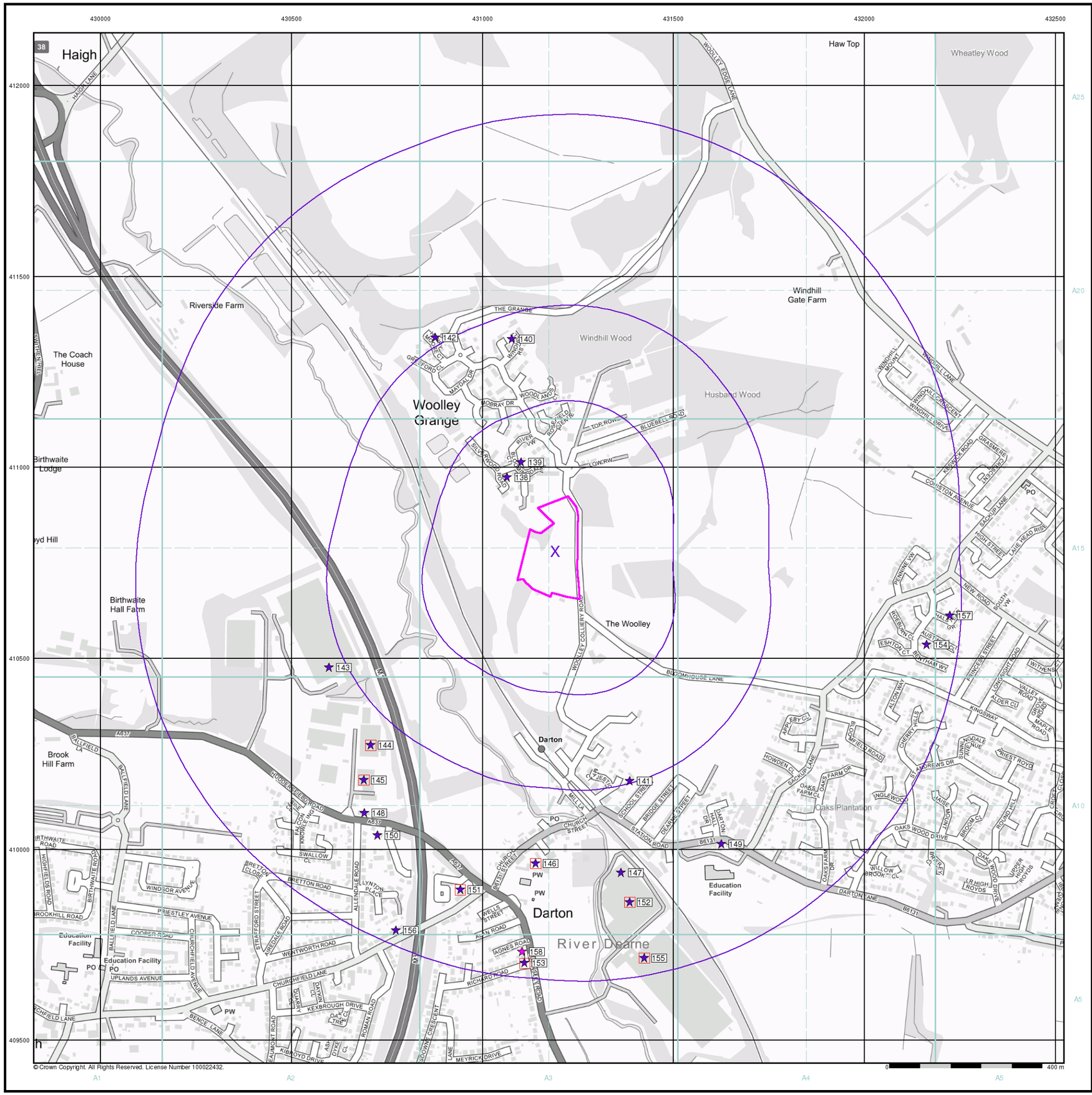


Industrial Land Use Map

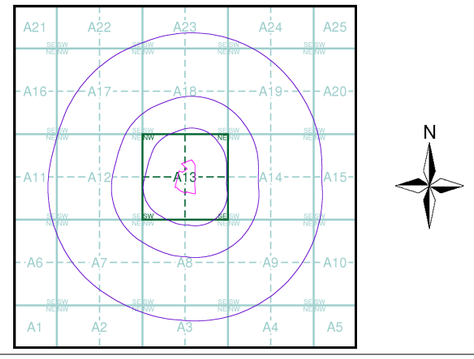
General

Specified Site
Specified Buffer(s)
Bearing Reference Point
Slice
Map ID

Industrial Land Use

Contemporary Trade Directory Entry
Fuel Station Entry
Gas Pipeline
Underground Electrical Cables

Industrial Land Use Map - Slice A

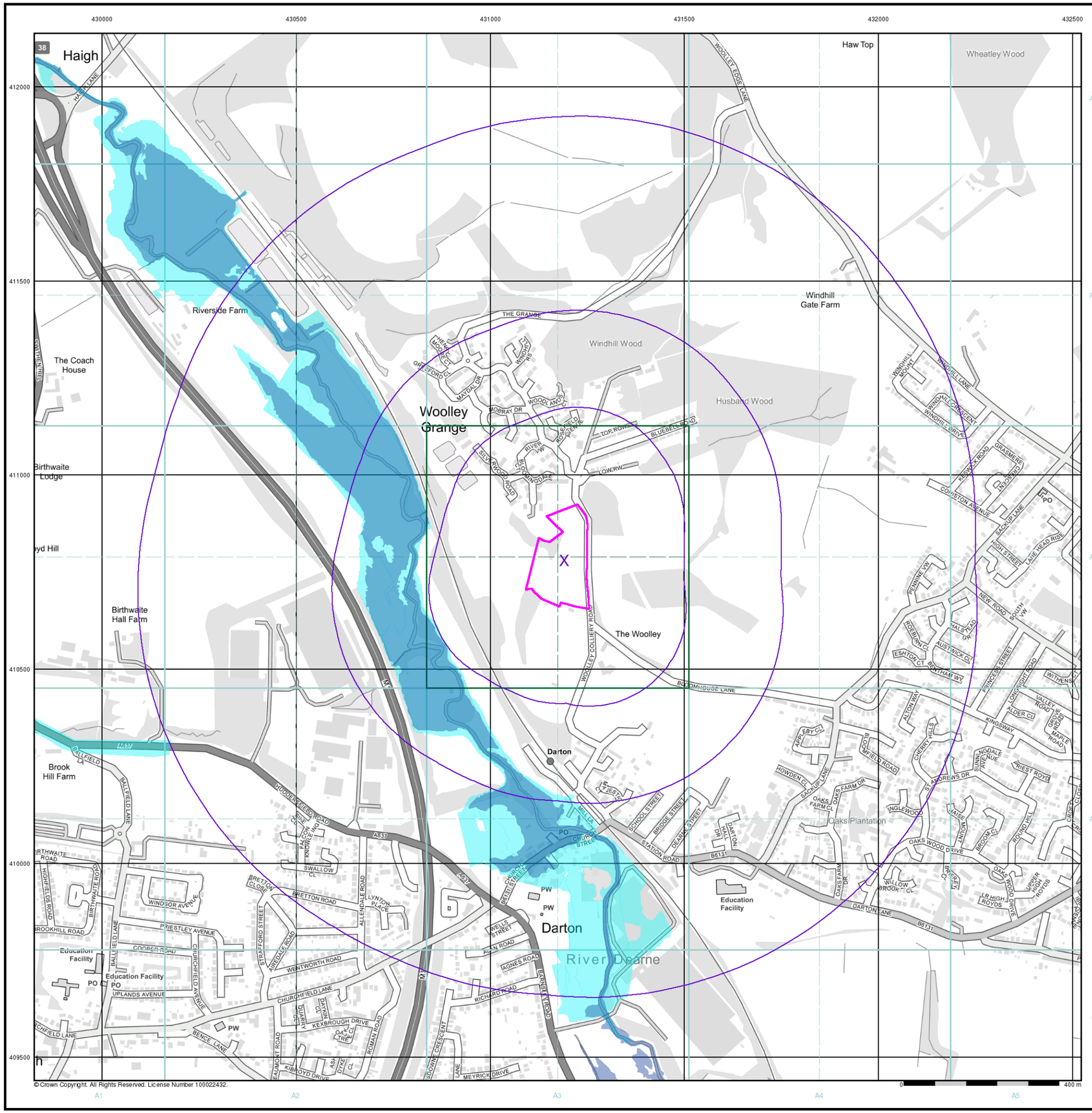


Order Details

Order Number:	347386087_1_1
Customer Ref:	C10128
National Grid Reference:	431190, 410780
Slice:	A
Site Area (Ha):	2.95
Search Buffer (m):	1000

Site Details

Land off Woolley Colliery Road (North), Darton, BARNSLEY



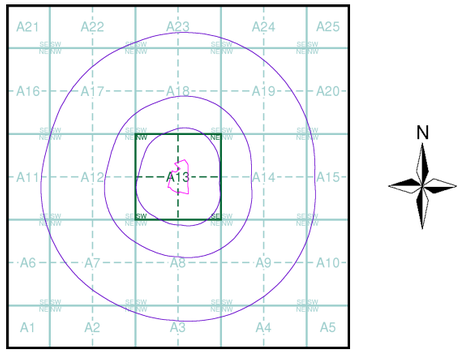
General

- Specified Site
- Specified Buffer(s)
- X Bearing Reference Point

Agency and Hydrological (Flood)

- Extreme Flooding from Rivers or Sea without Defences (Zone 2)
- Flooding from Rivers or Sea without Defences (Zone 3)
- Area Benefiting from Flood Defence
- Flood Water Storage Areas
- Flood Defence

Flood Map - Slice A



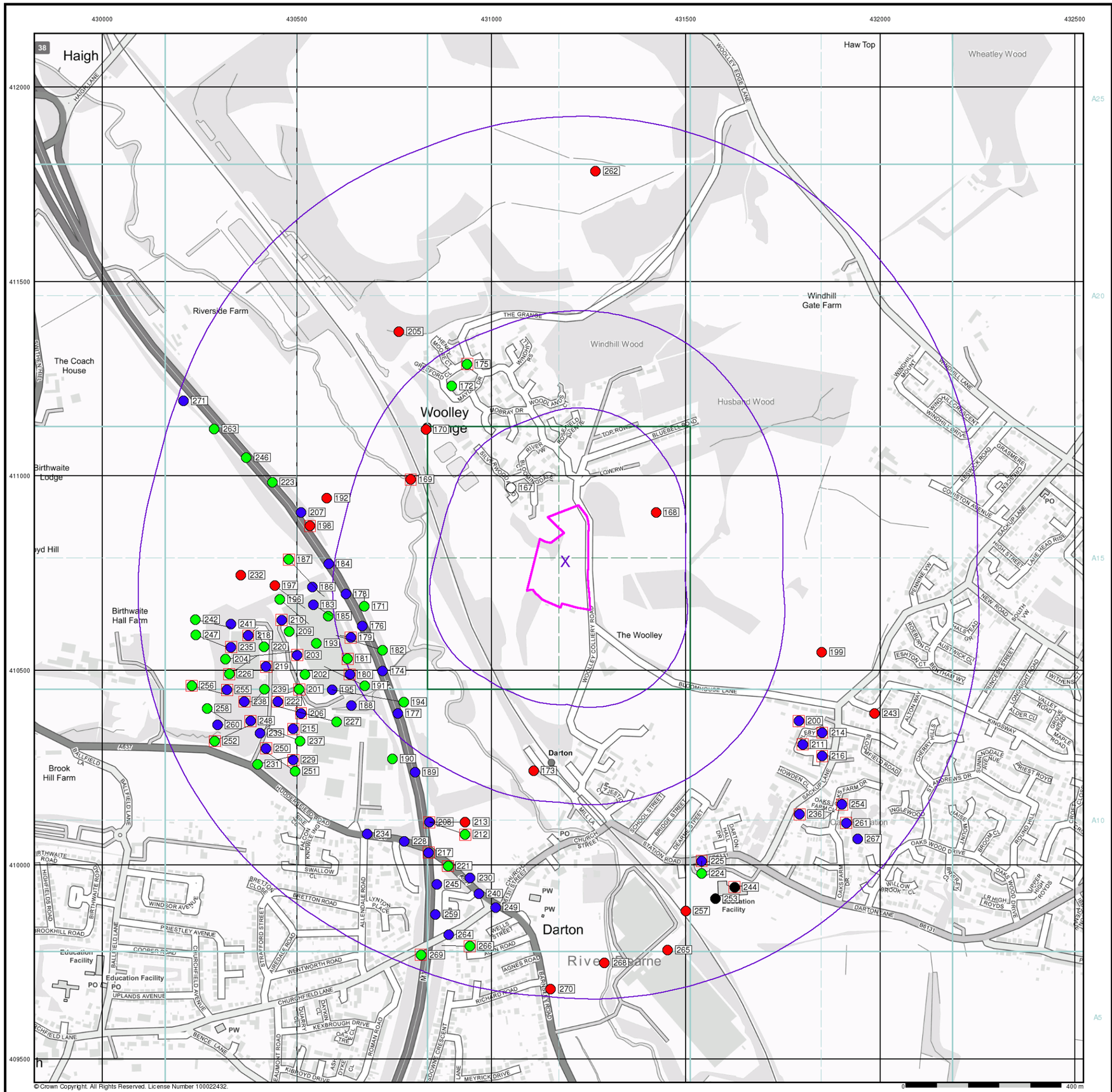
Order Details

Order Number:	347386087_1_1
Customer Ref:	C10128
National Grid Reference:	431190, 410780
Slice:	A
Site Area (Ha):	2.95
Search Buffer (m):	1000

Site Details

Land off Woolley Colliery Road (North), Darton, BARNSLEY

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location

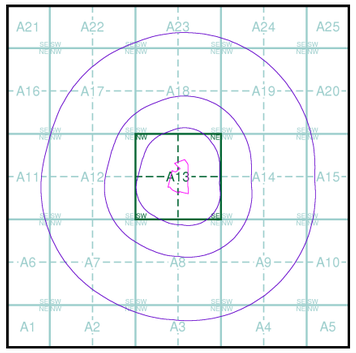
Agency and Hydrological (Boreholes)

- BGS Borehole Depth 0 - 10m
- BGS Borehole Depth 10 - 30m
- BGS Borehole Depth 30m +
- Confidential
- Other

For Borehole information please refer to the Borehole .csv file which accompanied this slice.

A copy of the BGS Borehole Ordering Form is available to download from the Support section of www.envirocheck.co.uk.

Borehole Map - Slice A



Order Details

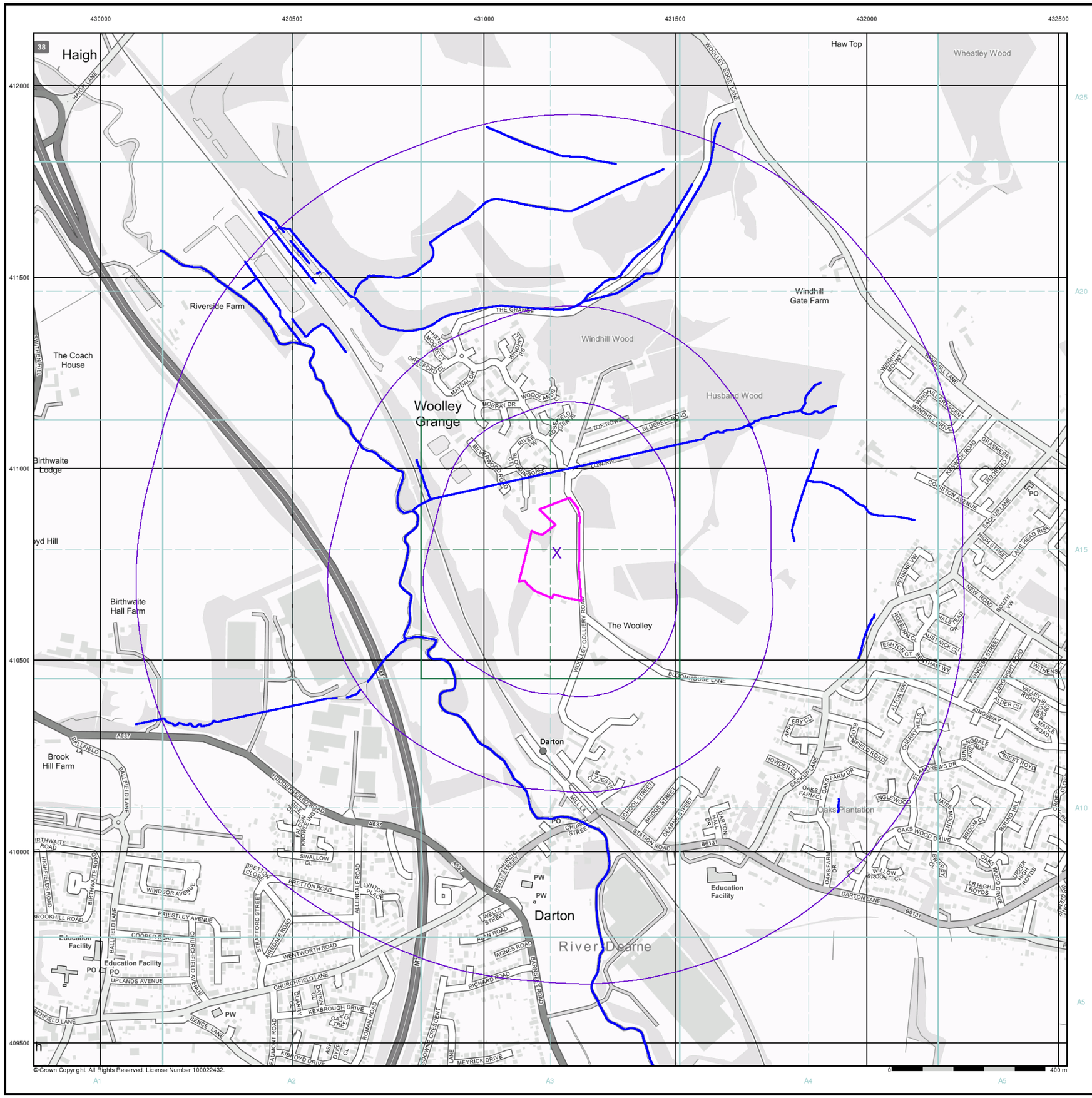
Order Number:	347386087_1_1
Customer Ref:	C10128
National Grid Reference:	431190, 410780
Slice:	A
Site Area (Ha):	2.95
Search Buffer (m):	1000

Site Details

Land off Woolley Colliery Road (North), Darton, BARNSLEY

Landmark INFORMATION GROUP

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



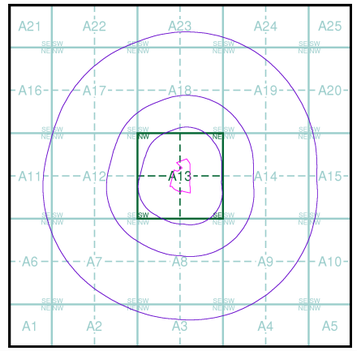
General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

OS Water Network Data

- Canal
- Reservoir
- Foreshore
- Marsh
- Tidal River
- Inland River
- Drain
- Other
- Lake
- Transfer
- Lock Or Flight Of Locks
- Sea

OS Water Network Map - Slice A



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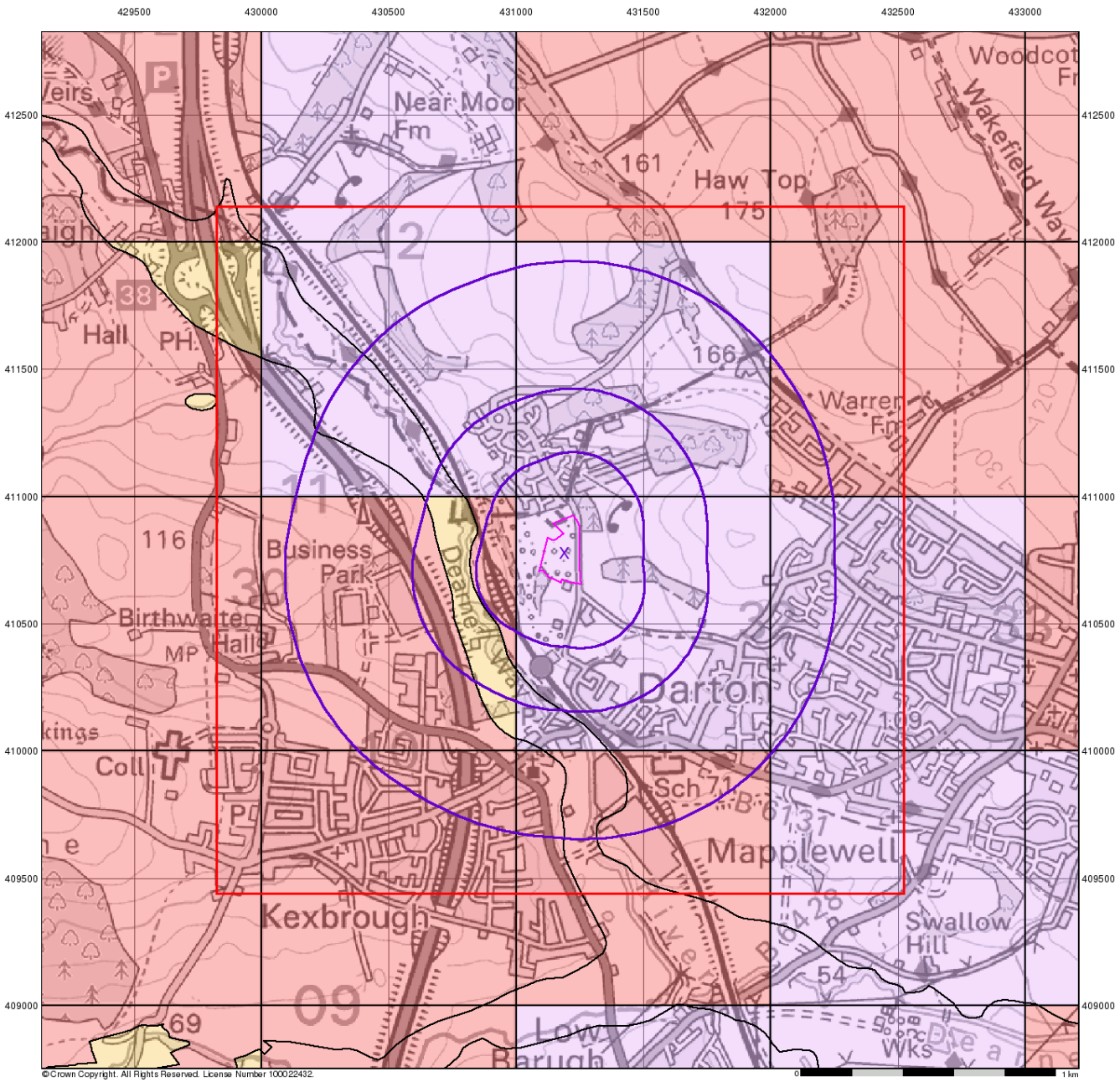


Groundwater Vulnerability

General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

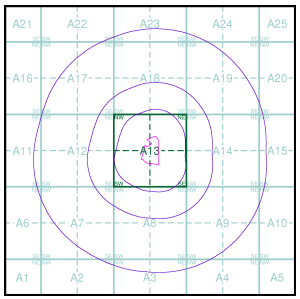
Agency and Hydrological

Bedrock Aquifers	Superficial Aquifers
High Vulnerability, Principal Aquifer	High Vulnerability, Principal Aquifer
High Vulnerability, Secondary Aquifer	High Vulnerability, Secondary Aquifer
Medium Vulnerability, Principal Aquifer	Medium Vulnerability, Principal Aquifer
Medium Vulnerability, Secondary Aquifer	Medium Vulnerability, Secondary Aquifer
Low Vulnerability, Principal Aquifer	Low Vulnerability, Principal Aquifer
Low Vulnerability, Secondary Aquifer	Low Vulnerability, Secondary Aquifer

Unproductive Aquifer

Soluble Rock

Site Sensitivity Context Map - Slice A



Order Details

Order Number:	347386087_1_1
Customer Ref:	C10128
National Grid Reference:	431190, 410780
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Site Area (Ha):	2.95
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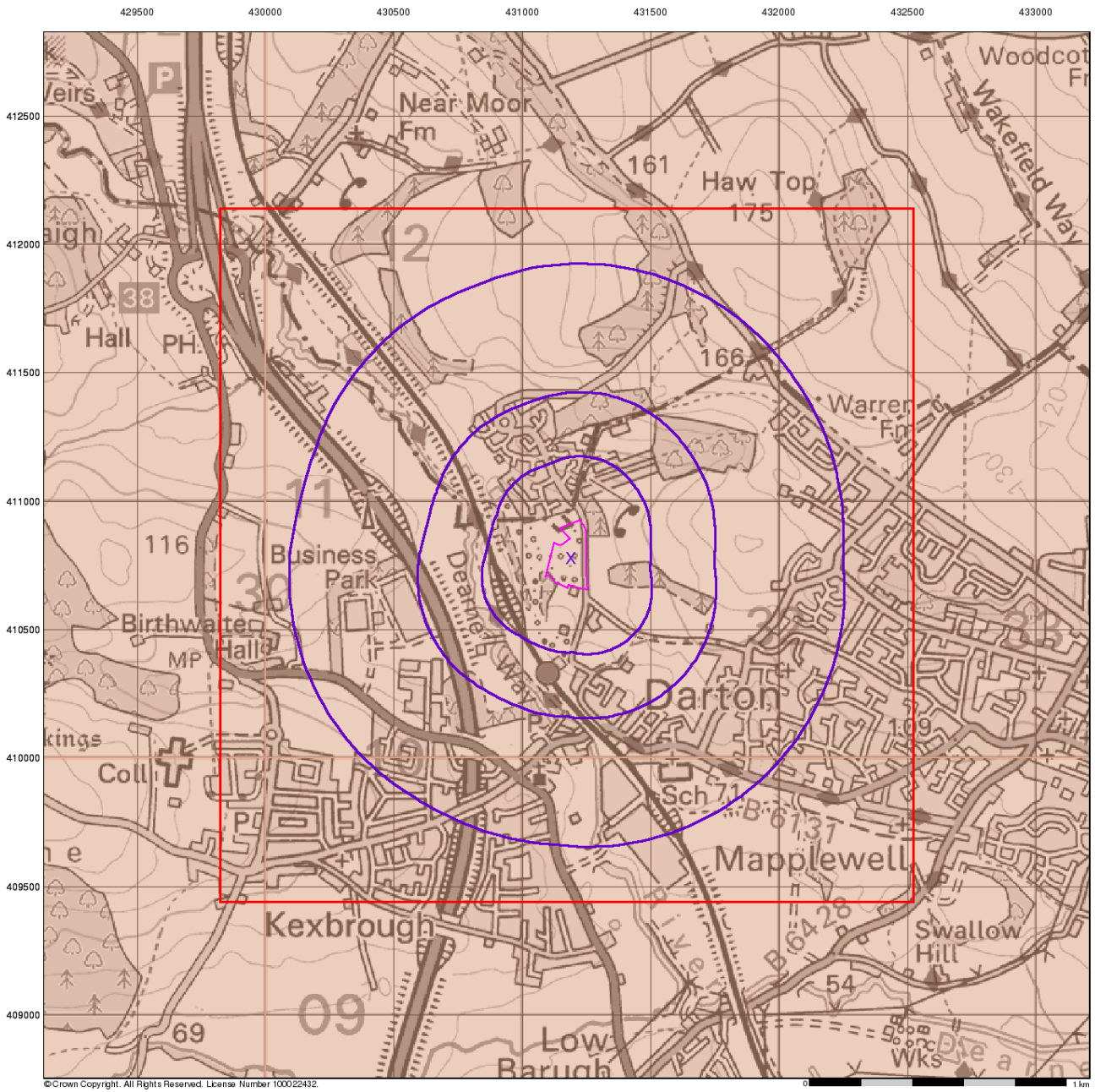


Bedrock Aquifer Designation

General

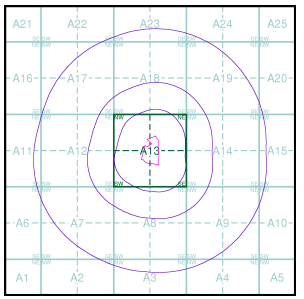
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown
- Unknown (Lakes and Landslip)

Site Sensitivity Context Map - Slice A



Order Details

Order Number:	347386087_1_1
Customer Ref:	C10128
National Grid Reference:	431190, 410780
Slice:	A
Site Area (Ha):	2.95
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Site Details

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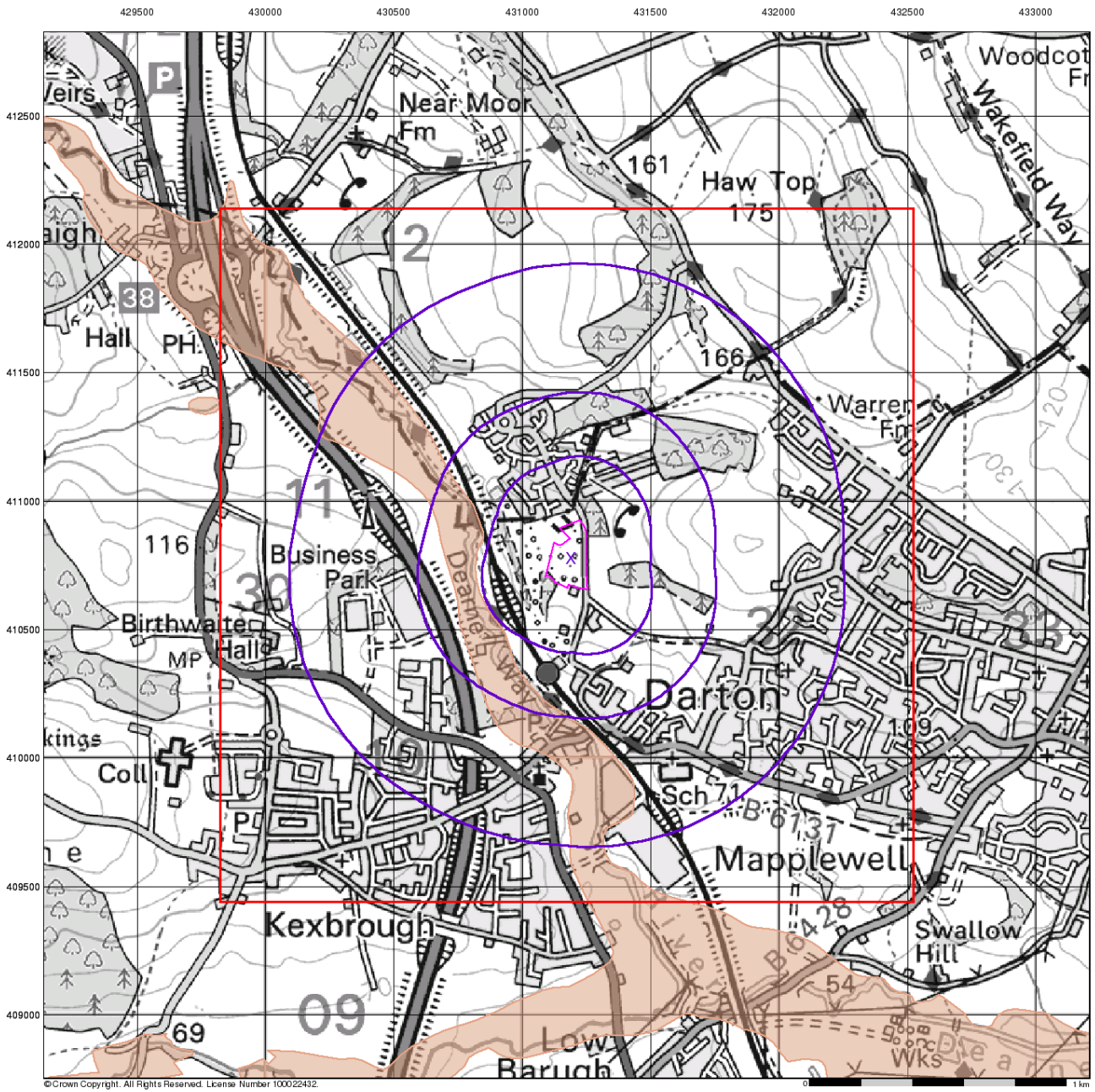


Superficial Aquifer Designation

General

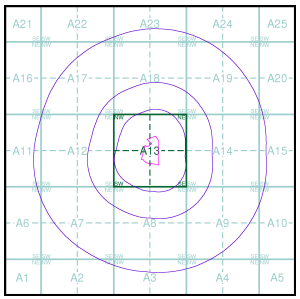
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown
- Unknown (Lakes and Landslip)

Site Sensitivity Context Map - Slice A

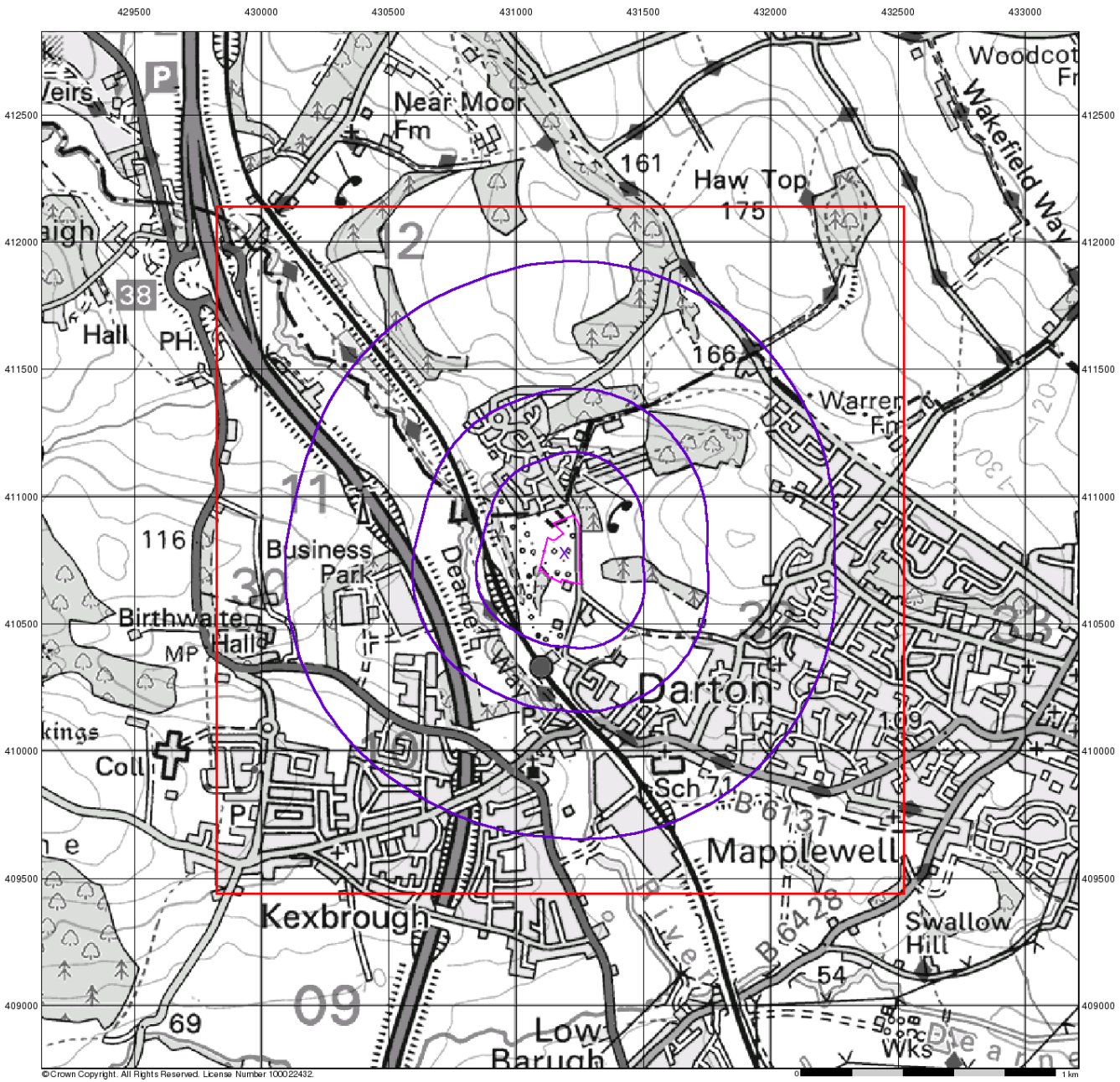


Order Details

Order Number:	347386087_1_1
Customer Ref:	C10128
National Grid Reference:	431190, 410780
Slice:	A
Site Area (Ha):	2.95
Search Buffer (m):	1000

Site Details

Land off Woolley Colliery Road (North), Darton, BARNSLEY



Source Protection Zones

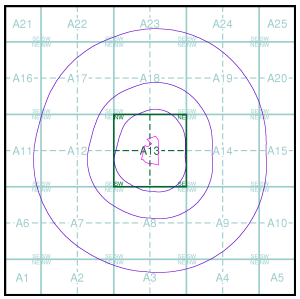
General

Specified Site | Specified Buffer(s) | Bearing Reference Point
Slice | Map ID

Agency and Hydrological

- Inner zone (Zone 1)
- Inner zone - subsurface activity only (Zone 1c)
- Outer zone (Zone 2)
- Outer zone - subsurface activity only (Zone 2c)
- Total catchment (Zone 3)
- Total catchment - subsurface activity only (Zone 3c)
- Special interest (Zone 4)

Site Sensitivity Context Map - Slice A



Order Details

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National Grid Reference:	431190, 410780
Slice:	A
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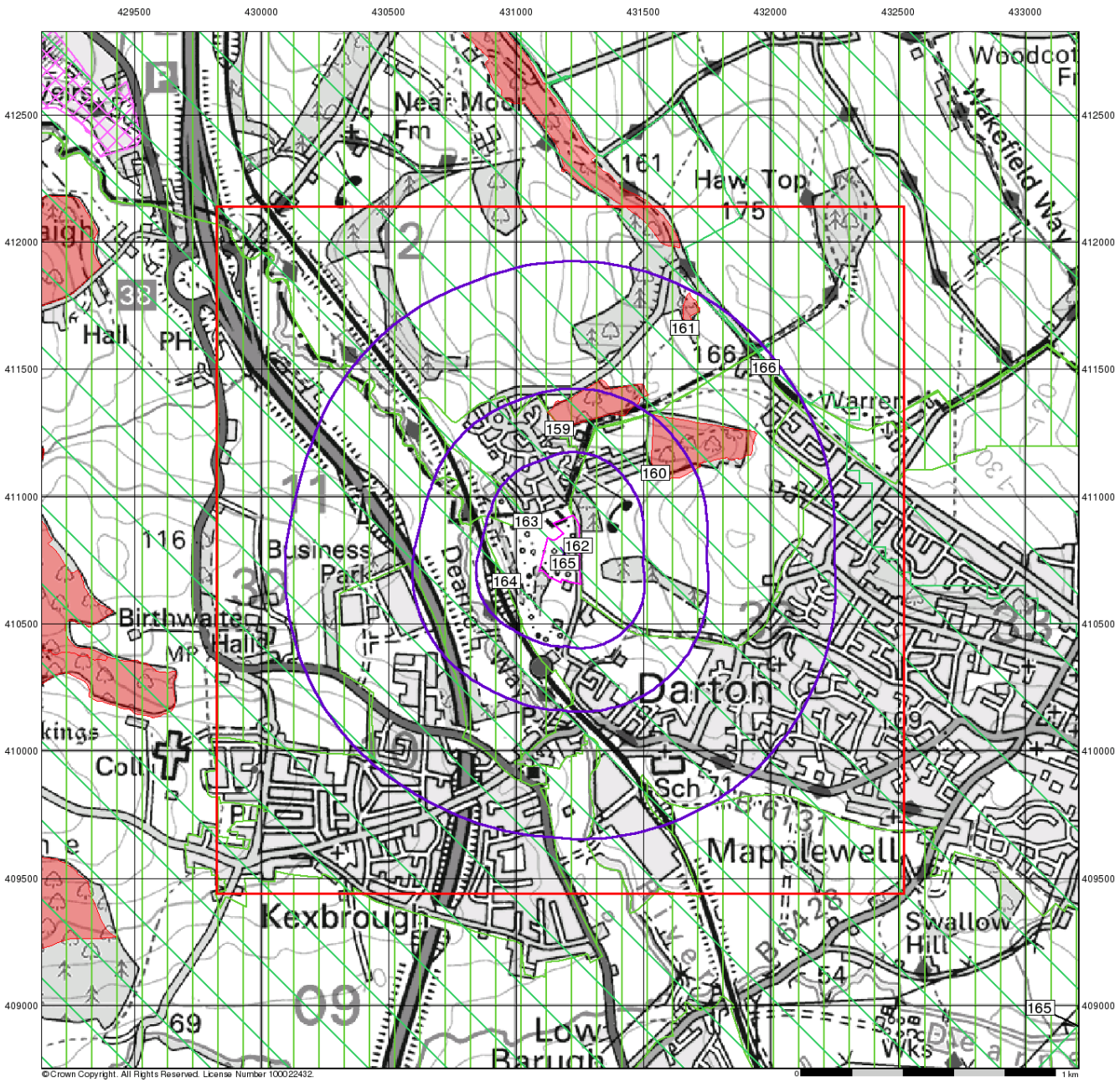


Sensitive Land Uses

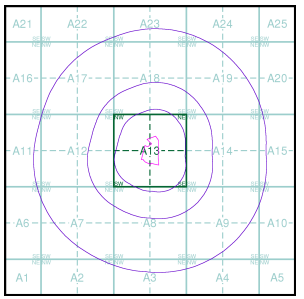
General

Specified Site | Specified Buffer(s) | Bearing Reference Point
Slice | Map ID

Sensitive Land Uses

- Ancient Woodland
- Area of Adopted Green Belt
- Area of Unadopted Green Belt
- Area of Outstanding Natural Beauty
- Environmentally Sensitive Area
- Forest Park
- Local Nature Reserve
- Marine Nature Reserve
- National Nature Reserve
- National Park
- Nitrate Sensitive Area
- Nitrate Vulnerable Zone
- Ramsar Site
- Site of Special Scientific Interest
- Special Area of Conservation
- Special Protection Area
- World Heritage Sites

Site Sensitivity Context Map - Slice A



Order Details

Order Number:	347386087_1_1
Customer Ref:	C10128
National Grid Reference:	431190, 410780
Slice:	A
Site Area (Ha):	2.95
Search Buffer (m):	1000

Site Details

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Tel: 0844 844 9952
Fax: 0844 844 9951
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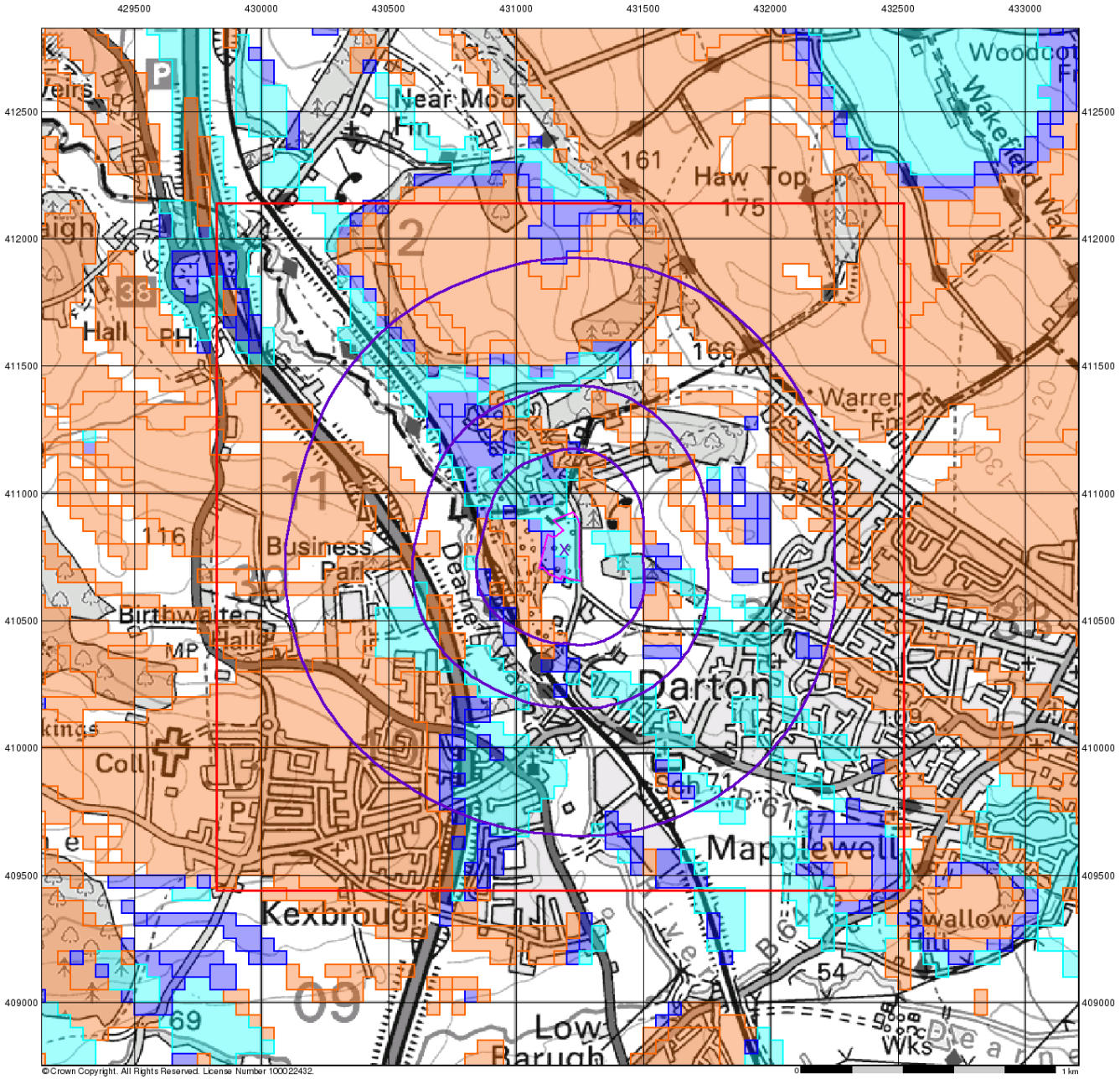


BGS Flood GFS Data

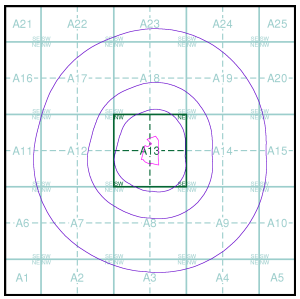
General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice

Agency and Hydrological (Flood)

- Limited Potential for Groundwater Flooding to Occur
- Potential for Groundwater Flooding of Property Situated Below Ground Level
- Potential for Groundwater Flooding to Occur at Surface

Site Sensitivity Context Map - Slice A



Order Details

Order Number:	347386087_1_1
Customer Ref:	C10128
National Grid Reference:	431190, 410780
Slice:	A
Site Area (Ha):	2.95
Search Buffer (m):	1000

Site Details

Land off Woolley Colliery Road (North), Darton, BARNSLEY

Envirocheck® Report:

Datasheet

Order Details:

Order Number:
347386087_1_1

Customer Reference:
C10128

National Grid Reference:
431190, 410780

Slice:
A

Site Area (Ha):
2.95

Search Buffer (m):
1000

Site Details:

Land off Woolley Colliery Road (North)
Darton
BARNSLEY

Client Details:

Ms S Howson
Sirius Geotechnical Ltd
4245 Park Approach
Thorpe Park
Leeds
LS15 8GB

Contents

Report Section	Page Number
Summary	-
Agency & Hydrological	1
Waste	35
Hazardous Substances	-
Geological	36
Industrial Land Use	41
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Data Suppliers	49
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Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination.
For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency/Natural Resources Wales and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client.
In this datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

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Report Version v53.0

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Agency & Hydrological					
BGS Groundwater Flooding Susceptibility	pg 1	Yes	Yes	Yes	n/a
Contaminated Land Register Entries and Notices					
Discharge Consents	pg 4		5	6	30
Prosecutions Relating to Controlled Waters			n/a	n/a	n/a
Enforcement and Prohibition Notices					
Integrated Pollution Controls	pg 14				5
Integrated Pollution Prevention And Control					
Local Authority Integrated Pollution Prevention And Control	pg 15				1
Local Authority Pollution Prevention and Controls	pg 15			2	11
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature	pg 17		Yes		
Pollution Incidents to Controlled Waters	pg 17	2	3	9	29
Prosecutions Relating to Authorised Processes					
Registered Radioactive Substances					
River Quality	pg 24			1	1
River Quality Biology Sampling Points					
River Quality Chemistry Sampling Points	pg 25				1
Substantiated Pollution Incident Register	pg 25		1		1
Water Abstractions	pg 26			3	1 (*1)
Water Industry Act Referrals					
Groundwater Vulnerability Map	pg 27	Yes	n/a	n/a	n/a
Groundwater Vulnerability - Soluble Rock Risk			n/a	n/a	n/a
Bedrock Aquifer Designations	pg 27	Yes	n/a	n/a	n/a
Superficial Aquifer Designations			n/a	n/a	n/a
Source Protection Zones					
Extreme Flooding from Rivers or Sea without Defences	pg 27		Yes	n/a	n/a
Flooding from Rivers or Sea without Defences				n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences				n/a	n/a
OS Water Network Lines	pg 27		1	15	47

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Waste					
BGS Recorded Landfill Sites					
Historical Landfill Sites					
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)	pg 35				1
Local Authority Landfill Coverage	pg 35	2	n/a	n/a	n/a
Local Authority Recorded Landfill Sites					
Registered Landfill Sites					
Registered Waste Transfer Sites					
Registered Waste Treatment or Disposal Sites					
Hazardous Substances					
Control of Major Accident Hazards Sites (COMAH)					
Explosive Sites					
Notification of Installations Handling Hazardous Substances (NIHHS)					
Planning Hazardous Substance Consents					
Planning Hazardous Substance Enforcements					
Geological					
BGS 1:625,000 Solid Geology	pg 36	Yes	n/a	n/a	n/a
BGS Recorded Mineral Sites	pg 36		4	7	10
CBSCB Compensation District			n/a	n/a	n/a
Coal Mining Affected Areas	pg 39	Yes	n/a	n/a	n/a
Mining Instability	pg 39	Yes	n/a	n/a	n/a
Man-Made Mining Cavities					
Natural Cavities					
Non Coal Mining Areas of Great Britain	pg 39	Yes		n/a	n/a
Potential for Collapsible Ground Stability Hazards	pg 39	Yes		n/a	n/a
Potential for Compressible Ground Stability Hazards	pg 39	Yes	Yes	n/a	n/a
Potential for Ground Dissolution Stability Hazards				n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 40	Yes	Yes	n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 40	Yes	Yes	n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 40	Yes		n/a	n/a
Radon Potential - Radon Affected Areas			n/a	n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a	n/a

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Industrial Land Use					
Contemporary Trade Directory Entries	pg 41		2	2	28
Fuel Station Entries	pg 43				1
Gas Pipelines					
Underground Electrical Cables					
Sensitive Land Use					
Ancient Woodland	pg 44			2	1
Areas of Adopted Green Belt	pg 44	1	2		
Areas of Unadopted Green Belt					
Areas of Outstanding Natural Beauty					
Environmentally Sensitive Areas					
Forest Parks					
Local Nature Reserves					
Marine Nature Reserves					
National Nature Reserves					
National Parks					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones	pg 44	1			1
Ramsar Sites					
Sites of Special Scientific Interest					
Special Areas of Conservation					
Special Protection Areas					
World Heritage Sites					

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (W)	0	1	431100 410780
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (SW)	0	1	431150 410700
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SE (S)	0	1	431190 410750
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13SE (SW)	0	1	431190 410780
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SW (W)	0	1	431150 410780
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NW (NW)	28	1	431100 410850
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (W)	42	1	431050 410750
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NW (N)	51	1	431150 410950
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13NE (E)	51	1	431300 410800
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NE (NE)	76	1	431350 410900
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (SW)	114	1	431050 410600
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13NE (N)	126	1	431200 411050
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NE (N)	128	1	431190 411050
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NE (N)	128	1	431250 411050
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (S)	133	1	431100 410550
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (SW)	140	1	431000 410600
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NW (NW)	140	1	431000 410900
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (SW)	153	1	430950 410650
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (S)	164	1	431150 410500
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SW (SW)	177	1	430950 410600
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (S)	179	1	431100 410500
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SW (SW)	181	1	431000 410550

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SW (W)	192	1	430900 410700
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SE (SE)	196	1	431450 410650
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (SW)	199	1	431050 410500
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NE (E)	200	1	431450 410800
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SW (SW)	211	1	430950 410550
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A8NE (S)	212	1	431190 410450
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18SE (N)	226	1	431200 411150
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NW (W)	234	1	430900 410900
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13SW (W)	242	1	430850 410750
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (W)	246	1	430850 410780
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SE (E)	246	1	431500 410700
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NW (NW)	250	1	430950 411050
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SE (E)	251	1	431500 410780
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (SE)	252	1	431500 410600
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A8NE (S)	261	1	431190 410400
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A8NW (S)	263	1	431150 410400
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A8NW (SW)	267	1	431000 410450
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SE (N)	277	1	431190 411200
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18SW (NW)	295	1	431000 411150
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14SW (E)	299	1	431550 410750
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A8NE (S)	305	1	431200 410350
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SE (NE)	319	1	431450 411150

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A8NE (SE)	320	1	431500 410450
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18SW (NW)	322	1	430950 411150
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SE (NE)	327	1	431400 411200
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A14SW (E)	346	1	431600 410700
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SW (N)	349	1	431100 411250
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14SW (SE)	351	1	431600 410600
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A8NE (SE)	354	1	431500 410400
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A8NE (S)	355	1	431200 410300
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14NW (E)	358	1	431600 410950
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A8NE (S)	358	1	431300 410300
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12SE (W)	358	1	430750 410600
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A8NW (SW)	361	1	430900 410400
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SW (NW)	363	1	430950 411200
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14NW (NE)	369	1	431600 411000
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12SE (SW)	376	1	430750 410550
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A12NE (NW)	379	1	430800 411050
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A7NE (SW)	388	1	430800 410450
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18SW (NW)	393	1	430900 411200
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12SE (W)	395	1	430700 410780
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14NW (E)	400	1	431650 410850
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12SE (W)	406	1	430700 410600
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A8NE (S)	409	1	431190 410250

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14NW (NE)	410	1	431600 411100
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A18SW (N)	413	1	431050 411300
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12SE (SW)	422	1	430700 410550
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SW (N)	431	1	431000 411300
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SE (NE)	438	1	431450 411300
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A12SE (W)	443	1	430650 410650
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A12NE (NW)	446	1	430750 411100
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A14SW (E)	450	1	431700 410600
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18SW (NW)	451	1	430950 411300
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14NW (E)	451	1	431700 410800
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A14SW (SE)	472	1	431700 410500
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12NE (W)	476	1	430650 410900
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SW (NW)	496	1	430950 411350
1	**Discharge Consents** Operator: Yorkshire Water Services Limited Property Type: WWTW/SEWAGE TREATMENT WORKS (WATER COMPANY) Location: Woolley Colliery Stw, Woolley, Barnsley, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: E707 Permit Version: 2 Effective Date: 14th February 1986 Issued Date: 14th February 1986 Revocation Date: 18th August 1997 Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Tributary Of The River Dearne **Status: Transferred from COPA 1974** Positional Accuracy: Located by supplier to within 100m	A13NW (NW)	46	2	431100 410900
1	**Discharge Consents** Operator: Yorkshire Water Services Limited Property Type: WWTW/SEWAGE TREATMENT WORKS (WATER COMPANY) Location: Woolley Colliery Stw, Woolley, Barnsley, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: E707 Permit Version: 2 Effective Date: 14th February 1986 Issued Date: 14th February 1986 Revocation Date: 18th August 1997 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Tributary Of The River Dearne **Status: Transferred from COPA 1974** Positional Accuracy: Located by supplier to within 100m	A13NW (NW)	46	2	431100 410900

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
1	**Discharge Consents** Operator: Yorkshire Water Services Limited Property Type: WWTW/SEWAGE TREATMENT WORKS (WATER COMPANY) Location: Woolley Colliery Stw, Woolley, Barnsley, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: E707 Permit Version: 1 Effective Date: 16th November 1981 Issued Date: 16th November 1981 Revocation Date: 13th February 1986 Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Tributary Of The River Dearne **Status: Transferred from Rivers (Prevention of Pollution) Act 1951-1961** Positional Accuracy: Located by supplier to within 100m	A13NW (NW)	46	2	431100 410900
1	**Discharge Consents** Operator: Yorkshire Water Services Limited Property Type: WWTW/SEWAGE TREATMENT WORKS (WATER COMPANY) Location: Woolley Colliery Stw, Woolley, Barnsley, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: E707 Permit Version: 1 Effective Date: 16th November 1981 Issued Date: 16th November 1981 Revocation Date: 13th February 1986 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Tributary Of The River Dearne **Status: Transferred from Rivers (Prevention of Pollution) Act 1951-1961** Positional Accuracy: Located by supplier to within 100m	A13NW (NW)	46	2	431100 410900
2	**Discharge Consents** Operator: British Coal Property Property Type: MINING OF COAL + LIGNITE Location: Woolley Colliery Darton, Barnsley, South Yorkshire, Uk Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: C4947 Permit Version: 1 Effective Date: 26th January 1988 Issued Date: 26th January 1988 Revocation Date: 16th May 1995 Discharge Type: Trade Effluent Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Consent revoked: Discharge ceased (Water Resources Act 1991, Schedule 10 & 6)** Positional Accuracy: Located by supplier to within 100m	A13NW (NW)	180	2	431000 411000
3	**Discharge Consents** Operator: The Coal Authority Property Type: MINING OF COAL + LIGNITE Location: Woolley Colliery Darton, Barnsley, South Yorkshire, Uk Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: C4758 Permit Version: 1 Effective Date: 2nd September 1987 Issued Date: 2nd September 1987 Revocation Date: 31st October 1994 Discharge Type: Trade Discharges - Site Drainage (Contaminated Surface Water, Not Waste Sites) Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Transferred from COPA 1974** Positional Accuracy: Located by supplier to within 10m	A13NW (NW)	278	2	430860 410920

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
3	**Discharge Consents** Operator: Med Contracting Property Type: MINING OF COAL + LIGNITE Location: Woolley Colliery Darton, Barnsley, South Yorkshire, Uk Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: 3747 Permit Version: 1 Effective Date: 25th October 1983 Issued Date: 25th October 1983 Revocation Date: 13th February 1986 Discharge Type: Trade Discharge - Mineral Workings Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Transferred from Rivers (Prevention of Pollution) Act 1951-1961** Positional Accuracy: Located by supplier to within 10m	A12NE (W)	300	2	430830 410892
4	**Discharge Consents** Operator: Yorkshire Water Services Limited Property Type: WWTW/SEWAGE TREATMENT WORKS (WATER COMPANY) Location: Woolley Colliery Stw, Woolley, Barnsley, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: E707 Permit Version: 3 Effective Date: 19th August 1997 Issued Date: 19th August 1997 Revocation Date: 29th September 2009 Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Trib Of River Dearne **Status: Revoked (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 100m	A12NE (W)	307	2	430800 410800
4	**Discharge Consents** Operator: Yorkshire Water Services Limited Property Type: WWTW/SEWAGE TREATMENT WORKS (WATER COMPANY) Location: Woolley Colliery Stw, Woolley, Barnsley, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: E707 Permit Version: 3 Effective Date: 19th August 1997 Issued Date: 19th August 1997 Revocation Date: 29th September 2009 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Trib Of River Dearne **Status: Revoked (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 100m	A12NE (W)	307	2	430800 410800
4	**Discharge Consents** Operator: Yorkshire Water Services Ltd Property Type: Undefined Or Other Location: Wooley Colliery Wpc Works Storm Tan, Ks Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: E707(Ss) Permit Version: 1 Effective Date: 1st January 1982 Issued Date: 1st January 1982 Revocation Date: 13th March 1986 Discharge Type: Sewage Discharges - Unspecified - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 100m	A12NE (W)	307	2	430800 410800

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
4	**Discharge Consents** Operator: Yorkshire Water Services Ltd Property Type: Undefined Or Other Location: Wooley Colliery Wpc Works Storm Tan, Ks Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: E707(Ss) Permit Version: 1 Effective Date: 1st January 1982 Issued Date: 1st January 1982 Revocation Date: 13th March 1986 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 100m	A12NE (W)	307	2	430800 410800
5	**Discharge Consents** Operator: Summer Estate Holdings Limited C/O Vistra (Bvi)Ltd Property Type: WHOLESALE TRADE (NOT MOTOR VEHICLES) Location: Junction 38 Business Park Darton Works, Huddersfield Road, Darton, Barnsley, S75 5qq Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: C4011 Permit Version: 2 Effective Date: 22nd July 1993 Issued Date: 22nd July 1993 Revocation Date: Not Supplied Discharge Type: Trade Discharges - Site Drainage (Contaminated Surface Water, Not Waste Sites) Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Revised Consent, by Notice (Section 37(1))** Positional Accuracy: Located by supplier to within 10m	A7NE (SW)	557	2	430710 410300
5	**Discharge Consents** Operator: West Register (Property Investments Limited) Property Type: Trade (Unknown/Other) Location: Parkside Performance Films, Darton, Barnsley Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: C4011 Permit Version: 2 Effective Date: 22nd July 1993 Issued Date: 22nd July 1993 Revocation Date: Not Supplied Discharge Type: Trade Discharges - Site Drainage (Contaminated Surface Water, Not Waste Sites) Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Revised Consent, by Notice (Section 37(1))** Positional Accuracy: Located by supplier to within 10m	A7NE (SW)	557	2	430710 410300
5	**Discharge Consents** Operator: Bp, Performance Films Group Property Type: WHOLESALE TRADE (NOT MOTOR VEHICLES) Location: Junction 38 Business Park Darton Works, Huddersfield Road, Darton, Barnsley, S75 5qq Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: C4011 Permit Version: 1 Effective Date: 25th September 1985 Issued Date: 25th September 1985 Revocation Date: 21st July 1993 Discharge Type: Trade Discharges - Site Drainage (Contaminated Surface Water, Not Waste Sites) Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Transferred from COPA 1974** Positional Accuracy: Located by supplier to within 10m	A7NE (SW)	557	2	430710 410300

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
5	**Discharge Consents** Operator: Anglo Clough Management Company Ltd Property Type: Trade (Unknown/Other) Location: Parkside Performance Films, Darton, Barnsley Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: C4011 Permit Version: 2 Effective Date: 22nd July 1993 Issued Date: 22nd July 1993 Revocation Date: Not Supplied Discharge Type: Trade Discharges - Site Drainage (Contaminated Surface Water, Not Waste Sites) Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Revised Consent, by Notice (Section 37(1))** Positional Accuracy: Located by supplier to within 100m	A7NE (SW)	564	2	430700 410300
5	**Discharge Consents** Operator: Summer Estate Holdings Limited C/O Vistra (Bvi)Ltd Property Type: WHOLESALE TRADE (NOT MOTOR VEHICLES) Location: Junction 38 Business Park Darton Works, Huddersfield Road, Darton, Barnsley, S75 5qq Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: C4011 Permit Version: 2 Effective Date: 22nd July 1993 Issued Date: 22nd July 1993 Revocation Date: Not Supplied Discharge Type: Trade Discharges - Site Drainage (Contaminated Surface Water, Not Waste Sites) Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Revised Consent, by Notice (Section 37(1))** Positional Accuracy: Located by supplier to within 100m	A7NE (SW)	564	2	430700 410300
5	**Discharge Consents** Operator: Bp, Performance Films Group Property Type: WHOLESALE TRADE (NOT MOTOR VEHICLES) Location: Junction 38 Business Park Darton Works, Huddersfield Road, Darton, Barnsley, S75 5qq Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: C4011 Permit Version: 1 Effective Date: 25th September 1985 Issued Date: 25th September 1985 Revocation Date: 21st July 1993 Discharge Type: Trade Discharges - Site Drainage (Contaminated Surface Water, Not Waste Sites) Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Transferred from COPA 1974** Positional Accuracy: Located by supplier to within 100m	A7NE (SW)	564	2	430700 410300
6	**Discharge Consents** Operator: Yorkshire Water Services Ltd Property Type: Sewerage Network - Sewers Location: Church Street, MILL LANE, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Dearne Reference: S/UD/51 Permit Version: Not Supplied Effective Date: Not Supplied Issued Date: 5th June 1963 Revocation Date: Not Supplied Discharge Type: Sewage Effluent Discharge-Storm Effluent Discharge Environment: Unknown Receiving Water: Not Supplied **Status: Not Supplied** Positional Accuracy: Located by supplier to within 100m	A8SE (S)	600	2	431265 410055

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
6	**Discharge Consents** Operator: Yorkshire Water Services Ltd Property Type: Not Given Location: Church Street/Mill Lane, DARTON, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Dearne Reference: S/UD/51 Permit Version: Not Supplied Effective Date: Not Supplied Issued Date: Not Supplied Revocation Date: Not Supplied Discharge Type: Storm /emergency overflow Discharge Environment: Unknown Receiving Water: Not Supplied **Status: Not Supplied** Positional Accuracy: Located by supplier to within 100m	A8SE (S)	605	2	431260 410050
6	**Discharge Consents** Operator: Yorkshire Water Services Ltd Property Type: Not Given Location: Redbrook Road, Redbrook, DARTON, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Dearne Reference: S/UD/51 Permit Version: Not Supplied Effective Date: Not Supplied Issued Date: Not Supplied Revocation Date: Not Supplied Discharge Type: Storm /emergency overflow Discharge Environment: Unknown Receiving Water: Not Supplied **Status: Not Supplied** Positional Accuracy: Located by supplier to within 100m	A8SE (S)	605	2	431265 410050
6	**Discharge Consents** Operator: Yorkshire Water Services Ltd Property Type: Not Given Location: Dearne Hill Road, Low Barugh, DARTON, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Dearne Reference: S/UD/51 Permit Version: Not Supplied Effective Date: Not Supplied Issued Date: Not Supplied Revocation Date: Not Supplied Discharge Type: Storm /emergency overflow Discharge Environment: Unknown Receiving Water: Not Supplied **Status: Not Supplied** Positional Accuracy: Located by supplier to within 100m	A8SE (S)	610	2	431260 410045
6	**Discharge Consents** Operator: Yorkshire Water Services Ltd Property Type: Not Given Location: Carr Green Lane, Mapplewell, DARTON, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Dearne Reference: S/UD/51 Permit Version: Not Supplied Effective Date: Not Supplied Issued Date: Not Supplied Revocation Date: Not Supplied Discharge Type: Storm /emergency overflow Discharge Environment: Unknown Receiving Water: Not Supplied **Status: Not Supplied** Positional Accuracy: Located by supplier to within 100m	A8SE (S)	610	2	431265 410045

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
7	**Discharge Consents** Operator: Yorkshire Water Services Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Darton Church Street Cso Church Street (Adj No 74), Darton Bridge, Barnsley, South Yorkshire, S75 5hg Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: Wra8610 Permit Version: 2 Effective Date: 20th November 2017 Issued Date: 20th November 2017 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Varied under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A8SE (S)	632	2	431317 410026
7	**Discharge Consents** Operator: Yorkshire Water Services Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Darton Church Street Cso Church Street (Adj No 74), Darton Bridge, Barnsley, South Yorkshire, S75 5hg Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: Wra8610 Permit Version: 1 Effective Date: 31st March 2005 Issued Date: 31st March 2005 Revocation Date: 19th November 2017 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A8SE (S)	638	2	431310 410020
8	**Discharge Consents** Operator: The Coal Authority Property Type: MINING OF COAL + LIGNITE Location: Woolley Colliery Darton, Barnsley, South Yorkshire, Uk Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: C4758 Permit Version: 2 Effective Date: 1st November 1994 Issued Date: 1st November 1994 Revocation Date: 30th April 1995 Discharge Type: Trade Discharge - Mineral Workings Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Revised Consent, by Notice (Section 37(1))** Positional Accuracy: Located by supplier to within 10m	A17SE (NW)	737	2	430600 411390
8	**Discharge Consents** Operator: The Coal Authority Property Type: MINING OF COAL + LIGNITE Location: Woolley Colliery Darton, Barnsley, South Yorkshire, Uk Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: C4758 Permit Version: 3 Effective Date: 1st May 1995 Issued Date: 1st November 1994 Revocation Date: 30th April 1996 Discharge Type: Trade Discharge - Mineral Workings Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Revised Consent, by Notice (Section 37(1))** Positional Accuracy: Located by supplier to within 10m	A17SE (NW)	737	2	430600 411390

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
8	**Discharge Consents** Operator: The Coal Authority Property Type: MINING OF COAL + LIGNITE Location: Woolley Colliery Darton, Barnsley, South Yorkshire, Uk Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: C4758 Permit Version: 4 Effective Date: 1st May 1996 Issued Date: 1st November 1994 Revocation Date: 31st October 2004 Discharge Type: Trade Discharge - Mineral Workings Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Revised Consent, by Notice (Section 37(1))** Positional Accuracy: Located by supplier to within 10m	A17SE (NW)	737	2	430600 411390
8	**Discharge Consents** Operator: The Coal Authority Property Type: MINING OF COAL + LIGNITE Location: Woolley Colliery Darton, Barnsley, South Yorkshire, Uk Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: C4758 Permit Version: 1 Effective Date: 2nd September 1987 Issued Date: 2nd September 1987 Revocation Date: 31st October 1994 Discharge Type: Trade Discharge - Mineral Workings Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Transferred from COPA 1974** Positional Accuracy: Located by supplier to within 10m	A17SE (NW)	737	2	430600 411390
9	**Discharge Consents** Operator: Med Contracting Property Type: MINING OF COAL + LIGNITE Location: Woolley Colliery Darton, Barnsley, South Yorkshire, Uk Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: 3373 Permit Version: 1 Effective Date: 26th June 1979 Issued Date: 26th June 1979 Revocation Date: 6th January 2011 Discharge Type: Trade Discharges - Site Drainage (Contaminated Surface Water, Not Waste Sites) Discharge Environment: Freshwater Stream/River Receiving Water: Tributary Of The River Dearne **Status: Revoked under EPR 2010** Positional Accuracy: Located by supplier to within 100m	A17SE (NW)	763	2	430500 411300
9	**Discharge Consents** Operator: Med Contracting Property Type: MINING OF COAL + LIGNITE Location: Woolley Colliery Darton, Barnsley, South Yorkshire, Uk Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: 3747 Permit Version: 4 Effective Date: 14th February 1986 Issued Date: 14th February 1986 Revocation Date: 15th August 1995 Discharge Type: Trade Discharges - Site Drainage (Contaminated Surface Water, Not Waste Sites) Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Transferred from COPA 1974** Positional Accuracy: Located by supplier to within 10m	A17SE (NW)	764	2	430518 411330

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
9	**Discharge Consents** Operator: Med Contracting Property Type: MINING OF COAL + LIGNITE Location: Woolley Colliery Darton, Barnsley, South Yorkshire, Uk Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: 3747 Permit Version: 4 Effective Date: 14th February 1986 Issued Date: 14th February 1986 Revocation Date: 15th August 1995 Discharge Type: Trade Discharge - Mineral Workings Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Transferred from COPA 1974** Positional Accuracy: Located by supplier to within 10m	A17SE (NW)	764	2	430518 411330
9	**Discharge Consents** Operator: Med Contracting Property Type: Undefined Or Other Location: Ncb Woolley Colliery, Temporary Lag, Oons Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: 3747 Permit Version: 2 Effective Date: 11th May 1984 Issued Date: 11th May 1984 Revocation Date: 15th August 1995 Discharge Type: Trade Effluent Discharge Environment: Freshwater Stream/River Receiving Water: Not Supplied **Status: Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 10m	A17SE (NW)	764	2	430518 411330
9	**Discharge Consents** Operator: Med Contracting Property Type: MINING OF COAL + LIGNITE Location: Woolley Colliery Darton, Barnsley, South Yorkshire, Uk Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: 3747 Permit Version: 1 Effective Date: 25th October 1983 Issued Date: 25th October 1983 Revocation Date: 13th February 1986 Discharge Type: Trade Discharge - Process Water Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Transferred from Rivers (Prevention of Pollution) Act 1951-1961** Positional Accuracy: Located by supplier to within 10m	A17SE (NW)	764	2	430518 411330
9	**Discharge Consents** Operator: Med Contracting Property Type: MINING OF COAL + LIGNITE Location: Woolley Colliery Darton, Barnsley, South Yorkshire, Uk Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: 3747 Permit Version: 1 Effective Date: 25th October 1983 Issued Date: 25th October 1983 Revocation Date: 13th February 1986 Discharge Type: Trade Discharge - Mineral Workings Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Transferred from Rivers (Prevention of Pollution) Act 1951-1961** Positional Accuracy: Located by supplier to within 10m	A17SE (NW)	764	2	430518 411330

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
10	**Discharge Consents** Operator: Windhill Gate Farm Property Type: FARMS (NOT HOUSE)/CROP + ANIMAL REARING/PLANT NURSERY Location: Windhill Gate Farm Darton, Woolley, Wakefield, West Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: C3846 Permit Version: 2 Effective Date: 26th July 2012 Issued Date: 26th July 2012 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Land/Soakaway Receiving Water: Soakaway At Windhill Gate Farm **Status: Transferred from COPA 1974** Positional Accuracy: Located by supplier to within 100m	A19SE (NE)	908	2	432000 411400
10	**Discharge Consents** Operator: Windhill Gate Farm Property Type: FARMS (NOT HOUSE)/CROP + ANIMAL REARING/PLANT NURSERY Location: Windhill Gate Farm Darton, Woolley, Wakefield, West Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: C3846 Permit Version: 1 Effective Date: 14th January 1985 Issued Date: 14th January 1985 Revocation Date: 25th July 2012 Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Land/Soakaway Receiving Water: Soakaway At Windhill Gate Farm **Status: Transferred from COPA 1974** Positional Accuracy: Located by supplier to within 100m	A19SE (NE)	908	2	432000 411400
11	**Discharge Consents** Operator: The Coal Authority Property Type: MINING OF COAL + LIGNITE Location: Woolley Colliery Darton, Barnsley, South Yorkshire, Uk Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: C4758 Permit Version: 2 Effective Date: 1st November 1994 Issued Date: 1st November 1994 Revocation Date: 30th April 1995 Discharge Type: Trade Discharge - Mineral Workings Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Revised Consent, by Notice (Section 37(1))** Positional Accuracy: Located by supplier to within 10m	A17NW (NW)	988	2	430390 411530
11	**Discharge Consents** Operator: The Coal Authority Property Type: MINING OF COAL + LIGNITE Location: Woolley Colliery Darton, Barnsley, South Yorkshire, Uk Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: C4758 Permit Version: 3 Effective Date: 1st May 1995 Issued Date: 1st November 1994 Revocation Date: 30th April 1996 Discharge Type: Trade Discharge - Mineral Workings Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Revised Consent, by Notice (Section 37(1))** Positional Accuracy: Located by supplier to within 10m	A17NW (NW)	988	2	430390 411530

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
11	**Discharge Consents** Operator: The Coal Authority Property Type: MINING OF COAL + LIGNITE Location: Woolley Colliery Darton, Barnsley, South Yorkshire, Uk Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: C4758 Permit Version: 4 Effective Date: 1st May 1996 Issued Date: 1st November 1994 Revocation Date: 31st October 2004 Discharge Type: Trade Discharge - Mineral Workings Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Revised Consent, by Notice (Section 37(1))** Positional Accuracy: Located by supplier to within 10m	A17NW (NW)	988	2	430390 411530
11	**Discharge Consents** Operator: The Coal Authority Property Type: MINING OF COAL + LIGNITE Location: Woolley Colliery Darton, Barnsley, South Yorkshire, Uk Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: C4758 Permit Version: 5 Effective Date: 1st November 2004 Issued Date: 1st November 1994 Revocation Date: Not Supplied Discharge Type: Trade Discharge - Mineral Workings Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Revised Consent, by Notice (Section 37(1))** Positional Accuracy: Located by supplier to within 10m	A17NW (NW)	988	2	430390 411530
11	**Discharge Consents** Operator: The Coal Authority Property Type: MINING OF COAL + LIGNITE Location: Woolley Colliery Darton, Barnsley, South Yorkshire, Uk Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: C4758 Permit Version: 1 Effective Date: 2nd September 1987 Issued Date: 2nd September 1987 Revocation Date: 31st October 1994 Discharge Type: Trade Discharge - Mineral Workings Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Transferred from COPA 1974** Positional Accuracy: Located by supplier to within 10m	A17NW (NW)	988	2	430390 411530
12	**Integrated Pollution Controls** Name: Regency Doors Plc Location: Spring Ram Business Park, Huddersfield Road, Darton, BARNSLEY, South Yorkshire, S75 5JS Authority: Environment Agency, North East Region Permit Reference: AI7050 Dated: 7th May 1993 Process Type: IPC minor (non-substantial) variation to previous variation Description: 6.7 A (A) Timber processes within Miscellaneous Industries **Status: Authorisation revoked** Positional Accuracy: Automatically positioned to the address	A12SE (SW)	546	2	430597 410476
12	**Integrated Pollution Controls** Name: Regency Doors Plc Location: Spring Ram Business Park, Huddersfield Road, Darton, BARNSLEY, South Yorkshire, S75 5JS Authority: Environment Agency, North East Region Permit Reference: AI6932 Dated: 4th May 1993 Process Type: IPC minor (non-substantial) variation to previous variation Description: 1.3 A (C) Combustion processes within the Fuel & Power Industry **Status: Authorisation revoked** Positional Accuracy: Automatically positioned to the address	A12SE (SW)	546	2	430597 410476

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
12	**Integrated Pollution Controls** Name: Regency Doors Plc Location: Spring Ram Business Park, Huddersfield Road, Darton, BARNSLEY, South Yorkshire, S75 5JS Authority: Environment Agency, North East Region Permit Reference: AF9943 Dated: 30th November 1992 Process Type: IPC new application Description: 6.7 A (A) Timber processes within Miscellaneous Industries **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Automatically positioned to the address	A12SE (SW)	546	2	430597 410476
12	**Integrated Pollution Controls** Name: Regency Doors Plc Location: Spring Ram Business Park, Huddersfield Road, Darton, BARNSLEY, South Yorkshire, S75 5JS Authority: Environment Agency, North East Region Permit Reference: AG0534 Dated: 5th November 1992 Process Type: IPC new application Description: 1.3 A (C) Combustion processes within the Fuel & Power Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Automatically positioned to the address	A12SE (SW)	546	2	430597 410476
13	**Integrated Pollution Controls** Name: Dalkia Utilities Services Plc Location: Dearne Mills, Darton, BARNSLEY, South Yorkshire, S75 5NH Authority: Environment Agency, North East Region Permit Reference: AF6529 Dated: 1st November 1993 Process Type: IPC new application Description: 1.3 A (C) Combustion processes within the Fuel & Power Industry **Status: Authorisation revoked** Positional Accuracy: Unknown	A3NE (S)	947	2	431382 409717
14	**Local Authority Integrated Pollution Prevention And Control** Name: Parkside Performance Films Ltd Location: Huddersfield Road, Darton, Barnsley, South Yorkshire, S75 5JS Authority: Barnsley Metropolitan Borough Council, Environmental Health and Trading Standards Permit Reference: IPPC/A2/02 Dated: Not Supplied Process Type: Production and Processing of Metals Description: Surface treatment of metals and plastics **Status: Application Withdrawn** Positional Accuracy: Automatically positioned to the address	A7SE (SW)	737	3	430680 410095
15	**Local Authority Pollution Prevention and Controls** Name: Med Contracting Location: Woolley Colliery Occs Site, Darton, Barnsley Authority: Wakefield City Metropolitan District Council, Environmental Health Permit Reference: A0155 Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG3/5 Coal, coke and coal product processes **Status: Authorisation revoked** Positional Accuracy: Manually positioned within the geographical locality	A18SW (N)	271	4	431104 411168
16	**Local Authority Pollution Prevention and Controls** Name: The Coal Authority Location: Wooley Colliery Site, Darton, Barnsley Authority: Wakefield City Metropolitan District Council, Environmental Health Permit Reference: A0135 Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG3/5 Coal, coke and coal product processes **Status: Authorisation revoked** Positional Accuracy: Manually positioned to the address or location	A18SW (NW)	478	4	430901 411305
17	**Local Authority Pollution Prevention and Controls** Name: Premdor Crosby Ltd Location: Huddersfield Road, Darton, Barnsley, S75 5js Authority: Barnsley Metropolitan Borough Council, Environmental Health and Trading Standards Permit Reference: PPC/B/42 Dated: 26th March 2002 Process Type: Local Authority Pollution Prevention and Control Description: PG6/33 Wood coating **Status: Permitted** Positional Accuracy: Located by supplier to within 10m	A12SE (W)	551	3	430547 410629

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
17	**Local Authority Pollution Prevention and Controls** Name: Premdor Crosby Limited Location: Spring Ram Business Park, Huddersfield Road, Darton, Barnsley, S75 5js Authority: Barnsley Metropolitan Borough Council, Environmental Health and Trading Standards Permit Reference: Epa84 Dated: 20th March 1996 Process Type: Local Authority Air Pollution Control Description: PG6/33 Wood coating **Status:** **Authorised** Positional Accuracy: Located by supplier to within 10m	A12SE (W)	551	3	430547 410629
17	**Local Authority Pollution Prevention and Controls** Name: Premdor Crosby Limited Location: Spring Ram Business Park, Darton, Barnsley, S75 5JS Authority: Barnsley Metropolitan Borough Council, Environmental Health and Trading Standards Permit Reference: Ppc/B/31 Dated: 21st September 1992 Process Type: Local Authority Pollution Prevention and Control Description: PG6/2 Manufacture of timber and wood-based products **Status:** **Permitted** Positional Accuracy: Located by supplier to within 10m	A12SE (W)	551	3	430547 410629
17	**Local Authority Pollution Prevention and Controls** Name: Crosby Limited Location: Spring Ram Business Park, Darton, BARNSLEY, S75 5JS Authority: Barnsley Metropolitan Borough Council, Environmental Health and Trading Standards Permit Reference: Not Supplied Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG6/2 Manufacture of timber and wood-based products **Status:** **Authorisation revoked** Positional Accuracy: Located by supplier to within 10m	A12SE (W)	551	3	430547 410629
18	**Local Authority Pollution Prevention and Controls** Name: Rightcast Ltd Location: Unit W4 Junction 38 Business Park, Darton, Barnsley, S75 5QQ Authority: Barnsley Metropolitan Borough Council, Environmental Health and Trading Standards Permit Reference: PPC/B/130 Dated: Not Supplied Process Type: Local Authority Pollution Prevention and Control Description: PG3/1Blending, packing, loading and use of bulk cement **Status:** **Permitted** Positional Accuracy: Manually positioned to the address or location	A7NE (SW)	580	3	430707 410272
19	**Local Authority Pollution Prevention and Controls** Name: Meredew Cabinets Location: Spring Ram Business Park, Darton, BARNSLEY, S75 5JS Authority: Barnsley Metropolitan Borough Council, Environmental Health and Trading Standards Permit Reference: Not Supplied Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG6/2 Manufacture of timber and wood-based products **Status:** **Authorisation revoked** Positional Accuracy: Manually positioned within the geographical locality	A12SW (W)	666	3	430450 410530
20	**Local Authority Pollution Prevention and Controls** Name: Woolley Colliery Location: Waet Side Coal Preparation, Heath, WAKEFIELD, West Yorkshire, WF1 5SL Authority: Wakefield City Metropolitan District Council, Environmental Health Permit Reference: Not Given Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG3/5 Coal, coke and coal product processes **Status:** **Authorisation revoked** Positional Accuracy: Manually positioned to the address or location	A17SE (NW)	700	4	430642 411380
20	**Local Authority Pollution Prevention and Controls** Name: Woolley Colliery Occs Location: Darton, , , BARNSLEY, South Yorkshire, S75 5PT Authority: Wakefield City Metropolitan District Council, Environmental Health Permit Reference: A0036 Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG3/5 Coal, coke and coal product processes **Status:** **Authorisation revoked** Positional Accuracy: Manually positioned to the address or location	A17SE (NW)	704	4	430637 411380

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
20	**Local Authority Pollution Prevention and Controls** Name: Woolley Colliery Location: West Side Coal Preparation, Woolley, WAKEFIELD, West Yorkshire Authority: Wakefield City Metropolitan District Council, Environmental Health Permit Reference: Not Given Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG3/5 Coal, coke and coal product processes **Status: Authorisation revoked** Positional Accuracy: Manually positioned to the address or location	A17SE (NW)	707	4	430637 411385
21	**Local Authority Pollution Prevention and Controls** Name: Parkside Performance Films Ltd Location: Huddersfield Road, Darton, BARNSLEY, S75 5NA Authority: Barnsley Metropolitan Borough Council, Environmental Health and Trading Standards Permit Reference: Epa50 Dated: 21st October 1993 Process Type: Local Authority Air Pollution Control Description: PG6/17 Printing of flexible packaging **Status: Authorisation revoked** Positional Accuracy: Manually positioned to the road within the address or location	A7SE (SW)	768	3	430644 410082
22	**Local Authority Pollution Prevention and Controls** Name: Robert Thompson Location: Central Garage, Barnsley Road, Darton, BARNSLEY, South Yorkshire, S75 5NN Authority: Barnsley Metropolitan Borough Council, Environmental Health and Trading Standards Permit Reference: PPC/B/102 Dated: 18th October 1999 Process Type: Local Authority Air Pollution Control Description: PG1/14 Petrol filling station **Status: Authorised** Positional Accuracy: Automatically positioned to the address	A3NW (S)	939	3	431115 409725
	Nearest Surface Water Feature	A13NW (NW)	200	-	430967 410984
23	**Pollution Incidents to Controlled Waters** Property Type: Other General Premises Location: Woolley Colliery Stw, WOOLLEY Authority: Environment Agency, North East Region Pollutant: Oils - Diesel (Including Agricultural) Note: No Fish Killed Incident Date: 20th January 1995 Incident Reference: SH950099 Catchment Area: Dearne Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13NE (N)	0	2	431200 410900
24	**Pollution Incidents to Controlled Waters** Property Type: Water Company Sewage: Sewage Treatment Works Location: Colliery Stn, /Haigh Bridge A637 Dearne 22 Authority: Environment Agency, North East Region Pollutant: Unknown Note: Not Supplied Incident Date: 22nd October 1993 Incident Reference: 148569 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A13SE (S)	0	2	431200 410700
25	**Pollution Incidents to Controlled Waters** Property Type: Other General Premises Location: Rd Brdg B6131/Colliery Stn Dearne 21 Authority: Environment Agency, North East Region Pollutant: Coal Solids Note: Not Supplied Incident Date: 31st May 1991 Incident Reference: 122900 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A13NW (NW)	46	2	431100 410900

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
26	**Pollution Incidents to Controlled Waters** Property Type: Water Company Sewage: Sewage Treatment Works Location: Rd Brdg B6131/Colliery Stn Dearne 21 Authority: Environment Agency, North East Region Pollutant: Sewage - Treated Effluent Note: Not Supplied Incident Date: 28th March 1994 Incident Reference: 150378 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13NW (NW)	177	2	431000 410995
27	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Colliery Stn, /Haigh Bridge A637 Dearne 22 Authority: Environment Agency, North East Region Pollutant: Miscellaneous - Tip Leachate Note: Not Supplied Incident Date: 11th December 1991 Incident Reference: 128941 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A13NW (W)	234	2	430900 410900
28	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Rd Brdg B6131/Colliery Stn Dearne 21 Authority: Environment Agency, North East Region Pollutant: Coal Solids Note: Not Supplied Incident Date: 5th September 1989 Incident Reference: 102955 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A12NE (W)	300	2	430805 410795
28	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Rd Brdg B6131/Colliery Stn Dearne 21 Authority: Environment Agency, North East Region Pollutant: Industrial Effluent Note: Not Supplied Incident Date: 15th August 1989 Incident Reference: 102421 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 1 - Major Incident Positional Accuracy: Located by supplier to within 100m	A12NE (W)	302	2	430805 410800
28	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Road Bridge B6428 /, Road Brdg B6131 Dearne 20 Authority: Environment Agency, North East Region Pollutant: Coal Solids Note: Not Supplied Incident Date: 20th April 1989 Incident Reference: 6862 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A12NE (W)	303	2	430805 410805
28	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Colliery Stn, /Haigh Bridge A637 Dearne 22 Authority: Environment Agency, North East Region Pollutant: Surface Water Note: Not Supplied Incident Date: 23rd November 1994 Incident Reference: 153676 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A12NE (W)	305	2	430800 410795

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
29	**Pollution Incidents to Controlled Waters** Property Type: Other General Premises Location: Road Bridge B6428 /, Road Brdg B6131 Dearne 20 Authority: Environment Agency, North East Region Pollutant: Coal Solids Note: Not Supplied Incident Date: 16th May 1990 Incident Reference: 110515 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13NW (NW)	321	2	430900 411100
30	**Pollution Incidents to Controlled Waters** Property Type: Other General Premises Location: Dearne At, DARTON Authority: Environment Agency, North East Region Pollutant: Oils - Diesel (Including Agricultural) Note: No Fish Killed Incident Date: 30th November 1995 Incident Reference: SH950168 Catchment Area: Dearne Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A12SE (SW)	357	2	430800 410500
31	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Colliery Stn, /Haigh Bridge A637 Dearne 22 Authority: Environment Agency, North East Region Pollutant: Mining Water Note: Not Supplied Incident Date: 2nd February 1991 Incident Reference: 119382 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A12NE (NW)	362	2	430800 411000
32	**Pollution Incidents to Controlled Waters** Property Type: Other General Premises Location: Rd Brdg B6131/Colliery Stn Dearne 21 Authority: Environment Agency, North East Region Pollutant: Rubbish Note: Not Supplied Incident Date: 23rd March 1994 Incident Reference: 150728 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8NW (S)	403	2	431000 410300
33	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Road Bridge B6428 /, / Road Brdg B6131 Dearne 20 Authority: Environment Agency, North East Region Pollutant: Oils - Diesel (Including Agricultural) Note: Not Supplied Incident Date: 8th September 1993 Incident Reference: 147764 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A8NE (S)	457	2	431300 410200
33	**Pollution Incidents to Controlled Waters** Property Type: Water Company Sewage: Storm Overflow Location: Church Street, DARTON Authority: Environment Agency, North East Region Pollutant: Sewage - Storm Overflow Note: Pollution Found; No Fish Killed Incident Date: 10th June 1996 Incident Reference: SH960270 Catchment Area: Dearne Receiving Water: Freshwater Stream/River Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8NE (S)	507	2	431300 410150

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
34	**Pollution Incidents to Controlled Waters** Property Type: Water Company Sewage: Storm Overflow Location: Church Street, DARTON Authority: Environment Agency, North East Region Pollutant: Sewage - Storm Overflow Note: No Fish Killed Incident Date: 10th June 1996 Incident Reference: SH960270 Catchment Area: Dearne Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8NE (S)	512	2	431300 410145
34	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Colliery Stn, /Haigh Bridge A637 Dearne 22 Authority: Environment Agency, North East Region Pollutant: Coal Solids Note: Not Supplied Incident Date: 4th September 1989 Incident Reference: 103939 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A8SE (S)	557	2	431300 410100
34	**Pollution Incidents to Controlled Waters** Property Type: Other General Premises Location: River Dearne At , Church Street, DARTON Authority: Environment Agency, North East Region Pollutant: Chemicals - Unknown Note: River Dearne; Fish Killed: No Information Incident Date: 26th November 1998 Incident Reference: SH980390 Catchment Area: Dearne Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8SE (S)	562	2	431305 410095
34	**Pollution Incidents to Controlled Waters** Property Type: Miscellaneous Premises: Unknown Location: Rd Brdg B6131/Colliery Stn Dearne 21 Authority: Environment Agency, North East Region Pollutant: Miscellaneous - No Visible Pollution/Nothing Found Note: Not Supplied Incident Date: 5th March 1990 Incident Reference: 108349 Catchment Area: Not Given Receiving Water: No Pollution Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8SE (S)	562	2	431300 410095
35	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Rd Brdg B6131/Colliery Stn Dearne 21 Authority: Environment Agency, North East Region Pollutant: Surface Water Note: Not Supplied Incident Date: 23rd January 1990 Incident Reference: 107101 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A17SE (NW)	541	2	430700 411200
36	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Rd Brdg B6131/Colliery Stn Dearne 21 Authority: Environment Agency, North East Region Pollutant: Miscellaneous - Tip Leachate Note: Not Supplied Incident Date: 10th November 1989 Incident Reference: 105158 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A8SE (S)	552	2	431205 410105

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
36	**Pollution Incidents to Controlled Waters** Property Type: Water Company Sewage: Storm Overflow Location: Church Street, DARTON Authority: Environment Agency, North East Region Pollutant: Sewage - Storm Overflow Note: River Dearne; Fish Killed: No Information Incident Date: 11th July 1998 Incident Reference: SH980274 Catchment Area: Dearne Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8SE (S)	553	2	431200 410105
36	**Pollution Incidents to Controlled Waters** Property Type: Water Company Sewage: Storm Overflow Location: River Dearne At , DARTON Authority: Environment Agency, North East Region Pollutant: Sewage - Storm Overflow Note: River Dearne; No Fish Killed Incident Date: 5th July 1998 Incident Reference: SH980267 Catchment Area: Dearne Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8SE (S)	553	2	431195 410105
36	**Pollution Incidents to Controlled Waters** Property Type: Water Company Sewage: Storm Overflow Location: Station Road, Darton, BARNSLEY Authority: Environment Agency, North East Region Pollutant: Sewage - Storm Overflow Note: River Dearne; Fish Killed: No Information Incident Date: 3rd July 1998 Incident Reference: SH980430 Catchment Area: Dearne Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8SE (S)	555	2	431250 410100
36	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Rd Brdg B6131/Colliery Stn Dearne 21 Authority: Environment Agency, North East Region Pollutant: Coal Solids Note: Not Supplied Incident Date: 7th November 1989 Incident Reference: 105054 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A8SE (S)	557	2	431205 410100
36	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Colliery Stn, /Haigh Bridge A637 Dearne 22 Authority: Environment Agency, North East Region Pollutant: Mining Water Note: Not Supplied Incident Date: 30th November 1994 Incident Reference: 154600 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A8SE (S)	558	2	431200 410100
36	**Pollution Incidents to Controlled Waters** Property Type: Coal Location: Rear Of Post Office, Church Street, DARTON Authority: Environment Agency, North East Region Pollutant: Unknown Note: No Fish Killed Incident Date: 30th November 1994 Incident Reference: SH950074 Catchment Area: Dearne Tributaries Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A8SE (S)	562	2	431205 410095

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
36	**Pollution Incidents to Controlled Waters** Property Type: Miscellaneous Premises: Unknown Location: Colliery Stn, /Haigh Bridge A637 Dearne 22 Authority: Environment Agency, North East Region Pollutant: Unknown Note: Not Supplied Incident Date: 7th February 1990 Incident Reference: 107551 Catchment Area: Not Given Receiving Water: No Pollution Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8SE (S)	563	2	431200 410095
37	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Colliery Stn, /Haigh Bridge A637 Dearne 22 Authority: Environment Agency, North East Region Pollutant: Industrial Effluent Note: Not Supplied Incident Date: 6th July 1989 Incident Reference: 101019 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8SW (S)	567	2	431100 410100
38	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Colliery Stn, /Haigh Bridge A637 Dearne 22 Authority: Environment Agency, North East Region Pollutant: Mining Water Note: Not Supplied Incident Date: 3rd April 1991 Incident Reference: 121120 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A17SE (NW)	603	2	430700 411300
39	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Rd Brdg B6131/Colliery Stn Dearne 21 Authority: Environment Agency, North East Region Pollutant: Mining Water Note: Not Supplied Incident Date: 10th August 1994 Incident Reference: 152908 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A17SE (NW)	680	2	430600 411300
40	**Pollution Incidents to Controlled Waters** Property Type: Petrol/Fuelling Stations Location: Dearne At Darton Authority: Environment Agency, North East Region Pollutant: Unknown Note: No Fish Killed Incident Date: 9th January 1995 Incident Reference: SH950106 Catchment Area: Dearne Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A7SE (SW)	721	2	430700 410100
41	**Pollution Incidents to Controlled Waters** Property Type: Farm Location: Road Bridge B6428 /, / Road Brdg B6131 Dearne 20 Authority: Environment Agency, North East Region Pollutant: Agricultural: Carcasses Note: Not Supplied Incident Date: 13th July 1994 Incident Reference: 152592 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8SE (S)	757	2	431300 409900

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
42	**Pollution Incidents to Controlled Waters** Property Type: Coal Location: Woolley Colliery, Woolley, BARNSLEY Authority: Environment Agency, North East Region Pollutant: Unknown Note: No Fish Killed Incident Date: 4th March 1995 Incident Reference: SH950065 Catchment Area: Dearne Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A17SE (NW)	760	2	430500 411295
42	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Colliery Stn, /Haigh Bridge A637 Dearne 22 Authority: Environment Agency, North East Region Pollutant: Washery Effluent Note: Not Supplied Incident Date: 10th April 1990 Incident Reference: 109448 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A17SE (NW)	763	2	430500 411300
43	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Rd Brdg B6131/Colliery Stn Dearne 21 Authority: Environment Agency, North East Region Pollutant: Metalliferous Note: Not Supplied Incident Date: 29th August 1994 Incident Reference: 152995 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A17SE (NW)	813	2	430505 411395
43	**Pollution Incidents to Controlled Waters** Property Type: Coal Location: River Dearne At, DARTON Authority: Environment Agency, North East Region Pollutant: Unknown Note: No Fish Killed Incident Date: 20th March 1995 Incident Reference: SH950069 Catchment Area: Dearne Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A17SE (NW)	816	2	430505 411400
43	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Colliery Stn, /Haigh Bridge A637 Dearne 22 Authority: Environment Agency, North East Region Pollutant: Metalliferous Note: Not Supplied Incident Date: 14th September 1994 Incident Reference: 153240 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A17SE (NW)	817	2	430500 411395
44	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Rd Brdg B6131/Colliery Stn Dearne 21 Authority: Environment Agency, North East Region Pollutant: Oils - Diesel (Including Agricultural) Note: Not Supplied Incident Date: 8th October 1993 Incident Reference: 148392 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8SE (S)	856	2	431300 409800

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
44	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Rd Brdg B6131/Colliery Stn Dearne 21 Authority: Environment Agency, North East Region Pollutant: Industrial Effluent Note: Not Supplied Incident Date: 4th November 1992 Incident Reference: 138432 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8SE (S)	861	2	431300 409795
45	**Pollution Incidents to Controlled Waters** Property Type: Surface Water Sewers Location: Footbridge/ Road Bridge B6428 Dearne 19 Authority: Environment Agency, North East Region Pollutant: Oils - Unknown Note: Not Supplied Incident Date: 16th November 1989 Incident Reference: 105236 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 1 - Major Incident Positional Accuracy: Located by supplier to within 100m	A15NW (E)	951	2	432200 410800
46	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Colliery Stn, /Haigh Bridge A637 Dearne 22 Authority: Environment Agency, North East Region Pollutant: Washery Effluent Note: Not Supplied Incident Date: 11th December 1989 Incident Reference: 106114 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A17SW (NW)	983	2	430300 411395
46	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Colliery Stn, /Haigh Bridge A637 Dearne 22 Authority: Environment Agency, North East Region Pollutant: Process Water Note: Not Supplied Incident Date: 11th December 1989 Incident Reference: 106113 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A17SW (NW)	986	2	430300 411400
	River Quality Name: River_Dearne GQA Grade: River Quality C Reach: Wooley_Minewater_Cawthorne_Dyk Estimated Distance (km): 3.3 Flow Rate: Flow less than 0.31 cumecs Flow Type: River Year: 2000	A12NE (W)	269	2	430834 410820
	River Quality Name: River_Dearne GQA Grade: River Quality C Reach: Bretton_Brook_Wooley_Minewate Estimated Distance (km): 1.2 Flow Rate: Flow less than 0.31 cumecs Flow Type: River Year: 2000	A12NE (NW)	504	2	430693 411116

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
47	**River Quality Chemistry Sampling Points** Name: River Dearne Reach: Wooley Minewater Cawthorne Dyke Estimated Distance: 3.30 Objective: Not Supplied Positional Accuracy: Located by supplier to within 10m Year: 1990 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Not Supplied Year: 1993 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Not Supplied Year: 1994 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Not Supplied Year: 1995 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Not Supplied Year: 1996 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Not Supplied Year: 1997 GQA Grade: River Quality Chemistry GQA Grade D - Fair Compliance: Not Supplied Year: 1998 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Not Supplied Year: 1999 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Not Supplied Year: 2000 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Not Supplied Year: 2001 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Not Supplied Year: 2002 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Not Supplied Year: 2003 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Not Supplied Year: 2004 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Not Supplied Year: 2005 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Not Supplied Year: 2006 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Not Supplied Year: 2007 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Not Supplied Year: 2008 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Not Supplied Year: 2009 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Not Supplied	A8SW (S)	576	2	431149 410087
48	**Substantiated Pollution Incident Register** Authority: Environment Agency - North East Region, Yorkshire Area Incident Date: 4th October 2010 Incident Reference: 827897 Water Impact: Category 2 - Significant Incident Air Impact: Category 4 - No Impact Land Impact: Category 4 - No Impact Positional Accuracy: Located by supplier to within 10m Pollutant: Crude Sewage	A13NW (NW)	82	2	431064 410898
49	**Substantiated Pollution Incident Register** Authority: Environment Agency - North East Region, Yorkshire Area Incident Date: 26th November 2010 Incident Reference: 841110 Water Impact: Category 2 - Significant Incident Air Impact: Category 4 - No Impact Land Impact: Category 4 - No Impact Positional Accuracy: Located by supplier to within 10m Pollutant: Contaminated Water: Suspended Solids	A8SW (S)	575	2	431155 410087

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
50	**Water Abstractions** Operator: The Coal Authority Licence Number: Ne/027/0008/006/R01 Permit Version: 1 Location: Underground Strata At Former Wooley Colliery Authority: Environment Agency, North East Region Abstraction: Environmental: Pump & Treat: Pollution Remediation Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 20th April 2017 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A18SW (NW)	332	2	430949 411161
50	**Water Abstractions** Operator: The Coal Authority Licence Number: Ne/027/0008/006 Permit Version: 1 Location: Underground Strata At Former Wooley Colliery Authority: Environment Agency, North East Region Abstraction: Environmental: Pump & Treat: Pollution Remediation Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 13th July 2009 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A18SW (NW)	332	2	430949 411161
51	**Water Abstractions** Operator: British Coal Licence Number: 2/27/08/031 Permit Version: Not Supplied Location: Location Description Not Available Authority: Environment Agency, North East Region Abstraction: General Industrial Abstraction Type: Not Supplied Source: Surface Daily Rate (m3): 2728 Yearly Rate (m3): 818000 Details: Licence Revoked Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A12NE (W)	363	2	430780 410950
52	**Water Abstractions** Operator: Shaw Carpets Ltd Licence Number: 2/27/08/114 Permit Version: Not Supplied Location: Po Box. 4, Darton, BARNSLEY Authority: Environment Agency, North East Region Abstraction: Commercial Use(pubs etc) Abstraction Type: Not Supplied Source: Groundwater Daily Rate (m3): 312 Yearly Rate (m3): 85072 Details: Licence Status: Active Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A3NE (S)	966	2	431400 409700

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: A I Crossley & Son Licence Number: 2/27/08/049 Permit Version: 100 Location: Spring - Coal Measures - Darton Authority: Environment Agency, North East Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): 5 Yearly Rate (m3): 1659 Details: Birthwaite Hall Farm,Darton,Barnsley Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 27th January 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(W)	1766	2	429400 410200
	Groundwater Vulnerability Map Combined Classification: Secondary Bedrock Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, No Superficial Aquifer Pollutant Speed: Low Bedrock Flow: Well Connected Fractures Dilution: 300-550 mm/year Baseflow Index: <40% Superficial Patchiness: <90% Superficial Thickness: <3m Superficial Recharge: No Data	A13SE (SW)	0	5	431190 410780
	Groundwater Vulnerability - Soluble Rock Risk None				
	Bedrock Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A13SE (SW)	0	5	431190 410780
	Superficial Aquifer Designations No Data Available				
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SW (SW)	246	2	430865 410611
	Flooding from Rivers or Sea without Defences None				
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas None				
	Flood Defences None				
53	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 716.8 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A13NW (N)	74	6	431145 410983
54	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1690.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: River Dearne Catchment Name: Don and Rother Primacy: 1	A13SW (SW)	266	6	430874 410553

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
55	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 30.4 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A13NW (NW)	276	6	430862 410920
56	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 111.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A13NW (NW)	276	6	430862 410920
57	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 375.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: River Dearne Catchment Name: Don and Rother Primacy: 1	A12NE (W)	285	6	430826 410855
58	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 27.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A12NE (W)	298	6	430835 410906
59	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 609.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: River Dearne Catchment Name: Don and Rother Primacy: 1	A12NE (W)	314	6	430815 410889
60	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 72.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A12SE (SW)	330	6	430797 410557
61	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 140.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A14NW (NE)	365	6	431562 411075
62	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 72.5 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A12SE (SW)	398	6	430746 410509
63	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 2.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A7NE (SW)	465	6	430703 410450

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
64	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 2.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A7NE (SW)	466	6	430702 410451
65	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 128.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A7NE (SW)	467	6	430702 410448
66	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 546.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A18SE (N)	491	6	431195 411414
67	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 15.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A14NW (NE)	496	6	431690 411115
68	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 144.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A14NW (NE)	496	6	431690 411115
69	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 261.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A18SE (N)	513	6	431258 411436
70	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 91.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A18SE (N)	513	6	431258 411436
71	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 548.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A18SE (N)	547	6	431347 411458
72	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 167.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A14NW (E)	556	6	431805 410836

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
73	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 293.3 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A7NE (SW)	587	6	430591 410400
74	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A14NW (E)	601	6	431844 410971
75	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 84.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A14NW (E)	602	6	431844 410970
76	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 310.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A14NW (E)	602	6	431844 410970
77	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 98.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A17SE (NW)	634	6	430731 411374
78	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 104.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A19SW (NE)	635	6	431825 411152
79	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 95.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A19SW (NE)	635	6	431825 411152
80	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 152.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A17SE (NW)	651	6	430639 411304
81	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 215.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A17NE (NW)	699	6	430816 411510

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
82	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 17.6 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A18NE (N)	713	6	431456 411599
83	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 150.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A18NE (N)	730	6	431466 411614
84	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 274.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A17SE (NW)	733	6	430663 411446
85	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 123.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A14SE (E)	740	6	431994 410562
86	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 69.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A17SE (NW)	740	6	430662 411454
87	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 443.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A18NE (N)	748	6	431220 411672
88	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.7 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A18NW (N)	748	6	430861 411585
89	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 2.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A17NE (NW)	753	6	430704 411504
90	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 41.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A18NW (N)	753	6	430859 411590

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
91	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 209.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A17SE (NW)	759	6	430521 411326
92	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 464.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: River Dearne Catchment Name: Don and Rother Primacy: 1	A17SE (NW)	759	6	430521 411326
93	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.9 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A18NW (N)	763	6	430893 411614
94	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 168.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A18NW (N)	764	6	430896 411617
95	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 52.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A17SE (NW)	765	6	430531 411349
96	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 15.7 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A18NW (N)	796	6	431052 411701
97	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 14.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A17NE (NW)	833	6	430559 411485
98	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A17NE (NW)	845	6	430572 411514
99	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 9.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A17NE (NW)	847	6	430550 411496

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
100	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 64.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A17NE (NW)	848	6	430564 411511
101	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 35.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A9NE (SE)	849	6	431926 410137
102	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.7 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A17NE (NW)	856	6	430545 411503
103	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 208.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A17NE (NW)	860	6	430542 411507
104	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 171.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A7NW (SW)	869	6	430304 410338
105	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 135.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A18NE (N)	880	6	431345 411796
106	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 10.5 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A23SE (N)	892	6	431211 411817
107	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 206.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A23SE (N)	893	6	431200 411817
108	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A17NE (NW)	912	6	430524 411561

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
109	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 64.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A17NE (NW)	920	6	430519 411567
110	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 10.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A17NW (NW)	954	6	430407 411497
111	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 46.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A17NW (NW)	954	6	430407 411497
112	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 42.5 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A17NW (NW)	963	6	430401 411506
113	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 14.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A17NW (NW)	985	6	430478 411617
114	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 69.8 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A6NE (SW)	999	6	430160 410346
115	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 71.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A17NW (NW)	999	6	430469 411629

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
116	**Licensed Waste Management Facilities (Locations)** Licence Number: 103383 Location: Former Wooley Colliery Spoil Tip, Woolley Edge Lane, Wakefield, West Yorkshire, WF7 2LF Operator Name: Land Engineering Services Ltd Operator Location: Not Supplied Authority: Environment Agency - North East Region, Yorkshire Area Site Category: Use of waste for reclamation etc <100,000 tps **Licence Status: Surrendered** Issued: 19th December 2011 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: 14th August 2014 IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A24SW (N)	986	2	431578 411844
	Local Authority Landfill Coverage Name: Barnsley Metropolitan Borough Council - Has supplied landfill data		0	3	431190 410780
	Local Authority Landfill Coverage Name: Wakefield Metropolitan Borough Council - Has not been able to supply Landfill data		0	4	431154 410827

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: Pennine Middle Coal Measures Formation And South Wales Middle Coal Measures Formation (Undifferentiated)	A13SE (SW)	0	1	431190 410780
117	**BGS Recorded Mineral Sites** Site Name: Pye Wood Mine Location: Darton, Barnsley, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 103076 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Barnsley Coal (West And South Yorkshire) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A13SE (SE)	136	1	431387 410693
118	**BGS Recorded Mineral Sites** Site Name: Woolley Colliery, No. 3 Shaft Location: Woolley, Wakefield, West Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 259374 Type: Underground **Status: Ceased** Operator: British Coal - North Yorkshire Area Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A13NW (N)	146	1	431094 411030
119	**BGS Recorded Mineral Sites** Site Name: Pye Wood Mine Air Shaft Location: Darton, Barnsley, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 250402 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Barnsley Coal (West And South Yorkshire) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A13SE (E)	194	1	431444 410716
120	**BGS Recorded Mineral Sites** Site Name: Bloomhouse Lane Phase 2 Occs Location: Darton, Barnsley, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 4504 Type: Opencast **Status: Ceased** Operator: Derbyshire Mining Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Coal - Opencast Positional Accuracy: Located by supplier to within 100m	A13SE (E)	249	1	431500 410700
121	**BGS Recorded Mineral Sites** Site Name: Woolley Colliery, Shaft No. 1 Location: Woolley, Wakefield, West Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 4499 Type: Underground **Status: Ceased** Operator: British Coal - North Yorkshire Area Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Coal Measures Group Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A18SW (NW)	288	1	430989 411135

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
122	**BGS Recorded Mineral Sites** Site Name: Darton Location: Darton, Barnsley, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 109959 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Haigh Moor Rock Commodity: Sandstone Positional Accuracy: Located by supplier to within 10m	A8NE (S)	332	1	431188 410330
123	**BGS Recorded Mineral Sites** Site Name: Woolley Colliery, No. 2 Shaft Location: Woolley, Wakefield, West Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 259373 Type: Underground **Status: Ceased** Operator: British Coal - North Yorkshire Area Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A18SW (NW)	338	1	430947 411167
124	**BGS Recorded Mineral Sites** Site Name: Woolley Colliery Occs Location: Wooley, Wakefield, West Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 5836 Type: Opencast **Status: Ceased** Operator: Individual'S Name Withheld Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Coal - Opencast Positional Accuracy: Located by supplier to within 100m	A18SW (NW)	339	1	431000 411200
125	**BGS Recorded Mineral Sites** Site Name: Pye Wood Mine Location: Darton, Barnsley, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 103077 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Kent'S Thick Coal (West And South Yorkshire) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A14NW (E)	368	1	431617 410890
126	**BGS Recorded Mineral Sites** Site Name: Pye Wood Mine Location: Darton, Barnsley, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 250401 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Kent'S Thick Coal (West And South Yorkshire) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A14NW (NE)	388	1	431593 411066
127	**BGS Recorded Mineral Sites** Site Name: Woolley Colliery Surface Drift Location: Woolley, Wakefield, West Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 259375 Type: Underground **Status: Ceased** Operator: British Coal - North Yorkshire Area Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A18SW (NW)	447	1	430959 411300

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
128	**BGS Recorded Mineral Sites** Site Name: Woolley Colliery Surface Drift Location: Woolley, Wakefield, West Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 259376 Type: Underground **Status: Ceased** Operator: British Coal - North Yorkshire Area Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A18SE (N)	536	1	431223 411460
129	**BGS Recorded Mineral Sites** Site Name: Bloomhouse Green Level Location: Darton, Barnsley, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 25996 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Barnsley Coal (West And South Yorkshire) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A9NW (SE)	539	1	431682 410327
130	**BGS Recorded Mineral Sites** Site Name: Windhill Shaft, Woolley Colliery Location: Darton, Barnsley, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 102531 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Lower Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A19SW (NE)	567	1	431570 411373
131	**BGS Recorded Mineral Sites** Site Name: Darton Main Colliery Location: Darton, Barnsley, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 25991 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A7NE (SW)	627	1	430733 410192
132	**BGS Recorded Mineral Sites** Site Name: Darton Coal Crop Workings Location: Darton, Barnsley, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 217031 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Barnsley Coal (West And South Yorkshire) Commodity: Coal - Opencast Positional Accuracy: Located by supplier to within 10m	A9SW (S)	835	1	431526 409866
133	**BGS Recorded Mineral Sites** Site Name: Oates Occs Location: Darton, Barnsley, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 217034 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Barnsley Coal (West And South Yorkshire) Commodity: Coal - Opencast Positional Accuracy: Located by supplier to within 10m	A9SE (SE)	868	1	431863 410036

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
134	**BGS Recorded Mineral Sites** Site Name: Darton Location: Darton, Barnsley, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 25989 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Sandstone Positional Accuracy: Located by supplier to within 10m	A8SW (S)	874	1	430936 409822
135	**BGS Recorded Mineral Sites** Site Name: Bloomhouse Green Location: Darton, Barnsley, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 25995 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Sandstone Positional Accuracy: Located by supplier to within 10m	A9NE (SE)	894	1	432029 410209
136	**BGS Recorded Mineral Sites** Site Name: Darton Coal Crop Workings Location: Darton, Barnsley, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 217032 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Barnsley Coal (West And South Yorkshire) Commodity: Coal - Opencast Positional Accuracy: Located by supplier to within 10m	A9SW (S)	933	1	431575 409779
137	**BGS Recorded Mineral Sites** Site Name: Cow Carr Wood Quarry Location: Woolley, Wakefield, West Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 23043 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Woolley Edge Rock Commodity: Sandstone Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	944	1	431685 411748
	Coal Mining Affected Areas Description: In an area which may be affected by coal mining activity. It is recommended that a coal mining report is obtained from the Coal Authority. Contact details are included in the Useful Contacts section of this report.	A13SE (SW)	0	7	431190 410780
	Mining Instability Mining Evidence: Inconclusive Coal Mining Source: Ove Arup & Partners Boundary Quality: As Supplied	A13SE (SW)	0	-	431190 410780
	Non Coal Mining Areas of Great Britain Risk: Highly Unlikely Source: British Geological Survey, National Geoscience Information Service	A13SE (SW)	0	1	431190 410780
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (SW)	0	1	431190 410780
	Potential for Compressible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (SW)	0	1	431190 410780
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (E)	0	1	431247 410778

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Compressible Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13NE (E)	53	1	431303 410794
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (SW)	0	1	431190 410780
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (SW)	0	1	431190 410780
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NE (E)	158	1	431408 410840
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	159	1	431446 410912
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A12NE (W)	248	1	430833 410823
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (E)	0	1	431247 410778
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (SW)	0	1	431190 410780
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (E)	53	1	431303 410794
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (SW)	0	1	431190 410780
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (W)	46	1	431051 410730
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	94	1	431348 410924
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	146	1	431290 411056
	Radon Potential - Radon Affected Areas Affected Area: The property is in a Lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	A13SE (SW)	0	1	431190 410780
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A13SE (SW)	0	1	431190 410780

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
138	**Contemporary Trade Directory Entries** Name: Constant Power Solutions Ltd Location: 4, Swaithe View, Woolley Grange, Barnsley, South Yorkshire, S75 5RW Classification: Generators - Sales & Service **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (NW)	114	-	431064 410974
139	**Contemporary Trade Directory Entries** Name: Transcold Ltd Location: 5, Bloomingdale Court, Woolley Grange, Barnsley, S75 5RQ Classification: Road Haulage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NW (N)	128	-	431100 411013
140	**Contemporary Trade Directory Entries** Name: Worth Polythene Ltd Location: 15, Windhill Rise, Woolley Grange, Barnsley, South Yorkshire, S75 5RJ Classification: Paper & Cardboard Products & Packaging - Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SW (N)	437	-	431076 411335
141	**Contemporary Trade Directory Entries** Name: Microprint Location: 25a, Station Road, Darton, Barnsley, South Yorkshire, S75 5HT Classification: Printers - Glass, Metal, Plastics Etc. **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NE (S)	494	-	431385 410179
142	**Contemporary Trade Directory Entries** Name: Pennine Building Solutions Location: 6, Henry Moore Court, Woolley Grange, Barnsley, South Yorkshire, S75 5QS Classification: Building Block Manufacturers & Distributors **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SW (NW)	521	-	430875 411339
143	**Contemporary Trade Directory Entries** Name: Prem Dor Location: BIRTHWAITE BUSINESS PARK, HUDDERSFIELD ROAD, DARTON, BARNSLEY, S75 5JS Classification: Door Manufacturers - Domestic **Status: Active** Positional Accuracy: Automatically positioned to the address	A12SE (SW)	546	-	430597 410476
144	**Contemporary Trade Directory Entries** Name: Rightcast Ltd Location: Unit 4, Junction 38 Business Park, Parkside Way, Darton, Barnsley, S75 5QQ Classification: Staircase, Balustrade & Handrail Manufacturers **Status: Active** Positional Accuracy: Automatically positioned to the address	A7NE (SW)	579	-	430707 410273
144	**Contemporary Trade Directory Entries** Name: Thyssenkrupp Aerospace Location: Unit 4, Junction 38 Business Park, Parkside Way, Darton, Barnsley, South Yorkshire, S75 5QQ Classification: Engineers - General **Status: Active** Positional Accuracy: Automatically positioned to the address	A7NE (SW)	579	-	430707 410273
145	**Contemporary Trade Directory Entries** Name: Copier Systems Ltd Location: Junction 38 Business Park,Parkside Way, Darton, Barnsley, South Yorkshire, S75 5QQ Classification: Office Equipment Servicing & Maintenance **Status: Active** Positional Accuracy: Manually positioned within the geographical locality	A7NE (SW)	653	-	430663 410214
145	**Contemporary Trade Directory Entries** Name: Senior Haulage Ltd Location: Unit 3, Junction 38 Business Park, Parkside Way, Darton, Barnsley, South Yorkshire, S75 5QQ Classification: Road Haulage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A7NE (SW)	661	-	430689 410182
145	**Contemporary Trade Directory Entries** Name: P B Joinery Ltd Location: Unit 1, Junction 38 Business Park, Parkside Way, Darton, Barnsley, South Yorkshire, S75 5QQ Classification: Mould Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A7NE (SW)	661	-	430689 410182

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
146	**Contemporary Trade Directory Entries** Name: Ivy Motors Location: 36, Church Street, Darton, Barnsley, South Yorkshire, S75 5HG Classification: Car Body Repairs **Status: Active** Positional Accuracy: Automatically positioned to the address	A8SW (S)	700	-	431139 409963
146	**Contemporary Trade Directory Entries** Name: Mick'S Tyres Location: Rear of 38, Church Street, Darton, Barnsley, South Yorkshire, S75 5HG Classification: Tyre Dealers **Status: Active** Positional Accuracy: Automatically positioned to the address	A8SW (S)	712	-	431114 409953
146	**Contemporary Trade Directory Entries** Name: M M Motors Location: Rear of 38, Church Street, Darton, Barnsley, South Yorkshire, S75 5HG Classification: Garage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A8SW (S)	712	-	431114 409953
147	**Contemporary Trade Directory Entries** Name: Waterton'S Reserve Gin Location: Unit 9 Darton Business Park, Barnsley Road, Darton, Barnsley, South Yorkshire, S75 5QX Classification: Distilleries **Status: Active** Positional Accuracy: Manually positioned to the address or location	A8SE (S)	724	-	431362 409939
148	**Contemporary Trade Directory Entries** Name: Mallinson International Ltd Location: Junction 38 Business Park,Parkside Way, Darton, Barnsley, South Yorkshire, S75 5QQ Classification: Freight Forwarders **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A7SE (SW)	731	-	430690 410095
149	**Contemporary Trade Directory Entries** Name: Bsb Quality Clothing Ltd Location: Station Road, Darton, Barnsley, South Yorkshire, S75 5AF Classification: Clothing & Fabrics - Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A9SW (SE)	741	-	431625 410014
150	**Contemporary Trade Directory Entries** Name: Riverside Sports & Prestige Location: HARRATTS MITSUBISHI, HUDDERSFIELD ROAD, DARTON, BARNSLEY, S75 5NF Classification: Car Dealers **Status: Active** Positional Accuracy: Automatically positioned to the address	A7SE (SW)	763	-	430725 410037
151	**Contemporary Trade Directory Entries** Name: P B Engineering Services Location: Darton Council Offices, Huddersfield Road, Darton, Barnsley, South Yorkshire, S75 5NB Classification: Engineering Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8SW (S)	804	-	430941 409894
151	**Contemporary Trade Directory Entries** Name: Darton Social Services Department Location: The Darton Centre, Huddersfield Road, Darton, Barnsley, South Yorkshire, S75 5ND Classification: Garage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8SW (S)	816	-	430942 409880
152	**Contemporary Trade Directory Entries** Name: European Fleet Management Ltd Location: Dearne Mills, Barnsley Road, Darton, Barnsley, S75 5NH Classification: Commercial Vehicle Bodybuilders & Repairers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8SE (S)	804	-	431385 409862
152	**Contemporary Trade Directory Entries** Name: Carpet Express Ltd Location: Dearne Mills, Barnsley Road, Darton, Barnsley, S75 5NH Classification: Distribution Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8SE (S)	804	-	431385 409862

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
153	**Contemporary Trade Directory Entries** Name: Kuehne + Nagel Ltd Location: Dearne Mills,Barnsley Road, Darton, Barnsley, South Yorkshire, S75 5NN Classification: Road Haulage Services **Status: Inactive** Positional Accuracy: Manually positioned within the geographical locality	A3NW (S)	893	-	431100 409772
153	**Contemporary Trade Directory Entries** Name: Robert Thompson Garage Services Location: Central Garage, Barnsley Road, Darton, Barnsley, S75 5NN Classification: Garage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A3NW (S)	934	-	431110 409730
154	**Contemporary Trade Directory Entries** Name: Csk Electrical Services Location: 2, Austwick Close, Mapplewell, Barnsley, South Yorkshire, S75 5QF Classification: Laundry Equipment - Sales & Service **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A14SE (E)	916	-	432162 410536
155	**Contemporary Trade Directory Entries** Name: Colour Craft Location: Darton Business Park, Barnsley Road, Darton, Barnsley, South Yorkshire, S75 5QX Classification: Screen Process Printers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A3NE (S)	948	-	431381 409716
155	**Contemporary Trade Directory Entries** Name: Hot House Partnerships Ltd Location: Unit 5 Darton Business Park, Barnsley Road, Darton, Barnsley, South Yorkshire, S75 5NQ Classification: Perfume Suppliers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A3NE (S)	955	-	431424 409716
155	**Contemporary Trade Directory Entries** Name: Stiller Group Location: Barnsley Road, Darton, Barnsley, South Yorkshire, S75 5NN Classification: Distribution Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A3NE (S)	955	-	431424 409716
155	**Contemporary Trade Directory Entries** Name: Athena Manufacturing Ltd Location: Darton Business Park, Barnsley Road, Darton, Barnsley, S75 5QX Classification: Plastics - Injection Moulding **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A3NE (S)	955	-	431424 409716
155	**Contemporary Trade Directory Entries** Name: Egan Bros Road Haulage Location: Dearne Mills, Barnsley Road, Darton, BARNSLEY, South Yorkshire, S75 5NH Classification: Road Haulage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A3NE (S)	962	-	431397 409704
156	**Contemporary Trade Directory Entries** Name: Diane'S Location: 38, Churchfield Lane, Darton, Barnsley, South Yorkshire, S75 5DJ Classification: Ironing & Home Laundry Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A7SE (SW)	962	-	430773 409788
157	**Contemporary Trade Directory Entries** Name: Barnsley Damp Proof Location: 7, Halstead Grove, Mapplewell, Barnsley, South Yorkshire, S75 5QD Classification: Damp & Dry Rot Control **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A15SW (E)	970	-	432223 410612
158	**Fuel Station Entries** Name: Central Garage Location: Barnsley Road , Darton , Barnsley, South Yorkshire, S75 5NN Brand: MURCO Premises Type: Petrol Station **Status: Open** Positional Accuracy: Manually positioned to the address or location	A3NW (S)	933	-	431103 409732

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
159	**Ancient Woodland** Name: Windhill Wood Reference: 1103467 Area(m²): 39476.98 Type: Ancient and Semi-Natural Woodland	A18SW (N)	346	8	431170 411266
160	**Ancient Woodland** Name: Not Supplied Reference: 1410218 Area(m²): 67621.98 Type: Ancient and Semi-Natural Woodland	A14NW (NE)	360	8	431547 411093
161	**Ancient Woodland** Name: Not Supplied Reference: 1410219 Area(m²): 5245.4 Type: Ancient and Semi-Natural Woodland	A19NW (NE)	857	8	431661 411661
162	**Areas of Adopted Green Belt** Authority: Barnsley Metropolitan Borough Council, Planning Department Plan Name: Proposal Map **Status: Adopted** Plan Date: 3rd January 2019	A13NE (NE)	0	9	431244 410806
163	**Areas of Adopted Green Belt** Authority: Wakefield City Metropolitan District Council Plan Name: Proposal Map **Status: Adopted** Plan Date: 12th September 2012	A13NW (NW)	102	10	431044 410903
164	**Areas of Adopted Green Belt** Authority: Barnsley Metropolitan Borough Council, Planning Department Plan Name: Proposal Map **Status: Adopted** Plan Date: 3rd January 2019	A13SW (SW)	137	9	430960 410669
165	**Nitrate Vulnerable Zones** Name: River Dearne Nvz Description: Surface Water Source: Environment Agency, Head Office	A13SE (SW)	0	5	431190 410780
166	**Nitrate Vulnerable Zones** Name: Owler Beck From Source To River Calder Nvz Description: Surface Water Source: Environment Agency, Head Office	A19NE (NE)	952	5	431976 411509

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices		
Barnsley Metropolitan Borough Council - Environmental Health and Trading Standards	January 2020	Annual Rolling Update
Environment Agency - Head Office	November 2023	Annually
Kirklees Metropolitan Borough Council - Planning Services	October 2017	Annual Rolling Update
Wakefield City Metropolitan District Council - Environmental Health	October 2017	Annual Rolling Update
Discharge Consents		
Environment Agency - North East Region	April 2024	Quarterly
Enforcement and Prohibition Notices		
Environment Agency - North East Region	March 2013	
Integrated Pollution Controls		
Environment Agency - North East Region	January 2009	
Integrated Pollution Prevention And Control		
Environment Agency - North East Region	October 2023	Quarterly
Local Authority Integrated Pollution Prevention And Control		
Barnsley Metropolitan Borough Council - Environmental Health and Trading Standards	April 2014	Variable
Kirklees Metropolitan Borough Council - Environmental Health Department	April 2014	Variable
Wakefield City Metropolitan District Council - Environmental Health	December 2020	Variable
Local Authority Pollution Prevention and Controls		
Barnsley Metropolitan Borough Council - Environmental Health and Trading Standards	April 2014	Annual Rolling Update
Kirklees Metropolitan Borough Council - Environmental Health Department	April 2014	Annual Rolling Update
Wakefield City Metropolitan District Council - Environmental Health	December 2020	Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements		
Barnsley Metropolitan Borough Council - Environmental Health and Trading Standards	April 2014	Variable
Kirklees Metropolitan Borough Council - Environmental Health Department	April 2014	Variable
Wakefield City Metropolitan District Council - Environmental Health	June 2014	Variable
Nearest Surface Water Feature		
Ordnance Survey	March 2024	
Pollution Incidents to Controlled Waters		
Environment Agency - North East Region	December 1998	
Prosecutions Relating to Authorised Processes		
Environment Agency - North East Region	July 2015	
Prosecutions Relating to Controlled Waters		
Environment Agency - North East Region	March 2013	
Registered Radioactive Substances		
Environment Agency - North East Region	June 2016	As notified
Environment Agency - Head Office	May 2023	Quarterly
River Quality		
Environment Agency - Head Office	November 2001	Not Applicable
River Quality Biology Sampling Points		
Environment Agency - Head Office	April 2012	
River Quality Chemistry Sampling Points		
Environment Agency - Head Office	April 2012	
Substantiated Pollution Incident Register		
Environment Agency - North East Region - Ridings Area	April 2024	Quarterly
Environment Agency - North East Region - Yorkshire Area	April 2024	Quarterly
Water Abstractions		
Environment Agency - North East Region	April 2024	Quarterly
Water Industry Act Referrals		
Environment Agency - North East Region	October 2017	
Groundwater Vulnerability Map		
Environment Agency - Head Office	June 2018	As notified

Agency & Hydrological	Version	Update Cycle
Bedrock Aquifer Designations		
Environment Agency - Head Office	January 2018	As notified
Superficial Aquifer Designations		
Environment Agency - Head Office	January 2018	As notified
Source Protection Zones		
Environment Agency - Head Office	September 2022	Bi-Annually
Extreme Flooding from Rivers or Sea without Defences		
Environment Agency - Head Office	December 2023	Quarterly
Flooding from Rivers or Sea without Defences		
Environment Agency - Head Office	December 2023	Quarterly
Areas Benefiting from Flood Defences		
Environment Agency - Head Office	February 2023	Quarterly
Flood Water Storage Areas		
Environment Agency - Head Office	January 2024	Quarterly
Flood Defences		
Environment Agency - Head Office	August 2022	Quarterly
OS Water Network Lines		
Ordnance Survey	April 2024	Quarterly
BGS Groundwater Flooding Susceptibility		
British Geological Survey - National Geoscience Information Service	May 2013	As notified
Waste	**Version**	**Update Cycle**
BGS Recorded Landfill Sites		
British Geological Survey - National Geoscience Information Service	November 2002	As notified
Historical Landfill Sites		
Environment Agency - Head Office	May 2024	Quarterly
Integrated Pollution Control Registered Waste Sites		
Environment Agency - North East Region	January 2009	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries)		
Environment Agency - North East Region - Ridings Area	May 2024	Quarterly
Environment Agency - North East Region - Yorkshire Area	May 2024	Quarterly
Licensed Waste Management Facilities (Locations)		
Environment Agency - North East Region - Ridings Area	January 2023	Quarterly
Environment Agency - North East Region - Yorkshire Area	January 2023	Quarterly
Local Authority Landfill Coverage		
Barnsley Metropolitan Borough Council - Environmental Health and Trading Standards	February 2003	Not Applicable
Kirklees Metropolitan Borough Council - Planning Services	February 2003	Not Applicable
Wakefield City Metropolitan District Council - Environmental Health	February 2003	Not Applicable
Local Authority Recorded Landfill Sites		
Barnsley Metropolitan Borough Council - Environmental Health and Trading Standards	October 2018	
Kirklees Metropolitan Borough Council - Planning Services	October 2018	
Wakefield City Metropolitan District Council - Environmental Health	October 2018	
Registered Landfill Sites		
Environment Agency - North East Region - Ridings Area	March 2006	Not Applicable
Environment Agency - North East Region - Yorkshire Area	March 2006	Not Applicable
Registered Waste Transfer Sites		
Environment Agency - North East Region - Ridings Area	April 2018	
Environment Agency - North East Region - Yorkshire Area	April 2018	
Registered Waste Treatment or Disposal Sites		
Environment Agency - North East Region - Ridings Area	June 2015	
Environment Agency - North East Region - Yorkshire Area	June 2015	

Hazardous Substances	Version	Update Cycle
Control of Major Accident Hazards Sites (COMAH)		
Health and Safety Executive	January 2024	Bi-Annually
Explosive Sites		
Health and Safety Executive	March 2017	
Notification of Installations Handling Hazardous Substances (NIHHS)		
Health and Safety Executive	August 2001	
Planning Hazardous Substance Enforcements		
Kirklees Metropolitan Borough Council - Planning Services	August 2015	Variable
Barnsley Metropolitan Borough Council - Planning Department	January 2016	Variable
Wakefield City Metropolitan District Council	July 2023	Variable
Planning Hazardous Substance Consents		
Kirklees Metropolitan Borough Council - Planning Services	August 2015	Variable
Wakefield City Metropolitan District Council	February 2016	Variable
Barnsley Metropolitan Borough Council - Planning Department	January 2016	Variable

Geological	Version	Update Cycle
BGS 1:625,000 Solid Geology		
British Geological Survey - National Geoscience Information Service	January 2009	As notified
BGS Recorded Mineral Sites		
British Geological Survey - National Geoscience Information Service	January 2024	Bi-Annually
CBSCB Compensation District		
Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011	
Cheshire Brine Subsidence Compensation Board (CBSCB)	November 2020	As notified
Coal Mining Affected Areas		
The Coal Authority - Property Searches	February 2023	Annual Rolling Update
Mining Instability		
Ove Arup & Partners	June 1998	Not Applicable
Non Coal Mining Areas of Great Britain		
British Geological Survey - National Geoscience Information Service	May 2015	Not Applicable
Potential for Collapsible Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	April 2020	As notified
Potential for Compressible Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Ground Dissolution Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Landslide Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Running Sand Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Shrinking or Swelling Clay Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	As notified
Radon Potential - Radon Affected Areas		
British Geological Survey - National Geoscience Information Service	October 2023	Annually
Radon Potential - Radon Protection Measures		
British Geological Survey - National Geoscience Information Service	October 2023	Annually

Industrial Land Use	Version	Update Cycle
Contemporary Trade Directory Entries		
Thomson Directories	April 2024	Quarterly
Fuel Station Entries		
Catalist Ltd - Experian	February 2024	Quarterly
Gas Pipelines		
National Grid	October 2021	Bi-Annually
Underground Electrical Cables		
National Grid	January 2024	Bi-Annually
Sensitive Land Use	**Version**	**Update Cycle**
Ancient Woodland		
Natural England	April 2024	Bi-Annually
Areas of Adopted Green Belt		
Barnsley Metropolitan Borough Council - Planning Department	February 2024	Quarterly
Kirklees Metropolitan Borough Council	February 2024	Quarterly
Wakefield City Metropolitan District Council	February 2024	Quarterly
Areas of Unadopted Green Belt		
Barnsley Metropolitan Borough Council - Planning Department	February 2024	Quarterly
Kirklees Metropolitan Borough Council	February 2024	Quarterly
Wakefield City Metropolitan District Council	February 2024	Quarterly
Areas of Outstanding Natural Beauty		
Natural England	May 2024	Bi-Annually
Environmentally Sensitive Areas		
Natural England	August 2023	
Forest Parks		
Forestry Commission	May 2023	Not Applicable
Local Nature Reserves		
Natural England	February 2024	Bi-Annually
Marine Nature Reserves		
Natural England	February 2024	Bi-Annually
National Nature Reserves		
Natural England	February 2024	Bi-Annually
National Parks		
Natural England	February 2018	Bi-Annually
Nitrate Sensitive Areas		
Natural England	April 2023	Not Applicable
Nitrate Vulnerable Zones		
Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	April 2016	
Environment Agency - Head Office	April 2024	Bi-Annually
Ramsar Sites		
Natural England	February 2024	Bi-Annually
Sites of Special Scientific Interest		
Natural England	April 2024	Bi-Annually
Special Areas of Conservation		
Natural England	April 2024	Bi-Annually
Special Protection Areas		
Natural England	April 2024	Bi-Annually

Data Suppliers

A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	
Environment Agency	
Scottish Environment Protection Agency	
The Coal Authority	
British Geological Survey	
Centre for Ecology and Hydrology	
Natural Resources Wales	
Scottish Natural Heritage	
Natural England	
Public Health England	
Ove Arup	
Stantec UK Ltd	

Useful Contacts

Contact	Name and Address	Contact Details
1	**British Geological Survey - Enquiry Service** British Geological Survey, Environmental Science Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
2	**Environment Agency - National Customer Contact Centre (NCCC)** PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 03708 506 506 Email: enquiries@environment-agency.gov.uk
3	**Barnsley Metropolitan Borough Council - Environmental Health and Trading Standards** Central Offices, Kendray Street, Barnsley, South Yorkshire, S70 2TN	Telephone: 01226 770770 Fax: 01226 772599 Website: www.barnsley.gov.uk
4	**Wakefield City Metropolitan District Council - Environmental Health** Newton Bar, Wakefield, West Yorkshire, WF1 2TX	Telephone: 01924 306090 Website: www.wakefield.gov.uk
5	**Environment Agency - Head Office** Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol, Avon, BS32 4UD	Telephone: 01454 624400 Fax: 01454 624409
6	**Ordnance Survey** Adanac Drive, Southampton, Hampshire, SO16 0AS	Telephone: 03456 05 05 05 Email: customerservices@ordnancesurvey.co.uk Website: www.ordnancesurvey.gov.uk
7	**The Coal Authority - Property Searches** 200 Lichfield Lane, Mansfield, Nottinghamshire, NG18 4RG	Telephone: 0345 762 6848 Fax: 01623 637 338 Email: groundstability@coal.gov.uk Website: www2.groundstability.com
8	**Natural England** County Hall, Spetchley Road, Worcester, WR5 2NP	Telephone: 0300 060 3900 Email: enquiries@naturalengland.org.uk Website: www.naturalengland.org.uk
9	**Barnsley Metropolitan Borough Council - Planning Department** Central Offices, Kendray Street, Barnsley, South Yorkshire, S70 2TN	Telephone: 01226 770770 Fax: 01226 772599 Website: www.barnsley.gov.uk
10	**Wakefield City Metropolitan District Council** Newton Bar, Wakefield, West Yorkshire, WF1 2TX	Telephone: 01924 306090 Fax: 01924 378532 Website: www.wakefield.gov.uk
-	**Public Health England - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards** Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@phe.gov.uk Website: www.ukradon.org
-	**Landmark Information Group Limited** Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

Please note that the Environment Agency / Natural Resources Wales / SEPA have a charging policy in place for enquiries.

The Coal Authority

CON29M
coal mining report

25 DEARNE COURT, WOOLLEY GRANGE, BARNSLEY, WAKEFIELD, S75 5RR

Known or potential coal mining risks

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

Further action

No further reports from the Coal Authority are required. Further information on any next steps can be found in our Professional opinion.

For more information on our reports please visit www.groundstability.com

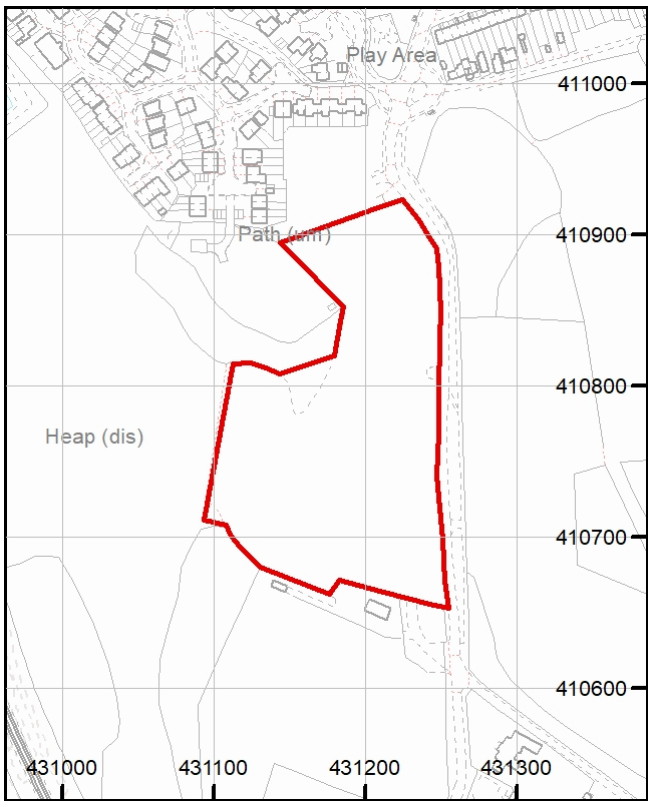
Professional opinion

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.

Enquiry boundary

Key

Approximate position of enquiry boundary shown



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.

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

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.

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1 Past underground coal mining

The property is in a surface area that could be affected by underground mining in 6 seams of coal at shallow to 290m depth, and last worked in 1983.

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.

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

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

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

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

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 a notice to withdraw support was given in 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 0800 288 4242. 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

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

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

44/3010 TOP HAIGH MOOR SEAM

N.E. 868

411 5 410

430 5 431 5 432

NATIONAL GRID NORTH

BOUNDARY DATED 6th FEBRUARY 1952

BOUNDARY DATED 24th OCTOBER 1939

PROBABLE POSITION OF BOUNDARY FAULT

Outcrop

PYEWOOD COLLIERY WORKINGS 1919

STAPLE SHAFT

STAPLE SHAFT Down to Low Haigh Moor Seam

ADITS

Low Haigh Moor Seam

1913 1917 1918 1919 1921 1922

10093·5 10103·5 10113·5 10128·0 10134·9 10083·5 10176·2 10183·3 10203·7 10207·1

9877·9 9898·7 9904·1 9920 9923·6 9930·9 9940 9944·4 9949·4 9962·6 9968·9 9974·1 9980 9994·1 10000 10018·1 10020 10033·8 10042·5

WORKINGS FROM DARTON COLLIERY Coal 13" SHAFTS Dirt 6" Coal 14"

Birthwaite Hall

School

I hereby certify that no further working has taken place after the date of abandonment which would affect the accuracy of this plan.

Signed Manager

Date 13th April 81

Certificate N° 9071 Dated 2nd Sept 63

NORTH GAWBER COLLIERY

LIDGETT SHAFT
44/3309/169842
[Point of Origin for Underground Surveys]

SURFACE LEVEL [Ground & Low Deck] [Ref: Pt. for Depths]	10,306·41
BARNSLEY SEAM LEVEL	9,997·96
BARNSLEY SEAM INSET LEVEL	9,997·96
TOP HAIGH MOOR SEAM LEVEL [Panel in Shaft Wall]	9,794·81
LOW HAIGH MOOR SEAM LEVEL [Panel in Shaft Wall]	9,774·00
LIDGETT SEAM INSET LEVEL [Low Deck]	9,665·47
LIDGETT SEAM LEVEL	9,663·57
DEPTH OF SHAFT [Sump Bottom]	222·14 yds.

BARNSLEY UPCAST SHAFT
44/3309/196817

SURFACE LEVEL [Ground & Banking] [Ref: Pt. for Depths]	10,300·75
BARNSLEY SEAM LEVEL	9,995·69
BARNSLEY SEAM INSET LEVEL	9,995·69
DEPTH OF SHAFT [Sump Bottom]	110·69 yds.

BARNSLEY DOWNCAST SHAFT
44/3309/225751

SURFACE LEVEL [Ground] [Ref: Pt. for Depths]	10,296·75
BARNSLEY SEAM INSET LEVEL	9,991·51
BARNSLEY SEAM LEVEL	9,988·80
DEPTH OF SHAFT [Sump Bottom]	104·75 yds.

THIS SHAFT FILLED IN TO SURFACE – AUGUST 1967

BARNSLEY PUMPING SHAFT
44/3309/266787

SURFACE LEVEL [Banking] [Ref: Pt. for Depths]	10,298·86
SURFACE LEVEL [Ground]	10,296·69
BARNSLEY SEAM INSET LEVEL	9,994·22
BARNSLEY SEAM LEVEL	9,979·21
DEPTH OF SHAFT [Sump Bottom]	106·55 yds.

THIS SHAFT FILLED IN TO SURFACE – APRIL 1962
RE-EXCAVATED TO BARNSLEY INSET – AUGUST 1970

— OLD DARTON COLLIERY SHAFTS —

No.1 SHAFT [OLD DOWNCAST]
44/3209/235543

SURFACE LEVEL [Ground] [Ref: Pt. for Depths]	10,242·77
TOP HAIGH MOOR SEAM LEVEL	10,003·60
LOW HAIGH MOOR SEAM LEVEL	9,977·85
LOW HAIGH MOOR SEAM INSET LEVEL	9,977·14
LIDGETT SEAM LEVEL	9,872·64
LIDGETT SEAM INSET LEVEL	9,872·64
DEPTH OF SHAFT [Sump Bottom]	129·38 yds.

THIS SHAFT FILLED IN TO SURFACE – AUGUST 1970

No.2 SHAFT [OLD UPCAST]
44/3209/257566

SURFACE LEVEL [Ground & Banking] [Ref: Pt. for Depths]	10,243·00
TOP HAIGH MOOR SEAM LEVEL	9,999·89
LOW HAIGH MOOR SEAM LEVEL	9,975·12
LOW HAIGH MOOR SEAM INSET LEVEL	9,971·96
LIDGETT SEAM LEVEL	9,867·62
LIDGETT SEAM INSET LEVEL	9,866·43
DEPTH OF SHAFT [Sump Bottom]	131·52 yds.

THIS SHAFT FILLED IN TO SURFACE – AUGUST 1970

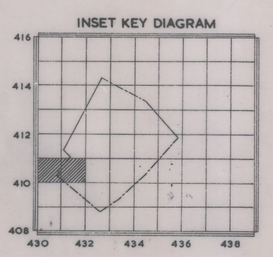
44/3010

IN COMPLIANCE WITH THE COAL AND OTHER MINES (SURVEYORS AND PLANS) REGULATIONS 1956

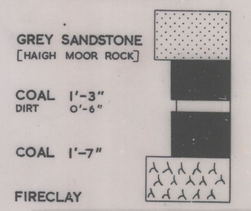
WORKINGS IN OTHER SEAMS WITHIN A DISTANCE OF 40 YDS VERTICALLY ARE

LOW HAIGH MOOR SEAM
LIDGETT SEAM

INSET KEY DIAGRAM



— SECTION OF SEAM —



This plan is a true copy of the working plan of the mine as completed up to 22-12-1978 and I certify after thorough examination and enquiry that to the best of my knowledge and belief it is an accurate plan of the mine.

Signed Surveyor

Date 13-4-1981

Certificate N° 2049 Dated 8-11-1948

TOP HAIGH MOOR SEAM

— SCALE:- 1/2500 —

DATUM FOR LEVELS
10,000 feet below ORDNANCE DATUM
[Via O.S. FLUSH BRACKET B.M. No. S.9249 on S.E. corner of Lidgett Shaft Winding Engine House
VALUE 306·84' A.O.D

DATE OF ABANDONMENT 22nd DECEMBER 1979

DATE OF CONSTRUCTION MAY 1961

The Coal Authority

Catalogue No.: NE868 Sheet Info:

Date: 18/04/2019

Scale: 1 TO 2500

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Jackie Hancock - The Coal Authority,200 Lichfield Lane,Mansfield,Nottinghamshire,NG18 4RG,Great Britian

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SE 3010 LOW HAIGH MOOR SEAM N.E. 979

411

5

410

430 5 431 5 432

BOUNDARY DATED 6th FEBRUARY 1962

BOUNDARY DATED 12th OCTOBER 1939

PROBABLE POSITION OF BOUNDARY FAULT

PYEWOOD COLLIERY WORKINGS

Top Haigh Moor Seam

STAPLE SHAFT

STAPLE SHAFT Up to Top Haigh Moor Seam

Miners' Welfare Institute

Birthwaite Hall

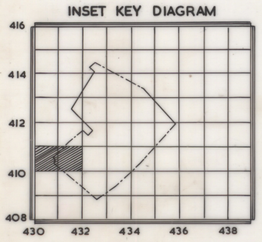
ADITS

School

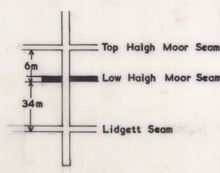
WORKINGS FROM DARTON COLLIERY C 66 SHAFTS July 1942

NATIONAL GRID NORTH

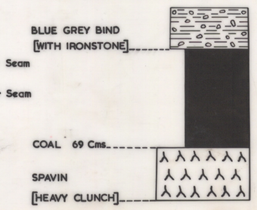
INSET KEY DIAGRAM



LIDGETT SHAFT Diagrammatic Section



TYPICAL SEAM SECTION



SE 3010

IN COMPLIANCE WITH THE COAL AND OTHER MINES (SURVEYORS AND PLANS) REGULATIONS 1956 — OVERLAY TRACINGS OF WORKINGS IN OTHER SEAMS WITHIN A DISTANCE OF 37 METRES VERTICALLY, WHICH FORM PART OF THIS WORKING PLAN ARE — TOP HAIGH MOOR SEAM / LIDGETT SEAM

I hereby certify that no further working has taken place, after the date of abandonment, which would affect the accuracy of this plan.
Signed ..... Colliery/Agent/Gen. Manager
Date 19-6-86
Certificate No. 8153 Dated 10-8-60

This is the Working Plan of the Mine as completed to MARCH 1986
I hereby certify, after thorough examination and enquiry, that to the best of my knowledge and belief, it is an accurate plan of the mine.
Signed A.T.Ward Colliery Surveyor
Date 23/6/1986
Certificate No. 6208 Dated 26-11-76

NORTH GAWBER COLLIERY

LOW HAIGH MOOR SEAM

[NETHERTON THIN SEAM]

SCALE 1/2500

100 50 0 100 200
Metres

Grid values to ORDNANCE SURVEY NATIONAL GRID
Datum for levels ORDNANCE DATUM
Via O.S. FLUSH BRACKET B.M. No S.9249 on S.E corner of Lidgett Shaft Winding Engine House. VALUE [+93·53]
Levels ABOVE O.D. shewn [+123·4]
Levels BELOW O.D. shewn 123·4
Seam Sections shewn in centimetres

DATE OF CONSTRUCTION JULY 1942
DATE OF ABANDONMENT 5th MARCH 1986

The Coal Authority

Catalogue No.: NE979 Sheet Info:

Date: 18/04/2019 Scale: 1 TO 2500

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Jackie Hancock - The Coal Authority,200 Lichfield Lane,Mansfield,Nottinghamshire,NG18 4RG,Great Britian

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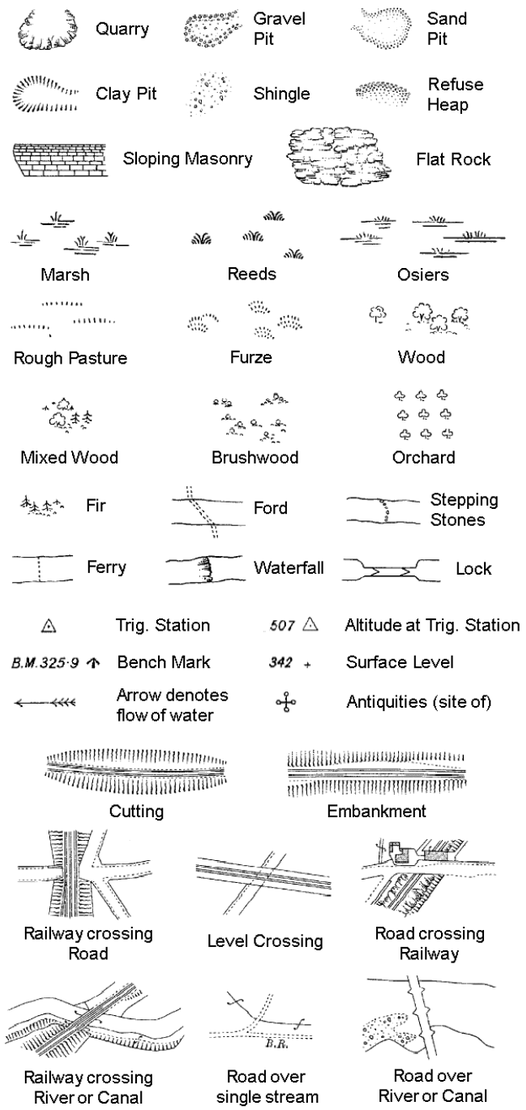
APPENDIX B-2
Desk Study Information (Southern Site Area)

Historical Mapping Legends

Ordnance Survey County Series and Ordnance Survey Plan 1:2,500



County Boundary (Geographical)

County & Civil Parish Boundary

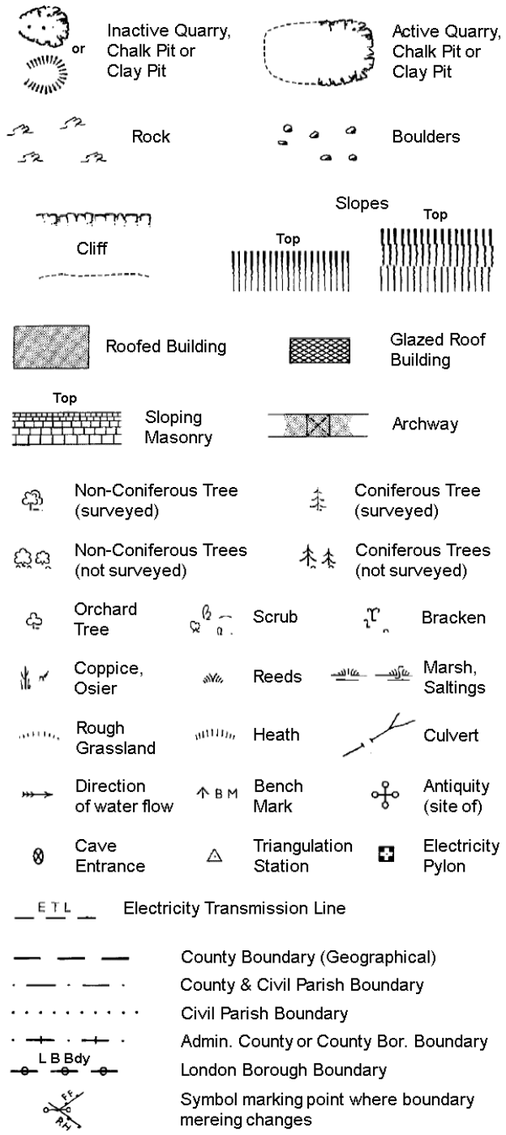
Administrative County & Civil Parish Boundary

Co. Boro. Bdy. County Borough Boundary (England)

Co. Burgh Bdy. County Burgh Boundary (Scotland)

B P B S	Boundary Post or Stone	P.C.B	Police Call Box
B.R.	Bridle Road	P	Pump
E.P	Electricity Pylon	S.P	Signal Post
F.B.	Foot Bridge	St.	Sluice
F.P.	Foot Path	Sp.	Spring
G.P	Guide Post or Board	T.C.B	Telephone Call Box
M.S	Mile Stone	Tr.	Trough
M.P M.R	Mooring Post or Ring	W	Well

Ordnance Survey Plan, Additional SIMs and Supply of Unpublished Survey Information 1:2,500 and 1:1,250



County Boundary (Geographical)

County & Civil Parish Boundary

Civil Parish Boundary

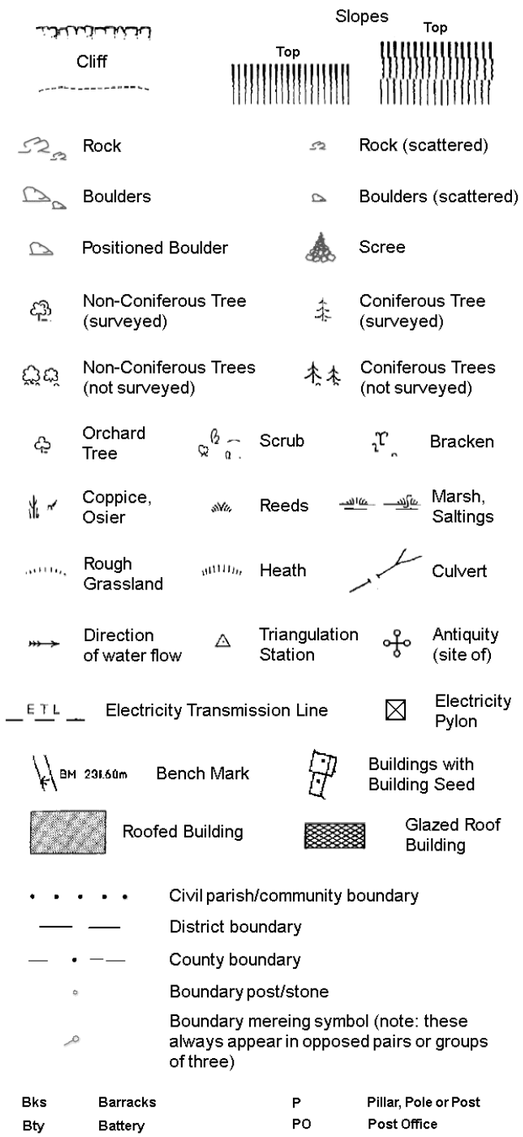
Admin. County or County Bor. Boundary

L B Bdy London Borough Boundary

Symbol marking point where boundary mereing changes

BH	Beer House	P	Pillar, Pole or Post
BP, BS	Boundary Post or Stone	PO	Post Office
Cn, C	Capstan, Crane	PC	Public Convenience
Chy	Chimney	PH	Public House
D Fn	Drinking Fountain	Pp	Pump
El P	Electricity Pillar or Post	SB, S Br	Signal Box or Bridge
FAP	Fire Alarm Pillar	SP, SL	Signal Post or Light
FB	Foot Bridge	Spr	Spring
GP	Guide Post	Tk	Tank or Track
H	Hydrant or Hydraulic	TCB	Telephone Call Box
LC	Level Crossing	TCP	Telephone Call Post
MH	Manhole	Tr	Trough
MP	Mile Post or Mooring Post	Wr Pt, Wr T	Water Point, Water Tap
MS	Mile Stone	W	Well
NTL	Normal Tidal Limit	Wd Pp	Wind Pump

Large-Scale National Grid Data 1:2,500 and 1:1,250



Civil parish/community boundary

District boundary

County boundary

Boundary post/stone

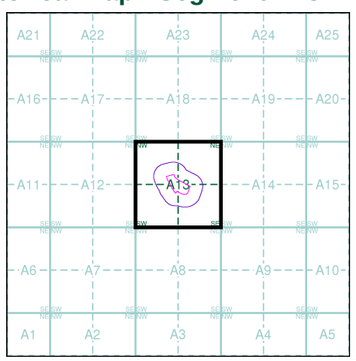
Boundary mereing symbol (note: these always appear in opposed pairs or groups of three)

Bks	Barracks	P	Pillar, Pole or Post
Bty	Battery	PO	Post Office
Cemy	Cemetery	PC	Public Convenience
Chy	Chimney	Pp	Pump
Cis	Cistern	Ppg Sta	Pumping Station
Dismtd Rly	Dismantled Railway	PW	Place of Worship
El Gen Sta	Electricity Generating Station	Sewage Ppg Sta	Sewage Pumping Station
El P	Electricity Pole, Pillar	SB, S Br	Signal Box or Bridge
El Sub Sta	Electricity Sub Station	SP, SL	Signal Post or Light
FB	Filter Bed	Spr	Spring
Fn / D Fn	Fountain / Drinking Ftn.	Tk	Tank or Track
Gas Gov	Gas Valve Compound	Tr	Trough
GVC	Gas Governer	Wd Pp	Wind Pump
GP	Guide Post	Wr Pt, Wr T	Water Point, Water Tap
MH	Manhole	Wks	Works (building or area)
MP, MS	Mile Post or Mile Stone	W	Well

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Yorkshire	1:2,500	1893	2
Yorkshire	1:2,500	1906	3
Yorkshire	1:2,500	1918	4
Ordnance Survey Plan	1:2,500	1961	5
Ordnance Survey Plan	1:2,500	1970	6
Ordnance Survey Plan	1:1,250	1978	7
Additional SIMs	1:2,500	1989	8
Additional SIMs	1:1,250	1990	9
Large-Scale National Grid Data	1:1,250	1993	10
Large-Scale National Grid Data	1:1,250	1993 - 1994	11

Historical Map - Segment A13



Order Details

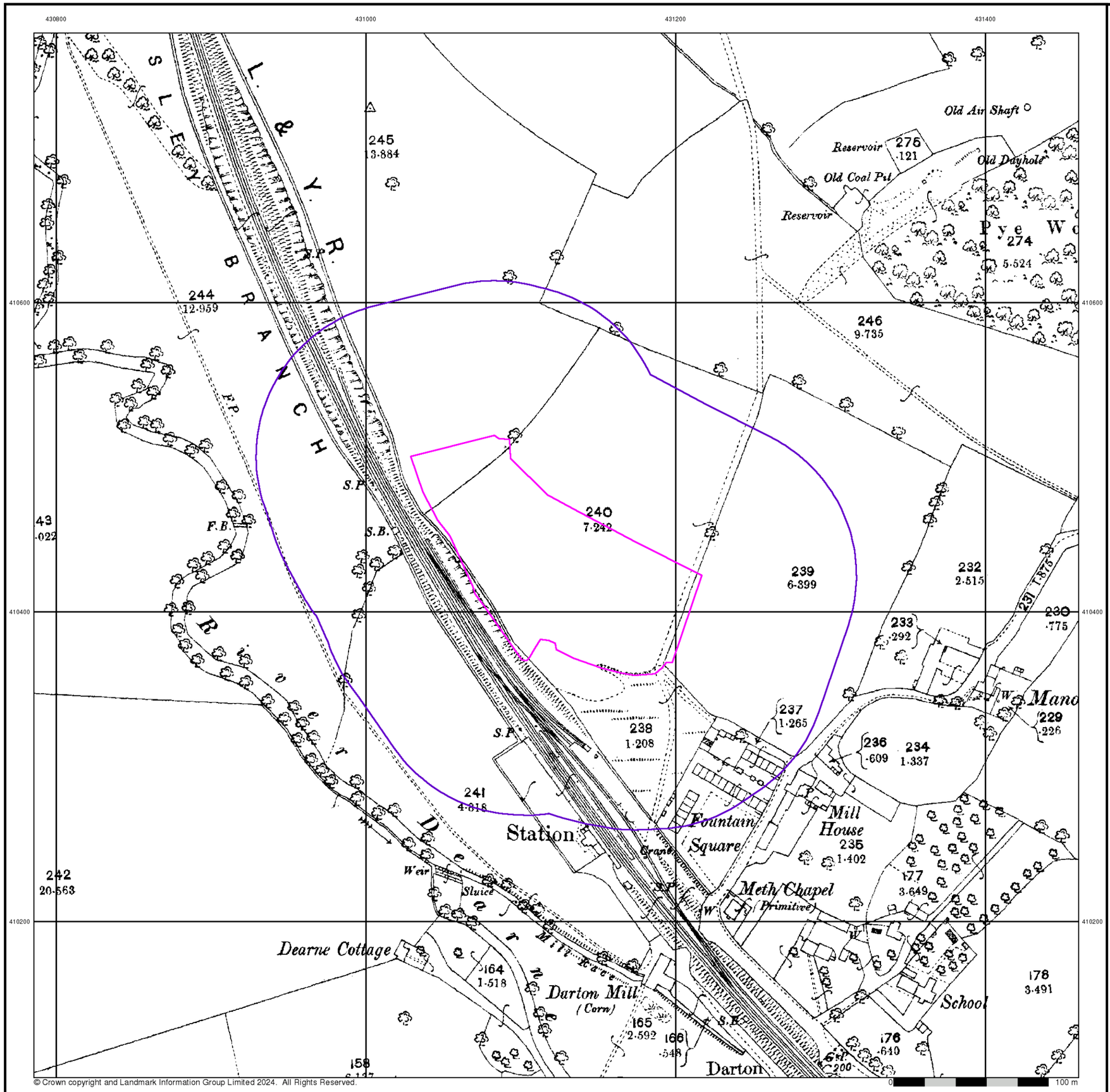
Order Number:	347388847_1_1
Customer Ref:	C10128
National Grid Reference:	431120, 410440
Slice:	A
Site Area (Ha):	1.52
Search Buffer (m):	100

Site Details

Land off Woolley Colliery Road (South), Darton, BARNSLEY

Landmark INFORMATION GROUP

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



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Yorkshire

Published 1893

Source map scale - 1:2,500

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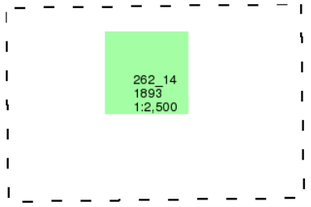
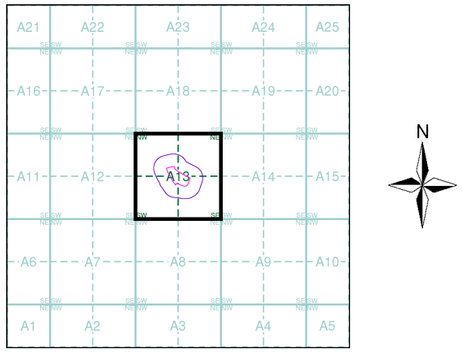
Map Name(s) and Date(s)



Historical Map - Segment A13



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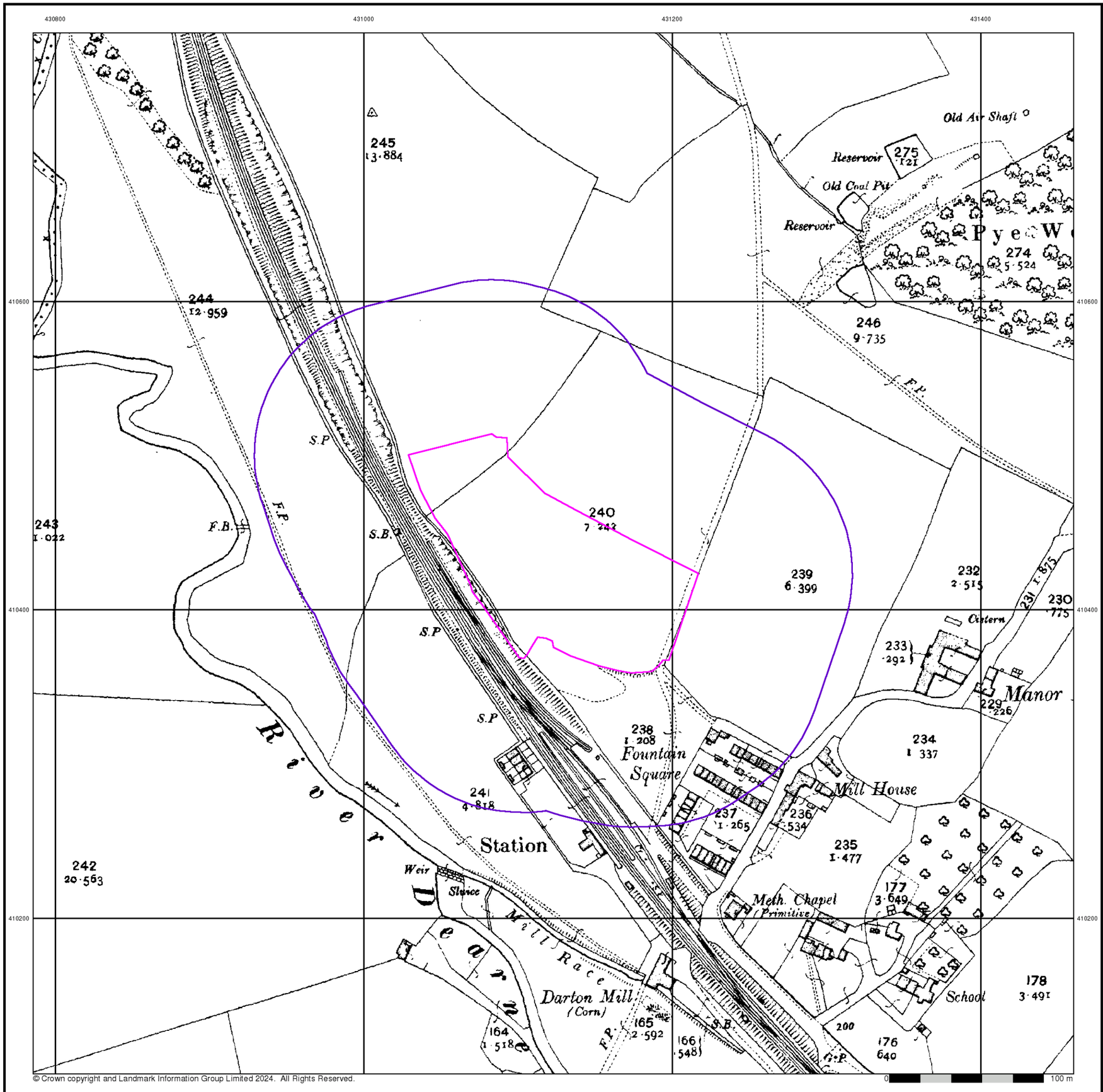

sirius

Yorkshire

Published 1906

Source map scale - 1:2,500

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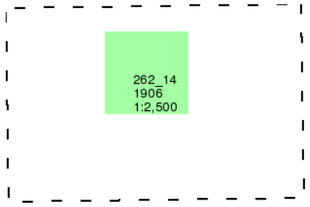
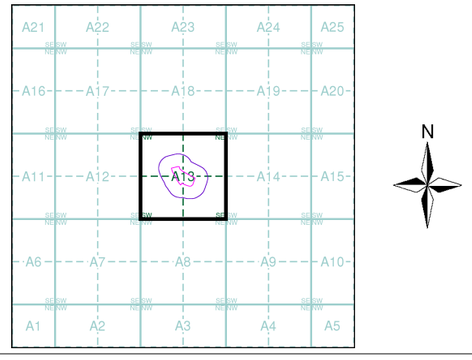


Historical Map - Segment A13



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Slice:	A
Site Area (Ha):	1.52
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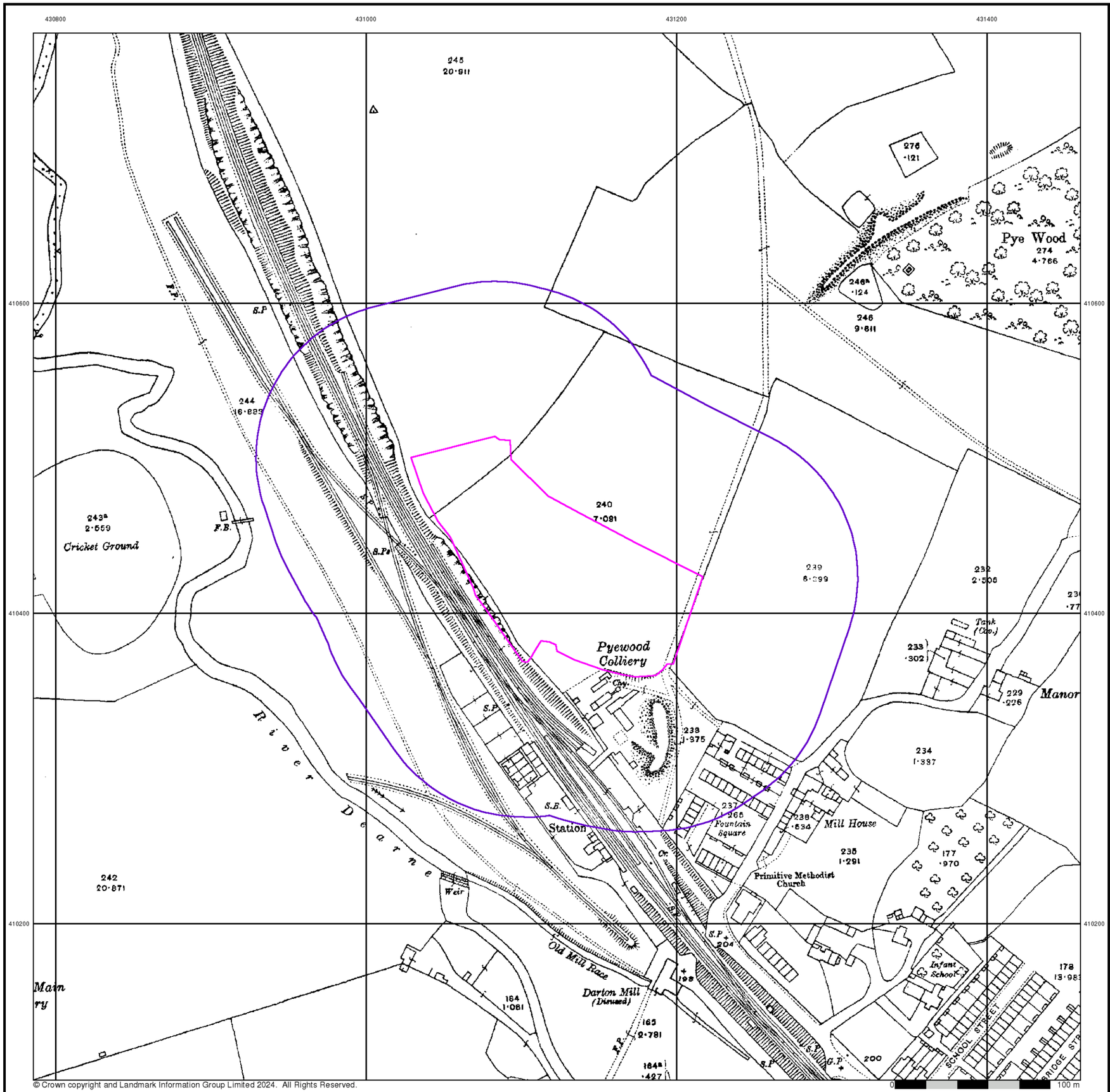

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Yorkshire

Published 1918

Source map scale - 1:2,500

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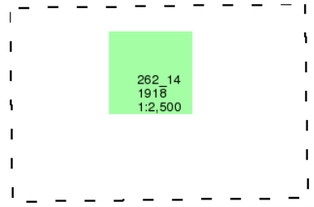
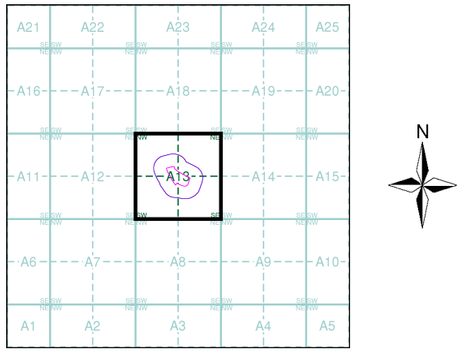


Historical Map - Segment A13



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Search Buffer (m):	100

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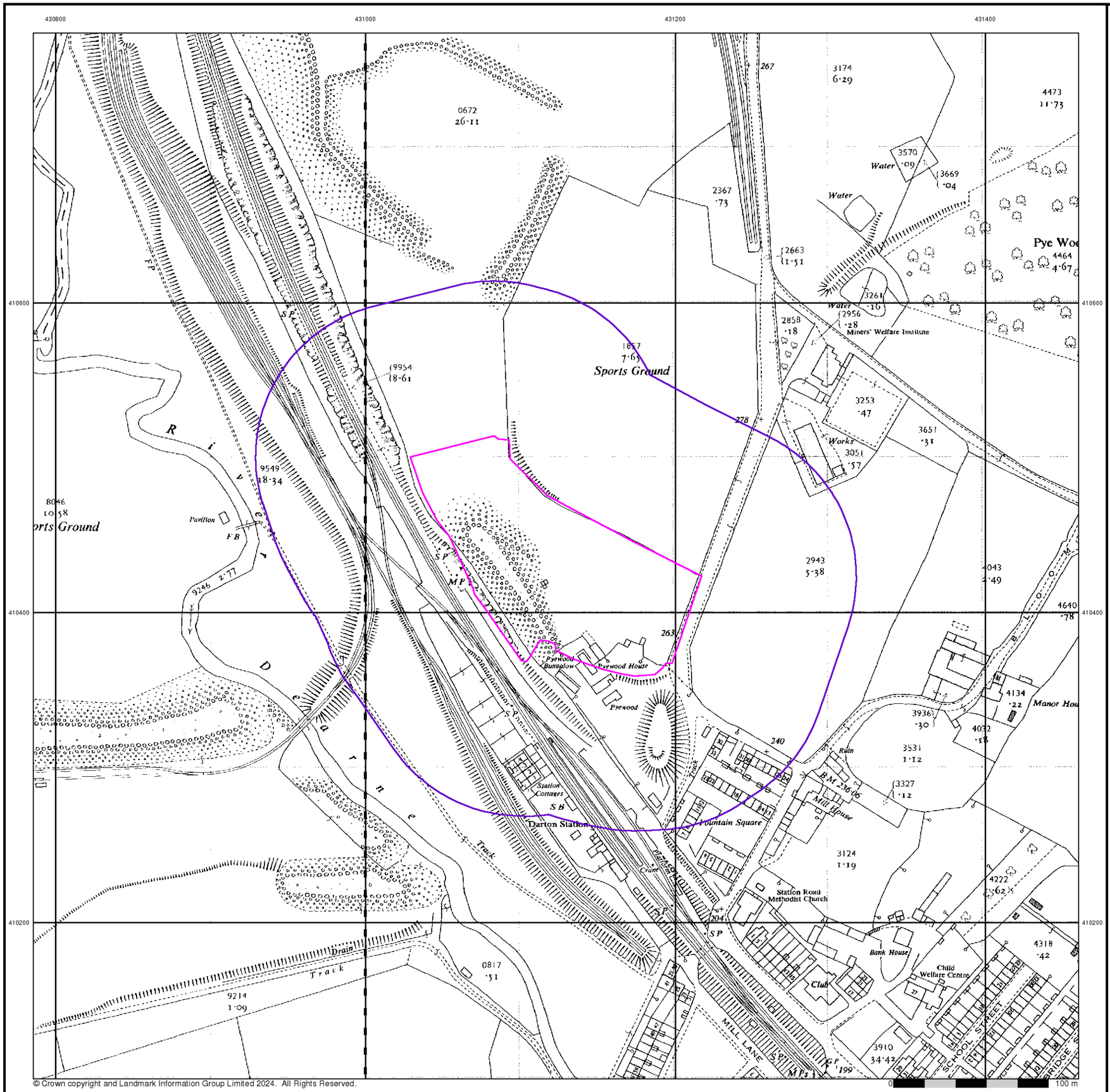

Ordnance Survey Plan

Published 1961

Source map scale - 1:2,500

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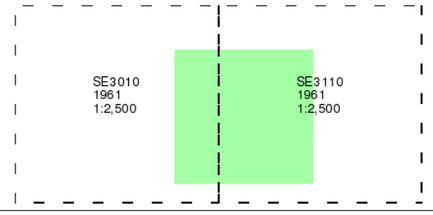

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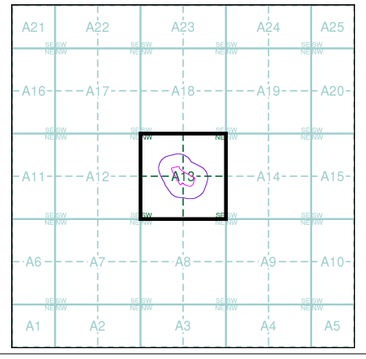

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Customer Ref:	C10128
National Grid Reference:	431120, 410440
Slice:	A
Site Area (Ha):	1.52
Search Buffer (m):	100

Site Details

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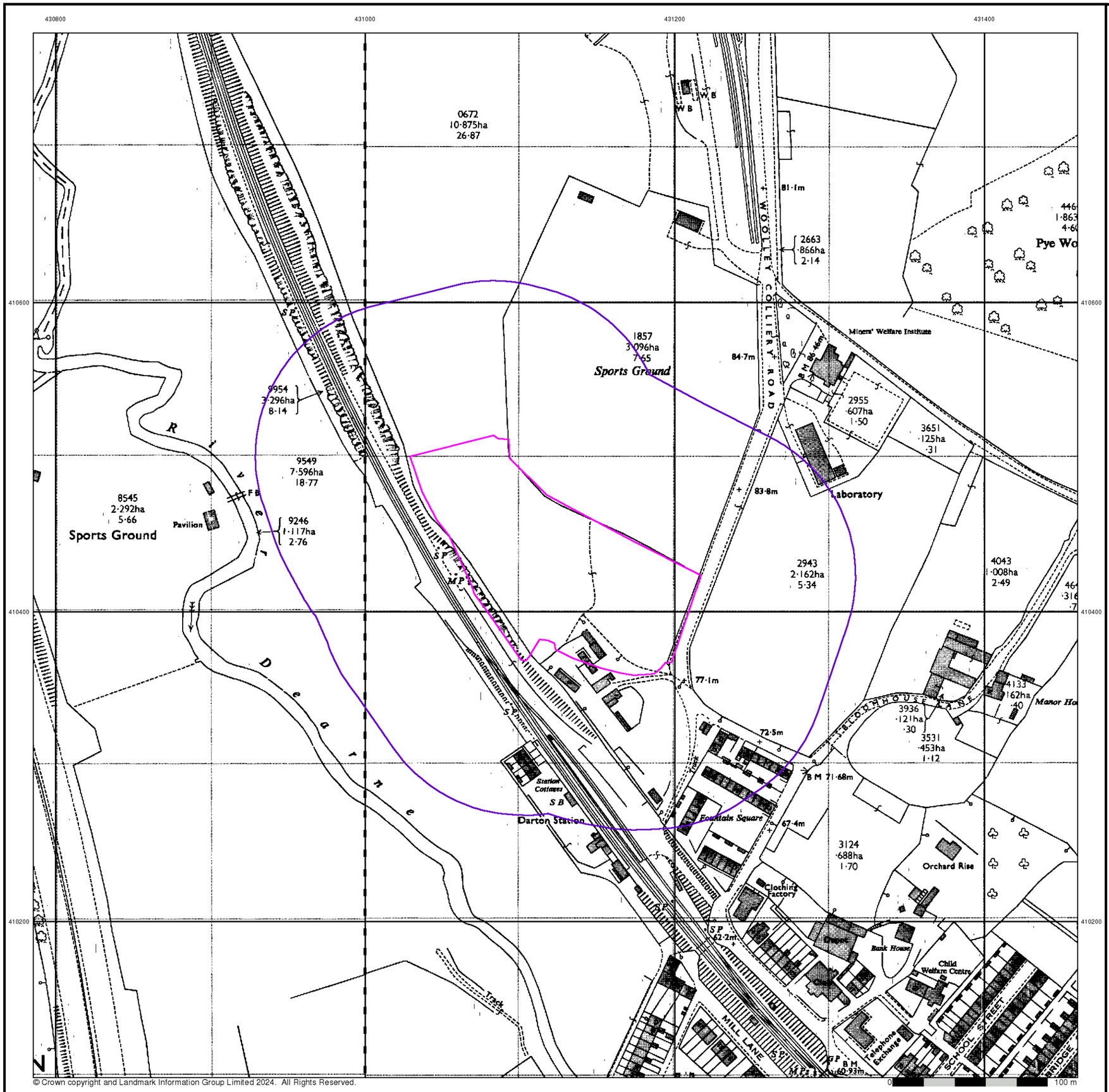

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Ordnance Survey Plan

Published 1970

Source map scale - 1:2,500

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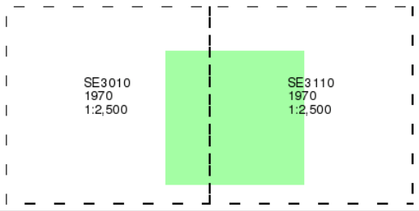
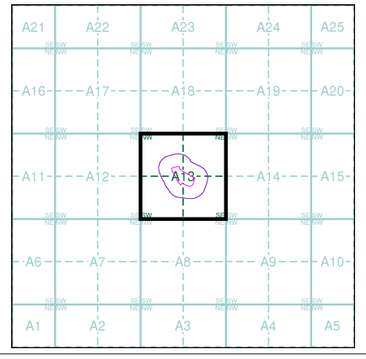


Historical Map - Segment A13



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Slice:	A
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Ordnance Survey Plan

Published 1978

Source map scale - 1:1,250

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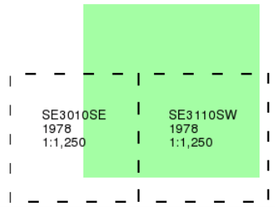
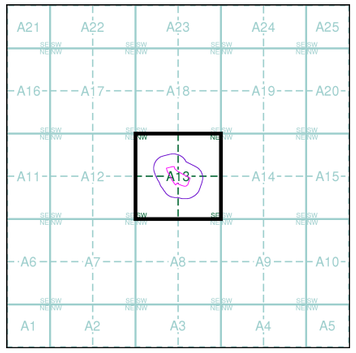
Map Name(s) and Date(s)



Historical Map - Segment A13



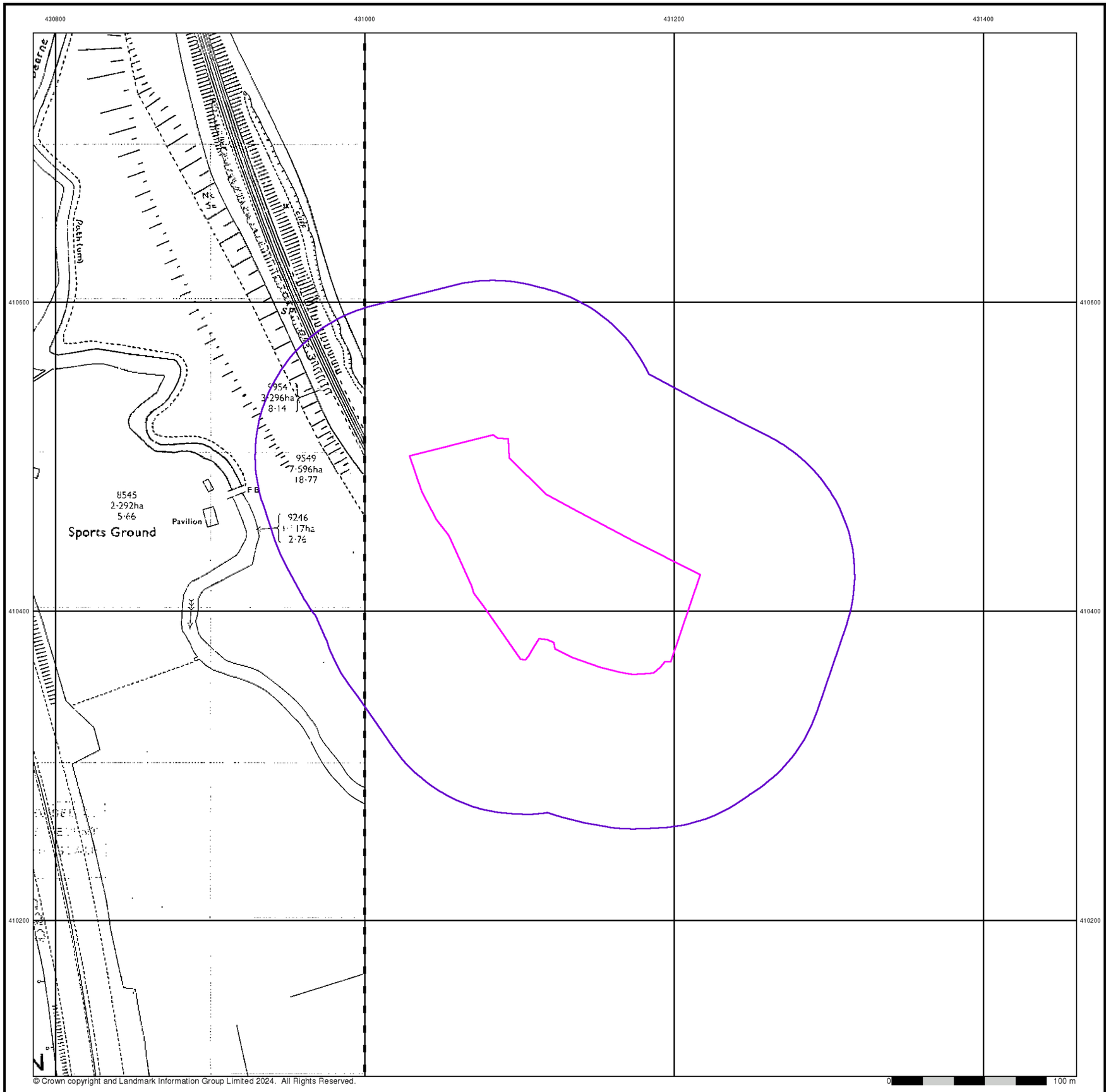
Order Details

Order Number:	347388847_1_1
Customer Ref:	C10128
National Grid Reference:	431120, 410440
Slice:	A
Site Area (Ha):	1.52
Search Buffer (m):	100

Site Details

Land off Woolley Colliery Road (South), Darton, BARNSLEY

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



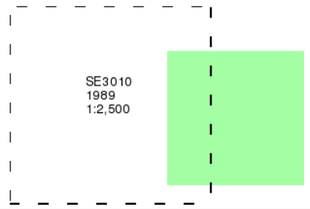
Additional SIMs

Published 1989

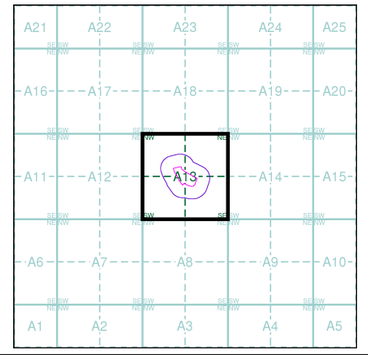
Source map scale - 1:2,500

The SIM cards (Ordnance Survey's `Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



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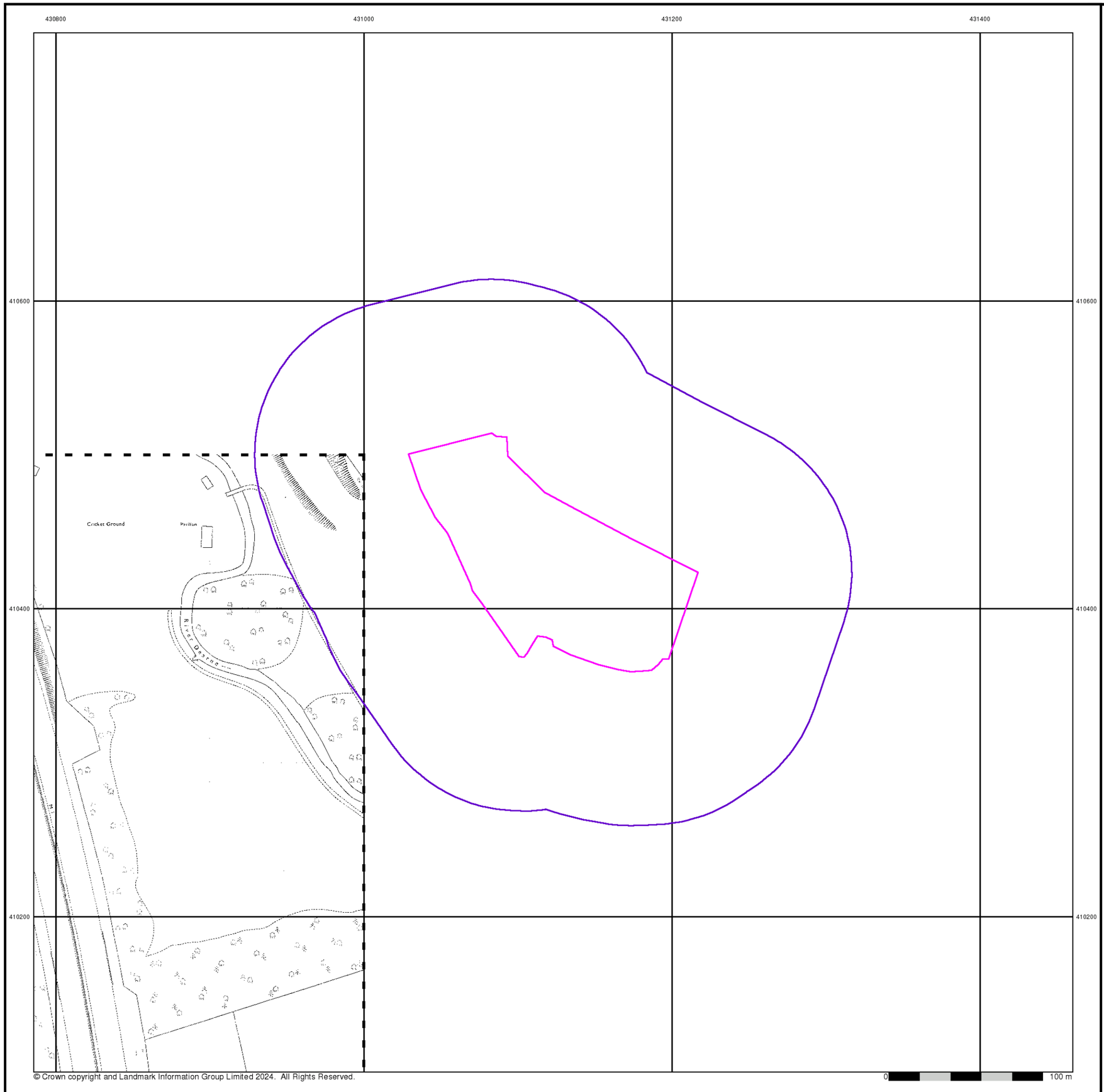

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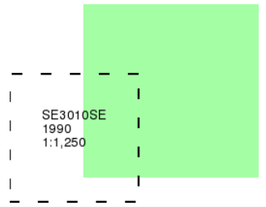
Additional SIMs

Published 1990

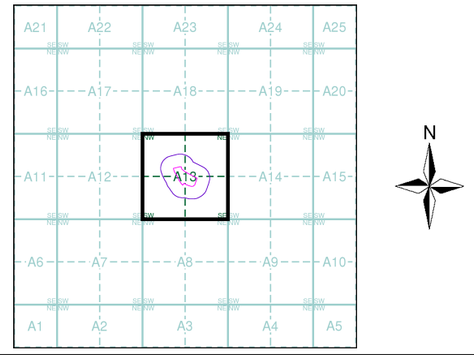
Source map scale - 1:1,250

The SIM cards (Ordnance Survey's `Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



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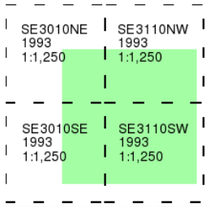
Large-Scale National Grid Data

Published 1993

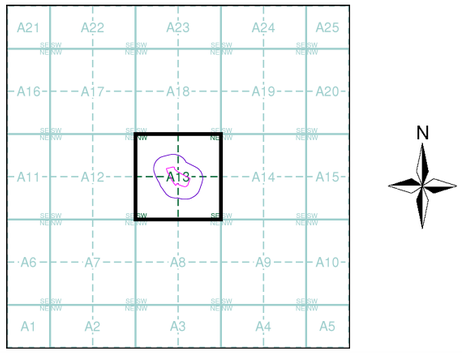
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



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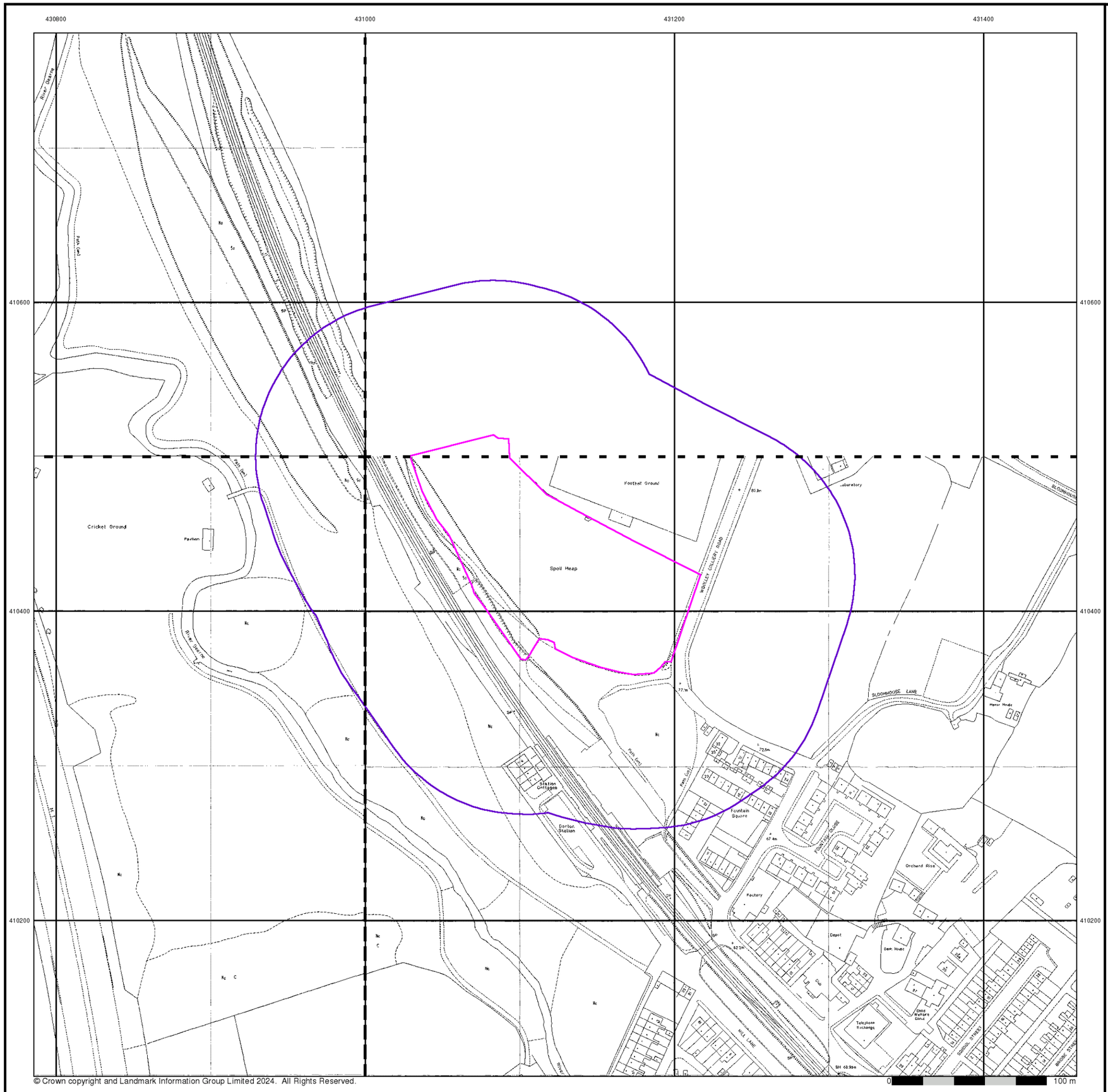

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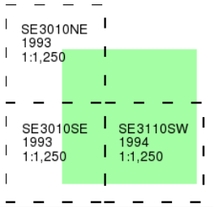
Large-Scale National Grid Data

Published 1993 - 1994

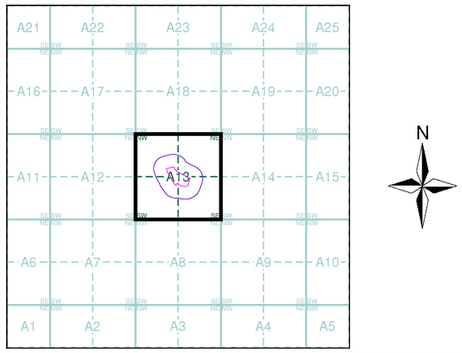
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



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Historical Mapping Legends

Ordnance Survey County Series 1:10,560

Gravel Pit
Sand Pit
Other Pits
Quarry
Shingle
Orchard
Osiers
Reeds
Marsh
Mixed Wood
Deciduous
Brushwood
Fir
Furze
Rough Pasture
Arrow denotes flow of water
Trigonometrical Station
Site of Antiquities
Bench Mark
Pump, Guide Post, Signal Post
Well, Spring, Boundary Post
·285 Surface Level
Sketched Contour
Instrumental Contour
Main Roads
Fenced
Un-Fenced
Minor Roads
Fenced
Un-Fenced
Sunken Road
Raised Road
Road over Railway
Railway over River
Railway over Road
Level Crossing
Road over River or Canal
Road over Stream
Road over Stream
County Boundary (Geographical)
County & Civil Parish Boundary
Administrative County & Civil Parish Boundary
Co. Boro. Bdy. County Borough Boundary (England)
Co. Burgh Bdy. County Burgh Boundary (Scotland)
R.D. Bdy. Rural District Boundary
Civil Parish Boundary

Ordnance Survey Plan 1:10,000

Chalk Pit, Clay Pit or Quarry
Gravel Pit
Sand Pit
Disused Pit or Quarry
Refuse or Slag Heap
Lake, Loch or Pond
Dunes
Boulders
Coniferous Trees
Non-Coniferous Trees
Orchard
Scrub
Coppice
Bracken
Heath
Rough Grassland
Marsh
Reeds
Saltings
Building
Direction of Flow of Water
Shingle
Sand
Glasshouse
Pylon
Pylon
Electricity Transmission Line
Sloping Masonry
Cutting
Embankment
Standard Gauge Multiple Track
Road Under
Road Over
Level Crossing
Foot Bridge
Standard Gauge Single Track
Siding, Tramway or Mineral Line
Narrow Gauge
Geographical County
Administrative County, County Borough or County of City
Municipal Borough, Urban or Rural District, Burgh or District Council
Borough, Burgh or County Constituency
Shown only when not coincident with other boundaries
Civil Parish
Shown alternately when coincidence of boundaries occurs

BP, BS	Boundary Post or Stone	Pol Sta	Police Station
Ch	Church	PO	Post Office
CH	Club House	PC	Public Convenience
F E Sta	Fire Engine Station	PH	Public House
FB	Foot Bridge	SB	Signal Box
Fn	Fountain	Spr	Spring
GP	Guide Post	TCB	Telephone Call Box
MP	Mile Post	TCP	Telephone Call Post
MS	Mile Stone	W	Well

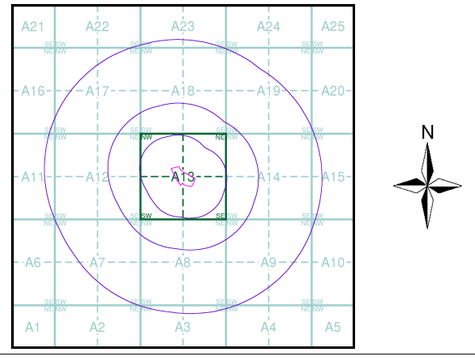
1:10,000 Raster Mapping

Gravel Pit
Refuse tip or slag heap
Rock
Rock (scattered)
Boulders
Boulders (scattered)
Shingle
Mud
Mud
Sand
Sand
Sand Pit
Slopes
Top of cliff
General detail
Underground detail
Overhead detail
Narrow gauge railway
Multi-track railway
Single track railway
County boundary (England only)
Civil, parish or community boundary
District, Unitary, Metropolitan, London Borough boundary
Constituency boundary
Area of wooded vegetation
Non-coniferous trees
Non-coniferous trees (scattered)
Coniferous trees
Coniferous trees (scattered)
Positioned tree
Orchard
Coppice or Osiers
Rough Grassland
Heath
Scrub
Marsh, Salt Marsh or Reeds
Water feature
Flow arrows
MHW(S) Mean high water (springs)
MLW(S) Mean low water (springs)
Telephone line (where shown)
Electricity transmission line (with poles)
BM 123.45 m Bench mark (where shown)
Triangulation station
Point feature (e.g. Guide Post or Mile Stone)
Pylon, flare stack or lighting tower
Site of (antiquity)
Glasshouse
General Building
Important Building

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Yorkshire	1:10,560	1854 - 1855	2
Yorkshire	1:10,560	1894	3
Yorkshire	1:10,560	1907	4
Yorkshire	1:10,560	1930	5
Yorkshire	1:10,560	1932 - 1933	6
Yorkshire	1:10,560	1938	7
Yorkshire	1:10,560	1938 - 1948	8
Yorkshire	1:10,560	1948	9
Ordnance Survey Plan	1:10,000	1955 - 1956	10
Ordnance Survey Plan	1:10,000	1965 - 1966	11
Ordnance Survey Plan	1:10,000	1973	12
Ordnance Survey Plan	1:10,000	1980 - 1984	13
Ordnance Survey Plan	1:10,000	1989	14
Ordnance Survey Plan	1:10,000	1991 - 1993	15
10K Raster Mapping	1:10,000	2000	16
Street View	Variable		17

Historical Map - Slice A



Order Details

Order Number: 347388847_1_1
Customer Ref: C10128
National Grid Reference: 431120, 410440
Slice: A
Site Area (Ha): 1.52
Search Buffer (m): 1000

Site Details

Land off Woolley Colliery Road (South), Darton, BARNSLEY

Landmark INFORMATION GROUP
Tel: 0844 844 9952
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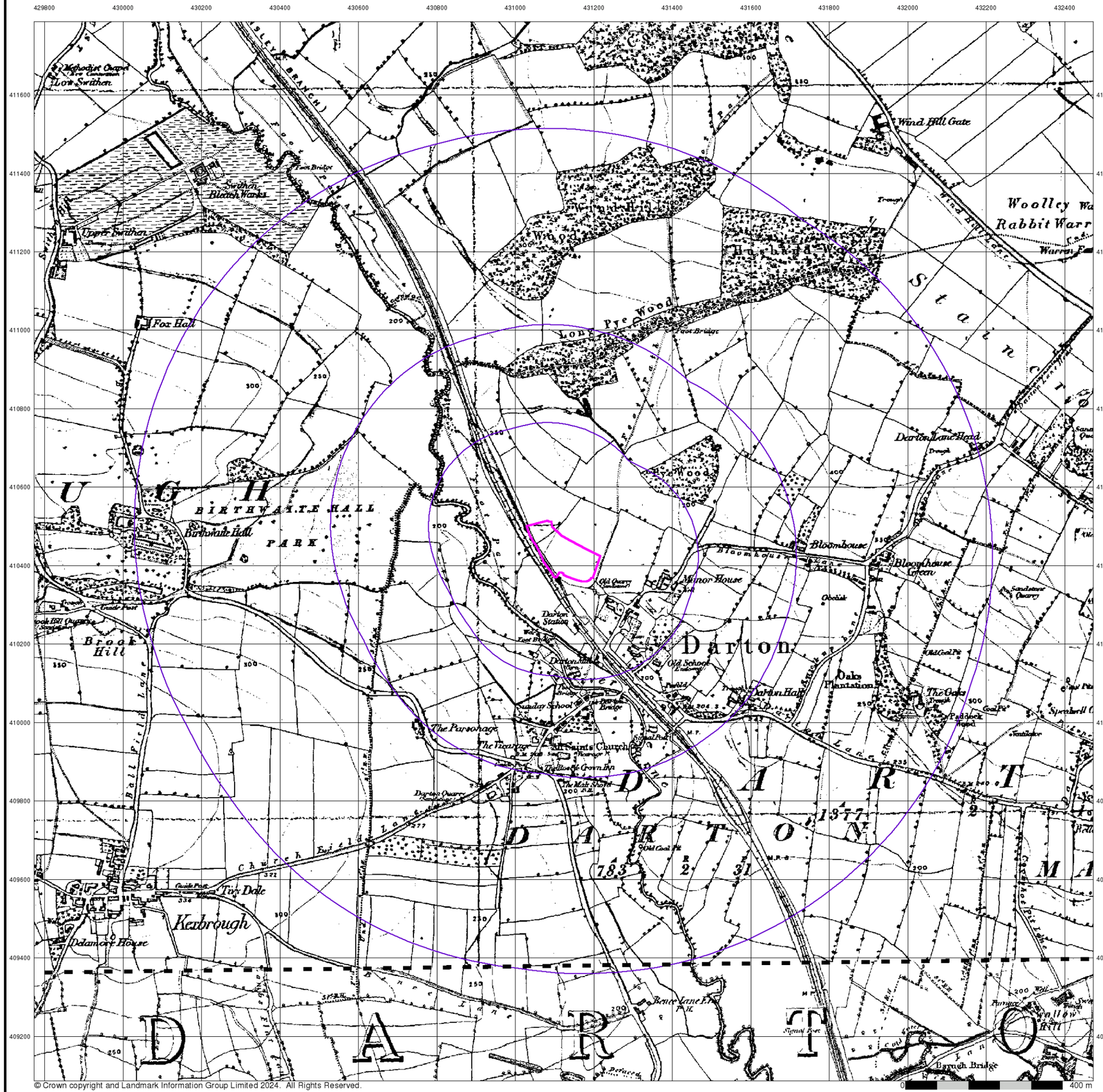
Web: www.envirocheck.co.uk



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Yorkshire

Published 1854 - 1855

Source map scale - 1:10,560

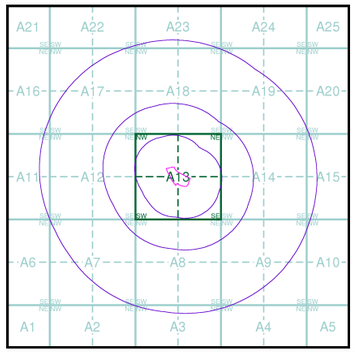
The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940`s, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

26200
1854
1:10,560

27400
1855
1:10,560

Historical Map - Slice A



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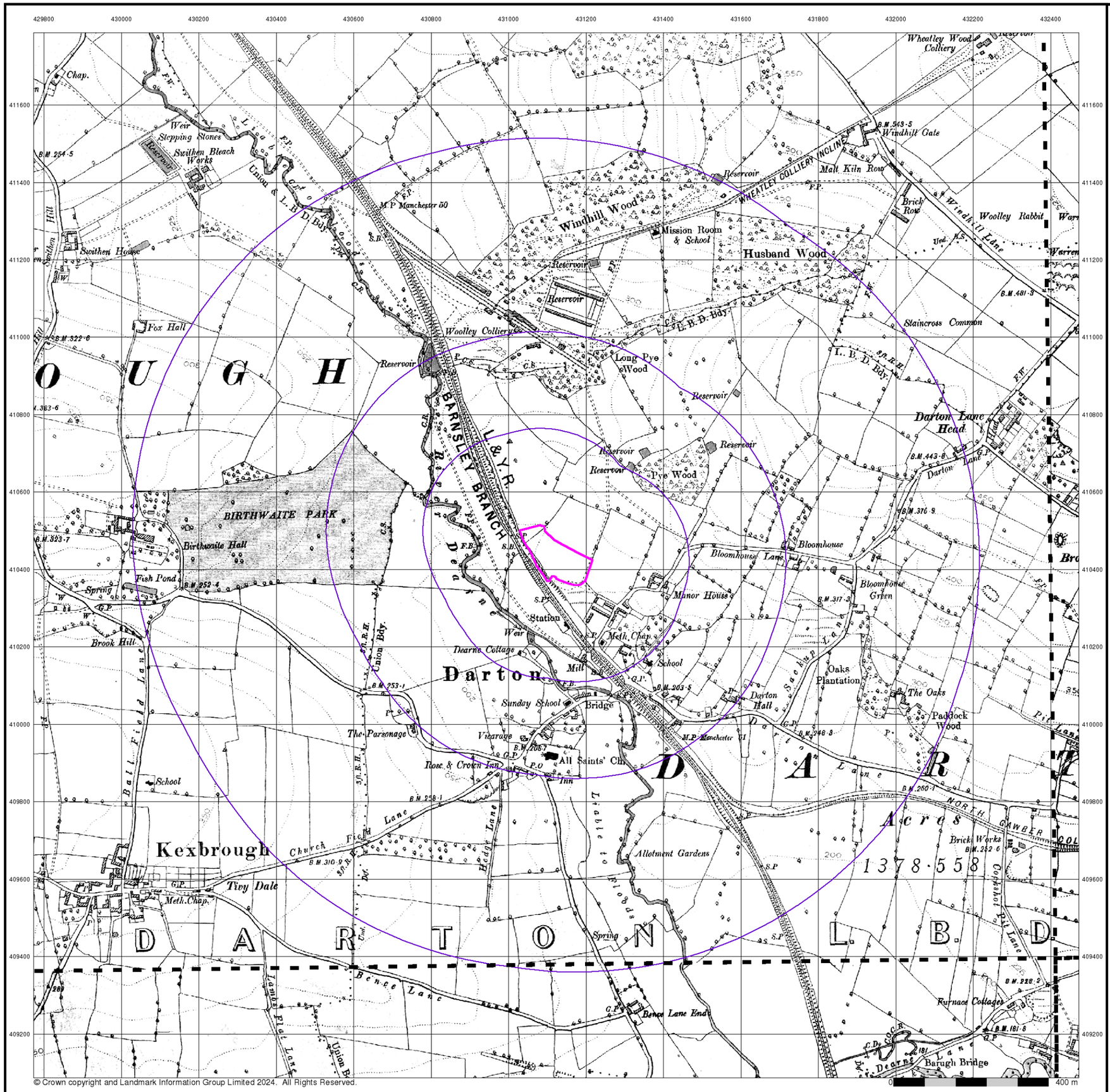

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Yorkshire

Published 1894

Source map scale - 1:10,560

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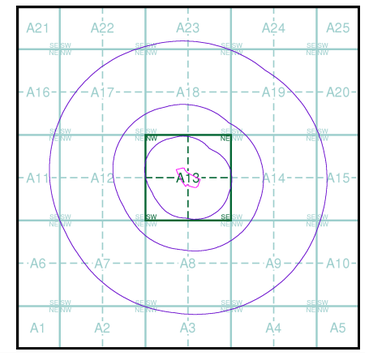
Map Name(s) and Date(s)

262SW 1894 1:10,560	262SE 1894 1:10,560
274NW 1894 1:10,560	274NE 1894 1:10,560

Historical Map - Slice A



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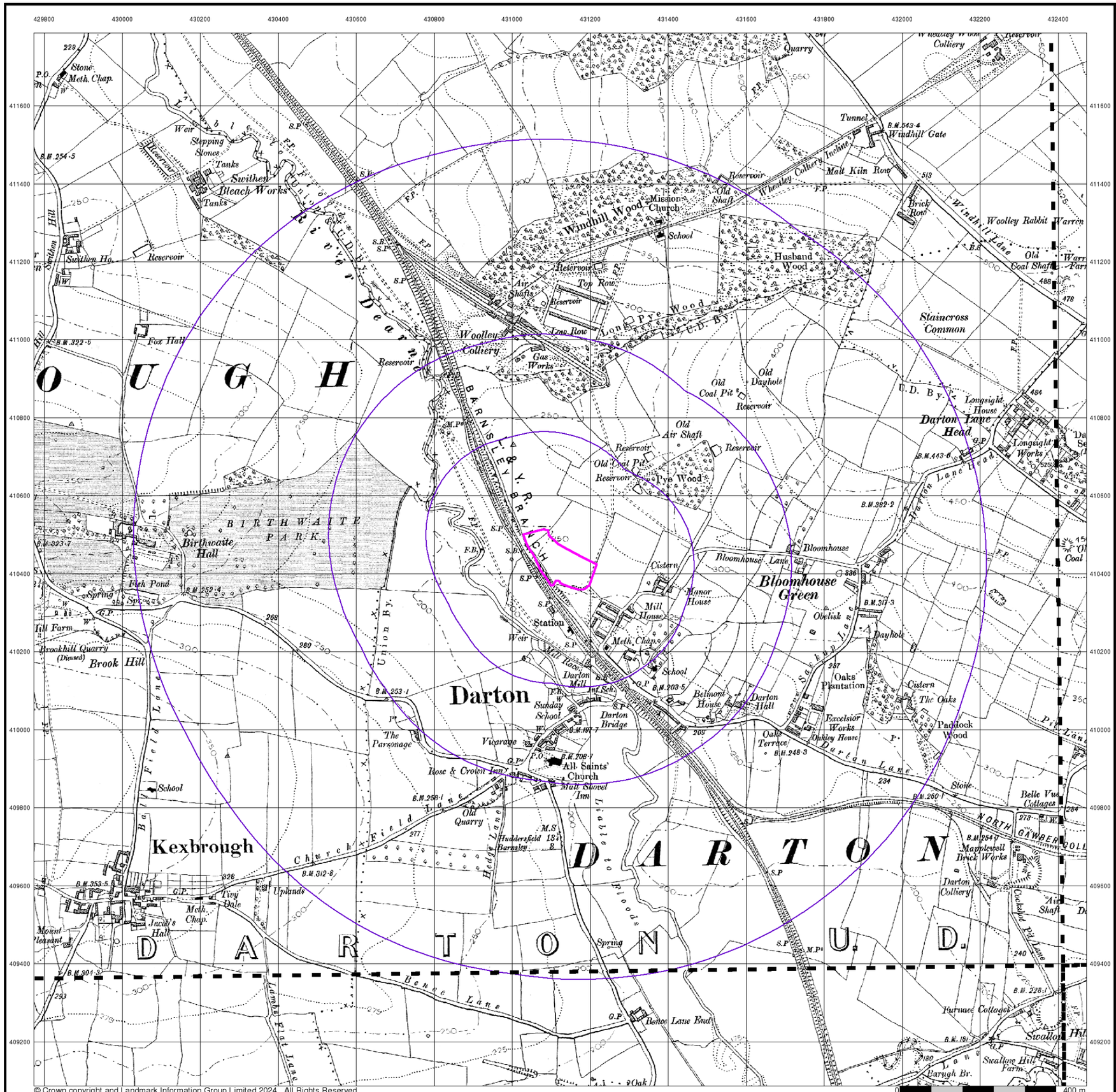
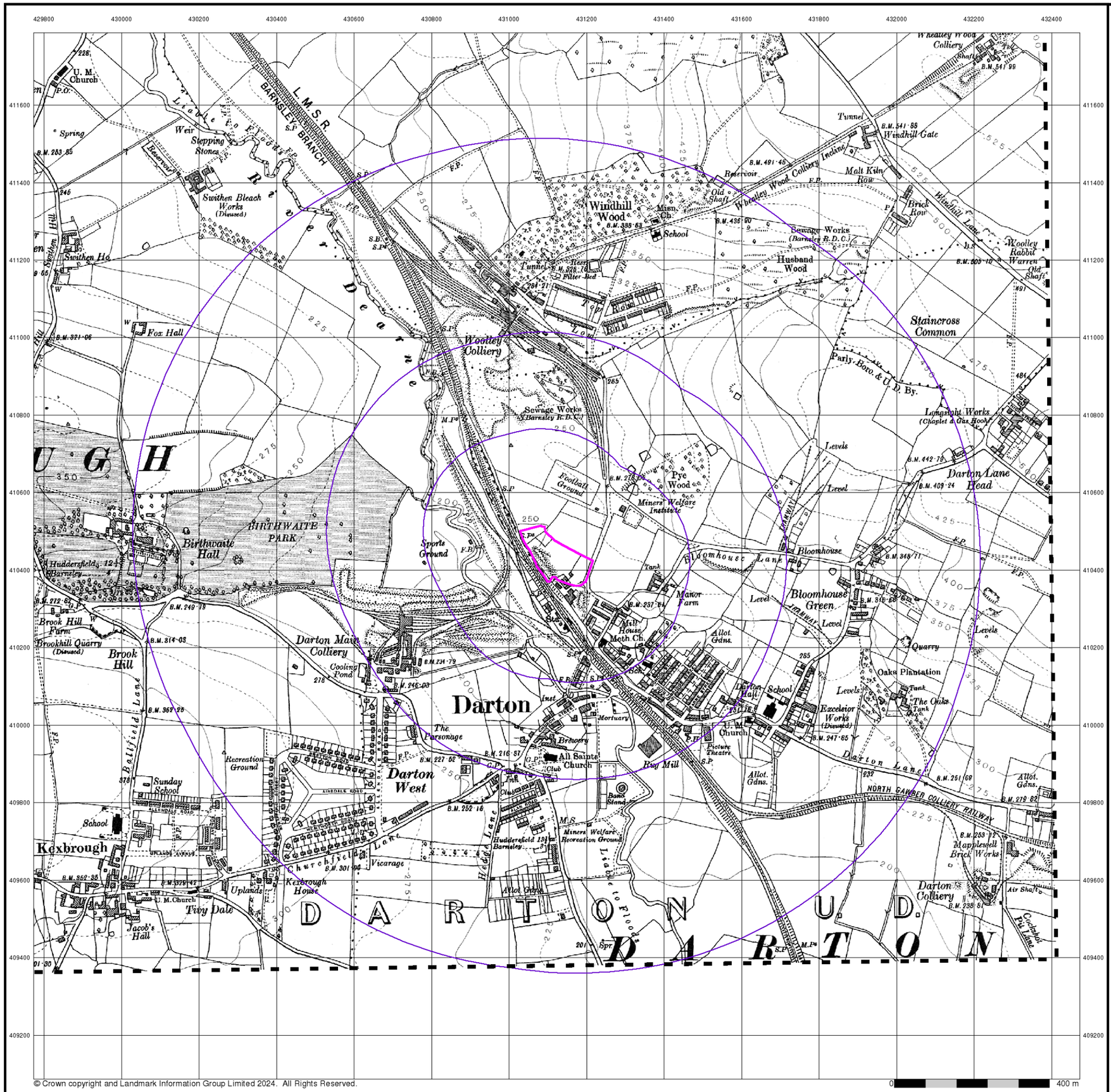

DARTON
Darton
Kexbrough
Birthwaite Hall
Birthwaite Park
Woolley Colliery
Bloomhouse Green
Staincross Common
Windhill Wood
Husband Wood
Pye Wood
Long Pye Wood
Oughton Beck
Barnsley Branch
Dearne Valley Railway
Station
Darton Bridge
All Saints' Church
Vicarage
The Parsonage
Darton Mill
Darton Hall
Bloomhouse
Bloomhouse Lane
Darton Lane Head
Windhill Gate
Windhill Lane
Woolley Rabbit Warren
Malt Kiln Road
Wheatley Colliery Incline
Mission Church
School
Reservoir
Quarry
Tunnel
Brick Road
Old Shaft
Old Coal Pit
Old Dayhole
Old Air Shaft
Air Shafts
Top Row
Low Row
Gas Works
Fox Hall
Swithen Ho.
Swithen Bleach Works
Tanks
Weir
Stepping Stones
Fish Pond
Spring
Brook Hill
Brookhill Quarry (Disused)
Till Farm
Mill House
Manor House
Meth. Chap.
Cistern
Obelisk
Dayhole
Oaks Plantation
The Oaks
Paddock Wood
Belmont House
Excelsior Works
Oakley House
Oaks Terrace
Belle Vue Cottages
Stone
Mapplewell Brick Works
Darton Colliery
Furnace Cottages
Swallow Hill Farm
Scatlane Hill Farm
Farrough Br.
Longsight House
Longsight Works
Old Coal
Rose & Crown Inn
Malt Shovel Inn
Old Quarry
Huddersfield 13¾ Barnsley 8
Twig Dale
Uplands
Jacob's Hall
Mount Pleasant
Benace Lane End
Lambert Flat Lane
Church Field Lane
Ball Field Lane
Union By.
Hedge Lane
Flood Spa
Cockhold Pit Lane
North Gawber Colliery
Darton Lane Head
Sandy Lane
Oak
Reservoir
Air Shaft
Old Coal Pit
Lodge
Tunnel
Spring
Station
Weir
Mill House
Meth. Chap.
Sunday School
Inf. Sch.
Oak
Pond
Reservoir
Tanks
Stone
Meth. Chap.
Fish Pond
Spring
Brook Hill
Till Farm
Brookhill Quarry (Disused)
Swithen Ho.
Fox Hall
Birthwaite Hall
Darton Hall
Darton Mill
Darton Bridge
Vicarage
The Parsonage
All Saints' Church
Malt Shovel Inn
Rose & Crown Inn
Old Quarry
Mount Pleasant
Jacob's Hall
Twig Dale
Uplands
Meth. Chap.



Yorkshire

Published 1930

Source map scale - 1:10,560

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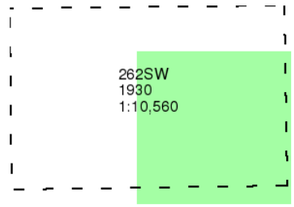
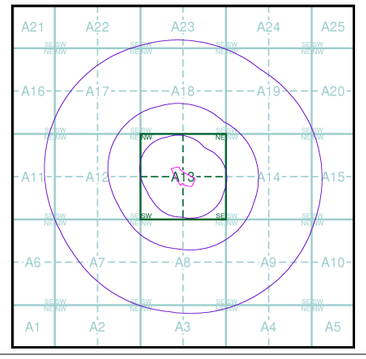


Historical Map - Slice A



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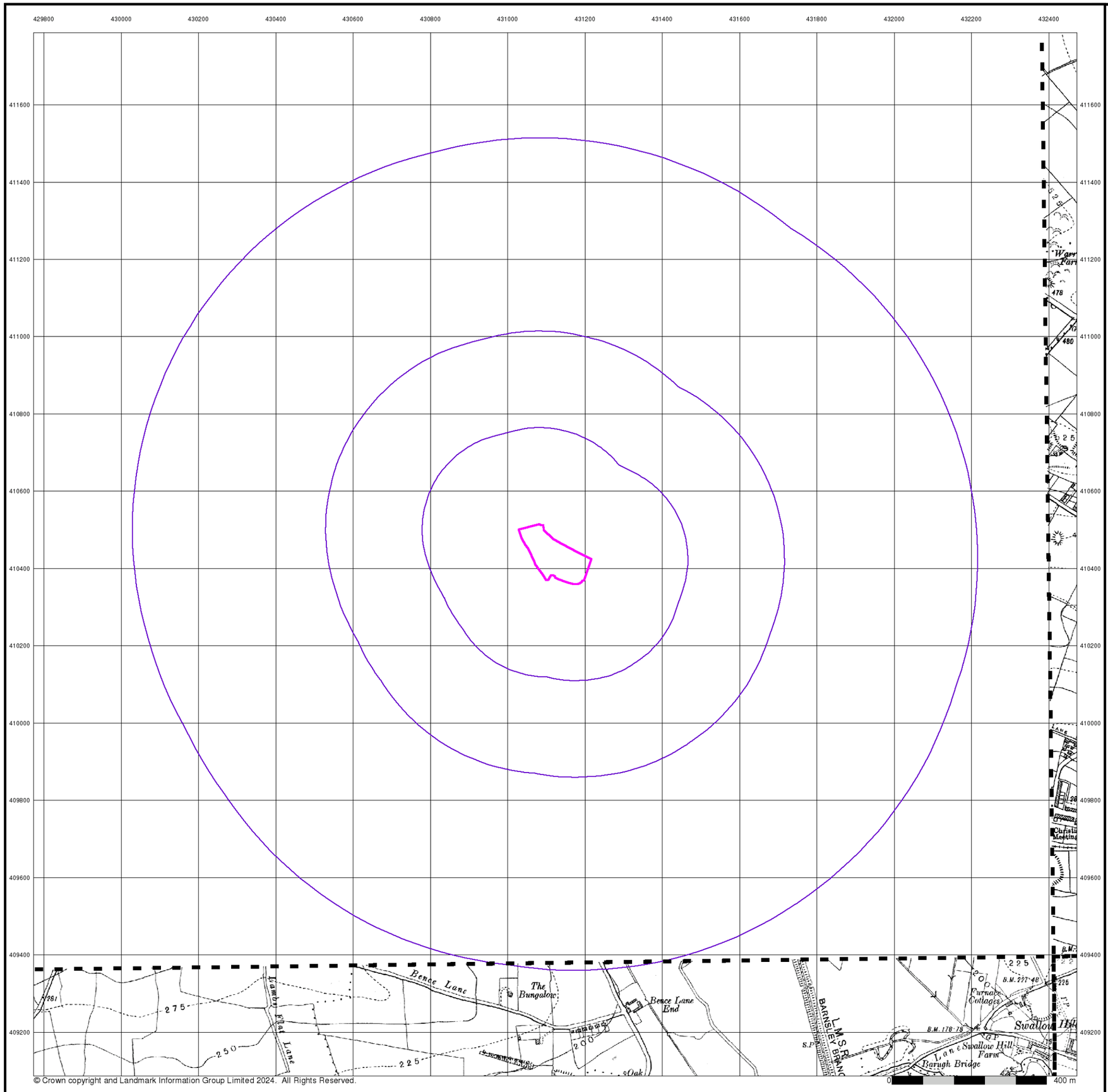

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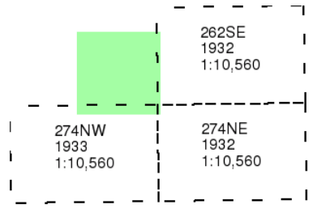
Yorkshire

Published 1932 - 1933

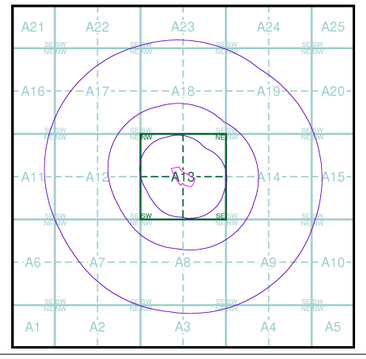
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940`s, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



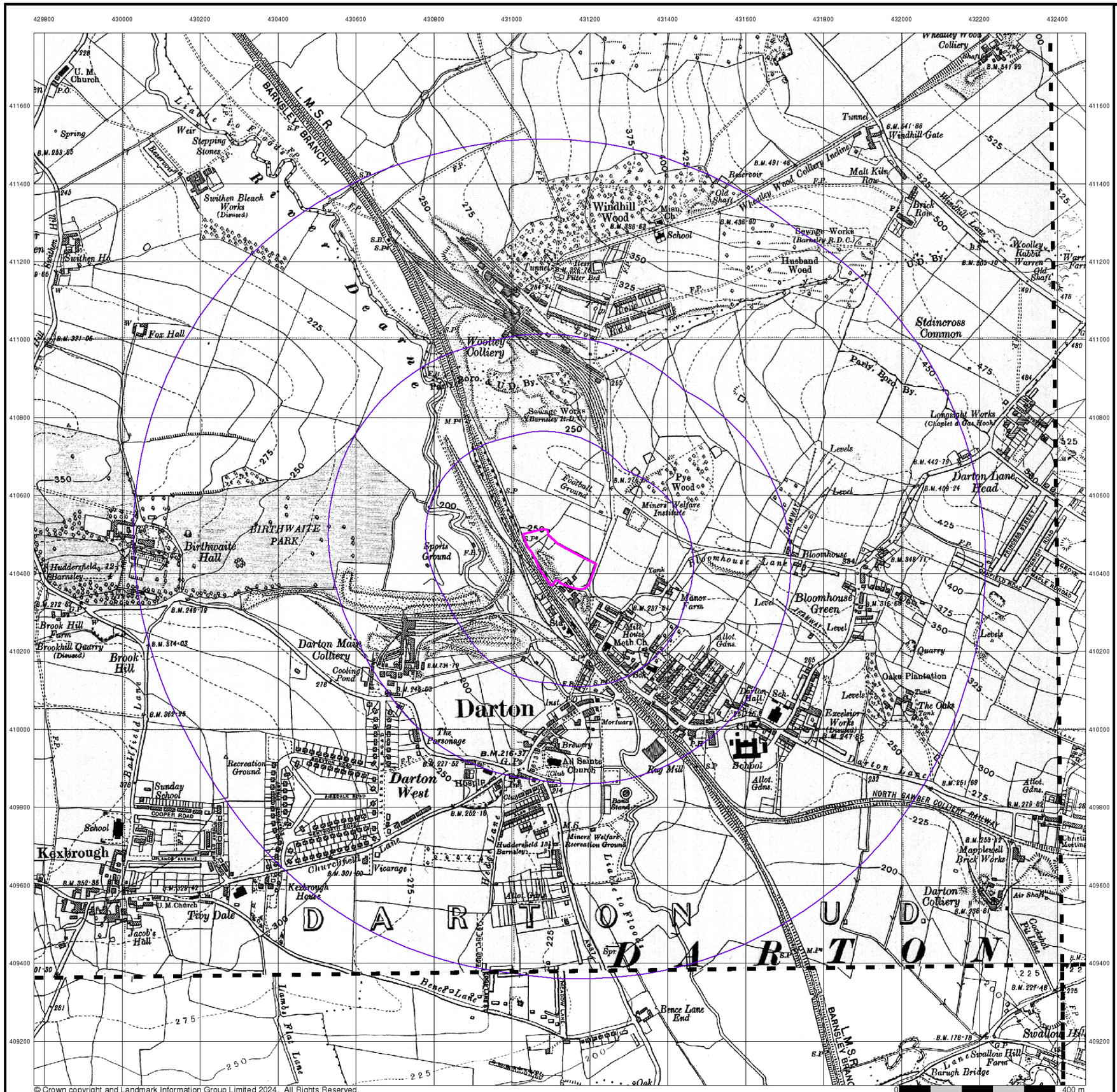
Order Details

Order Number:	347388847_1_1
Customer Ref:	C10128
National Grid Reference:	431120, 410440
Slice:	A
Site Area (Ha):	1.52
Search Buffer (m):	1000

Site Details

Land off Woolley Colliery Road (South), Darton, BARNSLEY

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk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410800
410600
410400
410200
410000
409800
409600
409400
409200
L.M.S.R. BARNSLEY BRANCH
Liable to Floods
River Dearne
Windhill Wood
Windhill Gate
Windhill Lane
Wheatley Wood Colliery
Wheatley Wood Colliery Incline
Malt Kiln Row
Brick Row
Husband Wood
Staincross Common
Woolley Rabbit Warren
Woolley Colliery
Sewage Works (Barnsley R.D.C.)
Sewage Works (Barnsley R.D.C.)
Swithen Bleach Works (Disused)
Swithen Ho.
Fox Hall
Longsight Works (Chapel & Gas Hook)
Darton Lane Head
Pye Wood
Miners' Welfare Institute
Football Ground
Levels
Level
Bloomhouse Green
Bloomhouse Lane
Manor Farm
Milk House Meth Ch.
Darton Main Colliery
Cooling Pond
Darton
Darton West
Darton Hall
Oaks Plantation
The Oaks
Excelsior Works (Disused)
Quarry
Allot. Gdns.
Recreation Ground
Sunday School
Kexbrough
Kexbrough House
Vicarage
Church Field
Huddersfield Rd Barnsley
Miners' Welfare Recreation Ground
Mapplewell Brick Works
Darton Colliery
Air Shaft
Birthwaite Hall
BIRTHWAITE PARK
Sports Ground
Brook Hill
Brook Hill Farm
Brookhill Quarry (Disused)
Jacob's Hall
Tivy Dale
Bence Lane End
Lane to Swallow Hill Farm
Barugh Bridge
Swallow Hill
DARTON U.D.
Barnsley
Huddersfield
Tunnel
Reservoir
Old Shaft
Mortuary
Brewery
All Saints Church (Club)
Rag Mill
Bowling Green
Tennis Courts
Filter Bed
Boat Stand
Spring
Weir
Stepping Stones
Reservoir
Barnsley Rd
Cooper Road
Airedale Road
Upland Avenue
Meadow Lane
Bence Lane
Blanks Flat Lane
Baitfield Lane
Northern Hill
Mill
Gill
Beck
Dyke
Oak
Ash
Spr.
Tank
Sch.
Inst.
Ch.
Meth Ch.
U. M. Church
P.O.
Parish Boro. & U.D. By.
Penny Bord. By.
U.D. By.
NORTH GAWBER COLLIERY RAILWAY
M.S.
M.P.
S.P.
F.P.
F.B.
B.M. 241·99
B.M. 258·65
B.M. 331·06
B.M. 491·46
B.M. 436·90
B.M. 366·62
B.M. 441·88
B.M. 442·79
B.M. 406·24
B.M. 316·68
B.M. 287·84
B.M. 247·86
B.M. 261·68
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B.M. 227·52
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B.M. 314·03
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B.M. 272·65
B.M. 276·08
B.M. 294·34
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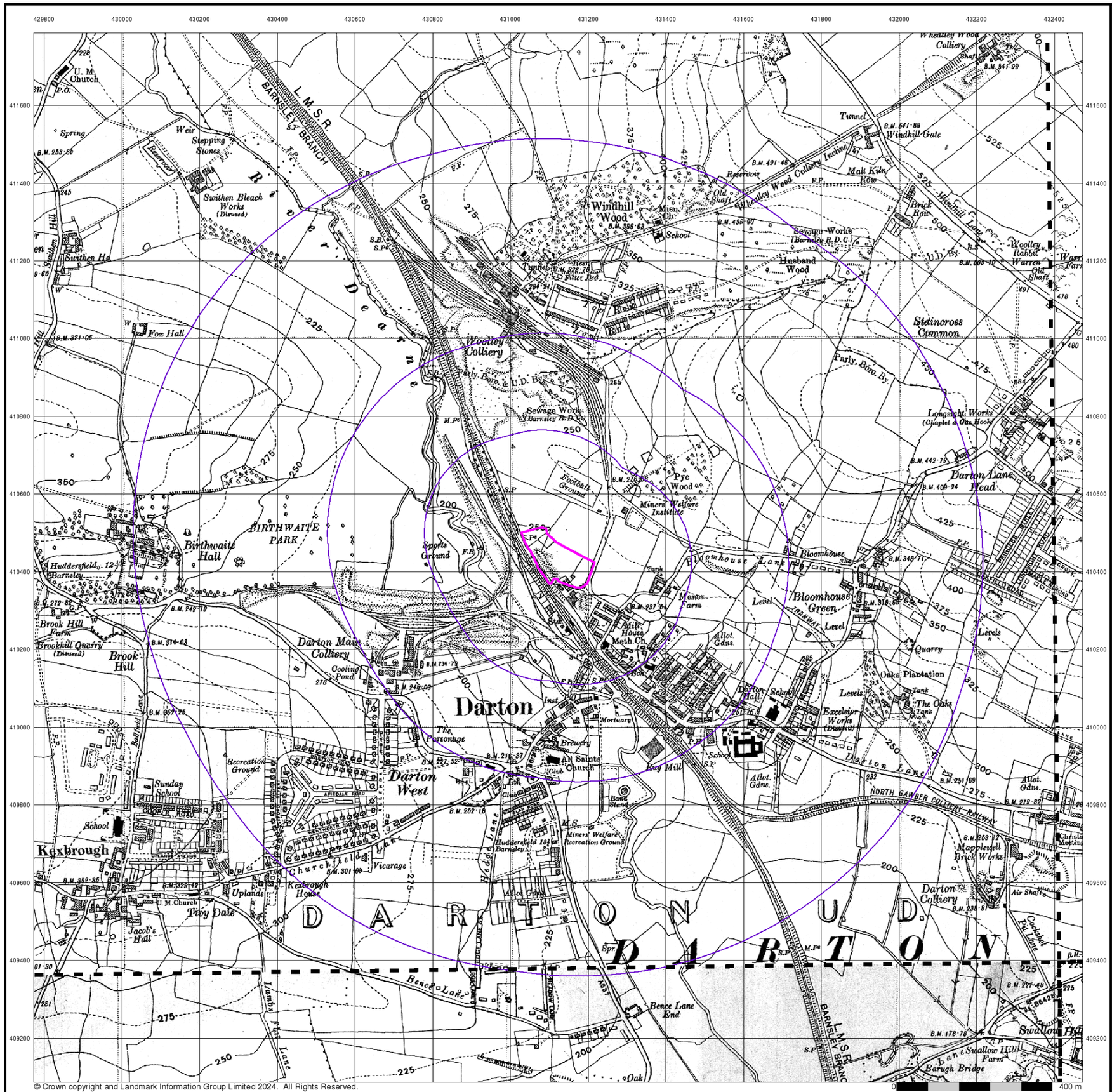

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Yorkshire

Published 1938 - 1948

Source map scale - 1:10,560

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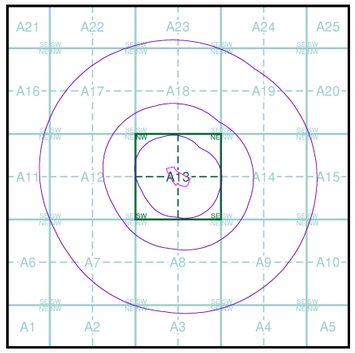
Map Name(s) and Date(s)

262SW 1948 1:10,560	262SE 1938 1:10,560
274NW 1938 1:10,560	274NE 1948 1:10,560

Historical Map - Slice A



Order Details

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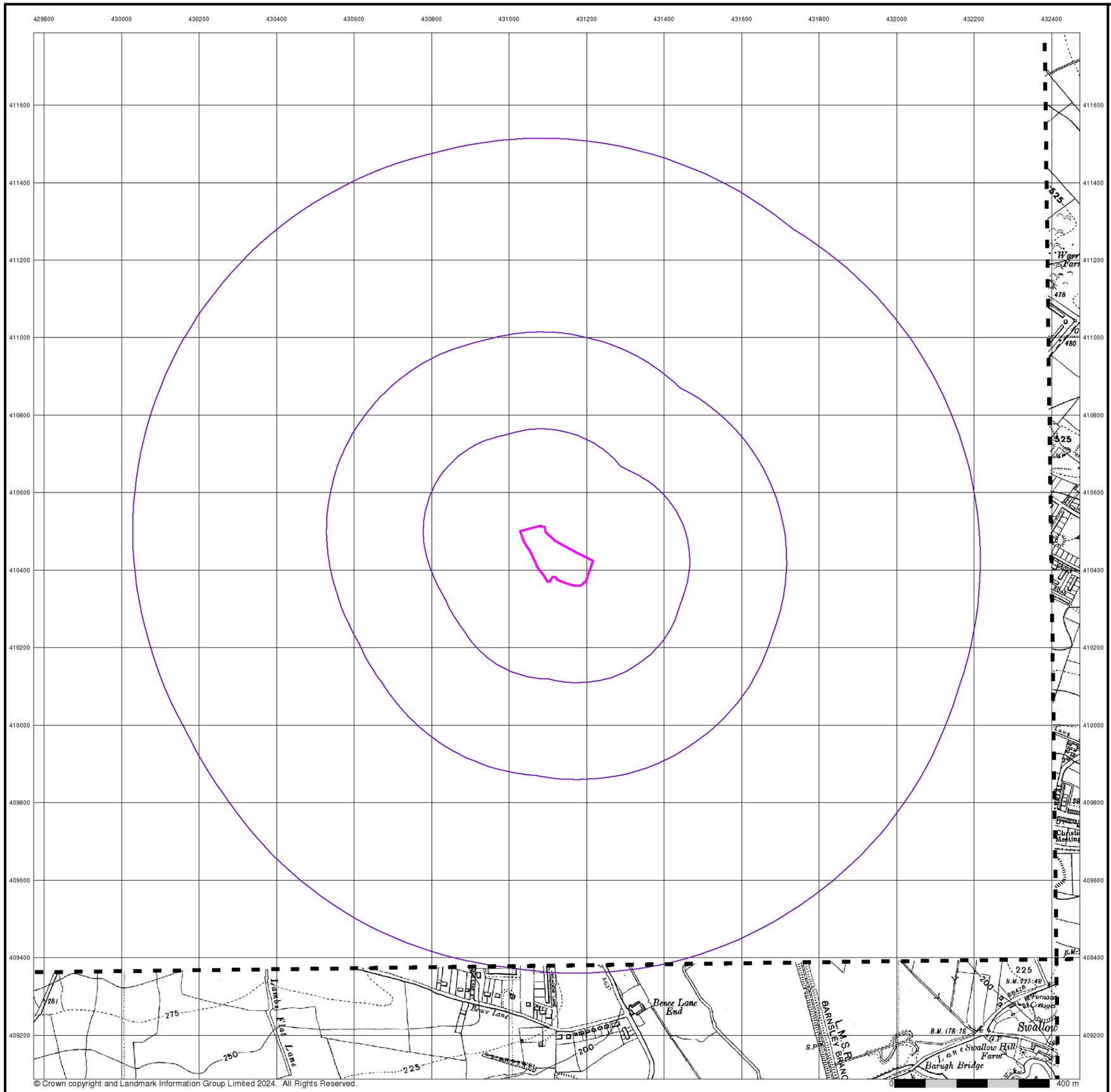

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Yorkshire

Published 1948

Source map scale - 1:10,560

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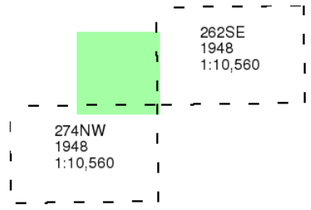
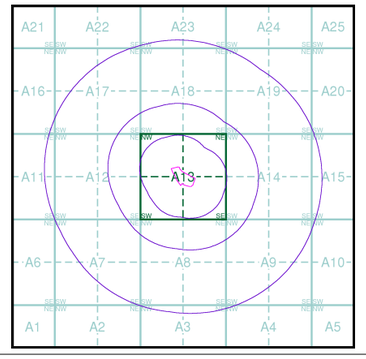


Historical Map - Slice A



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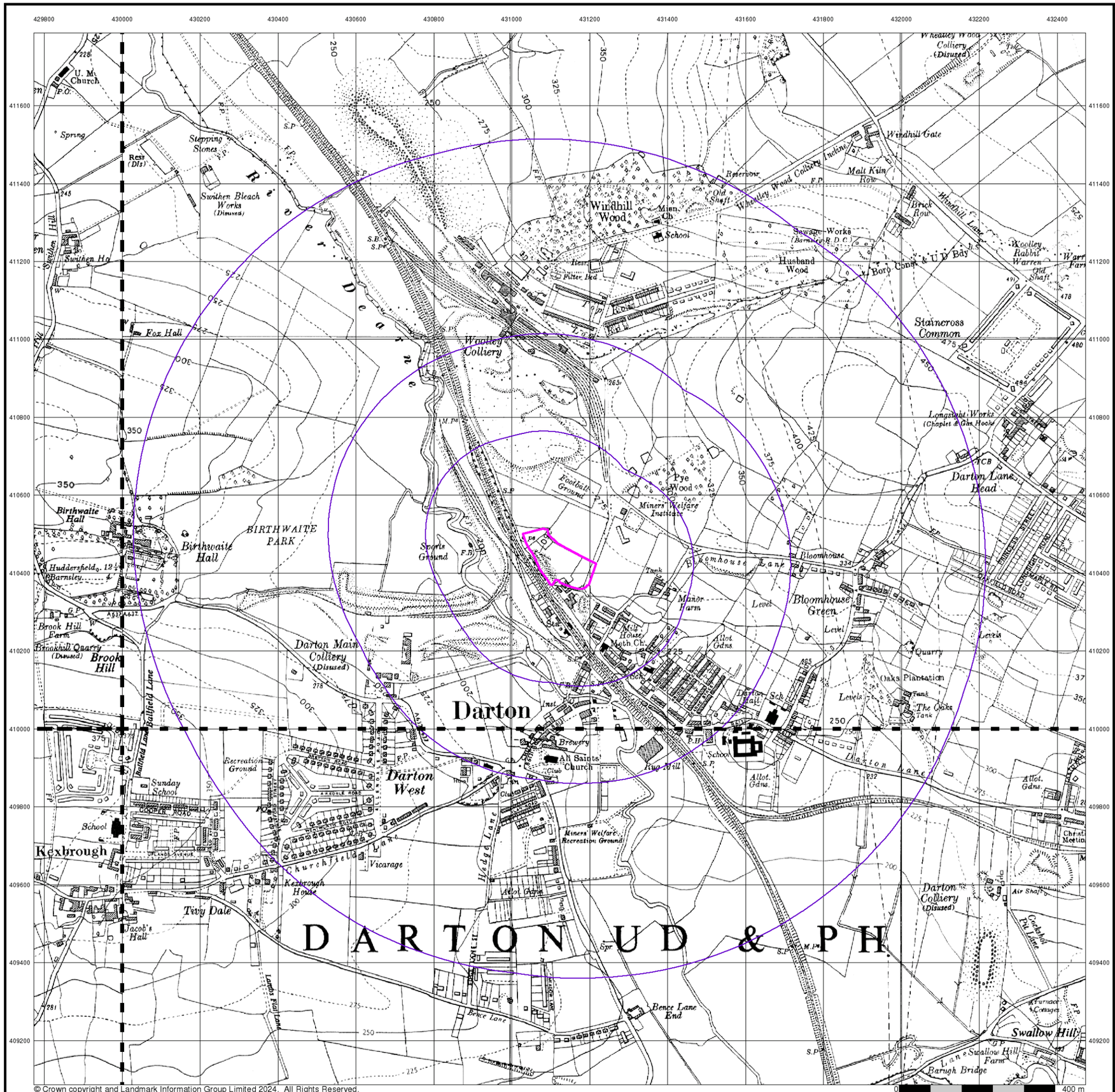

Ordnance Survey Plan

Published 1955 - 1956

Source map scale - 1:10,000

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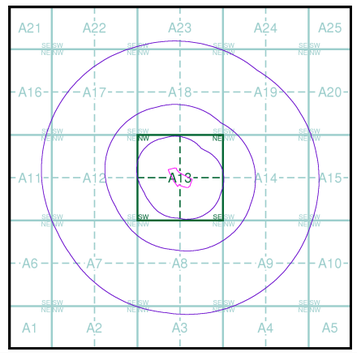
Map Name(s) and Date(s)

SE21SE 1955 1:10,560	SE31SW 1956 1:10,560
SE20NE 1955 1:10,560	SE30NW 1956 1:10,560

Historical Map - Slice A



Order Details

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National Grid Reference:	431120, 410440
Slice:	A
Site Area (Ha):	1.52
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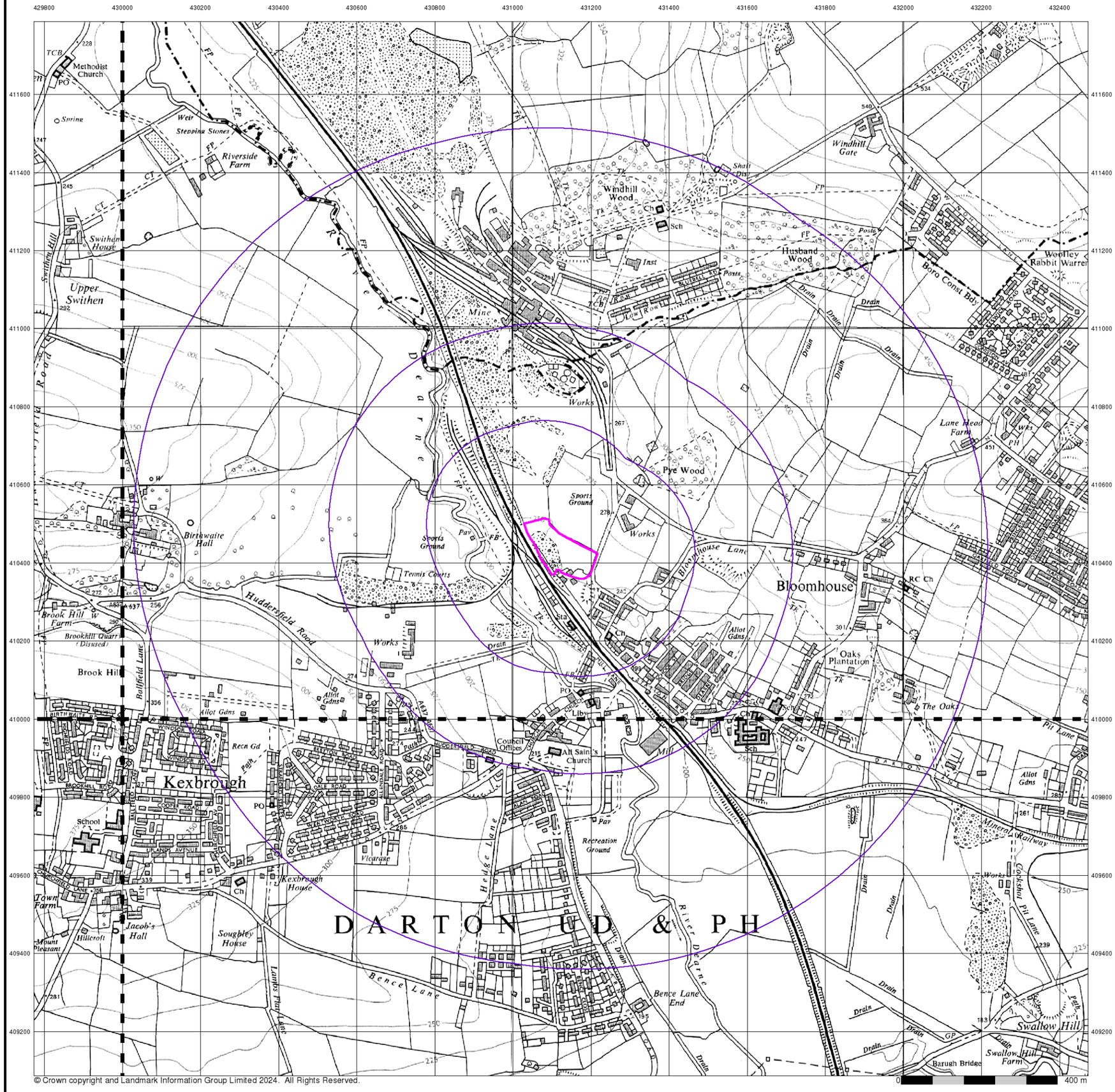

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Ordnance Survey Plan

Published 1965 - 1966

Source map scale - 1:10,000

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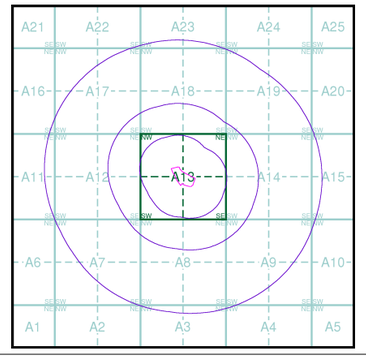
Map Name(s) and Date(s)

SE21SE 1966 1:10,560	SE31SW 1965 1:10,560
SE20NE 1965 1:10,560	SE30NW 1966 1:10,560

Historical Map - Slice A



Order Details

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Search Buffer (m):	1000

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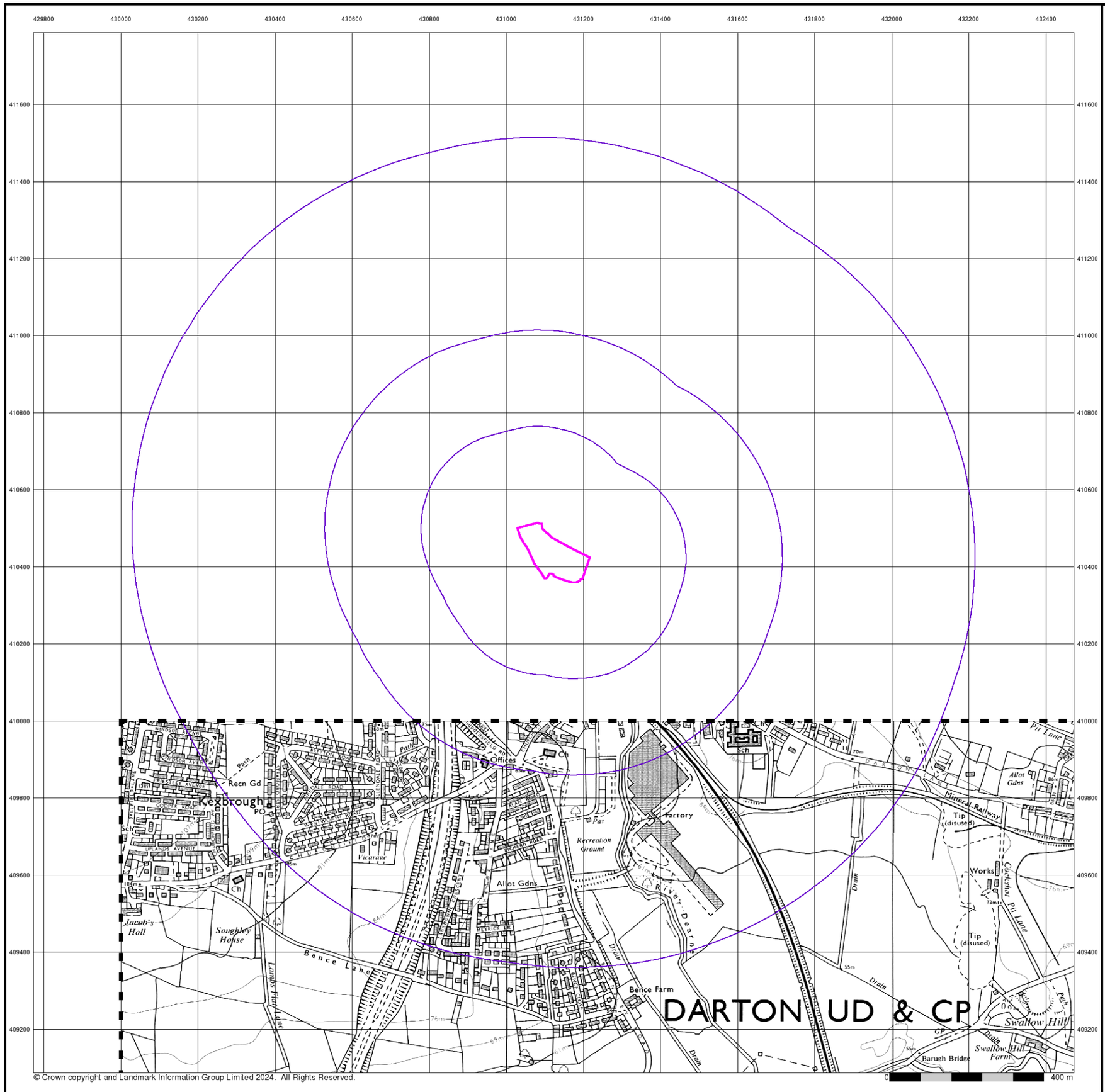

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Ordnance Survey Plan

Published 1973

Source map scale - 1:10,000

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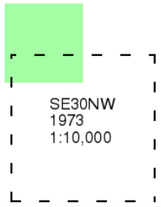
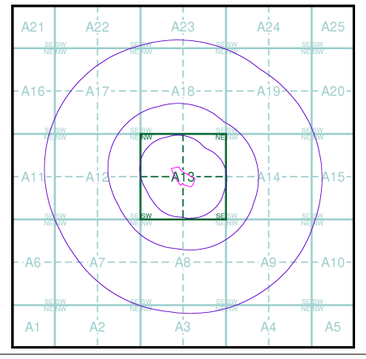
Map Name(s) and Date(s)



Historical Map - Slice A



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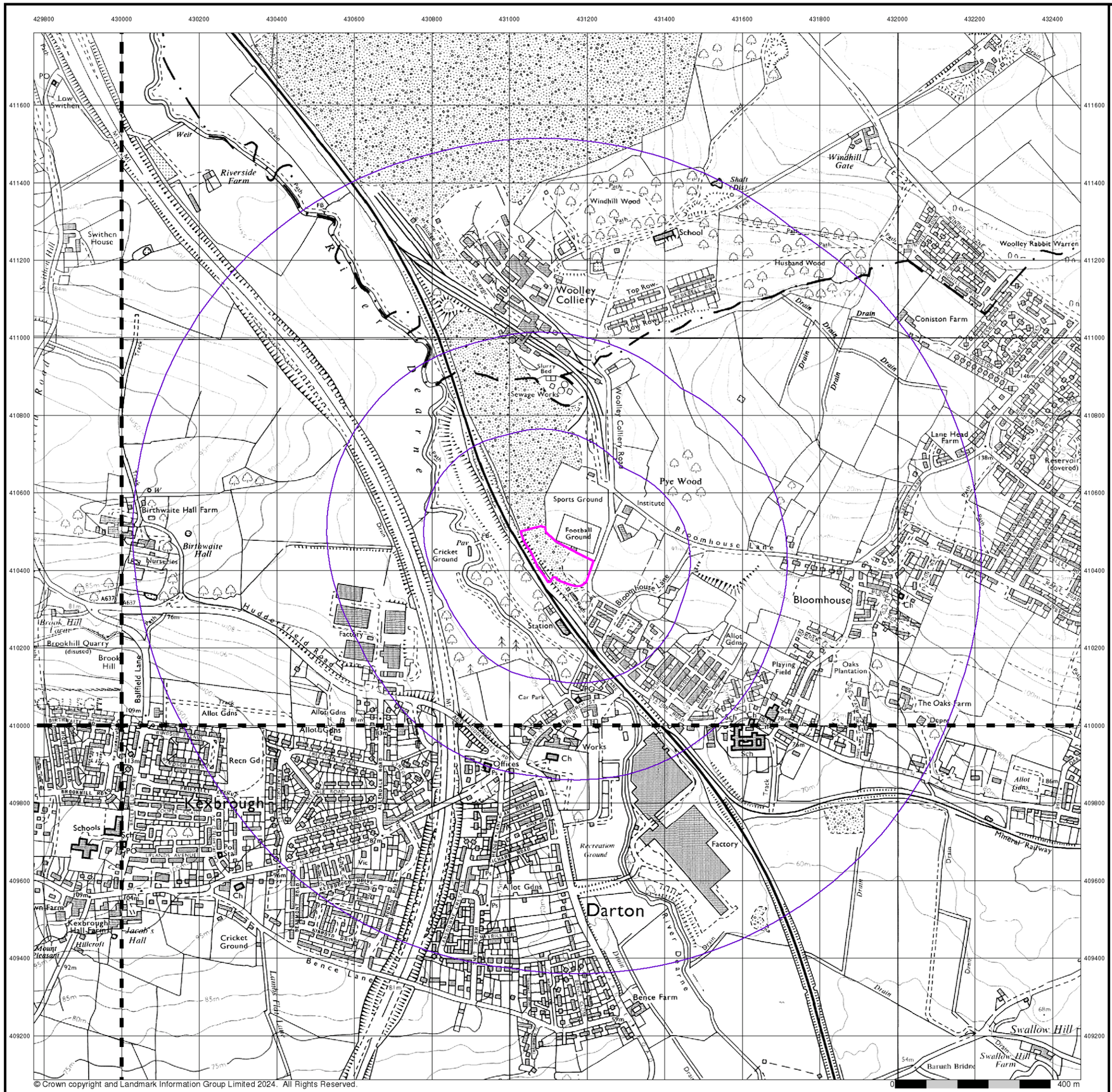

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Ordnance Survey Plan

Published 1980 - 1984

Source map scale - 1:10,000

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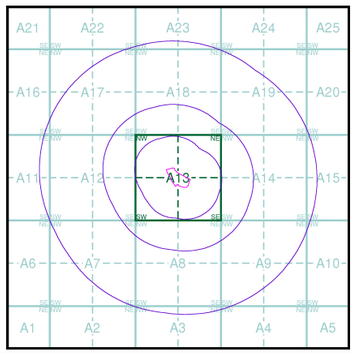
Map Name(s) and Date(s)

SE21SE 1983 1:10,000	SE31SW 1980 1:10,000
SE20NE 1984 1:10,000	SE30NW 1983 1:10,000

Historical Map - Slice A



Order Details

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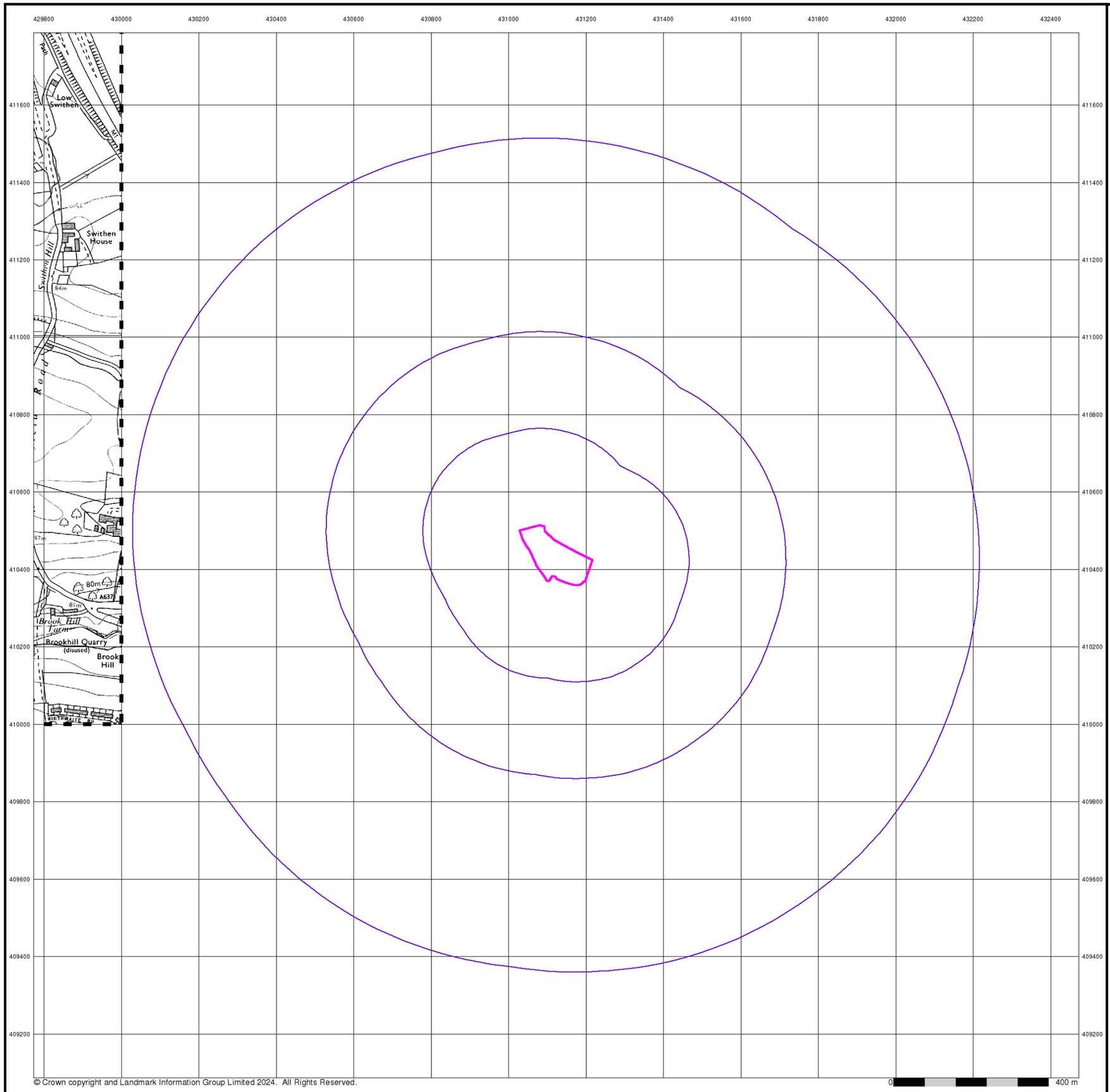

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Ordnance Survey Plan

Published 1989

Source map scale - 1:10,000

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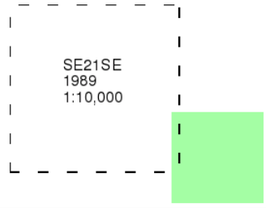
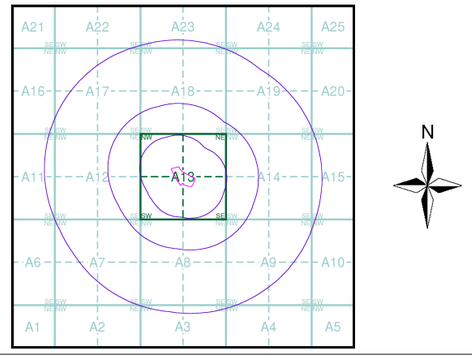
Map Name(s) and Date(s)



Historical Map - Slice A



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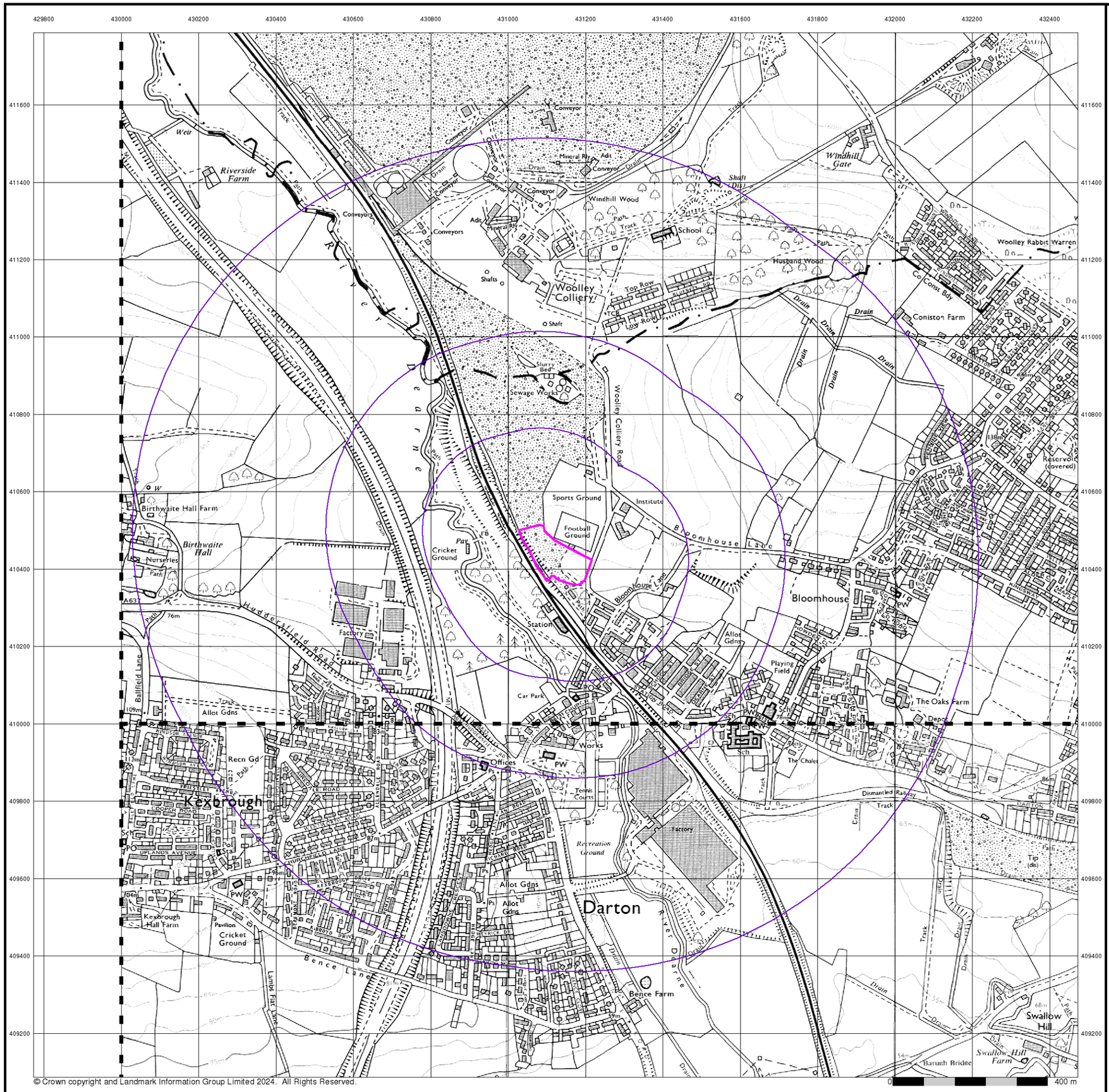

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Ordnance Survey Plan

Published 1991 - 1993

Source map scale - 1:10,000

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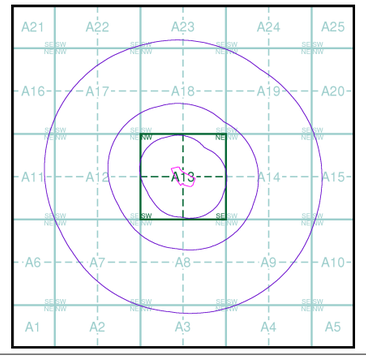
Map Name(s) and Date(s)

SE31SW
1991
1:10,000

SE30NW
1993
1:10,000

Historical Map - Slice A



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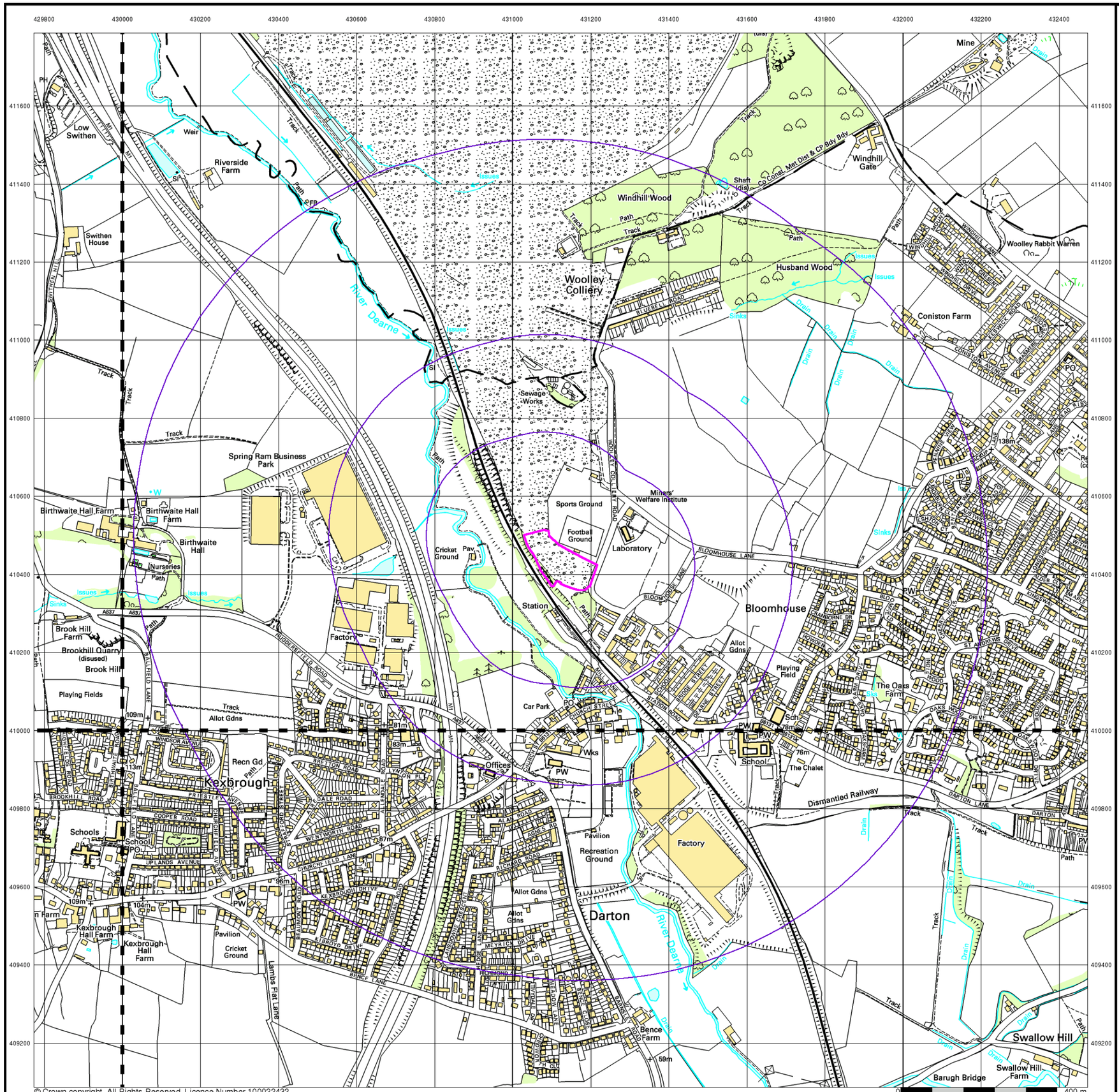

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10k Raster Mapping

Published 2000

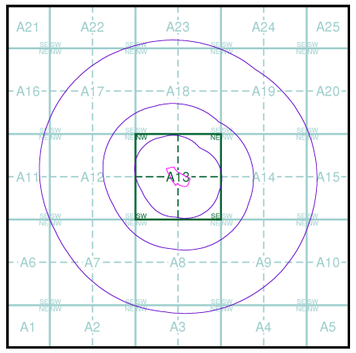
Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey`s 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

Map Name(s) and Date(s)

SE21SE 2000 1:10,000	SE31SW 2000 1:10,000
SE20NE 2000 1:10,000	SE30NW 2000 1:10,000

Historical Map - Slice A



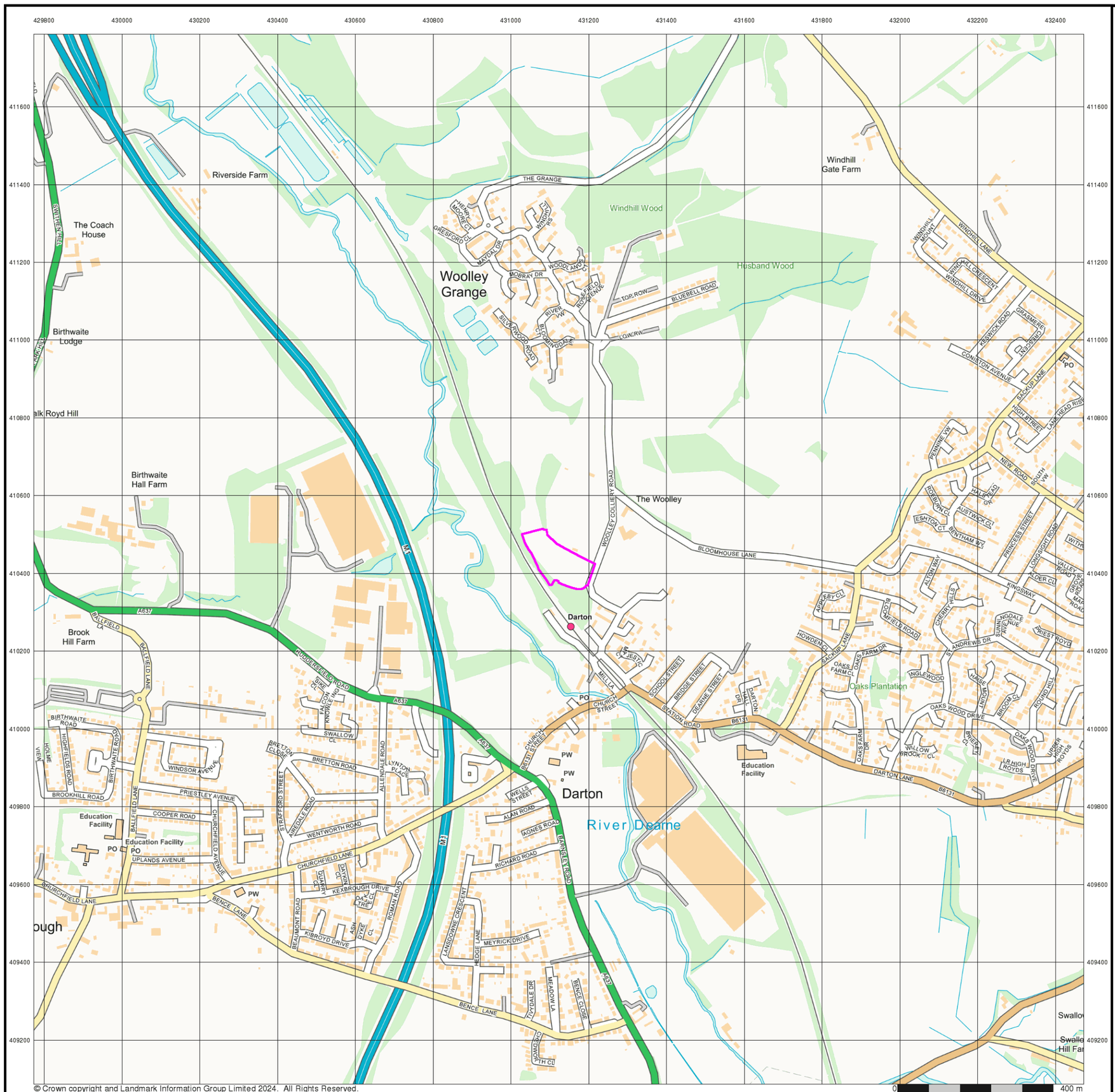
Order Details

Order Number:	347388847_1_1
Customer Ref:	C10128
National Grid Reference:	431120, 410440
Slice:	A
Site Area (Ha):	1.52
Search Buffer (m):	1000

Site Details

Land off Woolley Colliery Road (South), Darton, BARNSLEY

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



sirius

Street View

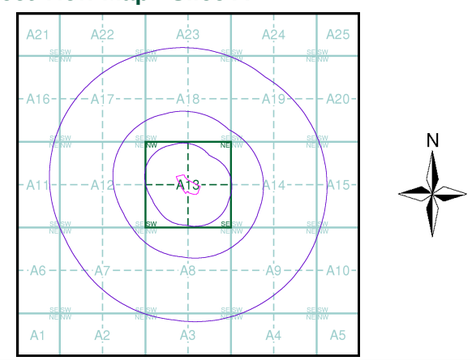
Published 2024

Source map scale - 1:10,000

Street View is a street-level map for the whole of Great Britain produced by the Ordnance Survey. These maps are provided at a nominal scale of 1:10,000

Map Name(s) and Date(s)

Street View Map - Slice A



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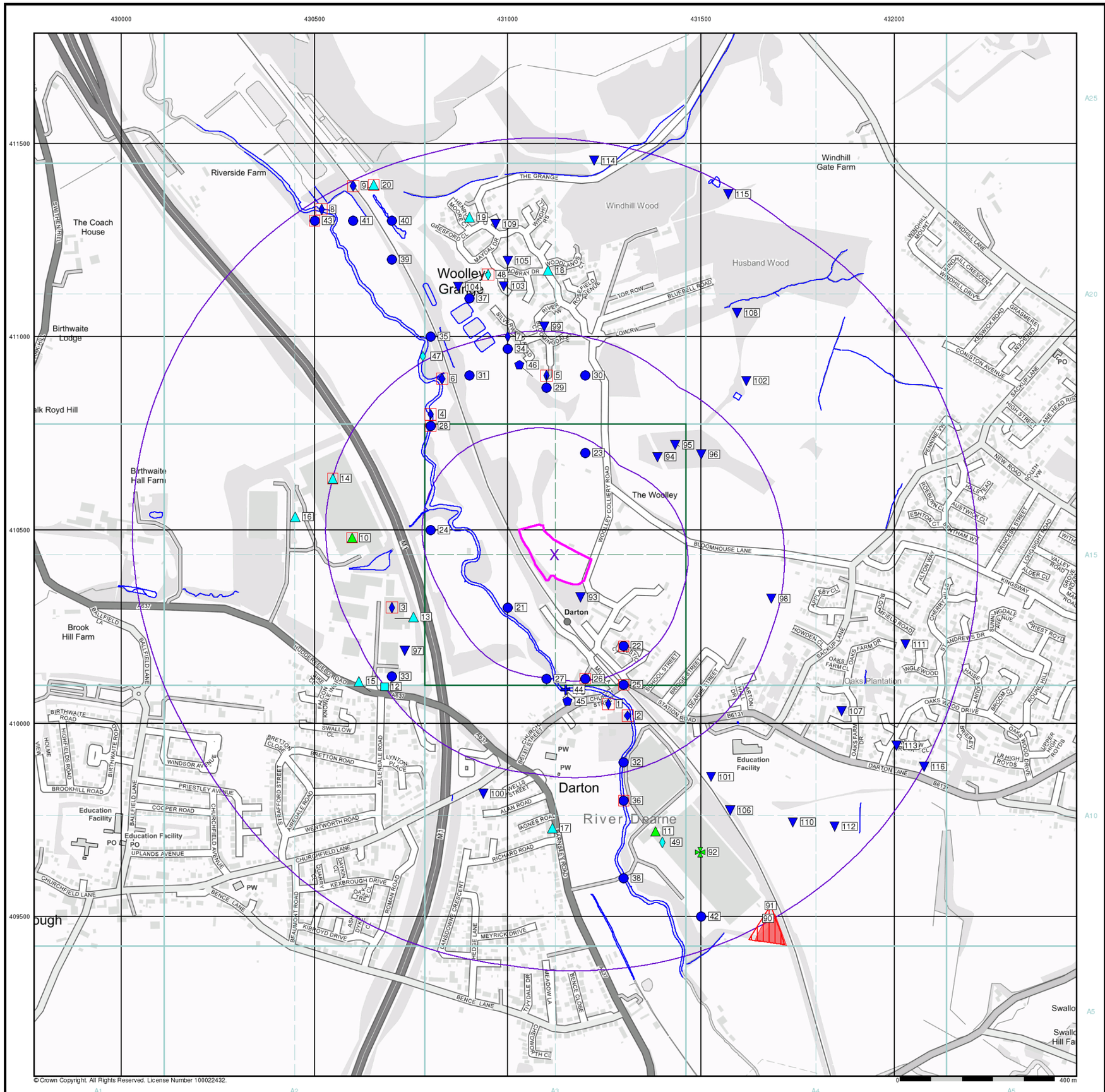

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General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location

Agency and Hydrological

- Contaminated Land Register Entry or Notice (Location)
- Contaminated Land Register Entry or Notice
- Discharge Consent
- Enforcement or Prohibition Notice
- Integrated Pollution Control
- Integrated Pollution Prevention Control
- Local Authority Integrated Pollution Prevention and Control
- Local Authority Pollution Prevention and Control
- Local Authority Pollution Prevention and Control Enforcement
- Pollution Incident to Controlled Waters
- Prosecution Relating to Authorised Processes
- Prosecution Relating to Controlled Waters
- Registered Radioactive Substance
- River Network or Water Feature
- River Quality Sampling Point
- Substantiated Pollution Incident Register
- Water Abstraction
- Water Industry Act Referral

Geological

- BGS Recorded Mineral Site

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry

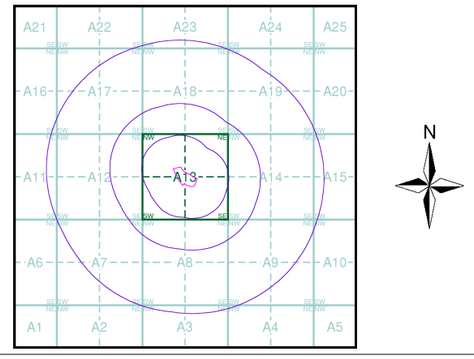
Waste

- BGS Recorded Landfill Site (Location)
- BGS Recorded Landfill Site
- EA Historic Landfill (Buffered Point)
- EA Historic Landfill (Polygon)
- Integrated Pollution Control Registered Waste Site
- Licensed Waste Management Facility (Landfill Boundary)
- Licensed Waste Management Facility (Location)
- Local Authority Recorded Landfill Site (Location)
- Local Authority Recorded Landfill Site
- Registered Landfill Site
- Registered Landfill Site (Location)
- Registered Landfill Site (Point Buffered to 100m)
- Registered Landfill Site (Point Buffered to 250m)
- Registered Waste Transfer Site (Location)
- Registered Waste Transfer Site
- Registered Waste Treatment or Disposal Site (Location)
- Registered Waste Treatment or Disposal Site

Hazardous Substances

- COMAH Site
- Explosive Site
- NIHHS Site
- Planning Hazardous Substance Consent
- Planning Hazardous Substance Enforcement

Site Sensitivity Map - Slice A



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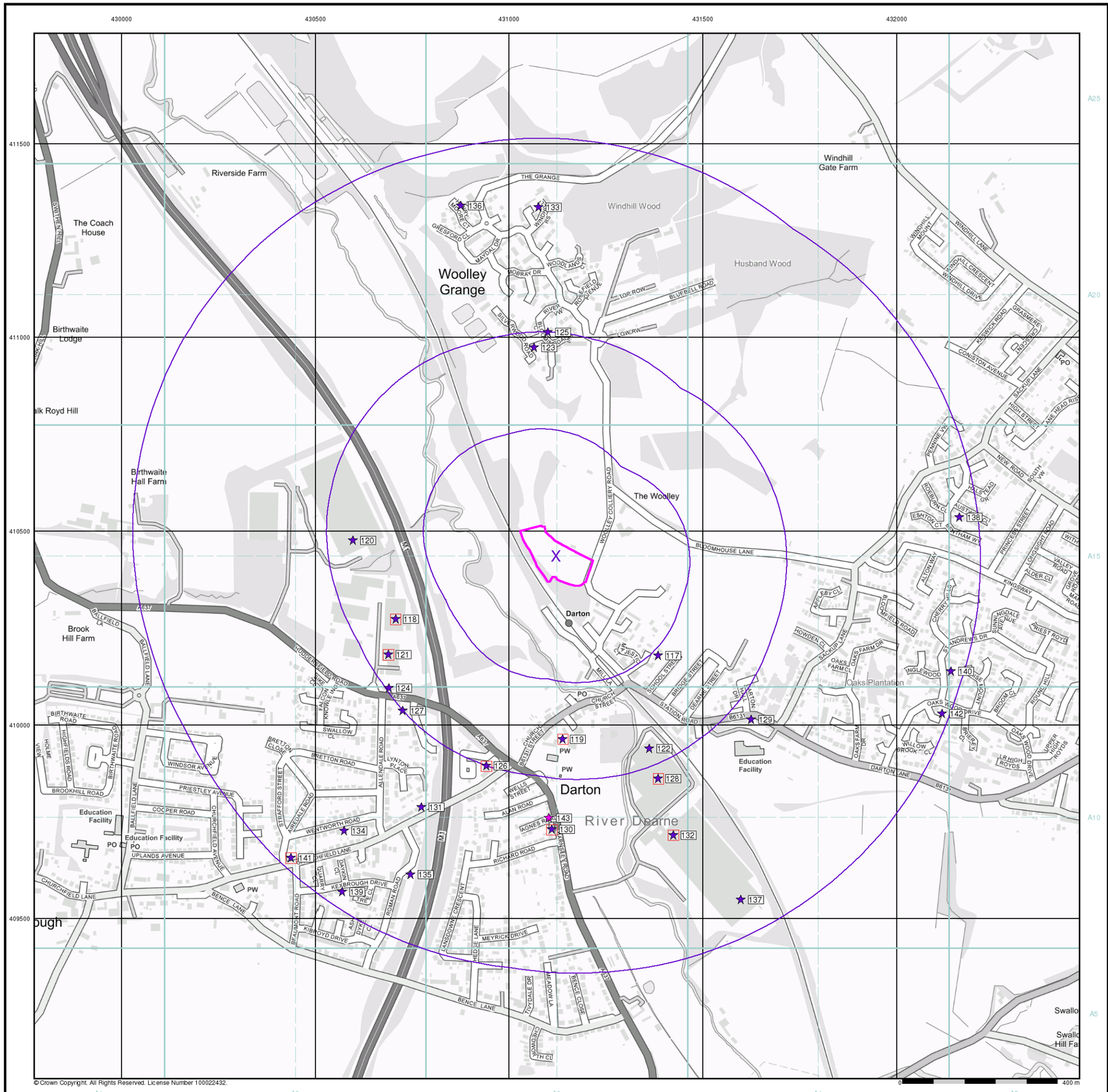


Industrial Land Use Map

General

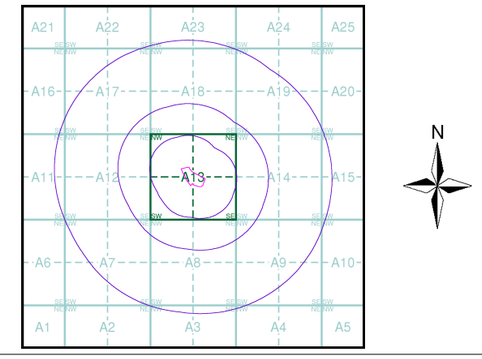
Specified Site | Specified Buffer(s) | Bearing Reference Point

Slice | Map ID

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry
- Gas Pipeline
- Underground Electrical Cables

Industrial Land Use Map - Slice A



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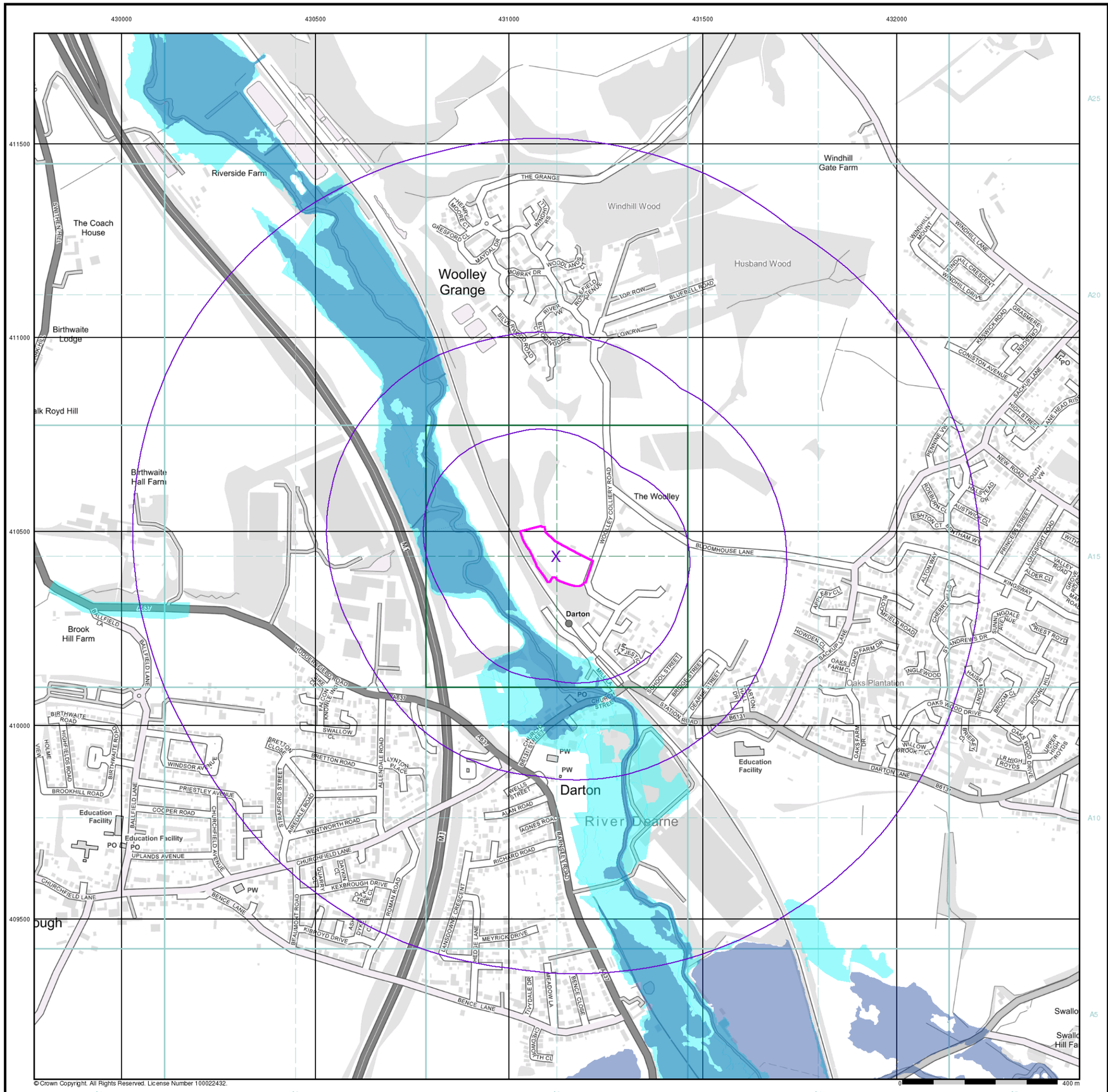


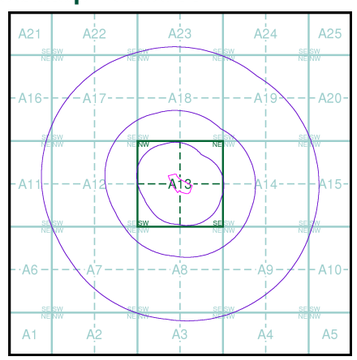
General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

Agency and Hydrological (Flood)

- Extreme Flooding from Rivers or Sea without Defences (Zone 2)
- Flooding from Rivers or Sea without Defences (Zone 3)
- Area Benefiting from Flood Defence
- Flood Water Storage Areas
- Flood Defence

Flood Map - Slice A



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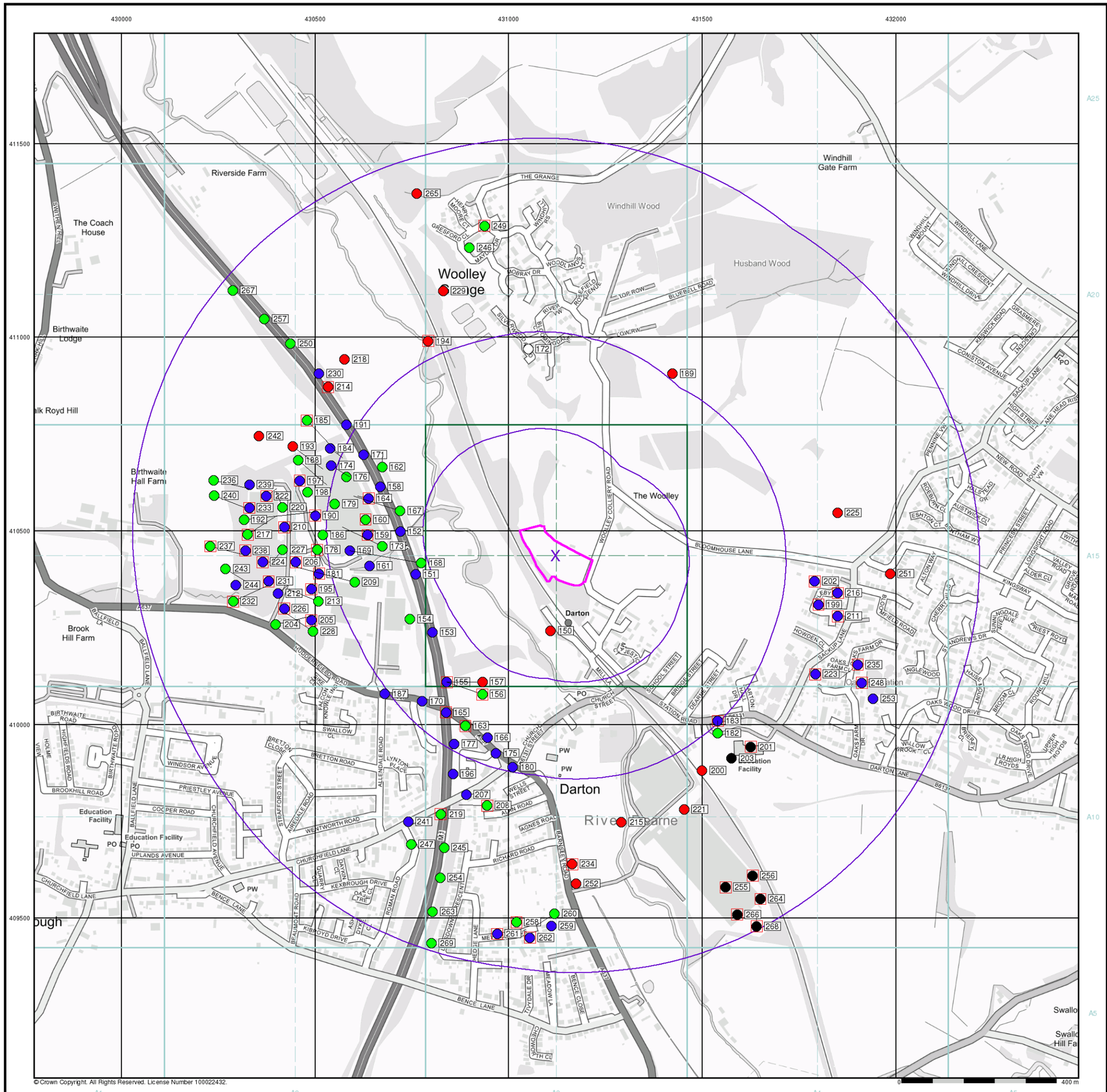


General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location

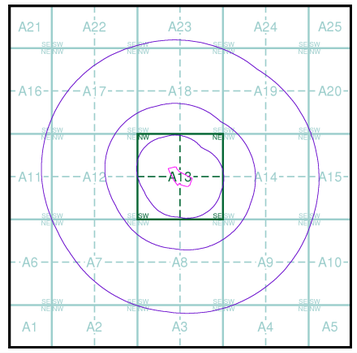
Agency and Hydrological (Boreholes)

- BGS Borehole Depth 0 - 10m
- BGS Borehole Depth 10 - 30m
- BGS Borehole Depth 30m +
- Confidential
- Other

For Borehole information please refer to the Borehole .csv file which accompanied this slice.

A copy of the BGS Borehole Ordering Form is available to download from the Support section of www.envirocheck.co.uk.

Borehole Map - Slice A



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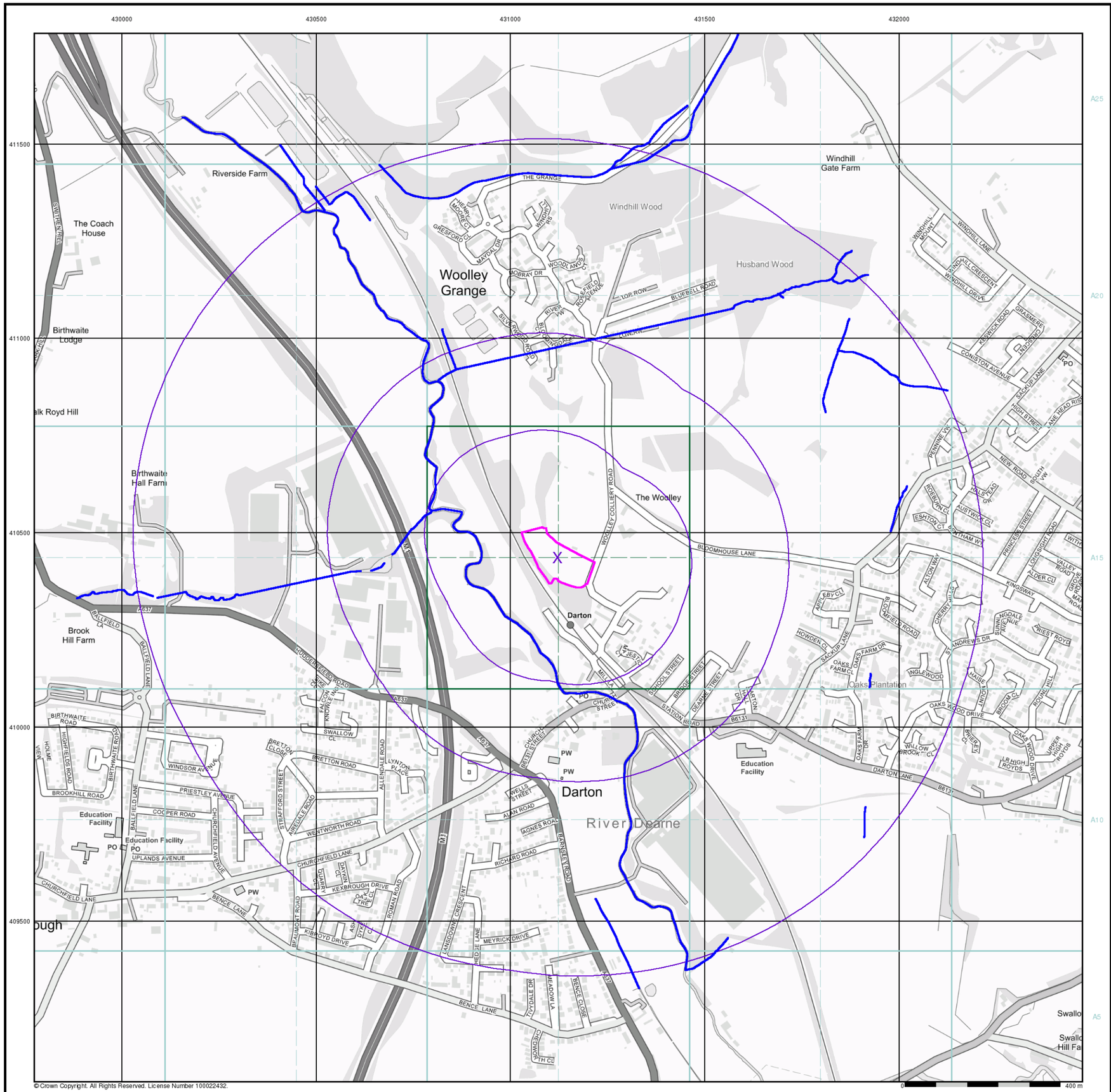


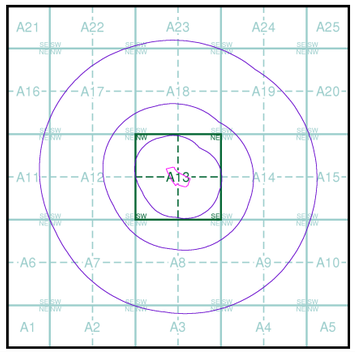
General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

OS Water Network Data

- Canal
- Reservoir
- Foreshore
- Marsh
- Tidal River
- Inland River
- Drain
- Other
- Lake
- Transfer
- Lock Or Flight Of Locks
- Sea

OS Water Network Map - Slice A



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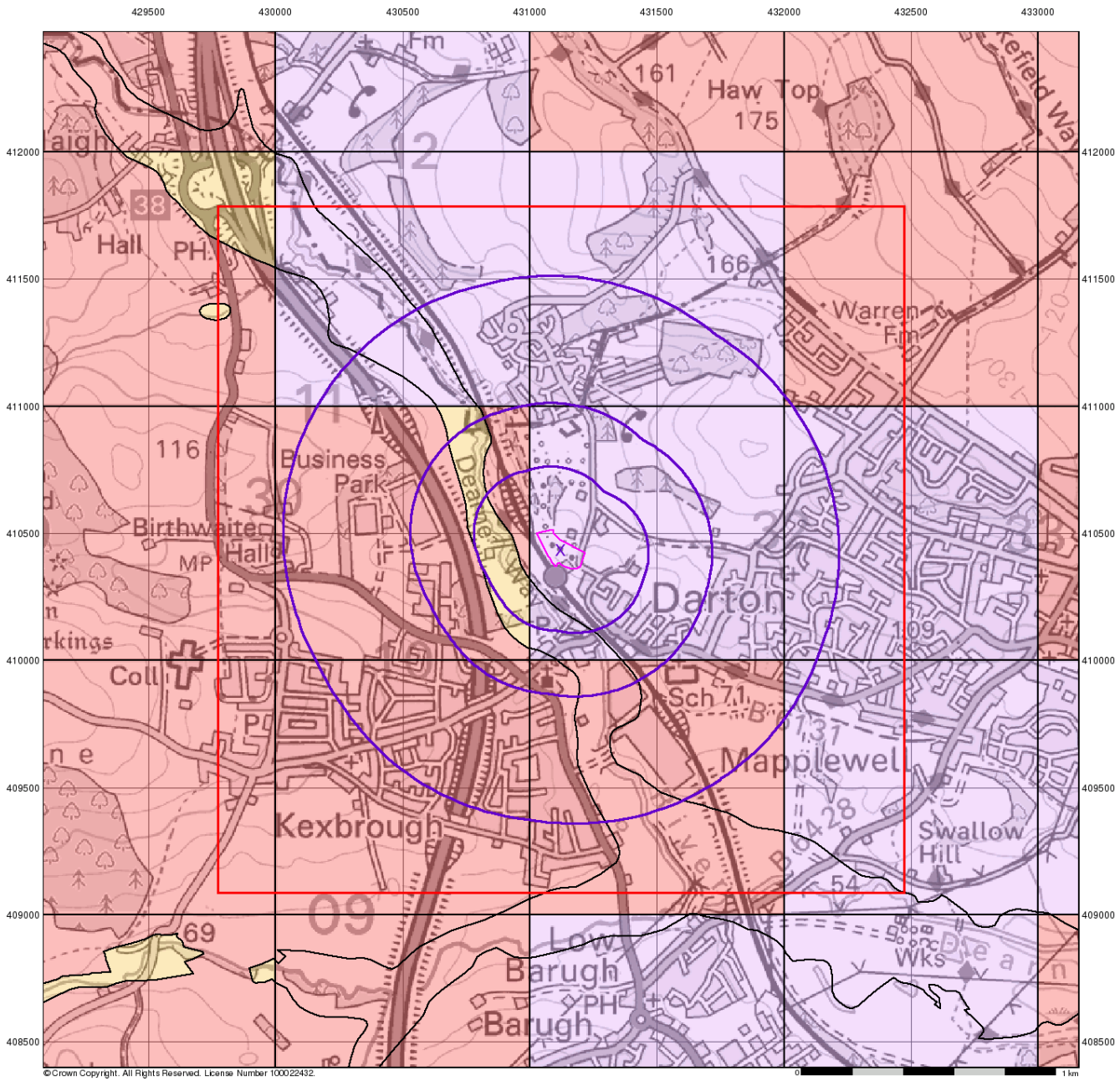


Groundwater Vulnerability

General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

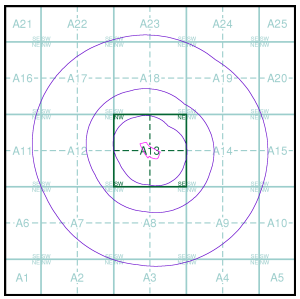
Agency and Hydrological

Bedrock Aquifers	Superficial Aquifers
High Vulnerability, Principal Aquifer	High Vulnerability, Principal Aquifer
High Vulnerability, Secondary Aquifer	High Vulnerability, Secondary Aquifer
Medium Vulnerability, Principal Aquifer	Medium Vulnerability, Principal Aquifer
Medium Vulnerability, Secondary Aquifer	Medium Vulnerability, Secondary Aquifer
Low Vulnerability, Principal Aquifer	Low Vulnerability, Principal Aquifer
Low Vulnerability, Secondary Aquifer	Low Vulnerability, Secondary Aquifer

Unproductive Aquifer

Soluble Rock

Site Sensitivity Context Map - Slice A



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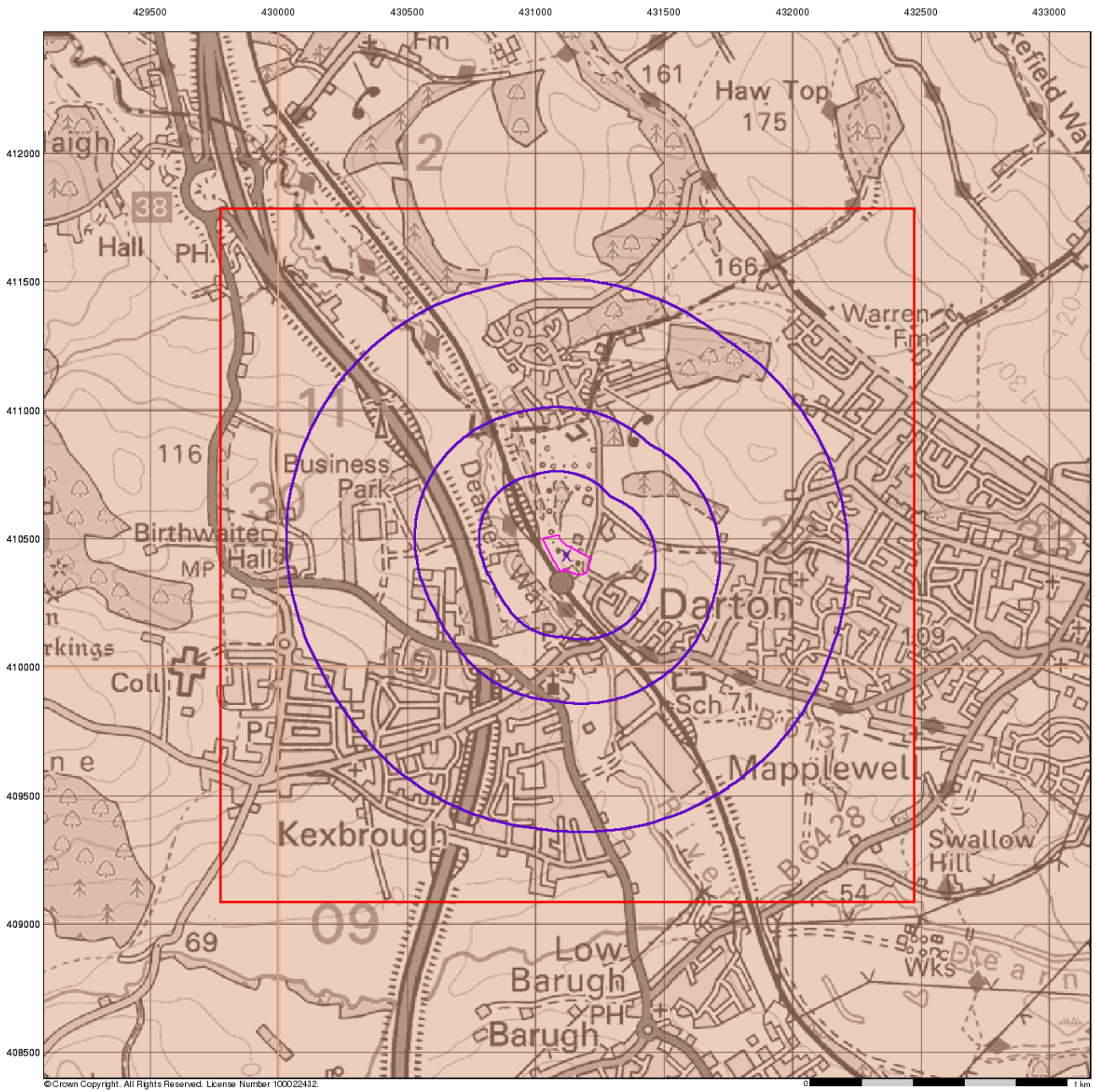


Bedrock Aquifer Designation

General

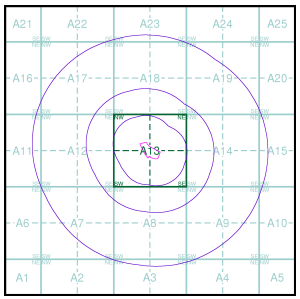
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown
- Unknown (Lakes and Landslip)

Site Sensitivity Context Map - Slice A



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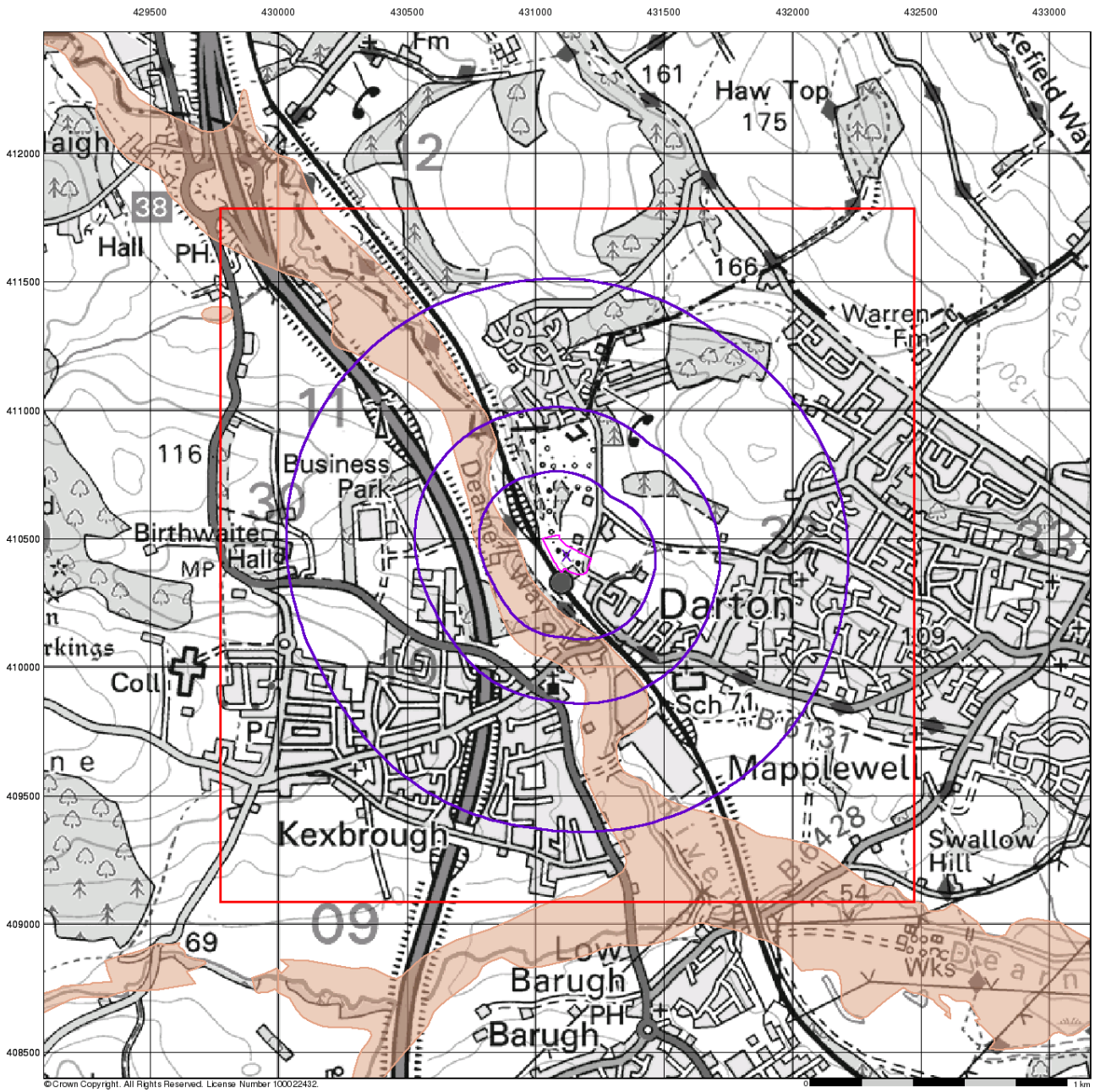


Superficial Aquifer Designation

General

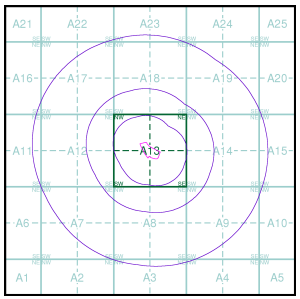
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown
- Unknown (Lakes and Landslip)

Site Sensitivity Context Map - Slice A



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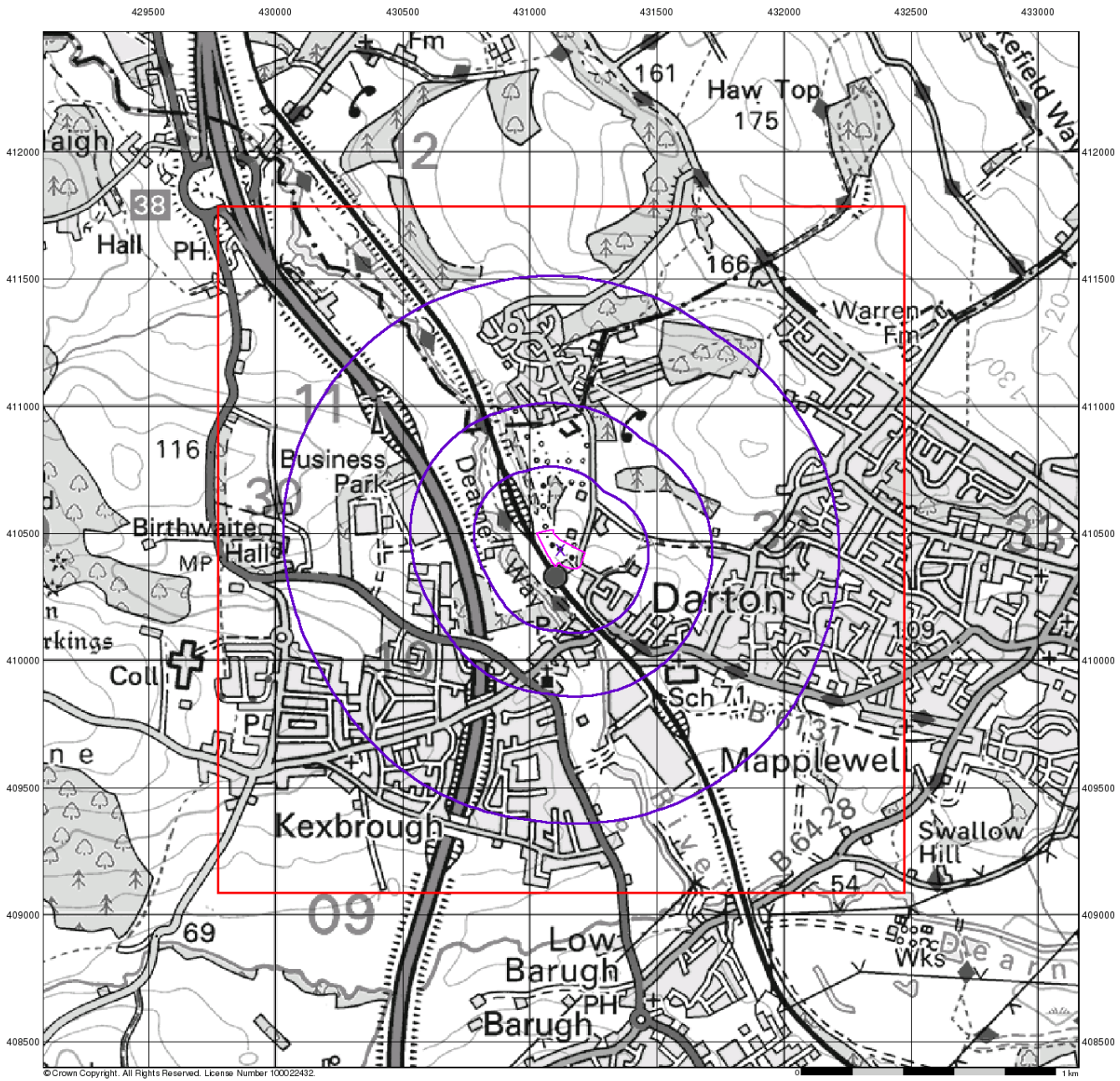


Source Protection Zones

General

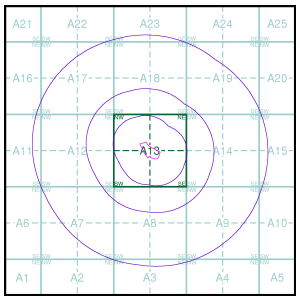
Specified Site | Specified Buffer(s) | Bearing Reference Point

Slice | Map ID

Agency and Hydrological

- Inner zone (Zone 1)
- Inner zone - subsurface activity only (Zone 1c)
- Outer zone (Zone 2)
- Outer zone - subsurface activity only (Zone 2c)
- Total catchment (Zone 3)
- Total catchment - subsurface activity only (Zone 3c)
- Special interest (Zone 4)

Site Sensitivity Context Map - Slice A



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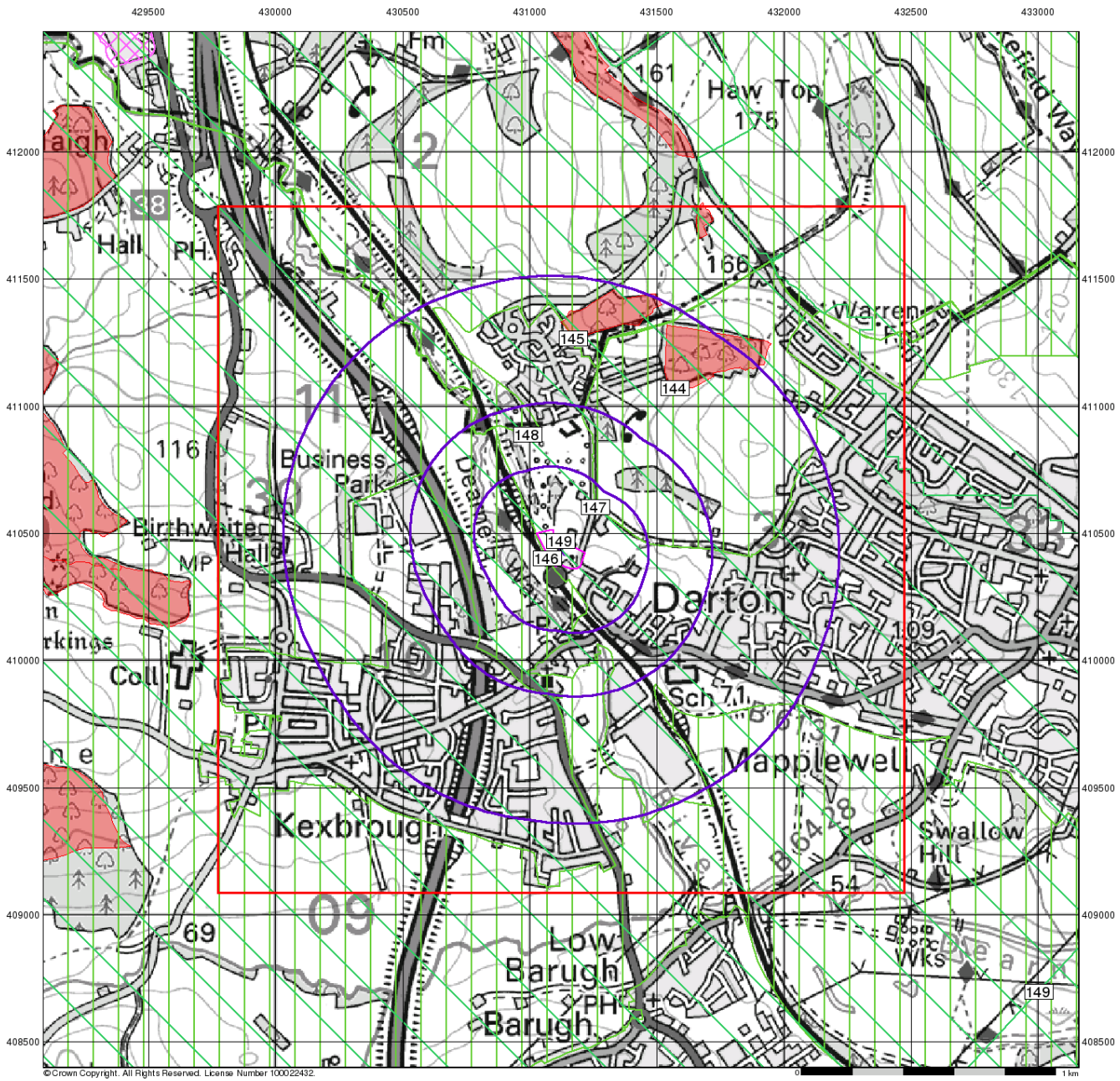


Sensitive Land Uses

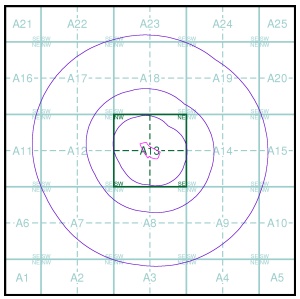
General

Specified Site | Specified Buffer(s) | Bearing Reference Point
Slice | Map ID

Sensitive Land Uses

- Ancient Woodland
- Area of Adopted Green Belt
- Area of Unadopted Green Belt
- Area of Outstanding Natural Beauty
- Environmentally Sensitive Area
- Forest Park
- Local Nature Reserve
- Marine Nature Reserve
- National Nature Reserve
- National Park
- Nitrate Sensitive Area
- Nitrate Vulnerable Zone
- Ramsar Site
- Site of Special Scientific Interest
- Special Area of Conservation
- Special Protection Area
- World Heritage Sites

Site Sensitivity Context Map - Slice A



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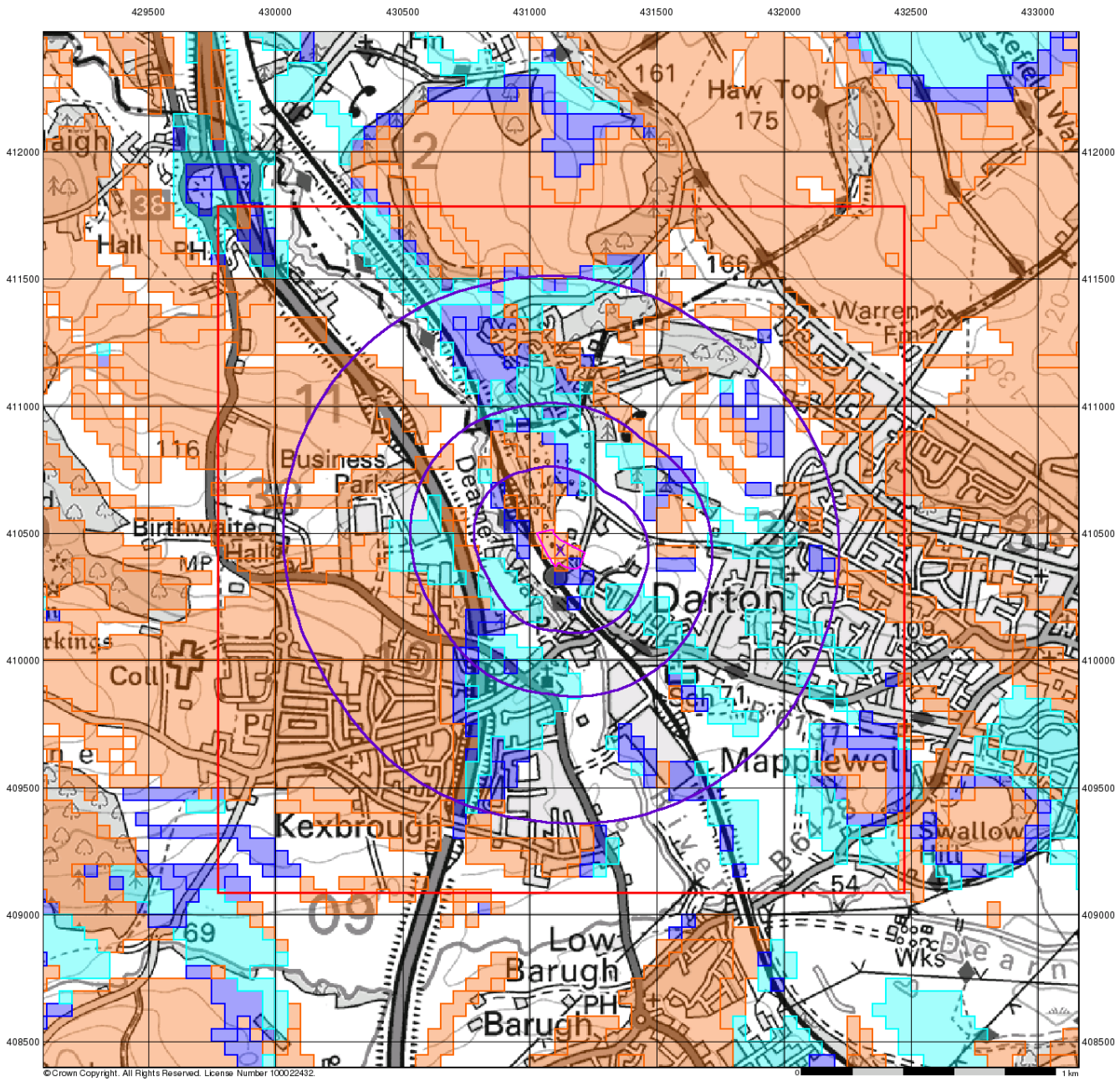


BGS Flood GFS Data

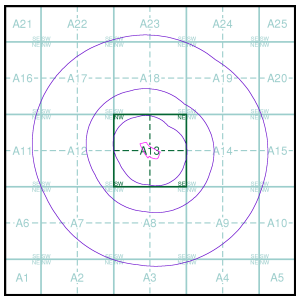
General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice

Agency and Hydrological (Flood)

- Limited Potential for Groundwater Flooding to Occur
- Potential for Groundwater Flooding of Property Situated Below Ground Level
- Potential for Groundwater Flooding to Occur at Surface

Site Sensitivity Context Map - Slice A



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Envirocheck® Report:

Datasheet

Order Details:

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Site Details:

Land off Woolley Colliery Road (South)
Darton
BARNSLEY

Client Details:

Ms S Howson
Sirius Geotechnical Ltd
4245 Park Approach
Thorpe Park
Leeds
LS15 8GB

Contents

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Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination.
For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency/Natural Resources Wales and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client.
In this datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

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Report Version v53.0

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Agency & Hydrological					
BGS Groundwater Flooding Susceptibility	pg 1	Yes	Yes	Yes	n/a
Contaminated Land Register Entries and Notices					
Discharge Consents	pg 4			24	10
Prosecutions Relating to Controlled Waters			n/a	n/a	n/a
Enforcement and Prohibition Notices					
Integrated Pollution Controls	pg 12			4	1
Integrated Pollution Prevention And Control					
Local Authority Integrated Pollution Prevention And Control	pg 13				1
Local Authority Pollution Prevention and Controls	pg 13			5	8
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature	pg 15		Yes		
Pollution Incidents to Controlled Waters	pg 15		6	22	11
Prosecutions Relating to Authorised Processes					
Registered Radioactive Substances					
River Quality	pg 21		1		1
River Quality Biology Sampling Points					
River Quality Chemistry Sampling Points	pg 22			1	
Substantiated Pollution Incident Register	pg 22			2	
Water Abstractions	pg 23				4 (*1)
Water Industry Act Referrals					
Groundwater Vulnerability Map	pg 24	Yes	n/a	n/a	n/a
Groundwater Vulnerability - Soluble Rock Risk			n/a	n/a	n/a
Bedrock Aquifer Designations	pg 24	Yes	n/a	n/a	n/a
Superficial Aquifer Designations			n/a	n/a	n/a
Source Protection Zones					
Extreme Flooding from Rivers or Sea without Defences	pg 24		Yes	n/a	n/a
Flooding from Rivers or Sea without Defences	pg 25		Yes	n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences				n/a	n/a
OS Water Network Lines	pg 25		3	10	27

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Waste					
BGS Recorded Landfill Sites					
Historical Landfill Sites	pg 31				1
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)					
Local Authority Landfill Coverage	pg 31	1	n/a	n/a	n/a
Local Authority Recorded Landfill Sites	pg 31				1
Registered Landfill Sites					
Registered Waste Transfer Sites					
Registered Waste Treatment or Disposal Sites					
Hazardous Substances					
Control of Major Accident Hazards Sites (COMAH)	pg 32				1
Explosive Sites					
Notification of Installations Handling Hazardous Substances (NIHHS)					
Planning Hazardous Substance Consents					
Planning Hazardous Substance Enforcements					
Geological					
BGS 1:625,000 Solid Geology	pg 33	Yes	n/a	n/a	n/a
BGS Recorded Mineral Sites	pg 33		1	5	18
CBSCB Compensation District			n/a	n/a	n/a
Coal Mining Affected Areas	pg 37	Yes	n/a	n/a	n/a
Mining Instability	pg 37	Yes	n/a	n/a	n/a
Man-Made Mining Cavities					
Natural Cavities					
Non Coal Mining Areas of Great Britain	pg 37	Yes		n/a	n/a
Potential for Collapsible Ground Stability Hazards	pg 37	Yes	Yes	n/a	n/a
Potential for Compressible Ground Stability Hazards	pg 37	Yes	Yes	n/a	n/a
Potential for Ground Dissolution Stability Hazards				n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 37	Yes	Yes	n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 38	Yes	Yes	n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 38	Yes		n/a	n/a
Radon Potential - Radon Affected Areas	pg 38	Yes	n/a	n/a	n/a
Radon Potential - Radon Protection Measures	pg 38	Yes	n/a	n/a	n/a

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Industrial Land Use					
Contemporary Trade Directory Entries	pg 39			14	25
Fuel Station Entries	pg 42				1
Gas Pipelines					
Underground Electrical Cables					
Sensitive Land Use					
Ancient Woodland	pg 43				2
Areas of Adopted Green Belt	pg 43		2	1	
Areas of Unadopted Green Belt					
Areas of Outstanding Natural Beauty					
Environmentally Sensitive Areas					
Forest Parks					
Local Nature Reserves					
Marine Nature Reserves					
National Nature Reserves					
National Parks					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones	pg 43	1			
Ramsar Sites					
Sites of Special Scientific Interest					
Special Areas of Conservation					
Special Protection Areas					
World Heritage Sites					

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (NW)	0	1	431121 410436
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (E)	0	1	431150 410436
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NW (NW)	0	1	431050 410500
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NW (N)	0	1	431100 410500
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NW (W)	0	1	431050 410450
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SE (SE)	0	1	431150 410400
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (W)	0	1	431100 410436
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (S)	0	1	431121 410400
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SE (SE)	17	1	431200 410350
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NW (W)	29	1	431000 410450
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NW (N)	36	1	431100 410550
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SW (W)	46	1	431000 410436
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NW (NW)	58	1	431000 410550
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13SE (SE)	62	1	431200 410300
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NW (W)	79	1	430950 410500
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NW (NW)	94	1	430950 410550
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NW (NW)	104	1	431000 410600
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SE (S)	110	1	431150 410250
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13SW (SW)	122	1	431000 410300
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13SE (SE)	123	1	431300 410300
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NW (NW)	128	1	430950 410600
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NW (N)	138	1	431121 410650

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NE (N)	150	1	431150 410650
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NW (NW)	163	1	430900 410600
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13NE (N)	176	1	431200 410650
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NW (N)	187	1	431121 410700
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (W)	235	1	430800 410436
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SW (SW)	263	1	430900 410200
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NE (E)	266	1	431450 410550
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13NW (NW)	269	1	430850 410700
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (SW)	274	1	430850 410250
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12NE (W)	279	1	430750 410450
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14SW (E)	284	1	431500 410436
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12NE (W)	284	1	430750 410550
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14SW (E)	285	1	431500 410400
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14NW (E)	294	1	431500 410500
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SW (SW)	297	1	430900 410150
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NW (NW)	308	1	430850 410750
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13SW (SW)	309	1	430950 410100
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A12SE (W)	314	1	430750 410350
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13NE (NE)	326	1	431400 410700
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12NE (W)	329	1	430700 410500
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12NE (W)	333	1	430700 410550
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18SW (N)	336	1	431100 410850

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A8NW (S)	361	1	431121 410000
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14NW (NE)	363	1	431500 410650
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A8NW (SW)	377	1	430900 410050
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18SW (N)	395	1	431000 410900
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A8NW (S)	399	1	430950 410000
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14NW (E)	404	1	431600 410550
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12NE (NW)	413	1	430700 410750
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18SW (NW)	420	1	430900 410900
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14NW (NE)	433	1	431500 410750
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14NW (NE)	433	1	431550 410700
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18SW (N)	436	1	431121 410950
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A8NW (SW)	439	1	430800 410050
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SE (NE)	443	1	431450 410800
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A14NW (NE)	446	1	431600 410650
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12SE (W)	455	1	430600 410350
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SE (NE)	458	1	431400 410850
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12SE (W)	472	1	430600 410300
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A7NE (SW)	474	1	430750 410050
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A8NW (SW)	476	1	430800 410000
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A14NW (E)	484	1	431700 410450
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A14NW (E)	500	1	431700 410550

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
1	**Discharge Consents** Operator: Yorkshire Water Services Ltd Property Type: Sewerage Network - Sewers Location: Church Street, MILL LANE, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Dearne Reference: S/UD/51 Permit Version: Not Supplied Effective Date: Not Supplied Issued Date: 5th June 1963 Revocation Date: Not Supplied Discharge Type: Sewage Effluent Discharge-Storm Effluent Discharge Environment: Unknown Receiving Water: Not Supplied **Status: Not Supplied** Positional Accuracy: Located by supplier to within 100m	A8NE (S)	315	2	431265 410055
1	**Discharge Consents** Operator: Yorkshire Water Services Ltd Property Type: Not Given Location: Church Street/Mill Lane, DARTON, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Dearne Reference: S/UD/51 Permit Version: Not Supplied Effective Date: Not Supplied Issued Date: Not Supplied Revocation Date: Not Supplied Discharge Type: Storm /emergency overflow Discharge Environment: Unknown Receiving Water: Not Supplied **Status: Not Supplied** Positional Accuracy: Located by supplier to within 100m	A8NE (S)	319	2	431260 410050
1	**Discharge Consents** Operator: Yorkshire Water Services Ltd Property Type: Not Given Location: Redbrook Road, Redbrook, DARTON, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Dearne Reference: S/UD/51 Permit Version: Not Supplied Effective Date: Not Supplied Issued Date: Not Supplied Revocation Date: Not Supplied Discharge Type: Storm /emergency overflow Discharge Environment: Unknown Receiving Water: Not Supplied **Status: Not Supplied** Positional Accuracy: Located by supplier to within 100m	A8NE (S)	320	2	431265 410050
1	**Discharge Consents** Operator: Yorkshire Water Services Ltd Property Type: Not Given Location: Dearne Hill Road, Low Barugh, DARTON, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Dearne Reference: S/UD/51 Permit Version: Not Supplied Effective Date: Not Supplied Issued Date: Not Supplied Revocation Date: Not Supplied Discharge Type: Storm /emergency overflow Discharge Environment: Unknown Receiving Water: Not Supplied **Status: Not Supplied** Positional Accuracy: Located by supplier to within 100m	A8NE (S)	324	2	431260 410045

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
1	**Discharge Consents** Operator: Yorkshire Water Services Ltd Property Type: Not Given Location: Carr Green Lane, Mapplewell, DARTON, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Dearne Reference: S/UD/51 Permit Version: Not Supplied Effective Date: Not Supplied Issued Date: Not Supplied Revocation Date: Not Supplied Discharge Type: Storm /emergency overflow Discharge Environment: Unknown Receiving Water: Not Supplied **Status: Not Supplied** Positional Accuracy: Located by supplier to within 100m	A8NE (S)	325	2	431265 410045
2	**Discharge Consents** Operator: Yorkshire Water Services Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Darton Church Street Cso Church Street (Adj No 74), Darton Bridge, Barnsley, South Yorkshire, S75 5hg Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: Wra8610 Permit Version: 2 Effective Date: 20th November 2017 Issued Date: 20th November 2017 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Varied under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A8NE (SE)	359	2	431317 410026
2	**Discharge Consents** Operator: Yorkshire Water Services Limited Property Type: STORM TANK/CSO ON SEWERAGE NETWORK (WATER COMPANY) Location: Darton Church Street Cso Church Street (Adj No 74), Darton Bridge, Barnsley, South Yorkshire, S75 5hg Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: Wra8610 Permit Version: 1 Effective Date: 31st March 2005 Issued Date: 31st March 2005 Revocation Date: 19th November 2017 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A8NE (SE)	362	2	431310 410020
3	**Discharge Consents** Operator: Summer Estate Holdings Limited C/O Vistra (Bvi)Ltd Property Type: WHOLESALE TRADE (NOT MOTOR VEHICLES) Location: Junction 38 Business Park Darton Works, Huddersfield Road, Darton, Barnsley, S75 5qq Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: C4011 Permit Version: 2 Effective Date: 22nd July 1993 Issued Date: 22nd July 1993 Revocation Date: Not Supplied Discharge Type: Trade Discharges - Site Drainage (Contaminated Surface Water, Not Waste Sites) Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Revised Consent, by Notice (Section 37(1))** Positional Accuracy: Located by supplier to within 10m	A12SE (W)	372	2	430710 410300

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
3	**Discharge Consents** Operator: West Register (Property Investments Limited) Property Type: Trade (Unknown/Other) Location: Parkside Performance Films, Darton, Barnsley Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: C4011 Permit Version: 2 Effective Date: 22nd July 1993 Issued Date: 22nd July 1993 Revocation Date: Not Supplied Discharge Type: Trade Discharges - Site Drainage (Contaminated Surface Water, Not Waste Sites) Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Revised Consent, by Notice (Section 37(1))** Positional Accuracy: Located by supplier to within 10m	A12SE (W)	372	2	430710 410300
3	**Discharge Consents** Operator: Bp, Performance Films Group Property Type: WHOLESALE TRADE (NOT MOTOR VEHICLES) Location: Junction 38 Business Park Darton Works, Huddersfield Road, Darton, Barnsley, S75 5qq Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: C4011 Permit Version: 1 Effective Date: 25th September 1985 Issued Date: 25th September 1985 Revocation Date: 21st July 1993 Discharge Type: Trade Discharges - Site Drainage (Contaminated Surface Water, Not Waste Sites) Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Transferred from COPA 1974** Positional Accuracy: Located by supplier to within 10m	A12SE (W)	372	2	430710 410300
3	**Discharge Consents** Operator: Anglo Clough Management Company Ltd Property Type: Trade (Unknown/Other) Location: Parkside Performance Films, Darton, Barnsley Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: C4011 Permit Version: 2 Effective Date: 22nd July 1993 Issued Date: 22nd July 1993 Revocation Date: Not Supplied Discharge Type: Trade Discharges - Site Drainage (Contaminated Surface Water, Not Waste Sites) Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Revised Consent, by Notice (Section 37(1))** Positional Accuracy: Located by supplier to within 100m	A12SE (W)	381	2	430700 410300
3	**Discharge Consents** Operator: Summer Estate Holdings Limited C/O Vistra (Bvi)Ltd Property Type: WHOLESALE TRADE (NOT MOTOR VEHICLES) Location: Junction 38 Business Park Darton Works, Huddersfield Road, Darton, Barnsley, S75 5qq Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: C4011 Permit Version: 2 Effective Date: 22nd July 1993 Issued Date: 22nd July 1993 Revocation Date: Not Supplied Discharge Type: Trade Discharges - Site Drainage (Contaminated Surface Water, Not Waste Sites) Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Revised Consent, by Notice (Section 37(1))** Positional Accuracy: Located by supplier to within 100m	A12SE (W)	381	2	430700 410300

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
3	**Discharge Consents** Operator: Bp, Performance Films Group Property Type: WHOLESALE TRADE (NOT MOTOR VEHICLES) Location: Junction 38 Business Park Darton Works, Huddersfield Road, Darton, Barnsley, S75 5qq Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: C4011 Permit Version: 1 Effective Date: 25th September 1985 Issued Date: 25th September 1985 Revocation Date: 21st July 1993 Discharge Type: Trade Discharges - Site Drainage (Contaminated Surface Water, Not Waste Sites) Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Transferred from COPA 1974** Positional Accuracy: Located by supplier to within 100m	A12SE (W)	381	2	430700 410300
4	**Discharge Consents** Operator: Yorkshire Water Services Limited Property Type: WWTW/SEWAGE TREATMENT WORKS (WATER COMPANY) Location: Woolley Colliery Stw, Woolley, Barnsley, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: E707 Permit Version: 3 Effective Date: 19th August 1997 Issued Date: 19th August 1997 Revocation Date: 29th September 2009 Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Trib Of River Dearne **Status: Revoked (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 100m	A18SW (NW)	377	2	430800 410800
4	**Discharge Consents** Operator: Yorkshire Water Services Limited Property Type: WWTW/SEWAGE TREATMENT WORKS (WATER COMPANY) Location: Woolley Colliery Stw, Woolley, Barnsley, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: E707 Permit Version: 3 Effective Date: 19th August 1997 Issued Date: 19th August 1997 Revocation Date: 29th September 2009 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Trib Of River Dearne **Status: Revoked (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 100m	A18SW (NW)	377	2	430800 410800
4	**Discharge Consents** Operator: Yorkshire Water Services Ltd Property Type: Undefined Or Other Location: Wooley Colliery Wpc Works Storm Tan, Ks Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: E707(Ss) Permit Version: 1 Effective Date: 1st January 1982 Issued Date: 1st January 1982 Revocation Date: 13th March 1986 Discharge Type: Sewage Discharges - Unspecified - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 100m	A18SW (NW)	377	2	430800 410800

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
4	**Discharge Consents** Operator: Yorkshire Water Services Ltd Property Type: Undefined Or Other Location: Wooley Colliery Wpc Works Storm Tan, Ks Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: E707(Ss) Permit Version: 1 Effective Date: 1st January 1982 Issued Date: 1st January 1982 Revocation Date: 13th March 1986 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 100m	A18SW (NW)	377	2	430800 410800
5	**Discharge Consents** Operator: Yorkshire Water Services Limited Property Type: WWTW/SEWAGE TREATMENT WORKS (WATER COMPANY) Location: Woolley Colliery Stw, Woolley, Barnsley, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: E707 Permit Version: 2 Effective Date: 14th February 1986 Issued Date: 14th February 1986 Revocation Date: 18th August 1997 Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Tributary Of The River Dearne **Status: Transferred from COPA 1974** Positional Accuracy: Located by supplier to within 100m	A18SW (N)	387	2	431100 410900
5	**Discharge Consents** Operator: Yorkshire Water Services Limited Property Type: WWTW/SEWAGE TREATMENT WORKS (WATER COMPANY) Location: Woolley Colliery Stw, Woolley, Barnsley, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: E707 Permit Version: 2 Effective Date: 14th February 1986 Issued Date: 14th February 1986 Revocation Date: 18th August 1997 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Tributary Of The River Dearne **Status: Transferred from COPA 1974** Positional Accuracy: Located by supplier to within 100m	A18SW (N)	387	2	431100 410900
5	**Discharge Consents** Operator: Yorkshire Water Services Limited Property Type: WWTW/SEWAGE TREATMENT WORKS (WATER COMPANY) Location: Woolley Colliery Stw, Woolley, Barnsley, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: E707 Permit Version: 1 Effective Date: 16th November 1981 Issued Date: 16th November 1981 Revocation Date: 13th February 1986 Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Tributary Of The River Dearne **Status: Transferred from Rivers (Prevention of Pollution) Act 1951-1961** Positional Accuracy: Located by supplier to within 100m	A18SW (N)	387	2	431100 410900

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
5	**Discharge Consents** Operator: Yorkshire Water Services Limited Property Type: WWTW/SEWAGE TREATMENT WORKS (WATER COMPANY) Location: Woolley Colliery Stw, Woolley, Barnsley, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: E707 Permit Version: 1 Effective Date: 16th November 1981 Issued Date: 16th November 1981 Revocation Date: 13th February 1986 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Tributary Of The River Dearne **Status: Transferred from Rivers (Prevention of Pollution) Act 1951-1961** Positional Accuracy: Located by supplier to within 100m	A18SW (N)	387	2	431100 410900
6	**Discharge Consents** Operator: Med Contracting Property Type: MINING OF COAL + LIGNITE Location: Woolley Colliery Darton, Barnsley, South Yorkshire, Uk Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: 3747 Permit Version: 1 Effective Date: 25th October 1983 Issued Date: 25th October 1983 Revocation Date: 13th February 1986 Discharge Type: Trade Discharge - Mineral Workings Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Transferred from Rivers (Prevention of Pollution) Act 1951-1961** Positional Accuracy: Located by supplier to within 10m	A18SW (NW)	440	2	430830 410892
6	**Discharge Consents** Operator: The Coal Authority Property Type: MINING OF COAL + LIGNITE Location: Woolley Colliery Darton, Barnsley, South Yorkshire, Uk Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: C4758 Permit Version: 1 Effective Date: 2nd September 1987 Issued Date: 2nd September 1987 Revocation Date: 31st October 1994 Discharge Type: Trade Discharges - Site Drainage (Contaminated Surface Water, Not Waste Sites) Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Transferred from COPA 1974** Positional Accuracy: Located by supplier to within 10m	A18SW (NW)	453	2	430860 410920
7	**Discharge Consents** Operator: British Coal Property Property Type: MINING OF COAL + LIGNITE Location: Woolley Colliery Darton, Barnsley, South Yorkshire, Uk Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: C4947 Permit Version: 1 Effective Date: 26th January 1988 Issued Date: 26th January 1988 Revocation Date: 16th May 1995 Discharge Type: Trade Effluent Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Consent revoked: Discharge ceased (Water Resources Act 1991, Schedule 10 & 6)** Positional Accuracy: Located by supplier to within 100m	A18SW (N)	493	2	431000 411000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
8	**Discharge Consents** Operator: Med Contracting Property Type: MINING OF COAL + LIGNITE Location: Woolley Colliery Darton, Barnsley, South Yorkshire, Uk Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: 3373 Permit Version: 1 Effective Date: 26th June 1979 Issued Date: 26th June 1979 Revocation Date: 6th January 2011 Discharge Type: Trade Discharges - Site Drainage (Contaminated Surface Water, Not Waste Sites) Discharge Environment: Freshwater Stream/River Receiving Water: Tributary Of The River Dearne **Status: Revoked under EPR 2010** Positional Accuracy: Located by supplier to within 100m	A17NE (NW)	959	2	430500 411300
8	**Discharge Consents** Operator: Med Contracting Property Type: MINING OF COAL + LIGNITE Location: Woolley Colliery Darton, Barnsley, South Yorkshire, Uk Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: 3747 Permit Version: 4 Effective Date: 14th February 1986 Issued Date: 14th February 1986 Revocation Date: 15th August 1995 Discharge Type: Trade Discharges - Site Drainage (Contaminated Surface Water, Not Waste Sites) Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Transferred from COPA 1974** Positional Accuracy: Located by supplier to within 10m	A17NE (NW)	975	2	430518 411330
8	**Discharge Consents** Operator: Med Contracting Property Type: MINING OF COAL + LIGNITE Location: Woolley Colliery Darton, Barnsley, South Yorkshire, Uk Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: 3747 Permit Version: 4 Effective Date: 14th February 1986 Issued Date: 14th February 1986 Revocation Date: 15th August 1995 Discharge Type: Trade Discharge - Mineral Workings Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Transferred from COPA 1974** Positional Accuracy: Located by supplier to within 10m	A17NE (NW)	975	2	430518 411330
8	**Discharge Consents** Operator: Med Contracting Property Type: Undefined Or Other Location: Ncb Woolley Colliery, Temporary Lag, Oons Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: 3747 Permit Version: 2 Effective Date: 11th May 1984 Issued Date: 11th May 1984 Revocation Date: 15th August 1995 Discharge Type: Trade Effluent Discharge Environment: Freshwater Stream/River Receiving Water: Not Supplied **Status: Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 10m	A17NE (NW)	975	2	430518 411330

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
8	**Discharge Consents** Operator: Med Contracting Property Type: MINING OF COAL + LIGNITE Location: Woolley Colliery Darton, Barnsley, South Yorkshire, Uk Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: 3747 Permit Version: 1 Effective Date: 25th October 1983 Issued Date: 25th October 1983 Revocation Date: 13th February 1986 Discharge Type: Trade Discharge - Process Water Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Transferred from Rivers (Prevention of Pollution) Act 1951-1961** Positional Accuracy: Located by supplier to within 10m	A17NE (NW)	975	2	430518 411330
8	**Discharge Consents** Operator: Med Contracting Property Type: MINING OF COAL + LIGNITE Location: Woolley Colliery Darton, Barnsley, South Yorkshire, Uk Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: 3747 Permit Version: 1 Effective Date: 25th October 1983 Issued Date: 25th October 1983 Revocation Date: 13th February 1986 Discharge Type: Trade Discharge - Mineral Workings Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Transferred from Rivers (Prevention of Pollution) Act 1951-1961** Positional Accuracy: Located by supplier to within 10m	A17NE (NW)	975	2	430518 411330
9	**Discharge Consents** Operator: The Coal Authority Property Type: MINING OF COAL + LIGNITE Location: Woolley Colliery Darton, Barnsley, South Yorkshire, Uk Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: C4758 Permit Version: 2 Effective Date: 1st November 1994 Issued Date: 1st November 1994 Revocation Date: 30th April 1995 Discharge Type: Trade Discharge - Mineral Workings Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Revised Consent, by Notice (Section 37(1))** Positional Accuracy: Located by supplier to within 10m	A17NE (NW)	988	2	430600 411390
9	**Discharge Consents** Operator: The Coal Authority Property Type: MINING OF COAL + LIGNITE Location: Woolley Colliery Darton, Barnsley, South Yorkshire, Uk Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: C4758 Permit Version: 3 Effective Date: 1st May 1995 Issued Date: 1st November 1994 Revocation Date: 30th April 1996 Discharge Type: Trade Discharge - Mineral Workings Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Revised Consent, by Notice (Section 37(1))** Positional Accuracy: Located by supplier to within 10m	A17NE (NW)	988	2	430600 411390

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
9	**Discharge Consents** Operator: The Coal Authority Property Type: MINING OF COAL + LIGNITE Location: Woolley Colliery Darton, Barnsley, South Yorkshire, Uk Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: C4758 Permit Version: 4 Effective Date: 1st May 1996 Issued Date: 1st November 1994 Revocation Date: 31st October 2004 Discharge Type: Trade Discharge - Mineral Workings Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Revised Consent, by Notice (Section 37(1))** Positional Accuracy: Located by supplier to within 10m	A17NE (NW)	988	2	430600 411390
9	**Discharge Consents** Operator: The Coal Authority Property Type: MINING OF COAL + LIGNITE Location: Woolley Colliery Darton, Barnsley, South Yorkshire, Uk Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: C4758 Permit Version: 1 Effective Date: 2nd September 1987 Issued Date: 2nd September 1987 Revocation Date: 31st October 1994 Discharge Type: Trade Discharge - Mineral Workings Discharge Environment: Freshwater Stream/River Receiving Water: River Dearne **Status: Transferred from COPA 1974** Positional Accuracy: Located by supplier to within 10m	A17NE (NW)	988	2	430600 411390
10	**Integrated Pollution Controls** Name: Regency Doors Plc Location: Spring Ram Business Park, Huddersfield Road, Darton, BARNSLEY, South Yorkshire, S75 5JS Authority: Environment Agency, North East Region Permit Reference: AI7050 Dated: 7th May 1993 Process Type: IPC minor (non-substantial) variation to previous variation Description: 6.7 A (A) Timber processes within Miscellaneous Industries **Status: Authorisation revoked** Positional Accuracy: Automatically positioned to the address	A12NE (W)	433	2	430597 410476
10	**Integrated Pollution Controls** Name: Regency Doors Plc Location: Spring Ram Business Park, Huddersfield Road, Darton, BARNSLEY, South Yorkshire, S75 5JS Authority: Environment Agency, North East Region Permit Reference: AI6932 Dated: 4th May 1993 Process Type: IPC minor (non-substantial) variation to previous variation Description: 1.3 A (C) Combustion processes within the Fuel & Power Industry **Status: Authorisation revoked** Positional Accuracy: Automatically positioned to the address	A12NE (W)	433	2	430597 410476
10	**Integrated Pollution Controls** Name: Regency Doors Plc Location: Spring Ram Business Park, Huddersfield Road, Darton, BARNSLEY, South Yorkshire, S75 5JS Authority: Environment Agency, North East Region Permit Reference: AF9943 Dated: 30th November 1992 Process Type: IPC new application Description: 6.7 A (A) Timber processes within Miscellaneous Industries **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Automatically positioned to the address	A12NE (W)	433	2	430597 410476
10	**Integrated Pollution Controls** Name: Regency Doors Plc Location: Spring Ram Business Park, Huddersfield Road, Darton, BARNSLEY, South Yorkshire, S75 5JS Authority: Environment Agency, North East Region Permit Reference: AG0534 Dated: 5th November 1992 Process Type: IPC new application Description: 1.3 A (C) Combustion processes within the Fuel & Power Industry **Status: Authorisation superseded by a substantial or non substantial variation** Positional Accuracy: Automatically positioned to the address	A12NE (W)	433	2	430597 410476

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
11	**Integrated Pollution Controls** Name: Dalkia Utilities Services Plc Location: Dearne Mills, Darton, BARNSLEY, South Yorkshire, S75 5NH Authority: Environment Agency, North East Region Permit Reference: AF6529 Dated: 1st November 1993 Process Type: IPC new application Description: 1.3 A (C) Combustion processes within the Fuel & Power Industry **Status:** **Authorisation revoked** Positional Accuracy: Unknown	A8SE (S)	672	2	431382 409717
12	**Local Authority Integrated Pollution Prevention And Control** Name: Parkside Performance Films Ltd Location: Huddersfield Road, Darton, Barnsley, South Yorkshire, S75 5JS Authority: Barnsley Metropolitan Borough Council, Environmental Health and Trading Standards Permit Reference: IPPC/A2/02 Dated: Not Supplied Process Type: Production and Processing of Metals Description: Surface treatment of metals and plastics **Status:** **Application Withdrawn** Positional Accuracy: Automatically positioned to the address	A7NE (SW)	502	3	430680 410095
13	**Local Authority Pollution Prevention and Controls** Name: Rightcast Ltd Location: Unit W4 Junction 38 Business Park, Darton, Barnsley, S75 5QQ Authority: Barnsley Metropolitan Borough Council, Environmental Health and Trading Standards Permit Reference: PPC/B/130 Dated: Not Supplied Process Type: Local Authority Pollution Prevention and Control Description: PG3/1Blending, packing, loading and use of bulk cement **Status:** **Permitted** Positional Accuracy: Manually positioned to the address or location	A12SE (W)	388	3	430707 410272
14	**Local Authority Pollution Prevention and Controls** Name: Premdor Crosby Ltd Location: Huddersfield Road, Darton, Barnsley, S75 5js Authority: Barnsley Metropolitan Borough Council, Environmental Health and Trading Standards Permit Reference: PPC/B/42 Dated: 26th March 2002 Process Type: Local Authority Pollution Prevention and Control Description: PG6/33 Wood coating **Status:** **Permitted** Positional Accuracy: Located by supplier to within 10m	A12NE (W)	499	3	430547 410629
14	**Local Authority Pollution Prevention and Controls** Name: Premdor Crosby Limited Location: Spring Ram Business Park, Huddersfield Road, Darton, Barnsley, S75 5js Authority: Barnsley Metropolitan Borough Council, Environmental Health and Trading Standards Permit Reference: Epa84 Dated: 20th March 1996 Process Type: Local Authority Air Pollution Control Description: PG6/33 Wood coating **Status:** **Authorised** Positional Accuracy: Located by supplier to within 10m	A12NE (W)	499	3	430547 410629
14	**Local Authority Pollution Prevention and Controls** Name: Premdor Crosby Limited Location: Spring Ram Business Park, Darton, Barnsley, S75 5JS Authority: Barnsley Metropolitan Borough Council, Environmental Health and Trading Standards Permit Reference: Ppc/B/31 Dated: 21st September 1992 Process Type: Local Authority Pollution Prevention and Control Description: PG6/2 Manufacture of timber and wood-based products **Status:** **Permitted** Positional Accuracy: Located by supplier to within 10m	A12NE (W)	499	3	430547 410629
14	**Local Authority Pollution Prevention and Controls** Name: Crosby Limited Location: Spring Ram Business Park, Darton, BARNSLEY, S75 5JS Authority: Barnsley Metropolitan Borough Council, Environmental Health and Trading Standards Permit Reference: Not Supplied Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG6/2 Manufacture of timber and wood-based products **Status:** **Authorisation revoked** Positional Accuracy: Located by supplier to within 10m	A12NE (W)	499	3	430547 410629

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
15	**Local Authority Pollution Prevention and Controls** Name: Parkside Performance Films Ltd Location: Huddersfield Road, Darton, BARNSLEY, S75 5NA Authority: Barnsley Metropolitan Borough Council, Environmental Health and Trading Standards Permit Reference: Epa50 Dated: 21st October 1993 Process Type: Local Authority Air Pollution Control Description: PG6/17 Printing of flexible packaging **Status: Authorisation revoked** Positional Accuracy: Manually positioned to the road within the address or location	A7NE (SW)	539	3	430644 410082
16	**Local Authority Pollution Prevention and Controls** Name: Meredew Cabinets Location: Spring Ram Business Park, Darton, BARNSLEY, S75 5JS Authority: Barnsley Metropolitan Borough Council, Environmental Health and Trading Standards Permit Reference: Not Supplied Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG6/2 Manufacture of timber and wood-based products **Status: Authorisation revoked** Positional Accuracy: Manually positioned within the geographical locality	A12NE (W)	580	3	430450 410530
17	**Local Authority Pollution Prevention and Controls** Name: Robert Thompson Location: Central Garage, Barnsley Road, Darton, BARNSLEY, South Yorkshire, S75 5NN Authority: Barnsley Metropolitan Borough Council, Environmental Health and Trading Standards Permit Reference: PPC/B/102 Dated: 18th October 1999 Process Type: Local Authority Air Pollution Control Description: PG1/14 Petrol filling station **Status: Authorised** Positional Accuracy: Automatically positioned to the address	A8SW (S)	637	3	431115 409725
18	**Local Authority Pollution Prevention and Controls** Name: Med Contracting Location: Woolley Colliery Occs Site, Darton, Barnsley Authority: Wakefield City Metropolitan District Council, Environmental Health Permit Reference: A0155 Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG3/5 Coal, coke and coal product processes **Status: Authorisation revoked** Positional Accuracy: Manually positioned within the geographical locality	A18NW (N)	655	4	431104 411168
19	**Local Authority Pollution Prevention and Controls** Name: The Coal Authority Location: Wooley Colliery Site, Darton, Barnsley Authority: Wakefield City Metropolitan District Council, Environmental Health Permit Reference: A0135 Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG3/5 Coal, coke and coal product processes **Status: Authorisation revoked** Positional Accuracy: Manually positioned to the address or location	A18NW (N)	812	4	430901 411305
20	**Local Authority Pollution Prevention and Controls** Name: Woolley Colliery Location: Waet Side Coal Preparation, Heath, WAKEFIELD, West Yorkshire, WF1 5SL Authority: Wakefield City Metropolitan District Council, Environmental Health Permit Reference: Not Given Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG3/5 Coal, coke and coal product processes **Status: Authorisation revoked** Positional Accuracy: Manually positioned to the address or location	A17NE (NW)	961	4	430642 411380
20	**Local Authority Pollution Prevention and Controls** Name: Woolley Colliery Occs Location: Darton, , , BARNSLEY, South Yorkshire, S75 5PT Authority: Wakefield City Metropolitan District Council, Environmental Health Permit Reference: A0036 Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG3/5 Coal, coke and coal product processes **Status: Authorisation revoked** Positional Accuracy: Manually positioned to the address or location	A17NE (NW)	963	4	430637 411380

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
20	**Local Authority Pollution Prevention and Controls** Name: Woolley Colliery Location: West Side Coal Preparation, Woolley, WAKEFIELD, West Yorkshire Authority: Wakefield City Metropolitan District Council, Environmental Health Permit Reference: Not Given Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG3/5 Coal, coke and coal product processes **Status: Authorisation revoked** Positional Accuracy: Manually positioned to the address or location	A17NE (NW)	968	4	430637 411385
	Nearest Surface Water Feature	A13NW (W)	110	-	430929 410446
21	**Pollution Incidents to Controlled Waters** Property Type: Other General Premises Location: Rd Brdg B6131/Colliery Stn Dearne 21 Authority: Environment Agency, North East Region Pollutant: Rubbish Note: Not Supplied Incident Date: 23rd March 1994 Incident Reference: 150728 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13SW (SW)	122	2	431000 410300
22	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Road Bridge B6428 /, / Road Brdg B6131 Dearne 20 Authority: Environment Agency, North East Region Pollutant: Oils - Diesel (Including Agricultural) Note: Not Supplied Incident Date: 8th September 1993 Incident Reference: 147764 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A13SE (SE)	197	2	431300 410200
22	**Pollution Incidents to Controlled Waters** Property Type: Water Company Sewage: Storm Overflow Location: Church Street, DARTON Authority: Environment Agency, North East Region Pollutant: Sewage - Storm Overflow Note: Pollution Found; No Fish Killed Incident Date: 10th June 1996 Incident Reference: SH960270 Catchment Area: Dearne Receiving Water: Freshwater Stream/River Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13SE (SE)	239	2	431300 410150
23	**Pollution Incidents to Controlled Waters** Property Type: Water Company Sewage: Sewage Treatment Works Location: Colliery Stn, /Haigh Bridge A637 Dearne 22 Authority: Environment Agency, North East Region Pollutant: Unknown Note: Not Supplied Incident Date: 22nd October 1993 Incident Reference: 148569 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A13NE (N)	217	2	431200 410700
24	**Pollution Incidents to Controlled Waters** Property Type: Other General Premises Location: Dearne At, DARTON Authority: Environment Agency, North East Region Pollutant: Oils - Diesel (Including Agricultural) Note: No Fish Killed Incident Date: 30th November 1995 Incident Reference: SH950168 Catchment Area: Dearne Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13NW (W)	230	2	430800 410500

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
25	**Pollution Incidents to Controlled Waters** Property Type: Water Company Sewage: Storm Overflow Location: Church Street, DARTON Authority: Environment Agency, North East Region Pollutant: Sewage - Storm Overflow Note: No Fish Killed Incident Date: 10th June 1996 Incident Reference: SH960270 Catchment Area: Dearne Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13SE (SE)	244	2	431300 410145
25	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Colliery Stn, /Haigh Bridge A637 Dearne 22 Authority: Environment Agency, North East Region Pollutant: Coal Solids Note: Not Supplied Incident Date: 4th September 1989 Incident Reference: 103939 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A13SE (SE)	284	2	431300 410100
25	**Pollution Incidents to Controlled Waters** Property Type: Miscellaneous Premises: Unknown Location: Rd Brdg B6131/Colliery Stn Dearne 21 Authority: Environment Agency, North East Region Pollutant: Miscellaneous - No Visible Pollution/Nothing Found Note: Not Supplied Incident Date: 5th March 1990 Incident Reference: 108349 Catchment Area: Not Given Receiving Water: No Pollution Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8NE (SE)	289	2	431300 410095
25	**Pollution Incidents to Controlled Waters** Property Type: Other General Premises Location: River Dearne At , Church Street, DARTON Authority: Environment Agency, North East Region Pollutant: Chemicals - Unknown Note: River Dearne; Fish Killed: No Information Incident Date: 26th November 1998 Incident Reference: SH980390 Catchment Area: Dearne Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8NE (SE)	291	2	431305 410095
26	**Pollution Incidents to Controlled Waters** Property Type: Water Company Sewage: Storm Overflow Location: Church Street, DARTON Authority: Environment Agency, North East Region Pollutant: Sewage - Storm Overflow Note: River Dearne; Fish Killed: No Information Incident Date: 11th July 1998 Incident Reference: SH980274 Catchment Area: Dearne Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13SE (S)	256	2	431200 410105
26	**Pollution Incidents to Controlled Waters** Property Type: Water Company Sewage: Storm Overflow Location: River Dearne At , DARTON Authority: Environment Agency, North East Region Pollutant: Sewage - Storm Overflow Note: River Dearne; No Fish Killed Incident Date: 5th July 1998 Incident Reference: SH980267 Catchment Area: Dearne Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13SE (S)	256	2	431195 410105

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
26	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Rd Brdg B6131/Colliery Stn Dearne 21 Authority: Environment Agency, North East Region Pollutant: Miscellaneous - Tip Leachate Note: Not Supplied Incident Date: 10th November 1989 Incident Reference: 105158 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A13SE (S)	256	2	431205 410105
26	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Colliery Stn, /Haigh Bridge A637 Dearne 22 Authority: Environment Agency, North East Region Pollutant: Mining Water Note: Not Supplied Incident Date: 30th November 1994 Incident Reference: 154600 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A13SE (S)	261	2	431200 410100
26	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Rd Brdg B6131/Colliery Stn Dearne 21 Authority: Environment Agency, North East Region Pollutant: Coal Solids Note: Not Supplied Incident Date: 7th November 1989 Incident Reference: 105054 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A13SE (S)	261	2	431205 410100
26	**Pollution Incidents to Controlled Waters** Property Type: Coal Location: Rear Of Post Office, Church Street, DARTON Authority: Environment Agency, North East Region Pollutant: Unknown Note: No Fish Killed Incident Date: 30th November 1994 Incident Reference: SH950074 Catchment Area: Dearne Tributaries Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A8NE (S)	266	2	431205 410095
26	**Pollution Incidents to Controlled Waters** Property Type: Miscellaneous Premises: Unknown Location: Colliery Stn, /Haigh Bridge A637 Dearne 22 Authority: Environment Agency, North East Region Pollutant: Unknown Note: Not Supplied Incident Date: 7th February 1990 Incident Reference: 107551 Catchment Area: Not Given Receiving Water: No Pollution Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8NE (S)	266	2	431200 410095
26	**Pollution Incidents to Controlled Waters** Property Type: Water Company Sewage: Storm Overflow Location: Station Road, Darton, BARNSLEY Authority: Environment Agency, North East Region Pollutant: Sewage - Storm Overflow Note: River Dearne; Fish Killed: No Information Incident Date: 3rd July 1998 Incident Reference: SH980430 Catchment Area: Dearne Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13SE (S)	268	2	431250 410100

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
27	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Colliery Stn, /Haigh Bridge A637 Dearne 22 Authority: Environment Agency, North East Region Pollutant: Industrial Effluent Note: Not Supplied Incident Date: 6th July 1989 Incident Reference: 101019 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13SW (S)	269	2	431100 410100
28	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Rd Brdg B6131/Colliery Stn Dearne 21 Authority: Environment Agency, North East Region Pollutant: Coal Solids Note: Not Supplied Incident Date: 5th September 1989 Incident Reference: 102955 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A18SW (NW)	370	2	430805 410795
28	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Colliery Stn, /Haigh Bridge A637 Dearne 22 Authority: Environment Agency, North East Region Pollutant: Surface Water Note: Not Supplied Incident Date: 23rd November 1994 Incident Reference: 153676 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A18SW (NW)	374	2	430800 410795
28	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Rd Brdg B6131/Colliery Stn Dearne 21 Authority: Environment Agency, North East Region Pollutant: Industrial Effluent Note: Not Supplied Incident Date: 15th August 1989 Incident Reference: 102421 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 1 - Major Incident Positional Accuracy: Located by supplier to within 100m	A18SW (NW)	374	2	430805 410800
28	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Road Bridge B6428 /, Road Brdg B6131 Dearne 20 Authority: Environment Agency, North East Region Pollutant: Coal Solids Note: Not Supplied Incident Date: 20th April 1989 Incident Reference: 6862 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A18SW (NW)	378	2	430805 410805
29	**Pollution Incidents to Controlled Waters** Property Type: Other General Premises Location: Rd Brdg B6131/Colliery Stn Dearne 21 Authority: Environment Agency, North East Region Pollutant: Coal Solids Note: Not Supplied Incident Date: 31st May 1991 Incident Reference: 122900 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A18SW (N)	387	2	431100 410900

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
30	**Pollution Incidents to Controlled Waters** Property Type: Other General Premises Location: Woolley Colliery Stw, WOOLLEY Authority: Environment Agency, North East Region Pollutant: Oils - Diesel (Including Agricultural) Note: No Fish Killed Incident Date: 20th January 1995 Incident Reference: SH950099 Catchment Area: Dearne Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A18SE (N)	403	2	431200 410900
31	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Colliery Stn, /Haigh Bridge A637 Dearne 22 Authority: Environment Agency, North East Region Pollutant: Miscellaneous - Tip Leachate Note: Not Supplied Incident Date: 11th December 1991 Incident Reference: 128941 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A18SW (NW)	420	2	430900 410900
32	**Pollution Incidents to Controlled Waters** Property Type: Farm Location: Road Bridge B6428 /, / Road Brdg B6131 Dearne 20 Authority: Environment Agency, North East Region Pollutant: Agricultural: Carcasses Note: Not Supplied Incident Date: 13th July 1994 Incident Reference: 152592 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8NE (S)	474	2	431300 409900
33	**Pollution Incidents to Controlled Waters** Property Type: Petrol/Fuelling Stations Location: Dearne At Darton Authority: Environment Agency, North East Region Pollutant: Unknown Note: No Fish Killed Incident Date: 9th January 1995 Incident Reference: SH950106 Catchment Area: Dearne Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A12SE (SW)	483	2	430700 410100
34	**Pollution Incidents to Controlled Waters** Property Type: Water Company Sewage: Sewage Treatment Works Location: Rd Brdg B6131/Colliery Stn Dearne 21 Authority: Environment Agency, North East Region Pollutant: Sewage - Treated Effluent Note: Not Supplied Incident Date: 28th March 1994 Incident Reference: 150378 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A18SW (N)	489	2	431000 410995
35	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Colliery Stn, /Haigh Bridge A637 Dearne 22 Authority: Environment Agency, North East Region Pollutant: Mining Water Note: Not Supplied Incident Date: 2nd February 1991 Incident Reference: 119382 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A18SW (NW)	550	2	430800 411000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
36	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Rd Brdg B6131/Colliery Stn Dearne 21 Authority: Environment Agency, North East Region Pollutant: Oils - Diesel (Including Agricultural) Note: Not Supplied Incident Date: 8th October 1993 Incident Reference: 148392 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8NE (S)	572	2	431300 409800
36	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Rd Brdg B6131/Colliery Stn Dearne 21 Authority: Environment Agency, North East Region Pollutant: Industrial Effluent Note: Not Supplied Incident Date: 4th November 1992 Incident Reference: 138432 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8NE (S)	577	2	431300 409795
37	**Pollution Incidents to Controlled Waters** Property Type: Other General Premises Location: Road Bridge B6428 /, Road Brdg B6131 Dearne 20 Authority: Environment Agency, North East Region Pollutant: Coal Solids Note: Not Supplied Incident Date: 16th May 1990 Incident Reference: 110515 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A18SW (N)	613	2	430900 411100
38	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Road Bridge B6428 /, / Road Brdg B6131 Dearne 20 Authority: Environment Agency, North East Region Pollutant: Not Given Note: Not Supplied Incident Date: 28th May 1990 Incident Reference: 111136 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A8SE (S)	769	2	431300 409600
39	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Rd Brdg B6131/Colliery Stn Dearne 21 Authority: Environment Agency, North East Region Pollutant: Surface Water Note: Not Supplied Incident Date: 23rd January 1990 Incident Reference: 107101 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A17NE (NW)	773	2	430700 411200
40	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Colliery Stn, /Haigh Bridge A637 Dearne 22 Authority: Environment Agency, North East Region Pollutant: Mining Water Note: Not Supplied Incident Date: 3rd April 1991 Incident Reference: 121120 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A17NE (NW)	865	2	430700 411300

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
41	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Rd Brdg B6131/Colliery Stn Dearne 21 Authority: Environment Agency, North East Region Pollutant: Mining Water Note: Not Supplied Incident Date: 10th August 1994 Incident Reference: 152908 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A17NE (NW)	908	2	430600 411300
42	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Road Bridge B6428 /, / Road Brdg B6131 Dearne 20 Authority: Environment Agency, North East Region Pollutant: Not Given Note: Not Supplied Incident Date: 4th January 1990 Incident Reference: 106536 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A9SW (S)	916	2	431500 409500
43	**Pollution Incidents to Controlled Waters** Property Type: Coal Location: Woolley Colliery, Woolley, BARNSLEY Authority: Environment Agency, North East Region Pollutant: Unknown Note: No Fish Killed Incident Date: 4th March 1995 Incident Reference: SH950065 Catchment Area: Dearne Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A17NE (NW)	955	2	430500 411295
43	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Colliery Stn, /Haigh Bridge A637 Dearne 22 Authority: Environment Agency, North East Region Pollutant: Washery Effluent Note: Not Supplied Incident Date: 10th April 1990 Incident Reference: 109448 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A17NE (NW)	959	2	430500 411300
	River Quality Name: River_Dearne GQA Grade: River Quality C Reach: Wooley_Minewater_Cawthorne_Dyk Estimated Distance (km): 3.3 Flow Rate: Flow less than 0.31 cumecs Flow Type: River Year: 2000	A13SW (SW)	122	2	430982 410295
	River Quality Name: River_Dearne GQA Grade: River Quality C Reach: Bretton_Brook_Wooley_Minewate Estimated Distance (km): 1.2 Flow Rate: Flow less than 0.31 cumecs Flow Type: River Year: 2000	A17NE (NW)	702	2	430693 411116

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
44	**River Quality Chemistry Sampling Points** Name: River Dearne Reach: Wooley Minewater Cawthorne Dyke Estimated Distance: 3.30 Objective: Not Supplied Positional Accuracy: Located by supplier to within 10m Year: 1990 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Not Supplied Year: 1993 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Not Supplied Year: 1994 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Not Supplied Year: 1995 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Not Supplied Year: 1996 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Not Supplied Year: 1997 GQA Grade: River Quality Chemistry GQA Grade D - Fair Compliance: Not Supplied Year: 1998 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Not Supplied Year: 1999 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Not Supplied Year: 2000 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Not Supplied Year: 2001 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Not Supplied Year: 2002 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Not Supplied Year: 2003 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Not Supplied Year: 2004 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Not Supplied Year: 2005 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Not Supplied Year: 2006 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Not Supplied Year: 2007 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Not Supplied Year: 2008 GQA Grade: River Quality Chemistry GQA Grade B - Good Compliance: Not Supplied Year: 2009 GQA Grade: River Quality Chemistry GQA Grade C - Fairly Good Compliance: Not Supplied	A8NE (S)	274	2	431149 410087
45	**Substantiated Pollution Incident Register** Authority: Environment Agency - North East Region, Yorkshire Area Incident Date: 26th November 2010 Incident Reference: 841110 Water Impact: Category 2 - Significant Incident Air Impact: Category 4 - No Impact Land Impact: Category 4 - No Impact Positional Accuracy: Located by supplier to within 10m Pollutant: Contaminated Water: Suspended Solids	A8NE (S)	273	2	431155 410087
46	**Substantiated Pollution Incident Register** Authority: Environment Agency - North East Region, Yorkshire Area Incident Date: 4th October 2010 Incident Reference: 827897 Water Impact: Category 2 - Significant Incident Air Impact: Category 4 - No Impact Land Impact: Category 4 - No Impact Positional Accuracy: Located by supplier to within 10m Pollutant: Crude Sewage	A18SW (N)	385	2	431064 410898

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
47	**Water Abstractions** Operator: British Coal Licence Number: 2/27/08/031 Permit Version: Not Supplied Location: Location Description Not Available Authority: Environment Agency, North East Region Abstraction: General Industrial Abstraction Type: Not Supplied Source: Surface Daily Rate (m3): 2728 Yearly Rate (m3): 818000 Details: Licence Revoked Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A17SE (NW)	514	2	430780 410950
48	**Water Abstractions** Operator: The Coal Authority Licence Number: Ne/027/0008/006/R01 Permit Version: 1 Location: Underground Strata At Former Wooley Colliery Authority: Environment Agency, North East Region Abstraction: Environmental: Pump & Treat: Pollution Remediation Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 20th April 2017 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A18NW (N)	661	2	430949 411161
48	**Water Abstractions** Operator: The Coal Authority Licence Number: Ne/027/0008/006 Permit Version: 1 Location: Underground Strata At Former Wooley Colliery Authority: Environment Agency, North East Region Abstraction: Environmental: Pump & Treat: Pollution Remediation Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 13th July 2009 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A18NW (N)	661	2	430949 411161
49	**Water Abstractions** Operator: Shaw Carpets Ltd Licence Number: 2/27/08/114 Permit Version: Not Supplied Location: Po Box. 4, Darton, BARNSLEY Authority: Environment Agency, North East Region Abstraction: Commercial Use(pubs etc) Abstraction Type: Not Supplied Source: Groundwater Daily Rate (m3): 312 Yearly Rate (m3): 85072 Details: Licence Status: Active Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A8SE (S)	694	2	431400 409700

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: A I Crossley & Son Licence Number: 2/27/08/049 Permit Version: 100 Location: Spring - Coal Measures - Darton Authority: Environment Agency, North East Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): 5 Yearly Rate (m3): 1659 Details: Birthwaite Hall Farm,Darton,Barnsley Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 27th January 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(W)	1657	2	429400 410200
	Groundwater Vulnerability Map Combined Classification: Secondary Bedrock Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, No Superficial Aquifer Pollutant Speed: Low Bedrock Flow: Well Connected Fractures Dilution: 300-550 mm/year Baseflow Index: <40% Superficial Patchiness: <90% Superficial Thickness: <3m Superficial Recharge: No Data	A13SW (NW)	0	5	431121 410436
	Groundwater Vulnerability - Soluble Rock Risk None				
	Bedrock Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A13SW (NW)	0	5	431121 410436
	Superficial Aquifer Designations No Data Available				
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SW (SW)	93	2	430984 410380
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Events Boundary Accuracy: As Supplied	A13SW (SW)	105	2	431031 410291
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models and Fluvial Events Boundary Accuracy: As Supplied	A13SW (SW)	105	2	430999 410331
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SW (S)	118	2	431057 410260
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Events Boundary Accuracy: As Supplied	A13SW (S)	126	2	431064 410249
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SW (S)	130	2	431068 410244
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Events Boundary Accuracy: As Supplied	A13SW (S)	136	2	431073 410237
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SW (SW)	136	2	430959 410323

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SW (S)	137	2	431074 410235
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Events Boundary Accuracy: As Supplied	A13SW (S)	144	2	431092 410226
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SW (S)	165	2	431064 410209
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NW (NW)	175	2	430862 410552
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (S)	185	2	431202 410176
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Events Boundary Accuracy: As Supplied	A13SE (S)	196	2	431209 410166
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (S)	200	2	431212 410162
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NW (W)	228	2	430808 410557
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Events Boundary Accuracy: As Supplied	A13NW (NW)	240	2	430836 410642
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SW (SW)	102	2	430989 410351
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NW (W)	141	2	430891 410523
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas None				
	Flood Defences None				
50	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1690.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: River Dearne Catchment Name: Don and Rother Primacy: 1	A13SW (SW)	114	6	430956 410334
51	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 72.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A13NW (W)	239	6	430797 410557

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
52	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 375.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: River Dearne Catchment Name: Don and Rother Primacy: 1	A13NW (W)	239	6	430797 410557
53	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 72.5 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A12NE (W)	284	6	430746 410509
54	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 2.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A12NE (W)	330	6	430703 410450
55	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 128.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A12NE (W)	331	6	430702 410448
56	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 2.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A12NE (W)	331	6	430702 410448
57	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 609.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: River Dearne Catchment Name: Don and Rother Primacy: 1	A18SW (NW)	444	6	430815 410889
58	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 27.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A18SW (NW)	444	6	430815 410889
59	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 716.8 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A18SW (N)	445	6	431007 410952
60	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 293.3 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A12SE (W)	450	6	430591 410400

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
61	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 30.4 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A18SW (NW)	450	6	430862 410920
62	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 111.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A18SW (NW)	452	6	430862 410920
63	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 167.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A19SE (NE)	709	6	431811 410810
64	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 140.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A19SW (NE)	734	6	431562 411075
65	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 171.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A12SW (W)	743	6	430304 410338
66	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 35.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A14SE (E)	765	6	431926 410137
67	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 123.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A14NE (E)	767	6	431979 410505
68	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 255.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A8SE (S)	803	6	431219 409558
69	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 310.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A19SE (NE)	833	6	431844 410970

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
70	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 84.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A19SE (NE)	833	6	431844 410970
71	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A19SE (NE)	833	6	431844 410971
72	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 15.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A19NW (NE)	837	6	431690 411115
73	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 144.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A19NW (NE)	838	6	431690 411115
74	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 69.8 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A12SW (W)	883	6	430160 410346
75	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 546.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A18NW (N)	885	6	430840 411365
76	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 152.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A17NE (NW)	893	6	430639 411304
77	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 76.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A9NE (SE)	918	6	431914 409793
78	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 98.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A17NE (NW)	924	6	430731 411374

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
79	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 261.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A18NE (N)	939	6	431258 411436
80	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 91.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A18NE (N)	939	6	431258 411436
81	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 104.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A19NE (NE)	950	6	431825 411152
82	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 95.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A19NE (NE)	950	6	431825 411152
83	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 36.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A11SE (W)	953	6	430091 410333
84	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 209.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A17NE (NW)	970	6	430521 411326
85	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 464.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: River Dearne Catchment Name: Don and Rother Primacy: 1	A17NE (NW)	970	6	430521 411326
86	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 141.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A9SW (SE)	977	6	431560 409458
87	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 548.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A23SE (N)	980	6	431347 411458

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
88	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 52.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A17NE (NW)	984	6	430531 411349
89	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 188.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Don and Rother Primacy: 1	A11SE (W)	985	6	430057 410346

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
90	**Historical Landfill Sites** Licence Holder: Shaw Carpets Limited Location: Barnsley Road, Darton, Barnsley Name: Shaw Carpets Limited Operator Location: Barnsley Road, Darton, Barnsley Boundary Accuracy: As Supplied Provider Reference: EAHLD04346 First Input Date: 30th April 1980 Last Input Date: 31st December 1993 Specified Waste Type: Deposited Waste included Inert, Industrial and Commercial Waste EA Waste Ref: 0 Regis Ref: Not Supplied WRC Ref: 4400/0478 BGS Ref: Not Supplied Other Ref: WD20 B265, 4400/B265, 20B265(76)	A9SW (SE)	993	2	431674 409495
	Local Authority Landfill Coverage Name: Barnsley Metropolitan Borough Council - Has supplied landfill data		0	3	431121 410436
	Local Authority Landfill Coverage Name: Wakefield Metropolitan Borough Council - Has not been able to supply Landfill data		322	4	431154 410827
91	**Local Authority Recorded Landfill Sites** Location: Not Supplied Reference: 76 Authority: Barnsley Metropolitan Borough Council, Environmental Health and Trading Standards **Last Reported Status: Unknown** Types of Waste: Not Supplied Date of Closure: Not Supplied Positional Accuracy: Positioned by the supplier Boundary Quality: Moderate	A9SW (SE)	967	3	431680 409529

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
92	**Control of Major Accident Hazards Sites (COMAH)** Name: Stiller Group North Limited Location: Barnsley Depot, Dearne Mills, Barnsley Road, Darton, South Yorkshire, S75 5NN Reference: 4030326 Type: Upper Tier **Status: Active** Positional Accuracy: Manually positioned within the geographical locality	A9SW (SE)	760	7	431498 409667

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: Pennine Middle Coal Measures Formation And South Wales Middle Coal Measures Formation (Undifferentiated)	A13SW (NW)	0	1	431121 410436
93	**BGS Recorded Mineral Sites** Site Name: Darton Location: Darton, Barnsley, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 109959 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Haigh Moor Rock Commodity: Sandstone Positional Accuracy: Located by supplier to within 10m	A13SE (SE)	31	1	431188 410330
94	**BGS Recorded Mineral Sites** Site Name: Pye Wood Mine Location: Darton, Barnsley, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 103076 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Barnsley Coal (West And South Yorkshire) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A13NE (NE)	319	1	431387 410693
95	**BGS Recorded Mineral Sites** Site Name: Pye Wood Mine Air Shaft Location: Darton, Barnsley, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 250402 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Barnsley Coal (West And South Yorkshire) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A13NE (NE)	371	1	431444 410716
96	**BGS Recorded Mineral Sites** Site Name: Bloomhouse Lane Phase 2 Occs Location: Darton, Barnsley, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 4504 Type: Opencast **Status: Ceased** Operator: Derbyshire Mining Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Coal - Opencast Positional Accuracy: Located by supplier to within 100m	A14NW (NE)	396	1	431500 410700
97	**BGS Recorded Mineral Sites** Site Name: Darton Main Colliery Location: Darton, Barnsley, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 25991 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A12SE (SW)	403	1	430733 410192

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
98	**BGS Recorded Mineral Sites** Site Name: Bloomhouse Green Level Location: Darton, Barnsley, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 25996 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Barnsley Coal (West And South Yorkshire) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A14SW (E)	476	1	431682 410327
99	**BGS Recorded Mineral Sites** Site Name: Woolley Colliery, No. 3 Shaft Location: Woolley, Wakefield, West Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 259374 Type: Underground **Status: Ceased** Operator: British Coal - North Yorkshire Area Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A18SW (N)	517	1	431094 411030
100	**BGS Recorded Mineral Sites** Site Name: Darton Location: Darton, Barnsley, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 25989 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Sandstone Positional Accuracy: Located by supplier to within 10m	A8NW (S)	572	1	430936 409822
101	**BGS Recorded Mineral Sites** Site Name: Darton Coal Crop Workings Location: Darton, Barnsley, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 217031 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Barnsley Coal (West And South Yorkshire) Commodity: Coal - Opencast Positional Accuracy: Located by supplier to within 10m	A9NW (SE)	600	1	431526 409866
102	**BGS Recorded Mineral Sites** Site Name: Pye Wood Mine Location: Darton, Barnsley, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 103077 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Kent'S Thick Coal (West And South Yorkshire) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A19SW (NE)	615	1	431617 410890
103	**BGS Recorded Mineral Sites** Site Name: Woolley Colliery, Shaft No. 1 Location: Woolley, Wakefield, West Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 4499 Type: Underground **Status: Ceased** Operator: British Coal - North Yorkshire Area Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Coal Measures Group Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A18NW (N)	628	1	430989 411135

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
104	**BGS Recorded Mineral Sites** Site Name: Woolley Colliery, No. 2 Shaft Location: Woolley, Wakefield, West Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 259373 Type: Underground **Status: Ceased** Operator: British Coal - North Yorkshire Area Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A18NW (N)	667	1	430947 411167
105	**BGS Recorded Mineral Sites** Site Name: Woolley Colliery Occs Location: Wooley, Wakefield, West Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 5836 Type: Opencast **Status: Ceased** Operator: Individual'S Name Withheld Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Coal - Opencast Positional Accuracy: Located by supplier to within 100m	A18NW (N)	691	1	431000 411200
106	**BGS Recorded Mineral Sites** Site Name: Darton Coal Crop Workings Location: Darton, Barnsley, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 217032 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Barnsley Coal (West And South Yorkshire) Commodity: Coal - Opencast Positional Accuracy: Located by supplier to within 10m	A9NW (SE)	699	1	431575 409779
107	**BGS Recorded Mineral Sites** Site Name: Oates Occs Location: Darton, Barnsley, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 217034 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Barnsley Coal (West And South Yorkshire) Commodity: Coal - Opencast Positional Accuracy: Located by supplier to within 10m	A9NE (SE)	744	1	431863 410036
108	**BGS Recorded Mineral Sites** Site Name: Pye Wood Mine Location: Darton, Barnsley, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 250401 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Kent'S Thick Coal (West And South Yorkshire) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A19SW (NE)	745	1	431593 411066
109	**BGS Recorded Mineral Sites** Site Name: Woolley Colliery Surface Drift Location: Woolley, Wakefield, West Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 259375 Type: Underground **Status: Ceased** Operator: British Coal - North Yorkshire Area Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A18NW (N)	796	1	430959 411300

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
110	**BGS Recorded Mineral Sites** Site Name: Darton Coal Crop Workings Location: Darton, Barnsley, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 217030 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Barnsley Coal (West And South Yorkshire) Commodity: Coal - Opencast Positional Accuracy: Located by supplier to within 10m	A9SW (SE)	822	1	431737 409748
111	**BGS Recorded Mineral Sites** Site Name: Bloomhouse Green Location: Darton, Barnsley, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 25995 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Sandstone Positional Accuracy: Located by supplier to within 10m	A14SE (E)	841	1	432029 410209
112	**BGS Recorded Mineral Sites** Site Name: Darton Coal Crop Workings Location: Darton, Barnsley, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 217029 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Barnsley Coal (West And South Yorkshire) Commodity: Coal - Opencast Positional Accuracy: Located by supplier to within 10m	A9SE (SE)	904	1	431845 409737
113	**BGS Recorded Mineral Sites** Site Name: Oates Occs Location: Darton, Barnsley, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 217033 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Barnsley Coal (West And South Yorkshire) Commodity: Coal - Opencast Positional Accuracy: Located by supplier to within 10m	A9NE (SE)	912	1	432006 409947
114	**BGS Recorded Mineral Sites** Site Name: Woolley Colliery Surface Drift Location: Woolley, Wakefield, West Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 259376 Type: Underground **Status: Ceased** Operator: British Coal - North Yorkshire Area Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A23SE (N)	957	1	431223 411460
115	**BGS Recorded Mineral Sites** Site Name: Windhill Shaft, Woolley Colliery Location: Darton, Barnsley, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 102531 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Pennine Lower Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	985	1	431570 411373

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
116	**BGS Recorded Mineral Sites** Site Name: Sutcliffe & Shipley Colliery Location: Mapplewell, Barnsley, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 217026 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Barnsley Coal (West And South Yorkshire) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A9NE (SE)	1000	1	432077 409892
	Coal Mining Affected Areas Description: In an area which may be affected by coal mining activity. It is recommended that a coal mining report is obtained from the Coal Authority. Contact details are included in the Useful Contacts section of this report.	A13SW (NW)	0	8	431121 410436
	Mining Instability Mining Evidence: Inconclusive Coal Mining Source: Ove Arup & Partners Boundary Quality: As Supplied	A13SW (NW)	0	-	431121 410436
	Non Coal Mining Areas of Great Britain Risk: Highly Unlikely Source: British Geological Survey, National Geoscience Information Service	A13SW (NW)	0	1	431121 410436
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (NW)	0	1	431121 410436
	Potential for Collapsible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	97	1	430977 410355
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (W)	250	1	430816 410351
	Potential for Compressible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (NW)	0	1	431121 410436
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	0	1	431135 410467
	Potential for Compressible Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	97	1	430977 410355
	Potential for Compressible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	154	1	430966 410287
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (W)	250	1	430810 410371
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (NW)	0	1	431121 410436
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (NW)	0	1	431121 410436
	Potential for Landslide Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	13	1	431065 410398
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	21	1	431061 410384
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	62	1	431217 410306
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A14SW (E)	248	1	431463 410396

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	0	1	431135 410467
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (NW)	0	1	431121 410436
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	97	1	430977 410355
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	154	1	430966 410287
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (W)	250	1	430810 410371
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (NW)	0	1	431121 410436
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	0	1	431155 410457
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	125	1	431272 410267
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	204	1	431234 410162
	Radon Potential - Radon Affected Areas Affected Area: The property is in an Intermediate probability radon area (5 to 10% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	A13SW (NW)	0	1	431121 410436
	Radon Potential - Radon Affected Areas Affected Area: The property is in a Lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	A13NE (E)	0	1	431175 410450
	Radon Potential - Radon Protection Measures Protection Measure: Basic radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A13SW (NW)	0	1	431121 410436
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A13NE (E)	0	1	431175 410450

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
117	**Contemporary Trade Directory Entries** Name: Microprint Location: 25a, Station Road, Darton, Barnsley, South Yorkshire, S75 5HT Classification: Printers - Glass, Metal, Plastics Etc. **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SE (SE)	266	-	431385 410179
118	**Contemporary Trade Directory Entries** Name: Rightcast Ltd Location: Unit 4, Junction 38 Business Park, Parkside Way, Darton, Barnsley, S75 5QQ Classification: Staircase, Balustrade & Handrail Manufacturers **Status: Active** Positional Accuracy: Automatically positioned to the address	A12SE (W)	388	-	430707 410273
118	**Contemporary Trade Directory Entries** Name: Thyssenkrupp Aerospace Location: Unit 4, Junction 38 Business Park, Parkside Way, Darton, Barnsley, South Yorkshire, S75 5QQ Classification: Engineers - General **Status: Active** Positional Accuracy: Automatically positioned to the address	A12SE (W)	388	-	430707 410273
119	**Contemporary Trade Directory Entries** Name: Ivy Motors Location: 36, Church Street, Darton, Barnsley, South Yorkshire, S75 5HG Classification: Car Body Repairs **Status: Active** Positional Accuracy: Automatically positioned to the address	A8NE (S)	398	-	431139 409963
119	**Contemporary Trade Directory Entries** Name: Mick'S Tyres Location: Rear of 38, Church Street, Darton, Barnsley, South Yorkshire, S75 5HG Classification: Tyre Dealers **Status: Active** Positional Accuracy: Automatically positioned to the address	A8NW (S)	411	-	431114 409953
119	**Contemporary Trade Directory Entries** Name: M M Motors Location: Rear of 38, Church Street, Darton, Barnsley, South Yorkshire, S75 5HG Classification: Garage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A8NW (S)	411	-	431114 409953
120	**Contemporary Trade Directory Entries** Name: Prem Dor Location: BIRTHWAITE BUSINESS PARK, HUDDERSFIELD ROAD, DARTON, BARNSLEY, S75 5JS Classification: Door Manufacturers - Domestic **Status: Active** Positional Accuracy: Automatically positioned to the address	A12NE (W)	433	-	430597 410476
121	**Contemporary Trade Directory Entries** Name: Senior Haulage Ltd Location: Unit 3, Junction 38 Business Park, Parkside Way, Darton, Barnsley, South Yorkshire, S75 5QQ Classification: Road Haulage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A12SE (SW)	446	-	430689 410182
121	**Contemporary Trade Directory Entries** Name: P B Joinery Ltd Location: Unit 1, Junction 38 Business Park, Parkside Way, Darton, Barnsley, South Yorkshire, S75 5QQ Classification: Mould Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SE (SW)	446	-	430689 410182
121	**Contemporary Trade Directory Entries** Name: Copier Systems Ltd Location: Junction 38 Business Park,Parkside Way, Darton, Barnsley, South Yorkshire, S75 5QQ Classification: Office Equipment Servicing & Maintenance **Status: Active** Positional Accuracy: Manually positioned within the geographical locality	A12SE (SW)	454	-	430663 410214
122	**Contemporary Trade Directory Entries** Name: Waterton'S Reserve Gin Location: Unit 9 Darton Business Park, Barnsley Road, Darton, Barnsley, South Yorkshire, S75 5QX Classification: Distilleries **Status: Active** Positional Accuracy: Manually positioned to the address or location	A8NE (SE)	457	-	431362 409939

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
123	**Contemporary Trade Directory Entries** Name: Constant Power Solutions Ltd Location: 4, Swaithe View, Woolley Grange, Barnsley, South Yorkshire, S75 5RW Classification: Generators - Sales & Service **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SW (N)	461	-	431064 410974
124	**Contemporary Trade Directory Entries** Name: Mallinson International Ltd Location: Junction 38 Business Park,Parkside Way, Darton, Barnsley, South Yorkshire, S75 5QQ Classification: Freight Forwarders **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A7NE (SW)	494	-	430690 410095
125	**Contemporary Trade Directory Entries** Name: Transcold Ltd Location: 5, Bloomingdale Court, Woolley Grange, Barnsley, S75 5RQ Classification: Road Haulage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SW (N)	500	-	431100 411013
126	**Contemporary Trade Directory Entries** Name: P B Engineering Services Location: Darton Council Offices, Huddersfield Road, Darton, Barnsley, South Yorkshire, S75 5NB Classification: Engineering Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NW (S)	502	-	430941 409894
126	**Contemporary Trade Directory Entries** Name: Darton Social Services Department Location: The Darton Centre, Huddersfield Road, Darton, Barnsley, South Yorkshire, S75 5ND Classification: Garage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NW (S)	514	-	430942 409880
127	**Contemporary Trade Directory Entries** Name: Riverside Sports & Prestige Location: HARRATTS MITSUBISHI, HUDDERSFIELD ROAD, DARTON, BARNSLEY, S75 5NF Classification: Car Dealers **Status: Active** Positional Accuracy: Automatically positioned to the address	A7NE (SW)	502	-	430725 410037
128	**Contemporary Trade Directory Entries** Name: European Fleet Management Ltd Location: Dearne Mills, Barnsley Road, Darton, Barnsley, S75 5NH Classification: Commercial Vehicle Bodybuilders & Repairers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NE (SE)	537	-	431385 409862
128	**Contemporary Trade Directory Entries** Name: Carpet Express Ltd Location: Dearne Mills, Barnsley Road, Darton, Barnsley, S75 5NH Classification: Distribution Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NE (SE)	537	-	431385 409862
129	**Contemporary Trade Directory Entries** Name: Bsb Quality Clothing Ltd Location: Station Road, Darton, Barnsley, South Yorkshire, S75 5AF Classification: Clothing & Fabrics - Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A9NW (SE)	555	-	431625 410014
130	**Contemporary Trade Directory Entries** Name: Kuehne + Nagel Ltd Location: Dearne Mills,Barnsley Road, Darton, Barnsley, South Yorkshire, S75 5NN Classification: Road Haulage Services **Status: Inactive** Positional Accuracy: Manually positioned within the geographical locality	A8NW (S)	592	-	431100 409772
130	**Contemporary Trade Directory Entries** Name: Robert Thompson Garage Services Location: Central Garage, Barnsley Road, Darton, Barnsley, S75 5NN Classification: Garage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A8SW (S)	633	-	431110 409730

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
131	**Contemporary Trade Directory Entries** Name: Diane'S Location: 38, Churchfield Lane, Darton, Barnsley, South Yorkshire, S75 5DJ Classification: Ironing & Home Laundry Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A7NE (SW)	667	-	430773 409788
132	**Contemporary Trade Directory Entries** Name: Colour Craft Location: Darton Business Park, Barnsley Road, Darton, Barnsley, South Yorkshire, S75 5QX Classification: Screen Process Printers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A8SE (S)	673	-	431381 409716
132	**Contemporary Trade Directory Entries** Name: Hot House Partnerships Ltd Location: Unit 5 Darton Business Park, Barnsley Road, Darton, Barnsley, South Yorkshire, S75 5NQ Classification: Perfume Suppliers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8SE (SE)	687	-	431424 409716
132	**Contemporary Trade Directory Entries** Name: Stiller Group Location: Barnsley Road, Darton, Barnsley, South Yorkshire, S75 5NN Classification: Distribution Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8SE (SE)	687	-	431424 409716
132	**Contemporary Trade Directory Entries** Name: Athena Manufacturing Ltd Location: Darton Business Park, Barnsley Road, Darton, Barnsley, S75 5QX Classification: Plastics - Injection Moulding **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8SE (SE)	687	-	431424 409716
132	**Contemporary Trade Directory Entries** Name: Egan Bros Road Haulage Location: Dearne Mills, Barnsley Road, Darton, BARNSLEY, South Yorkshire, S75 5NH Classification: Road Haulage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8SE (S)	690	-	431397 409704
133	**Contemporary Trade Directory Entries** Name: Worth Polythene Ltd Location: 15, Windhill Rise, Woolley Grange, Barnsley, South Yorkshire, S75 5RJ Classification: Paper & Cardboard Products & Packaging - Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18NW (N)	822	-	431076 411335
134	**Contemporary Trade Directory Entries** Name: Flaming Hot Fires Location: 8, Wentworth Road, Darton, Barnsley, S75 5LB Classification: Gas Suppliers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A7SE (SW)	831	-	430574 409727
135	**Contemporary Trade Directory Entries** Name: Colouration International Location: A, 48, Roman Road, Darton, Barnsley, South Yorkshire, S75 5DD Classification: Dyers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A7SE (SW)	834	-	430746 409614
136	**Contemporary Trade Directory Entries** Name: Pennine Building Solutions Location: 6, Henry Moore Court, Woolley Grange, Barnsley, South Yorkshire, S75 5QS Classification: Building Block Manufacturers & Distributors **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18NW (N)	851	-	430875 411339
137	**Contemporary Trade Directory Entries** Name: Scrap My Car Now For Money Barnsley Kws Location: Dearne Mills, Barnsley Road, Darton, Barnsley, South Yorkshire, S75 5NH Classification: Car Breakers & Dismantlers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A9SW (SE)	910	-	431598 409549

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
138	**Contemporary Trade Directory Entries** Name: Csk Electrical Services Location: 2, Austwick Close, Mapplewell, Barnsley, South Yorkshire, S75 5QF Classification: Laundry Equipment - Sales & Service **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A15NW (E)	952	-	432162 410536
139	**Contemporary Trade Directory Entries** Name: Top Gear Autotune Location: 15, Kexbro Drive, Darton, Barnsley, South Yorkshire, S75 5EY Classification: Car Engine Tuning & Diagnostic Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A7SE (SW)	961	-	430570 409569
140	**Contemporary Trade Directory Entries** Name: Top Gun Cosmetic Car Repairs Location: 16, St. Andrews Drive, Darton, Barnsley, South Yorkshire, S75 5LX Classification: Car Body Repairs **Status: Active** Positional Accuracy: Automatically positioned to the address	A15SW (E)	967	-	432140 410138
141	**Contemporary Trade Directory Entries** Name: Proprint Construction Ltd Location: 50, STRAFFORD STREET, DARTON, KEXBROUGH, BARNSLEY, S75 5LD Classification: Builders' Merchants **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A7SW (SW)	974	-	430437 409657
141	**Contemporary Trade Directory Entries** Name: Aquagem Heating Location: 50, Strafford Street, Darton, Barnsley, South Yorkshire, S75 5LD Classification: Under Floor Heating **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A7SW (SW)	974	-	430437 409657
142	**Contemporary Trade Directory Entries** Name: G S S Letterpress Location: 5, Fulford Close, Darton, Barnsley, South Yorkshire, S75 5PY Classification: Printing Engineering Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A9NE (E)	981	-	432118 410029
143	**Fuel Station Entries** Name: Central Garage Location: Barnsley Road , Darton , Barnsley, South Yorkshire, S75 5NN Brand: MURCO Premises Type: Petrol Station **Status: Open** Positional Accuracy: Manually positioned to the address or location	A8SW (S)	632	-	431103 409732

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
144	**Ancient Woodland** Name: Not Supplied Reference: 1410218 Area(m²): 67621.98 Type: Ancient and Semi-Natural Woodland	A19SW (NE)	734	9	431571 411069
145	**Ancient Woodland** Name: Windhill Wood Reference: 1103467 Area(m²): 39476.98 Type: Ancient and Semi-Natural Woodland	A18NE (N)	758	9	431170 411266
146	**Areas of Adopted Green Belt** Authority: Barnsley Metropolitan Borough Council, Planning Department Plan Name: Proposal Map **Status: Adopted** Plan Date: 3rd January 2019	A13SW (SW)	5	10	431069 410401
147	**Areas of Adopted Green Belt** Authority: Barnsley Metropolitan Borough Council, Planning Department Plan Name: Proposal Map **Status: Adopted** Plan Date: 3rd January 2019	A13NE (NE)	169	10	431257 410603
148	**Areas of Adopted Green Belt** Authority: Wakefield City Metropolitan District Council Plan Name: Proposal Map **Status: Adopted** Plan Date: 12th September 2012	A18SW (N)	384	11	430992 410887
149	**Nitrate Vulnerable Zones** Name: River Dearne Nvz Description: Surface Water Source: Environment Agency, Head Office	A13SW (NW)	0	5	431121 410436

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices		
Barnsley Metropolitan Borough Council - Environmental Health and Trading Standards	January 2020	Annual Rolling Update
Environment Agency - Head Office	November 2023	Annually
Kirklees Metropolitan Borough Council - Planning Services	October 2017	Annual Rolling Update
Wakefield City Metropolitan District Council - Environmental Health	October 2017	Annual Rolling Update
Discharge Consents		
Environment Agency - North East Region	April 2024	Quarterly
Enforcement and Prohibition Notices		
Environment Agency - North East Region	March 2013	
Integrated Pollution Controls		
Environment Agency - North East Region	January 2009	
Integrated Pollution Prevention And Control		
Environment Agency - North East Region	October 2023	Quarterly
Local Authority Integrated Pollution Prevention And Control		
Barnsley Metropolitan Borough Council - Environmental Health and Trading Standards	April 2014	Variable
Kirklees Metropolitan Borough Council - Environmental Health Department	April 2014	Variable
Wakefield City Metropolitan District Council - Environmental Health	December 2020	Variable
Local Authority Pollution Prevention and Controls		
Barnsley Metropolitan Borough Council - Environmental Health and Trading Standards	April 2014	Annual Rolling Update
Kirklees Metropolitan Borough Council - Environmental Health Department	April 2014	Annual Rolling Update
Wakefield City Metropolitan District Council - Environmental Health	December 2020	Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements		
Barnsley Metropolitan Borough Council - Environmental Health and Trading Standards	April 2014	Variable
Kirklees Metropolitan Borough Council - Environmental Health Department	April 2014	Variable
Wakefield City Metropolitan District Council - Environmental Health	June 2014	Variable
Nearest Surface Water Feature		
Ordnance Survey	March 2024	
Pollution Incidents to Controlled Waters		
Environment Agency - North East Region	December 1998	
Prosecutions Relating to Authorised Processes		
Environment Agency - North East Region	July 2015	
Prosecutions Relating to Controlled Waters		
Environment Agency - North East Region	March 2013	
Registered Radioactive Substances		
Environment Agency - North East Region	June 2016	As notified
Environment Agency - Head Office	May 2023	Quarterly
River Quality		
Environment Agency - Head Office	November 2001	Not Applicable
River Quality Biology Sampling Points		
Environment Agency - Head Office	April 2012	
River Quality Chemistry Sampling Points		
Environment Agency - Head Office	April 2012	
Substantiated Pollution Incident Register		
Environment Agency - North East Region - Ridings Area	April 2024	Quarterly
Environment Agency - North East Region - Yorkshire Area	April 2024	Quarterly
Water Abstractions		
Environment Agency - North East Region	April 2024	Quarterly
Water Industry Act Referrals		
Environment Agency - North East Region	October 2017	
Groundwater Vulnerability Map		
Environment Agency - Head Office	June 2018	As notified

Agency & Hydrological	Version	Update Cycle
Bedrock Aquifer Designations		
Environment Agency - Head Office	January 2018	As notified
Superficial Aquifer Designations		
Environment Agency - Head Office	January 2018	As notified
Source Protection Zones		
Environment Agency - Head Office	September 2022	Bi-Annually
Extreme Flooding from Rivers or Sea without Defences		
Environment Agency - Head Office	December 2023	Quarterly
Flooding from Rivers or Sea without Defences		
Environment Agency - Head Office	December 2023	Quarterly
Areas Benefiting from Flood Defences		
Environment Agency - Head Office	February 2023	Quarterly
Flood Water Storage Areas		
Environment Agency - Head Office	January 2024	Quarterly
Flood Defences		
Environment Agency - Head Office	August 2022	Quarterly
OS Water Network Lines		
Ordnance Survey	April 2024	Quarterly
BGS Groundwater Flooding Susceptibility		
British Geological Survey - National Geoscience Information Service	May 2013	As notified
Waste	**Version**	**Update Cycle**
BGS Recorded Landfill Sites		
British Geological Survey - National Geoscience Information Service	November 2002	As notified
Historical Landfill Sites		
Environment Agency - Head Office	May 2024	Quarterly
Integrated Pollution Control Registered Waste Sites		
Environment Agency - North East Region	January 2009	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries)		
Environment Agency - North East Region - Ridings Area	May 2024	Quarterly
Environment Agency - North East Region - Yorkshire Area	May 2024	Quarterly
Licensed Waste Management Facilities (Locations)		
Environment Agency - North East Region - Ridings Area	January 2023	Quarterly
Environment Agency - North East Region - Yorkshire Area	January 2023	Quarterly
Local Authority Landfill Coverage		
Barnsley Metropolitan Borough Council - Environmental Health and Trading Standards	February 2003	Not Applicable
Kirklees Metropolitan Borough Council - Planning Services	February 2003	Not Applicable
Wakefield City Metropolitan District Council - Environmental Health	February 2003	Not Applicable
Local Authority Recorded Landfill Sites		
Barnsley Metropolitan Borough Council - Environmental Health and Trading Standards	October 2018	
Kirklees Metropolitan Borough Council - Planning Services	October 2018	
Wakefield City Metropolitan District Council - Environmental Health	October 2018	
Registered Landfill Sites		
Environment Agency - North East Region - Ridings Area	March 2006	Not Applicable
Environment Agency - North East Region - Yorkshire Area	March 2006	Not Applicable
Registered Waste Transfer Sites		
Environment Agency - North East Region - Ridings Area	April 2018	
Environment Agency - North East Region - Yorkshire Area	April 2018	
Registered Waste Treatment or Disposal Sites		
Environment Agency - North East Region - Ridings Area	June 2015	
Environment Agency - North East Region - Yorkshire Area	June 2015	

Hazardous Substances	Version	Update Cycle
Control of Major Accident Hazards Sites (COMAH)		
Health and Safety Executive	January 2024	Bi-Annually
Explosive Sites		
Health and Safety Executive	March 2017	
Notification of Installations Handling Hazardous Substances (NIHHS)		
Health and Safety Executive	August 2001	
Planning Hazardous Substance Enforcements		
Kirklees Metropolitan Borough Council - Planning Services	August 2015	Variable
Barnsley Metropolitan Borough Council - Planning Department	January 2016	Variable
Wakefield City Metropolitan District Council	July 2023	Variable
Planning Hazardous Substance Consents		
Kirklees Metropolitan Borough Council - Planning Services	August 2015	Variable
Wakefield City Metropolitan District Council	February 2016	Variable
Barnsley Metropolitan Borough Council - Planning Department	January 2016	Variable

Geological	Version	Update Cycle
BGS 1:625,000 Solid Geology		
British Geological Survey - National Geoscience Information Service	January 2009	As notified
BGS Recorded Mineral Sites		
British Geological Survey - National Geoscience Information Service	January 2024	Bi-Annually
CBSCB Compensation District		
Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011	
Cheshire Brine Subsidence Compensation Board (CBSCB)	November 2020	As notified
Coal Mining Affected Areas		
The Coal Authority - Property Searches	February 2023	Annual Rolling Update
Mining Instability		
Ove Arup & Partners	June 1998	Not Applicable
Non Coal Mining Areas of Great Britain		
British Geological Survey - National Geoscience Information Service	May 2015	Not Applicable
Potential for Collapsible Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	April 2020	As notified
Potential for Compressible Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Ground Dissolution Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Landslide Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Running Sand Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Shrinking or Swelling Clay Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	As notified
Radon Potential - Radon Affected Areas		
British Geological Survey - National Geoscience Information Service	October 2023	Annually
Radon Potential - Radon Protection Measures		
British Geological Survey - National Geoscience Information Service	October 2023	Annually

Industrial Land Use	Version	Update Cycle
Contemporary Trade Directory Entries		
Thomson Directories	April 2024	Quarterly
Fuel Station Entries		
Catalist Ltd - Experian	February 2024	Quarterly
Gas Pipelines		
National Grid	October 2021	Bi-Annually
Underground Electrical Cables		
National Grid	January 2024	Bi-Annually
Sensitive Land Use	**Version**	**Update Cycle**
Ancient Woodland		
Natural England	April 2024	Bi-Annually
Areas of Adopted Green Belt		
Barnsley Metropolitan Borough Council - Planning Department	February 2024	Quarterly
Kirklees Metropolitan Borough Council	February 2024	Quarterly
Wakefield City Metropolitan District Council	February 2024	Quarterly
Areas of Unadopted Green Belt		
Barnsley Metropolitan Borough Council - Planning Department	February 2024	Quarterly
Kirklees Metropolitan Borough Council	February 2024	Quarterly
Wakefield City Metropolitan District Council	February 2024	Quarterly
Areas of Outstanding Natural Beauty		
Natural England	May 2024	Bi-Annually
Environmentally Sensitive Areas		
Natural England	August 2023	
Forest Parks		
Forestry Commission	May 2023	Not Applicable
Local Nature Reserves		
Natural England	February 2024	Bi-Annually
Marine Nature Reserves		
Natural England	February 2024	Bi-Annually
National Nature Reserves		
Natural England	February 2024	Bi-Annually
National Parks		
Natural England	February 2018	Bi-Annually
Nitrate Sensitive Areas		
Natural England	April 2023	Not Applicable
Nitrate Vulnerable Zones		
Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	April 2016	
Environment Agency - Head Office	April 2024	Bi-Annually
Ramsar Sites		
Natural England	February 2024	Bi-Annually
Sites of Special Scientific Interest		
Natural England	April 2024	Bi-Annually
Special Areas of Conservation		
Natural England	April 2024	Bi-Annually
Special Protection Areas		
Natural England	April 2024	Bi-Annually

Data Suppliers

A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	
Environment Agency	
Scottish Environment Protection Agency	
The Coal Authority	
British Geological Survey	
Centre for Ecology and Hydrology	
Natural Resources Wales	
Scottish Natural Heritage	
Natural England	
Public Health England	
Ove Arup	
Stantec UK Ltd	

Useful Contacts

Contact	Name and Address	Contact Details
1	**British Geological Survey - Enquiry Service** British Geological Survey, Environmental Science Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
2	**Environment Agency - National Customer Contact Centre (NCCC)** PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 03708 506 506 Email: enquiries@environment-agency.gov.uk
3	**Barnsley Metropolitan Borough Council - Environmental Health and Trading Standards** Central Offices, Kendray Street, Barnsley, South Yorkshire, S70 2TN	Telephone: 01226 770770 Fax: 01226 772599 Website: www.barnsley.gov.uk
4	**Wakefield City Metropolitan District Council - Environmental Health** Newton Bar, Wakefield, West Yorkshire, WF1 2TX	Telephone: 01924 306090 Website: www.wakefield.gov.uk
5	**Environment Agency - Head Office** Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol, Avon, BS32 4UD	Telephone: 01454 624400 Fax: 01454 624409
6	**Ordnance Survey** Adanac Drive, Southampton, Hampshire, SO16 0AS	Telephone: 03456 05 05 05 Email: customerservices@ordnancesurvey.co.uk Website: www.ordnancesurvey.gov.uk
7	**Health and Safety Executive** 5S.2 Redgrave Court, Merton Road, Bootle, L20 7HS	Website: www.hse.gov.uk
8	**The Coal Authority - Property Searches** 200 Lichfield Lane, Mansfield, Nottinghamshire, NG18 4RG	Telephone: 0345 762 6848 Fax: 01623 637 338 Email: groundstability@coal.gov.uk Website: www2.groundstability.com
9	**Natural England** County Hall, Spetchley Road, Worcester, WR5 2NP	Telephone: 0300 060 3900 Email: enquiries@naturalengland.org.uk Website: www.naturalengland.org.uk
10	**Barnsley Metropolitan Borough Council - Planning Department** Central Offices, Kendray Street, Barnsley, South Yorkshire, S70 2TN	Telephone: 01226 770770 Fax: 01226 772599 Website: www.barnsley.gov.uk
11	**Wakefield City Metropolitan District Council** Newton Bar, Wakefield, West Yorkshire, WF1 2TX	Telephone: 01924 306090 Fax: 01924 378532 Website: www.wakefield.gov.uk
-	**Public Health England - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards** Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@phe.gov.uk Website: www.ukradon.org
-	**Landmark Information Group Limited** Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

Please note that the Environment Agency / Natural Resources Wales / SEPA have a charging policy in place for enquiries.

The Coal Authority

CON29M
coal mining report

1 DEARNE COURT, WOOLLEY GRANGE, BARNSLEY, WAKEFIELD, S75 5RR

Known or potential coal mining risks

Past underground coal mining	Page 5
Future underground coal mining	Page 5
Mine entries	Page 6
Withdrawal of support	Page 7

Further action

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

- Mine entry plan and data sheets

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

Professional opinion

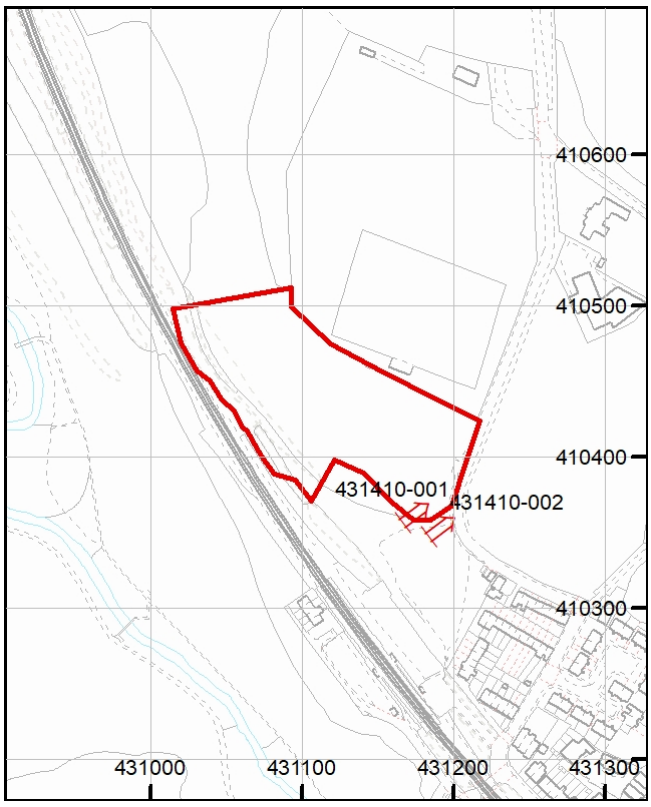
According to the official mining information records held by the Coal Authority at the time of this search, evidence of, or the potential for, coal mining related features have been identified. In view of the coal mining circumstances we would recommend that any planned or future development should follow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

Enquiry boundary

Key

Approximate position of enquiry boundary shown

Disused adit



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

Mine entries

The enquiry boundary shows the approximate location of the disused mine entry/entries referred to in this report. Property owners have the benefit of statutory protection (under the Coal Mining Subsidence Act 1991). This contains provision for the making good, to the reasonable satisfaction of the owner, of physical damage caused by disused coal mine workings including disused coal mine entries. A leaflet setting out the rights and obligations of either the Coal Authority or other responsible persons under the 1991 Act can be obtained by visiting www.coal.gov.uk. Please note this Act is not valid where coal was worked or extracted 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 wish to discuss the relevance of any of the information contained in this report, you should seek the advice of a qualified mining engineer or surveyor. If you or your advisor wishes to examine the source plans from which the information has been taken, these are available to view, at our Coal Authority head office in Mansfield. To book an appointment please call 01623 637 225. Should you or your advisor wish to carry out a physical investigation that may enter, disturb or interfere with any disused mine entry, prior permission must be sought from the owner. For coal mine entries, the owner will normally be the Coal Authority.

The Coal Authority, regardless of responsibility and in conjunction with other public bodies, provide an emergency, 24 hour call out facility in coalfield areas to assess the public safety implications of mining features (including disused mine entries). To report an emergency you can call 0800 288 4242.

Future development

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

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

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.

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1 Past underground coal mining

The property is in a surface area that could be affected by underground mining in 4 seams of coal at shallow to 240m depth, and last worked in 1982.

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

Within, or within 20 metres of, the boundary of the property there are 2 mine entries, the approximate positions of which are shown on the enquiry boundary plot. For reasons of clarity, mine entry symbols may not be drawn to the same scale as the plan.

Our records disclose the following information:

431410-002. has been treated to an unknown specification by SYMAS (1988).

431410-001. has been treated to an unknown specification by SYMAS (1988).

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 not 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

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

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

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

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 a notice to withdraw support was given in 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 0800 288 4242. 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

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

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

Mine entry plan and data sheets - give additional information on mine entries recorded on a piece of land. To order this report use the same boundary as the CON29M report and a member of our team will contact you to confirm the mine entries to include in this bespoke report.

For more information and to order this report please visit:
https://www2.groundstability.com/plan-and-data-sheets

The Coal Authority

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NG18 4RG

T: 01623 637138

E: ashleylangrick@coal.gov.uk

W: www.gov.uk/coalauthority

Mr Andrew Lake (Senior Engineer)
Sirius Geotechnical Limited
Russel House
Mill Road
Langley Moor
Durham
DH7 8HJ

26 May 2023

Dear Mr Lake

Proposed residential development at Former Woolley Colliery, Woolley Colliery Road, Darton S75 5HQ

Pre-planning Advice Request – PAS00253

I refer to your emails of 05 May 2023 seeking our pre-application advice in connection with the treatment of / development over an identified former adit and its roadway and your subsequent additional query of 16 May 2023 in connection with the implications of the possible omission of the proposed residential plot overlying the adit.

In summary, you indicated that:

1) The purpose of this advice request is to gain the Coal Authority's (the CA) advice relating to the construction of new houses / highways above the adit, once this has been treated; and
1) The client is considering the option of not treating the adit beneath the site, with the proposed plot overlying the adit being omitted instead. Would it be possible for you to comment on this option too, given the proximity of the adit to the next proposed plot?

Planning Context

On 19 July 2022, the CA's Planning Team provided its statutory consultation response to Barnsley Metropolitan Borough Council (the LPA) in connection with an outline planning application for residential development comprising 115no. dwellings with all matters reserved except for access.

The application was accompanied by a Coal Mining Risk Assessment (or equivalent) (May 2022, prepared by Eastwood and Partners). Amongst other matters, the report indicated that an abandonment plan shows the Top and Low Haigh Moor coal seams being worked below the south eastern corner of the Northern Area and adit tunnels underlie the eastern edge of the Southern Area. Further rotary probing was advised to confirm the extent of the mine workings, as well as recommending a programme of gas monitoring.

Based on the above, the CA recommended to the LPA that a pre-commencement planning condition should be imposed on any planning permission to require the undertaking of the intrusive site investigations and any remediation works and/or mitigation measures implemented. It is understood that the application has not been determined to date.

Pre-application advice – Coal Authority comments

Firstly, the identification of adit entry (ref. 431410-001) through results of recent drilling appears to correspond well with the historic and abandonment data and is as reflected on the national coal mining database (INFERIS) data in terms of position and orientation.

Pervious permits ref. 26550 (dated 18-04-23) and extension ref. 26550 V2 (dated 19-04-23) provided the applicant, Sirius, with the details regarding the two adjacent adits as held at the time. Information was provided in the accompanying return letter.

The adit logs provide consistent findings confirming voids expected to represent the adit being encountered with a height of 2.0m and located at a depth of 13m or slightly greater with rock head confirmed as present at close to 2.0m below ground level.

The CA has no objection to grouting as the remediation proposal provided it is in accordance with CIRIA C758D and subject to a verification reporting demonstrating the satisfactory completion of those works.

That verification report should be sent to CA's Permitting team as soon as practicable as part of an agreement to any follow on proposals e.g. Foundation design/ overbuild will be dependent upon its review through an engineering appraisal. The need for this review should be timetabled into the development programme. In addition, this report, prepared by a suitably competent person, would also ultimately need to be submitted to the LPA prior to the occupation of the development to confirm that the site is, or has been made, safe and stable for the approved development. This is likely to be secured through a suitably worded pre-commencement planning condition on any subsequent planning permission.

The final engineered solution should be designed to cope with residual settlements and this may therefore require some structural precautions to the affected buildings and protection of roads, driveways and parking areas similarly affected.

All boreholes / treatment holes must be appropriately sealed, including those under permit 26550, with no new pathways introduced. Sealing should be mindful of later construction activities that might disturb or compromise its integrity against forming a gas migration pathway.

Full ground gas risk assessment should be conducted in accordance with BS8485 and CL:AIRE (2021) 'Good Practice for Risk Assessment for Coal Mine Gas Emissions'.

As you are no doubt aware, a new permit will be required for the proposed treatment works. An engineering appraisal for any structural precautionary measures proposed will be necessary under the relevant CA permit.

It is proposed that only one adit is to be treated. Consequently, any future mine water discharge issues appear likely to be manageable given ground levels at c. 77m AOD. It is not foreseen that mine water levels will increase to this point. In the details that you have provided there is no mention of water being encountered in the boreholes to investigate the adit, however changes in mine water regime / levels could change in the long-term. Adit -002 would remain untreated and potentially a viable pathway for mine water. The CA's Hydrogeologist has confirmed that the sealing of the one of the adits affecting the development site should not cause problems and therefore is considered acceptable in principle.

Any risk to the adjacent railway would need to be considered but, at this stage, there is no indication that the works will impact or be detrimental to the railway. The proposed works appear likely to be >50m from the railway boundary. This will need to be confirmed as part of the previously mentioned permit application. If permitted works come within 50m, notification to Network Rail's Asset Management team would be required and this could result in a delay. As a result, early consultation with them is advisable.

For completeness, we have referred your enquiry onto the CA's Gas Specialist in the Public Safety and Subsidence Team for a view on the gas risk at present and in the future. It has been confirmed that we do not have any specific mine gas information to refer to in this area. We undertake some monitoring at the Woolley Mine Water Treatment Scheme and have found low concentration carbon dioxide at times (<5%). Otherwise, we have no monitoring points or known gas incidents. However, it is suggested that the applicant needs to be aware of risk on encountering mine gas associated with a mine entry and this may be more prevalent in a confined roadway space where mine water may be pressurising gases from below.

The follow-on question (point 2 above) regarding not grouting and omitting the plot depends on the final layout. The CA's Planning Team is likely to object to any development (roads/parking, services or buildings) above or within the influencing distance of the adit if not treated, which would obviously sterilise part of the site. It is likely that only public open space within the affected area would be permissible.

Overall, it would be the CA's preference for the developer to treat the adit and its roadway. From a planning perspective it is anticipated that this would be secured through a pre-commencement planning condition imposed by the LPA.

I trust that this is of assistance and suitably answers your queries.

Yours sincerely

Ashley Langrick

Ashley Langrick BA (HONS) Dip TRP MRTPI
Planning and Development Manager – Corporate Projects

Enc.

Cc. Leigh Sharpe (Permitting and Licensing Manager, Coal Authority)

26 May 2023

End.

APPENDIX C
Risk Assessment Methodology

Qualitative Risk Assessment Methodology

The approach adopted by Sirius for the qualitative assessment of risk is based upon that given in Annex 4 of NHBC-Environment Agency-CIEH "Guidance for the Safe Development of Housing on Land Affected by Contamination" (2008) and is consistent with other current guidance.

The risk posed by viable contaminant linkages is based upon the consideration of both:

a) the magnitude of the potential consequence (i.e. its severity); and,

b) the probability (likelihood) of that consequence being realised.

The classifications used in this report for consequence and probability are given in Tables 1 and 2, respectively. The derived risk classifications are defined in Table 3.

Where there is no viable contaminant linkage there is no potential risk.

Table 1. Classification of Consequence

Classification	Definition
Severe	Contaminant concentrations at the receptor that are likely to result in "significant harm" to human health (as defined in Part 2A of the Environmental Protection Act 1990). Major pollution of controlled waters that could have persistent and/or extensive effects on water quality, for example fish kills, closure of an abstraction, or substantial deterioration in quality of the receiving water body. Major impact on receptor amenity value or major damage to agriculture or commerce. Major damage to an ecosystem that is likely to result in a substantial adverse change in its functioning or harm to a species of special interest that endangers the long-term maintenance of the population. Catastrophic damage to crops, buildings or property.
Medium	Elevated concentrations at the receptor that might result in "significant harm" to human health (as defined in Part 2A of the Environmental Protection Act 1990). A pollution incident that has significant effect on water quality or abstraction potential. An incident that has a marked effect on receptor amenity value, agriculture or commerce. Damage to an ecosystem that may result in a substantial adverse change in its functioning or harm to a species of special interest that may endanger the long-term maintenance of the population. Significant damage to crops, buildings or property.

Classification	Definition
Mild	Potential human health impact at the receptor point but unlikely to be classified as "significant harm" (as defined in Part 2A of the Environmental Protection Act 1990). Pollution of water that will have a small or short-lived effect on water quality and marginal effects on its amenity or resource value or its use in agriculture or commerce. Minor or short-lived damage to ecosystems, which is unlikely to result in a substantial adverse change Minor damage to crops, buildings or property
Minor	No potential measurable detrimental human health impacts at the receptor point. Impact on water that will have no or minimal effect on water quality or use. No or minor and easily repairable effects on buildings, structures and services.

Table 2. Classification of Probability

Classification	Definition
High	An impact is already occurring or is very likely in the short-term and almost inevitable over the long-term.
Medium	It is probable that an event would occur. This is not inevitable but possible in the short-term and likely over the long-term.
Low	Circumstances are possible under which an event could occur. However, it is by no means certain that an event will take place, even over the long-term.
Unlikely	Circumstances are such that it is improbable that an event would occur even over the very long-term.

Table 3. Risk Classification

	Consequence			
Probability	***Severe***	***Medium***	***Mild***	***Minor***
High	Very High	High	Moderate	Low
Medium	High	Moderate	Low to Moderate	Low
Low	Moderate	Low to Moderate	Low	Very Low
Unlikely	Low to Moderate	Low	Very Low	Negligible

Table 4 provides a context for interpretation of the risk classification categories. The definitions provided are based on those given in CIRIA (2001) "Contaminated Land Risk Assessment. A Guide to Good Practice", Report C552.

Table 4. Interpretation of Risk Classification Categories

Risk Classification	Definition
Very High	There is a high probability that severe harm to one or more identified receptors could occur or there is evidence that this is already happening. This risk is likely to result in a substantial liability. Urgent investigation and remediation are likely to be required.
High	Harm is likely to be caused to one or more identified receptors. Realisation of the risk is likely to present a substantial liability. Urgent investigation is required and remedial works may be necessary in the short-term and are likely over the longer term.
Moderate	It is possible that harm could be caused to one or more identified receptors. However, it is relatively unlikely that such harm would be severe. Investigation is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer term.
Low	It is possible that harm could be caused to one or more identified receptors but it is likely that this harm, if realised, would normally be mild. No further investigation is considered necessary to assess risk or environmental liability but investigations could be undertaken if desired to confirm 'baseline' conditions for the purposes of liability management. Remedial works are unlikely to be required.
Very Low	There is a low probability that harm could be caused to one or more identified receptors. In the event of such harm being realised, it is likely to be mild, at worst. No further investigation is considered necessary to assess risk or environmental liability but investigations could be undertaken if desired to confirm 'baseline' conditions for the purposes of liability management. Remedial works are very unlikely to be required.
Negligible	It is unlikely that harm could be caused to one or more identified receptors. In the event of harm being realised, it is likely to be minor. No further investigation is considered necessary to assess risk or environmental liability. Remedial works are not expected.

APPENDIX D
Fieldwork Information

TRIAL PIT RECORD

TP No. **TP301N** Sheet 1 of 1

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date: 28/05/2024

Method: JCB 3CX with 600mm toothed bucket

Scale: 1:25

Logged By: J.C Checked By: A.L

SAMPLE DETAILS				STRATA RECORD				
Type	Depth From - To(m)	Vane Results (kN/m2) {}{ppm}	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Backfill
ES	0.10			MADE GROUND: Grass over firm dark greyish brown slightly sandy gravelly friable CLAY. Low plasticity (field description). Gravel is angular to subrounded fine to coarse of sandstone, mudstone and rare brick with occasional rootlets [TOPSOIL].	0.15	77.73		
ES	0.30							
B	0.40 - 0.90			MADE GROUND: Firm dark grey slightly sandy gravelly friable CLAY. Low plasticity (field description). Gravel is angular to subangular fine to coarse of sandstone, mudstone and occasional coal - noted to be too friable for hand shear vane.				
B	0.40 - 0.90			*At 0.40m bgl: 1 No. Sandstone boulder - 0.80m x 0.60m x 0.40m*				
					0.90	76.98		
ES	1.10		1	MADE GROUND: Black slightly clayey sandy angular to subangular fine to coarse GRAVEL of ash, coal, mudstone and rare brick with rare wood fragments - noted to be slow digging.				
			2					
				From 2.50m bgl: Becoming clayey				
			3					
				End of trial pit at 3.80m	3.80	74.08		
			4					
			5					

Remarks and Groundwater Observations

1. Trial pit complete at 3.80m bgl due to reach of machine. 2. Remained dry and stable. 3. Backfilled with arisings upon completion.

GL (m AOD) 77.88

Easting: 431188.36

Northing: 410905.49

Fig No. TP301N

TRIAL PIT RECORD

TP No. **TP302N** Sheet 1 of 1

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date: 28/05/2024

Method: JCB 3CX with 600mm toothed bucket

Scale: 1:25

Logged By: J.C | Checked By: A.L

SAMPLE DETAILS				STRATA RECORD				
Type	Depth From - To(m)	Vane Results (kN/m2) {}{ppm}	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Backfill
ES	0.10			MADE GROUND: Grass over firm dark greyish brown slightly sandy gravelly friable CLAY. Low plasticity (field description). Gravel is angular to subrounded fine to coarse of sandstone, mudstone, rare coal and brick with occasional rootlets [TOPSOIL].	0.15	79.48		
ES	0.50			MADE GROUND: Dark grey to black sandy clayey angular to subangular fine to coarse GRAVEL of ash, coal, mudstone and brick with rare wood fragments.				
			1					
			2					
				From 2.60m bgl: With low boulder content. Boulders are angular of concrete up to 60cm in diameter - noted to be slow digging.				
				At 2.70m bgl: 1 No. metal fragment and wiring.				
				Stiff high strength orangish brown mottled bluish grey slightly sandy gravelly CLAY. Medium plasticity (field description). Gravel is angular to subrounded fine to coarse of sandstone.	2.80	76.83		
D	3.00	86.0 90.0 94.0	3					
				End of trial pit at 3.80m	3.80	75.83		
			4					
			5					

Remarks and Groundwater Observations

1. Trial pit complete at 3.80m bgl due to reach of machine. 2. Remained dry and stable. 3. Backfilled with arisings upon completion.

GL (m AOD) 79.63

Easting: 431220.27

Northing: 410900.33

Fig No. TP302N

TRIAL PIT RECORD

TP No. **TP303N** Sheet 1 of 1

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date: 28/05/2024

Method: JCB 3CX with 600mm toothed bucket

Scale: 1:25

Logged By: J.C

Checked By: A.L

SAMPLE DETAILS				STRATA RECORD				
Type	Depth From - To(m)	Vane Results (kN/m2) {}{ppm}	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Backfill
ES	0.05			MADE GROUND: Grass over firm dark brown slightly sandy gravelly friable CLAY. Low plasticity (field description). Gravel is angular to subrounded fine to coarse of sandstone, mudstone and rare brick with occasional rootlets [TOPSOIL].	0.10	79.92		
B	0.30 - 0.80			MADE GROUND: Black sandy clayey angular to subangular fine to coarse GRAVEL of ash, coal, mudstone and rare brick with rare wood and metal fragments.				
B	0.30 - 0.80							
ES	0.40							
			1					
					1.80	78.22		
ES	2.00		2	Firm dark greyish brown slightly gravelly sandy friable CLAY. Low plasticity (field description). Gravel is subangular to subrounded fine to medium of sandstone, mudstone and rare coal with faint humic odour and rare rootlets - noted to be too friable for hand shear vane.				
D	2.10							
					2.30	77.72		
D	2.40			Firm to stiff medium to high strength light grey mottled orangish brown slightly sandy slightly gravelly CLAY. Low plasticity (field description). Gravel is angular to subrouned fine to coarse of sandstone.				
		72.0						
		74.0						
		82.0						
					2.80	77.22		
			3	Extremely weak light greyish brown SANDSTONE with interebedded MUDSTONE. Recovered as clayey angular to subangular fine to coarse gravel.				
				End of trial pit at 3.20m	3.20	76.82		
			4					
			5					

Remarks and Groundwater Observations

1. Trial pit complete at 3.20m bgl in bedrock. 2. Remained dry and stable. 3. Backfilled with arisings upon completion.

GL (m AOD) 80.02

Easting: 431224.75

Northing: 410852.89

Fig No.

TP303N

TRIAL PIT RECORD

TP No. **TP304N** Sheet 1 of 1

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date: 28/05/2024

Method: JCB 3CX with 600mm toothed bucket

Scale: 1:25

Logged By: J.C

Checked By: A.L

SAMPLE DETAILS				STRATA RECORD				
Type	Depth From - To(m)	Vane Results (kN/m2) {}{ppm}	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Backfill
ES	0.10			MADE GROUND: Grass over firm dark greyish brown slightly sandy gravelly friable CLAY. Low plasticity (field description). Gravel is angular to subrounded fine to coarse of sandstone, mudstone, brick and occasional coal with occasional rootlets [TOPSOIL].	0.20	78.48		
ES	0.30			MADE GROUND: Firm greyish brown slightly sandy gravelly CLAY. Low plasticity (field description). Gravel is angular to subangular fine to coarse of sandstone, mudstone and occasional brick - noted to be too gravelly for hand shear vane.	0.50	78.18		
ES	0.60			MADE GROUND: Dark grey to black sandy clayey angular to subangular fine to coarse GRAVEL of ash, coal, mudstone, brick and concrete - noted to be slow digging.				
			1		1.10	77.58		
D	1.40			Firm dark greyish brown slightly gravelly sandy friable CLAY. Low plasticity (field description). Gravel is subangular to subrounded fine to medium of sandstone, mudstone and rare coal with faint humic odour and rare rootlets - noted to be too friable for hand shear vane.				
					1.80	76.88		
D	2.00		2	Firm to stiff medium to high strength light grey mottled orangish brown slightly sandy slightly gravelly CLAY. Low plasticity (field description). Gravel is angular to subrouned fine to coarse of sandstone.				
		74.0 76.0 80.0			2.30	76.38		
				Extremely weak light greyish brown SANDSTONE with interebedded MUDSTONE. Recovered as slightly clayey sandy angular to subangular fine to coarse gravel.				
				End of trial pit at 2.80m	2.80	75.88		
			3					
			4					
			5					

Remarks and Groundwater Observations

1. Trial pit complete at 2.80m bgl in bedrock. 2. Remained dry and stable. 3. Backfilled with arisings upon completion.

GL (m AOD) 78.68

Easting: 431210.77

Northing: 410834.35

Fig No.

TP304N

TRIAL PIT RECORD

TP No. **TP305N** Sheet 1 of 1

Site: Woolley Colliery Road, Darton	Contract No: C10128
Client: Gleeson Homes Ltd	Date: 29/05/2024
Method: JCB 3CX with 600mm toothed bucket	Scale: 1:25
	Logged By: J.C — Checked By: A.L

SAMPLE DETAILS				STRATA RECORD				
Type	Depth From - To(m)	Vane Results (kN/m2) {}{ppm}	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Backfill
				MADE GROUND: Light grey reinforced CONCRETE.				
ES	0.40			MADE GROUND: Light yellow sandy GRAVEL with medium cobble content. Gravel is angular to subangular fine to coarse of limestone. Cobbles are subangular of limestone.	0.30	78.63		
ES	0.70			MADE GROUND: Black slightly clayey very sandy angular to subangular fine to coarse GRAVEL of ash, coal, mudstone and brick with rare wood and metal fragments.	0.60	78.33		
			1					
			2					
				From 2.40m bgl: With occasional cobble sized pockets of firm dark grey gravelly CLAY.				
D	2.60		3					
				End of trial pit at 3.90m	3.90	75.03		
			4					
			5					

Remarks and Groundwater Observations

1. Trial pit complete at 3.90m bgl due to reach of machine. 2. Remained dry and stable. 3. Backfilled with arisings upon completion.

GL (m AOD) 78.93
Easting: 431184.88
Northing: 410791.34

Fig No. TP305N

TRIAL PIT RECORD

TP No. **TP306N** Sheet 1 of 1

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date: 29/05/2024

Method: JCB 3CX with 600mm toothed bucket

Scale: 1:25

Logged By: J.C

Checked By: A.L

SAMPLE DETAILS

STRATA RECORD

Type	Depth From - To(m)	Vane Results (kN/m2) {}{ppm}	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Backfill
ES	0.10			MADE GROUND: Grass over firm dark brown locally light grey silty sandy very gravelly CLAY with low cobble content. Low plasticity (field description). Gravel is angular to subangular fine to coarse of sandstone, mudstone, brick and occasional coal. Cobbles are angular of sandstone - noted to be too gravelly for hand shear vane.				
B	0.40 - 0.90							
B	0.40 - 0.90							
D	0.50							
				MADE GROUND: Light grey reinforced CONCRETE.	0.80	83.34		
			1	MADE GROUND: Black sandy clayey angular to subangular fine to coarse GRAVEL of ash, mudstone, brick and occasional coal.	1.00	83.14		
ES	1.20							
				Firm orangish brown slightly gravelly sandy friable CLAY. Low plasticity (field description). Gravel is angular to subrounded fine to coarse of sandstone, mudstone and rare coal - noted to be too friable for hand shear vane.	1.30	82.84		
D	1.40				1.60	82.54		
				Stiff medium to high strength orangish brown mottled bluish grey slightly sandy gravelly CLAY. Medium plasticity (field description). Gravel is angular to subrounded fine to coarse of sandstone.				
D	1.80							
		74.0	2					
		86.0						
		90.0						
				Very weak light greyish brown SANDSTONE. Recovered as angular to subangular fine to coarse gravel.	2.40	81.74		
				End of trial pit at 2.70m	2.70	81.44		
			3					
			4					
			5					

Remarks and Groundwater Observations

1. Trial pit complete at 2.70m bgl in bedrock. 2. Remained dry and stable. 3. Backfilled with arisings upon completion.

GL (m AOD) 84.14

Easting: 431183.15

Northing: 410687.56

Fig No. TP306N

TRIAL PIT RECORD

TP No. **TP307N** Sheet 1 of 1

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date: 29/05/2024

Method: JCB 3CX with 600mm toothed bucket

Scale: 1:25

Logged By: J.C Checked By: A.L

SAMPLE DETAILS | STRATA RECORD

Type	Depth From - To(m)	Vane Results (kN/m2) {}{ppm}	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Backfill
ES	0.40			MADE GROUND: Grass over firm dark brown locally light grey slightly sandy gravelly CLAY with low cobble content. Low plasticity (field description). Gravel is angular to subangular fine to coarse of sandstone, mudstone, brick, concrete and rare asphalt (less than 5%). Cobbles are anguglar to subangular of sandstone, brick and concrete - noted to be too gravelly for hand shear vane.				
D	0.60							
			1					
				MADE GROUND: Light grey reinforced CONCRETE.	1.20	83.22		
ES	1.45			MADE GROUND: Reddish brown sandy angular to subangular fine to coarse GRAVEL of brick and red mudstone.	1.40 1.50	83.02 82.92		
ES	1.70			MADE GROUND: Black sandy clayey angular to subangular fine to coarse GRAVEL of ash, brick, coal and mudstone with occasional cobbles sized pockets of firm gravelly CLAY.				
			2		2.00	82.42		
D	2.10			Soft to firm greenish grey slightly gravelly sandy friable CLAY. Intermediate plasticity (laboratory description). Gravel is angular to subrounded fine to medium of sandstone, mudstone and rare coal with occasional rootlets and faint humic odour - noted to be too friable for hand shear vane.				
D	2.10							
B	2.30 - 2.70				2.30	82.12		
D	2.50			Stiff high strength orangish brown mottled bluish grey slightly sandy slightly gravelly CLAY. Medium plasticity (field description). Gravel is angular to subrounded fine to coarse of sandstone and mudstone.				
		76.0 78.0 94.0		Very weak light greyish brown SANDSTONE. Recovered as slightly clayey angular to subangular fine to coarse gravel.	2.70	81.72		
				End of trial pit at 2.90m	2.90	81.53		
			3					
			4					
			5					

Remarks and Groundwater Observations

1. Trial pit complete at 2.90m bgl in bedrock. 2. Remained dry and stable. 3. Backfilled with arisings upon completion.

GL (m AOD) 84.43

Easting: 431158.54

Northing: 410710.44

Fig No. TP307N

TRIAL PIT RECORD

TP No. **TP308N** Sheet 1 of 1

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date: 29/05/2024

Method: JCB 3CX with 600mm toothed bucket

Scale: 1:25

Logged By: J.C | Checked By: A.L

SAMPLE DETAILS				STRATA RECORD				
Type	Depth From - To(m)	Vane Results (kN/m2) {}{ppm}	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Backfill
ES	0.30			MADE GROUND: Black locally reddish brown slightly clayey sandy angular to subangular fine to coarse GRAVEL of ash, brick and coal.				
B B	0.50 - 1.00 0.50 - 1.00			MADE GROUND: Dark grey to black silty clayey SAND & GRAVEL. Gravel is angular to subangular, fine to coarse, of ash, coal, brick and mudstone. With occasional cobble-sized pockets of firm gravelly CLAY.	0.50	82.82		
				End of trial pit at 3.80m	3.80	79.52		

1 2 3 4 5

Remarks and Groundwater Observations

1. Trial pit complete at 3.80m bgl due to reach of machine. 2. Remained dry and stable. 3. Backfilled with arisings upon completion.

GL (m AOD) 83.32

Easting: 431125.21

Northing: 410769.60

Fig No. TP308N

TRIAL PIT RECORD

TP No. **TP309N** Sheet 1 of 1

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date: 29/05/2024

Method: JCB 3CX with 600mm toothed bucket

Scale: 1:25

Logged By: J.C | Checked By: A.L

SAMPLE DETAILS | STRATA RECORD

Type	Depth From - To(m)	Vane Results (kN/m2) {}{ppm}	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Backfill
ES	0.20			MADE GROUND: Grass over firm dark brown locally light grey slightly sandy gravelly friable CLAY. Low plasticity (field description). Gravel is angular to subangular fine to coarse of sandstone, mudstone and brick with occasional rootlets [TOPSOIL].				
				MADE GROUND: Light grey reinforced CONCRETE.	0.40	80.51		
				MADE GROUND: Light yellow sandy GRAVEL with medium cobble content. Gravel is angular to subangular fine to coarse of limestone. Cobbles are subangular of limestone.	0.70 0.80	80.21 80.11		
ES	1.00		1	MADE GROUND: Black sandy clayey angular to subangular fine to coarse GRAVEL of ash, coal, mudstone and brick with rare fragments of wood.				
			2					
			3					
				End of trial pit at 3.80m	3.80	77.11		
			4					
			5					

Remarks and Groundwater Observations

1. Trial pit complete at 3.80m bgl due to reach of machine. 2. Remained dry and stable. 3. Backfilled with arisings upon completion.

GL (m AOD) 80.91

Easting: 431163.29

Northing: 410767.81

Fig No. TP309N

TRIAL PIT RECORD

TP No. **TP310N** Sheet 1 of 1

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date: 29/05/2024

Method: JCB 3CX with 600mm toothed bucket

Scale: 1:25

Logged By: J.C Checked By: A.L

SAMPLE DETAILS				STRATA RECORD				
Type	Depth From - To(m)	Vane Results (kN/m2) {}{ppm}	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Backfill
				MADE GROUND: Light grey reinforced CONCRETE.				
					0.30	81.67		
ES	0.40			MADE GROUND: Reddish brown slightly clayey sandy angular to subangular fine to coarse GRAVEL of brick and red mudstone.	0.45	81.52		
ES	0.60			MADE GROUND: Black sandy clayey angular to subangular fine to coarse GRAVEL of ash, coal, brick and mudstone.				
B	1.00 - 1.50		1	Firm bluish grey mottled orange slightly sandy gravelly friable CLAY. Intermediate plasticity (laboratory description). Gravel is angular to subrounded fine to coarse of sandstone and mudstone - noted to be too friable for hand shear vane.	1.00	80.97		
D	1.30							
D	1.30							
				Extremely weak light bluish grey MUDSTONE. Recovered as clayey angular to subangular fine to coarse gravel.	1.60	80.37		
					1.90	80.07		
			2	Very weak greyish brown locally light grey SANDSTONE. Recovered as sandy clayey angular to subangular fine to coarse gravel.				
				End of trial pit at 2.50m	2.50	79.47		
			3					
			4					
			5					

Remarks and Groundwater Observations

1. Trial pit complete at 2.50m bgl in bedrock. 2. Remained dry and stable. 3. Backfilled with arisings upon completion.

GL (m AOD) 81.97

Easting: 431228.05

Northing: 410675.82

Fig No. TP310N

TRIAL PIT RECORD

TP No. **TP311N**
Sheet 1 of 1

Site: Woolley Colliery Road, Darton
Contract No: C10128
Client: Gleeson Homes Ltd
Date: 29/05/2024
Method: JCB 3CX with 600mm toothed bucket
Scale: 1:25
Logged By: J.C
Checked By: A.L

SAMPLE DETAILS | STRATA RECORD

Type	Depth From - To(m)	Vane Results (kN/m2) {}{ppm}	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Backfill
ES	0.10			MADE GROUND: Grass over dark brown slightly sandy gravelly friable CLAY. Low plasticity (field description). Gravel is angular to subangular fine to coarse of sandstone, mudstone, brick and coal with many rootlets [TOPSOIL].	0.20	80.87		
ES	0.30			MADE GROUND: Black slightly clayey sandy angular to subangular fine to coarse GRAVEL of ash, coal, mudstone, brick and occasional slag (up to 20%).				
B	0.40 - 0.90							
			1					
				Soft to firm low to medium strength light brown slightly gravelly sandy CLAY. Low plasticity (field description). Gravel is subangular to subrounded fine to coarse of sandstone and mudstone.	1.60	79.47		
D	1.90	32.0 38.0 42.0	2					
				Moderately weak greyish brown SANDSTONE. Recovered as sandy angular to subangular fine to coarse gravel.	2.70	78.37		
				End of trial pit at 2.90m	2.90	78.17		
			3					
			4					
			5					

Remarks and Groundwater Observations

1. Trial pit complete at 2.90m bgl in bedrock. 2. Remained dry and stable. 3. Backfilled with arisings upon completion.

GL (m AOD) 81.07
Easting: 431232.39
Northing: 410712.97

Fig No.
TP311N

TRIAL PIT RECORD

TP No. **TP312N** Sheet 1 of 1

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date: 29/05/2024

Method: JCB 3CX with 600mm toothed bucket

Scale: 1:25

Logged By: J.C Checked By: A.L

SAMPLE DETAILS | STRATA RECORD

Type	Depth From - To(m)	Vane Results (kN/m2) {}{ppm}	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Backfill
ES	0.40			MADE GROUND: Dark grey to black slightly sandy very clayey angular to subangular fine to coarse GRAVEL of ash, coal, brick and mudstone with occasional cobbles sized pockets of firm gravelly CLAY.				
					0.80	80.66		
ES	0.90			MADE GROUND: Reddish brown slightly clayey sandy angular to subangular fine to coarse GRAVEL of brick, sandstone and red mudstone.	1.00	80.46		
D	1.20	80.0 88.0 94.0		Stiff high strength bluish grey mottled mottled orange slightly sandy gravelly CLAY. Low plasticity (field description). Gravel is angular to subrounded fine to coarse of sandstone.				
				Very weak bluish grey locally greyish brown SANDSTONE with interbedded MUDSTONE. Recovered as slightly clayey sandy angular to subangular fine to coarse gravel.	1.50	79.96		
				End of trial pit at 1.90m	1.90	79.56		

1 2 3 4 5

Remarks and Groundwater Observations

1. Trial pit complete at 1.90m bgl in bedrock. 2. Remained dry and stable. 3. Backfilled with arisings upon completion.

GL (m AOD) 81.46

Easting: 431236.25

Northing: 410785.00

Fig No. TP312N

WINDOW SAMPLING RECORD

BH No. **WS301N**
Sheet 1 of 2

Site: Woolley Colliery Road, Darton
Contract No: C10128
Client: Gleeson Homes Ltd
Date: 04/06/2024
Method: Tracked window sampling rig.
Scale: 1:25
Logged By: J.C
Checked By: A.L
Driller: RP Drilling Ltd

SAMPLE DETAILS | STRATA RECORD

Type	Depth From - To(m)	SPT (N), {ppm}, Vane Result (kN/m2)	Ground-water	Description	Depth (m)	Level (m AOD)	Legend	Well
ES	0.10			MADE GROUND: Grass over firm dark brown slightly sandy gravelly friable CLAY of low plasticity (field assessment). Gravel is angular to subangular fine to coarse of sandstone, mudstone and brick with occasional rootlets [TOPSOIL].	0.20	83.58		
				MADE GROUND: Firm medium strength greyish brown locally light grey slightly sandy gravelly CLAY of intermediate plasticity (laboratory assessment). Gravel is angular to subrounded fine to coarse sandstone, mudstone, coal and brick.				
		58.0						
D	0.90							
ES	0.90		1					
		N=7 (2,2/2,1,2,2)						
		66.0						
		N=9 (2,3/2,2,2,3)	2					
				MADE GROUND: Loose dark grey to black sandy clayey angular to subangular fine to coarse GRAVEL of mudstone, coal, ash and occasional brick.	2.10	81.68		
ES	2.70							
		N=6 (3,2/2,2,1,1)	3					
		N=4 (1,2/1,1,1,1)	4	*From 4.00m bgl: With occasional pockets of soft gravelly clay.*				
D	4.60							
			5	Continued next sheet				

Remarks and Groundwater Observations:

1. Borehole refusal at 7.60m bgl. 2. Liner noted to be wet from 7.00m bgl. 3. Installed with gas/groundwater monitoring well, as detailed above.

GL (m AOD) 83.78m AOD
Easting: 431143.06
Northing: 410783.75

Fig No. WS301N

WINDOW SAMPLING RECORD

BH No. **WS301N** Sheet 2 of 2

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date: 04/06/2024

Method: Tracked window sampling rig.

Scale: 1:25

Logged By: J.C | Checked By: A.L

Driller: RP Drilling Ltd

SAMPLE DETAILS				STRATA RECORD				
Type	Depth From - To(m)	SPT (N), {ppm}, Vane Result (kN/m2)	Ground-water	Description	Depth (m)	Level (m AOD)	Legend	Well
		N=12 (2,1/2,1,3,6)		MADE GROUND: Loose dark grey to black sandy clayey angular to subangular fine to coarse GRAVEL of mudstone, coal, ash and occasional brick. *From c. 5.0m becoming medium dense.*				
		N=12 (4,2/3,3,3,3)	6					
		N=8 (2,2/2,1,2,3)	7					
				Stiff medium strength orangish brown mottled light grey slightly sandy gravelly CLAY of low plasticity (field assessment). Gravel is angular to subangular fine to coarse of sandstone.	7.20	76.58		
D	7.50	50 (25 for 115mm/50 for 235mm)		Weak yellowish brown SANDSTONE. Recovered as sandy angular to subangular fine to coarse gravel.	7.55	76.23		
				End of Borehole at 7.60m	7.60	76.18		
			8					
			9					
			10					

Remarks and Groundwater Observations:

1. Borehole refusal at 7.60m bgl. 2. Liner noted to be wet from 7.00m bgl. 3. Installed with gas/groundwater monitoring well, as detailed above.

GL (m AOD) 83.78m AOD

Easting: 431143.06

Northing: 410783.75

Fig No. WS301N

WINDOW SAMPLING RECORD

BH No. **WS302N** Sheet 1 of 2

Site: Woolley Colliery Road, Darton	Contract No: C10128
Client: Gleeson Homes Ltd	Date: 04/06/2024
Method: Tracked window sampling rig.	Scale: 1:25
	Logged By: J.C Checked By: A.L
	Driller: RP Drilling Ltd

SAMPLE DETAILS				STRATA RECORD				
Type	Depth From - To(m)	SPT (N), {ppm}, Vane Result (kN/m2)	Ground-water	Description	Depth (m)	Level (m AOD)	Legend	Well
ES	0.30			MADE GROUND: Loose dark grey to black slightly clayey sandy angular to subangular fine to coarse GRAVEL of mudstone, coal, ash and brick.				
		N=8 (2,2/2,2,2,2)	1					
		N=8 (1,2/2,2,2,2)	2					
				From 2.50m bgl: With occasional pockets of soft gravelly clay.				
		N=6 (2,2/1,2,1,2)	3					
D	3.60							
		N=12 (1,2/3,2,3,4)	4	*From c. 4m bgl becoming medium dense.*				
			5	Continued next sheet	5.00	79.29		

Remarks and Groundwater Observations:

1. Borehole complete at 9.00m bgl. 2. Liner noted to be wet from 8.00m bgl. 3. Refusal at 9m bgl on presumed bedrock. 4. Backfilled with arisings upon completion.

GL (m AOD) 84.29m AOD
Easting: 431111.59
Northing: 410786.99

Fig No. WS302N

WINDOW SAMPLING RECORD

BH No. **WS302N** Sheet 2 of 2

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date: 04/06/2024

Method: Tracked window sampling rig.

Scale: 1:25

Logged By: J.C | Checked By: A.L

Driller: RP Drilling Ltd

SAMPLE DETAILS				STRATA RECORD				
Type	Depth From - To(m)	SPT (N), {ppm}, Vane Result (kN/m2)	Ground-water	Description	Depth (m)	Level (m AOD)	Legend	Well
		N=10 (2,3/2,3,2,3)		MADE GROUND: Dark grey to black sandy clayey angular to subangular fine to coarse GRAVEL of sandstone, mudstone and occasional coal.				
ES	5.50							
		N=11 (3,3/3,2,3,3)	6					
		N=18 (4,4/4,3,4,7)	7					
		N=15 (3,4/4,3,4,4)	8					
				Stiff high strength orangish brown mottled light grey slightly sandy gravelly CLAY of low plasticity (field assessment). Gravel is angular to subangular fine to coarse of sandstone.	8.50	75.79		
D	8.70	92.0						
		50 (9,12/50 for 235mm)	9	End of Borehole at 9.00m	9.00	75.29		
			10					

Remarks and Groundwater Observations:

1. Borehole complete at 9.00m bgl. 2. Liner noted to be wet from 8.00m bgl. 3. Refusal at 9m bgl on presumed bedrock. 4. Backfilled with arisings upon completion.

GL (m AOD) 84.29m AOD

Easting: 431111.59

Northing: 410786.99

Fig No. WS302N

WINDOW SAMPLING RECORD

BH No. **WS303N**
Sheet 1 of 1

Site: Woolley Colliery Road, Darton	Contract No: C10128
Client: Gleeson Homes Ltd	Date: 04/06/2024
Method: Tracked window sampling rig.	Scale: 1:25
	Logged By: J.C — Checked By: A.L
	Driller: RP Drilling Ltd

SAMPLE DETAILS				STRATA RECORD				
Type	Depth From - To(m)	SPT (N), {ppm}, Vane Result (kN/m2)	Ground-water	Description	Depth (m)	Level (m AOD)	Legend	Well
				MADE GROUND: Firm dark brown slightly sandy gravelly friable CLAY of low plasticity (field assessment). Gravel is angular to subrounded fine to medium of mudstone, sandstone and brick with occasional rootlets [TOPSOIL].	0.10	84.44		
ES	0.40			MADE GROUND: Firm dark greyish brown locally light grey slightly sandy gravelly CLAY of low plasticity (field assessment). Gravel is angular to subrounded fine to coarse of mudstone, sandstone, brick and rare coal - noted to be too gravelly for hand shear vane.				
				MADE GROUND: Light grey CONCRETE.	0.90	83.64		
			1	End of Borehole at 1.00m	1.00	83.54		
			2					
			3					
			4					
			5					

Remarks and Groundwater Observations:

1. Borehole refusal on concrete at 1.00m bgl. 2. No groundwater encountered. 3. Backfilled with arisings upon completion.

GL (m AOD)
84.54m AOD

Easting:
431128.89

Northing:
410742.89

Fig No.

WS303N

WINDOW SAMPLING RECORD

BH No. **WS304N**
Sheet 1 of 1

Site: Woolley Colliery Road, Darton
Contract No: C10128
Client: Gleeson Homes Ltd
Date: 04/06/2024
Method: Tracked window sampling rig.
Scale: 1:25
Logged By: J.C
Checked By: A.L
Driller: RP Drilling Ltd

SAMPLE DETAILS				STRATA RECORD				
Type	Depth From - To(m)	SPT (N), {ppm}, Vane Result (kN/m2)	Ground-water	Description	Depth (m)	Level (m AOD)	Legend	Well
				MADE GROUND: Grass over firm dark brown slightly sandy gravelly friable CLAY of low plasticity (field assessment). Gravel is angular to subrounded fine to coarse of mudstone, sandstone and brick with occasional rootlets [TOPSOIL].	0.10	83.90		
ES	0.50	50.0		MADE GROUND: Firm medium strength dark greyish brown locally light grey and orange slightly sandy gravelly CLAY of intermediate plasticity (laboratory assessment). Gravel is angular to subrounded fine to coarse of mudstone, sandstone, brick and occasional coal.				
		N=6 (2,1/2,1,2,1)	1					
D	1.60							
D	1.60							
				End of Borehole at 1.90m	1.90	82.10		
			2					
			3					
			4					
			5					

Remarks and Groundwater Observations:

1. Borehole refusal on concrete at 1.90m bgl. 2. No groundwater encountered. 3. Backfilled with arisings upon completion.

GL (m AOD) 84.00m AOD
Easting: 431181.92
Northing: 410723.72

Fig No. WS304N

WINDOW SAMPLING RECORD

BH No. **WS305N** Sheet 1 of 1

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date: 04/06/2024

Method: Tracked window sampling rig.

Scale: 1:25

Logged By: J.C Checked By: A.L

Driller: RP Drilling Ltd

SAMPLE DETAILS				STRATA RECORD				
Type	Depth From - To(m)	SPT (N), {ppm}, Vane Result (kN/m2)	Ground-water	Description	Depth (m)	Level (m AOD)	Legend	Well
ES	0.20			MADE GROUND: Grass over firm dark brown slightly sandy gravelly friable CLAY of low plasticity (field assessment). Gravel is angular to subrounded fine to coarse of mudstone, sandstone, brick and rare coal with occasional rootlets [TOPSOIL].	0.10	81.46		
				MADE GROUND: Firm dark greyish brown mottled orange locally black slightly sandy gravelly CLAY of low plasticity (field assessment). Gravel is angular to subrounded fine to coarse of mudstone, sandstone, brick and coal - noted to be too gravelly for hand shear vane.	0.60	80.96		
		80.0						
D	0.90	N=14 (10,3/2,3,4,5)	1	Stiff high strength orangish brown mottled light bluish grey slightly sandy gravelly CLAY of low plasticity (field assessment). Gravel is angular to subangular fine to coarse of sandstone and mudstone.				
				Weak greyish brown SANDSTONE. Recovered as sandy angular to subangular fine to coarse gravel.	1.60	79.96		
		50 (25 for 145mm/50 for 290mm)	2	End of Borehole at 1.90m	1.90	79.66		
			3					
			4					
			5					

Remarks and Groundwater Observations:

1. Borehole refusal at 1.90m bgl. 2. No groundwater encountered. 3. Backfilled with arisings upon completion.

GL (m AOD) 81.56m AOD

Easting: 431217.92

Northing: 410686.46

Fig No. WS305N

WINDOW SAMPLING RECORD

BH No. **WS306N** Sheet 1 of 1

Site: Woolley Colliery Road, Darton | Contract No: C10128

Client: Gleeson Homes Ltd | Date: 04/06/2024

Method: Tracked window sampling rig. | Scale: 1:25

Logged By: J.C | Checked By: A.L

Driller: RP Drilling Ltd

SAMPLE DETAILS				STRATA RECORD				
Type	Depth From - To(m)	SPT (N), {ppm}, Vane Result (kN/m2)	Ground-water	Description	Depth (m)	Level (m AOD)	Legend	Well
ES	0.30			MADE GROUND: Medium dense dark grey to black slightly clayey sandy angular to subangular fine to coarse GRAVEL of mudstone, coal, ash and brick.				
		N=12 (2,3/3,3,3,3)	1	*From 0.90 to 1.00m bgl: Pocket of wood fragments with faint humic odour.*				
					1.50	78.70		
ES	1.60			MADE GROUND: Dark brown clayey gravelly fine to medium SAND. Gravel is angular to subangular fine to coarse of sandstone, coal and brick.				
					1.80	78.40		
ES	1.90	N=5 (2,1/2,1,1,1)	2	MADE GROUND: Loose black locally reddish brown slightly clayey sandy angular to subangular fine to coarse GRAVEL of mudstone, coal, ash, red mudstone and brick.				
					2.40	77.80		
				MADE GROUND: Dark grey sandy angular to subangular fine to coarse GRAVEL of mudstone and sandstone.				
					2.70	77.50		
D	2.80	N=9 (2,1/2,2,2,3)	3	Firm medium strength dark greenish grey slightly gravelly sandy friable CLAY of low plasticity (field assessment). Gravel is angular to subrounded fine to medium of mudstone and sandstone with occasional rootlets and faint humic odour - noted to be too friable for hand shear vane.				
					3.30	76.90		
		84.0		Stiff high strength orangish brown mottled light grey slightly sandy gravelly CLAY of medium plasticity (field assessment). Gravel is angular to subangular fine to coarse of sandstone, mudstone and rare coal.				
D	3.90	N=14 (2,2/3,3,4,4)	4					
				Very weak light greyish brown SANDSTONE. Recovered as sandy clayey angular to subangular fine to coarse gravel.	4.20	76.00		
		N=50 (5,7/50 for 265mm)	5	End of Borehole at 5.00m	5.00	75.20		

Remarks and Groundwater Observations:

1. Borehole refusal at 5.00m bgl. 2. No groundwater encountered. 3. Backfilled with arisings upon completion.

GL (m AOD) 80.20m AOD

Easting: 431226.77

Northing: 410760.98

Fig No. WS306N

WINDOW SAMPLING RECORD

BH No. **WS307N** Sheet 1 of 1

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date: 05/06/2024

Method: Tracked window sampling rig.

Scale: 1:25

Logged By: J.C Checked By: A.L

Driller: RP Drilling Ltd

SAMPLE DETAILS				STRATA RECORD				
Type	Depth From - To(m)	SPT (N), {ppm}, Vane Result (kN/m2)	Ground-water	Description	Depth (m)	Level (m AOD)	Legend	Well
				MADE GROUND: Light grey CONCRETE.				
					0.38	76.63		
ES	0.70			MADE GROUND: Medium dense dark brown to black locally reddish brown sandy clayey angular to subangular fine to coarse GRAVEL of mudstone, coal, ash and brick.				
		N=15 (5,3/4,5,3,3)	1					
					1.70	75.31		
D	1.90	N=11 (2,2/2,2,3,4)	2	Firm medium strength orangish brown slightly gravelly sandy friable CLAY of low plasticity (field assessment). Gravel is angular to subrounded fine to medium of mudstone, sandstone and occasional coal with occasional rootlets and faint humic odour - noted to be too friable for hand shear vane.				
				From 2.40m bgl: Becomes dark brown.				
					2.60	74.41		
D	2.80	78.0		Stiff high strength orangish brown mottled light grey slightly sandy gravelly CLAY of low plasticity (field assessment). Gravel is angular to subangular fine to coarse of sandstone.				
		N=25 (4,5/4,6,6,9)	3					
					3.60	73.41		
				Very weak light greyish brown locally light grey SANDSTONE. Recovered as sandy clayey angular to subangular fine to coarse gravel.				
		50 (25 for 115mm/50 for 255mm)	4	End of Borehole at 3.90m	3.90	73.11		
			5					

Remarks and Groundwater Observations:

1. Borehole refusal at 3.90m bgl. 2. No groundwater encountered. 3. Backfilled with arisings upon completion.

GL (m AOD) 77.01m AOD

Easting: 431178.80

Northing: 410880.66

Fig No. WS307N

WINDOW SAMPLING RECORD

BH No. **WS308N** Sheet 1 of 1

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date: 05/06/2024

Method: Tracked window sampling rig.

Scale: 1:25

Logged By: J.C | Checked By: A.L

Driller: RP Drilling Ltd

SAMPLE DETAILS				STRATA RECORD				
Type	Depth From - To(m)	SPT (N), {ppm}, Vane Result (kN/m2)	Ground-water	Description	Depth (m)	Level (m AOD)	Legend	Well
ES	0.20			MADE GROUND: Grass over firm dark greyish brown slightly sandy gravelly friable CLAY of low plasticity (field assessment). Gravel is angular to subrounded fine to coarse of mudstone, sandstone, brick and rare coal with occasional rootlets [TOPSOIL].	0.10	78.74		
D	0.60			MADE GROUND: Firm medium strength dark greyish brown locally orangish brown slightly sandy gravelly CLAY of low plasticity (field assessment). Gravel is angular to subrounded fine to coarse of mudstone, sandstone and rare brick and coal.				
		62.0		*From 0.80m bgl: Becomes orangish brown.*				
		N=7 (1,1/2,1,2,2)	1					
				MADE GROUND: Loose dark grey to black sandy clayey angular to subangular fine to coarse GRAVEL of mudstone, coal, ash and brick.	1.60	77.24		
		N=9 (5,3/3,2,2,2)	2					
ES	2.70							
		N=8 (2,1/2,2,2,2)	3					
				Soft to firm low strength orangish brown slightly gravelly sandy CLAY of low plasticity (field assessment). Gravel is angular to subrounded fine to medium of mudstone, sandstone and occasional coal with occasional rootlets and faint humic odour.	3.40	75.44		
		38.0						
D	3.70							
		N=20 (2,2/5,5,5,5)	4					
				Extremely weak black COAL. Recovered as angular to subangular fine to coarse gravel.	4.30	74.54		
D	4.70							
		N=14 (3,2/2,3,4,5)	5	End of Borehole at 5.00m	5.00	73.84		

Remarks and Groundwater Observations:

1. Borehole complete at 5.00m bgl. 2. No groundwater encountered. 3. Backfilled with arisings upon completion.

GL (m AOD) 78.84m AOD

Easting: 431206.41

Northing: 410910.76

Fig No. WS308N

WINDOW SAMPLING RECORD

BH No. **WS309N** Sheet 1 of 1

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date: 05/06/2024

Method: Tracked window sampling rig.

Scale: 1:25

Logged By: J.C | Checked By: A.L

Driller: RP Drilling Ltd

SAMPLE DETAILS				STRATA RECORD				
Type	Depth From - To(m)	SPT (N), {ppm}, Vane Result (kN/m2)	Ground-water	Description	Depth (m)	Level (m AOD)	Legend	Well
ES	0.20			MADE GROUND: Firm dark greyish brown slightly sandy gravelly friable CLAY of low plasticity (field assessment). Gravel is angular to subrounded fine to coarse of mudstone, sandstone, coal and rare brick.				
D	0.50							
		84.0		Stiff high strength orangish brown mottled light grey slightly sandy gravelly CLAY of intermediate plasticity (laboratory assessment). Gravel is angular to subangular fine to coarse of sandstone.	0.70	77.82		
D	0.90							
D	0.90	N=28 (3,2/2,4,8,14)	1					
				Very weak light greyish brown locally orangish brown SANDSTONE. Recovered as slightly clayey sandy angular to subangular fine to coarse gravel.	1.40	77.12		
		N=44 (10,9/11,11,11, 11)	2					
		50 (25,/50 for 285mm)		End of Borehole at 2.70m	2.70	75.82		
			3					
			4					
			5					

Remarks and Groundwater Observations:

1. Borehole refusal at 2.70m bgl. 2. No groundwater encountered. 3. Backfilled with arisings upon completion.

GL (m AOD) 78.52m AOD

Easting: 431211.17

Northing: 410855.36

Fig No. WS309N

WINDOW SAMPLING RECORD

BH No. **WS310N** Sheet 1 of 1

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date: 05/06/2024

Method: Tracked window sampling rig.

Scale: 1:25

Logged By: J.C Checked By: A.L

Driller: RP Drilling Ltd

SAMPLE DETAILS				STRATA RECORD				
Type	Depth From - To(m)	SPT (N), {ppm}, Vane Result (kN/m2)	Ground-water	Description	Depth (m)	Level (m AOD)	Legend	Well
ES	0.20			MADE GROUND: Grass over firm dark greyish brown slightly sandy gravelly friable CLAY of low plasticity (field assessment). Gravel is angular to subrounded fine to coarse of mudstone, sandstone, coal and rare brick with rare rootlets [TOPSOIL].	0.40	79.35		
ES	0.60			MADE GROUND: Light greyish brown sandy clayey angular to subangular fine to coarse GRAVEL of sandstone, mudstone and rare brick.	0.90	78.85		
		N=15 (4,4/4,4,3,3,4)	1	MADE GROUND: Firm high strength dark greyish brown locally orangish brown and black slightly sandy gravelly CLAY of low plasticity (laboratory assessment). Gravel is angular to subrounded fine to coarse of mudstone, sandstone and coal - noted to be too gravelly for hand shear vane.				
D	1.60							
D	1.60							
		76.0			1.80	77.95		
D	1.90			Stiff high strength orangish brown mottled light grey slightly sandy gravelly CLAY of low plasticity (field assessment). Gravel is angular to subangular fine to coarse of sandstone, mudstone and rare coal.				
		N=22 (3,3/5,5,5,7)	2					
				Very weak light greyish brown SANDSTONE. Recovered as slightly clayey sandy angular to subangular fine to coarse gravel.	2.40	77.35		
		N=50 (8,10/50 for 285mm)	3	End of Borehole at 3.00m	3.00	76.75		
			4					
			5					

Remarks and Groundwater Observations:

1. Borehole refusal at 3.00m bgl. 2. No groundwater encountered. 3. Backfilled with arisings upon completion.

GL (m AOD) 79.75m AOD

Easting: 431223.86

Northing: 410823.61

Fig No. WS310N

WINDOW SAMPLING RECORD

BH No. **WS311N** Sheet 1 of 1

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date: 05/06/2024

Method: Tracked window sampling rig.

Scale: 1:25

Logged By: J.C Checked By: A.L

Driller: RP Drilling Ltd

SAMPLE DETAILS				STRATA RECORD				
Type	Depth From - To(m)	SPT (N), {ppm}, Vane Result (kN/m2)	Ground-water	Description	Depth (m)	Level (m AOD)	Legend	Well
ES	0.20			MADE GROUND: Dark grey slightly sandy very clayey angular to subangular fine to coarse GRAVEL of mudstone, coal, sandstone and brick.	0.30	80.20		
ES	0.60			MADE GROUND: Dark reddish brown slightly clayey sandy angular to subangular fine to coarse GRAVEL of sandstone, red mudstone and brick.	0.90	79.60		
		N=12 (3,3/4,3,3,2)	1	MADE GROUND: Medium dense dark grey to black sandy clayey angular to subangular fine to coarse GRAVEL of mudstone, coal, ash, sandstone and brick.				
ES	1.90	N=3 (1,1/1,0,1,1)	2	*From c. 2.0m bgl becoming very loose.*	2.50	78.00		
D	2.70			Soft to firm dark greenish grey slightly gravelly sandy friable CLAY of low plasticity (field assessment). Gravel is angular to subrounded fine to medium of mudstone and sandstone with occasional rootlets and faint humic odour - noted to be too friable for hand shear vane.				
		N=4 (2,1/0,2,1,1)	3		3.10	77.40		
				Soft low strength orangish brown slightly gravelly sandy CLAY of intermediate plasticity (laboratory assessment). Gravel is angular to subrounded fine to medium of mudstone, sandstone and rare coal				
		28.0						
D	3.80							
D	3.80							
		N=46 (25 for 115mm/19,7,9, 11)	4	Stiff high strength orangish brown mottled light grey slightly sandy gravelly CLAY of low plasticity (field assessment). Gravel is angular to subangular fine to coarse of sandstone.	3.95	76.55		
D	4.60							
		82.0						
		50 (13,11/50 for 225mm)	5	End of Borehole at 5.00m	5.00	75.50		

Remarks and Groundwater Observations:

1. Borehole refusal at 5.00m bgl. 2. Liner noted to be wet from 4.00m bgl. 3. Refusal at 5m bgl on presumed bedrock. 4. Backfilled with arisings upon completion.

GL (m AOD) 80.50m AOD

Easting: 431231.40

Northing: 410731.11

Fig No. WS311N

BOREHOLE RECORD

BH No. **RO301N**
Sheet 1 of 2

Site: Woolley Colliery Road, Darton	Contract No: C10128
Client: Gleeson Homes Ltd	Date(s): 29/05/2024
Method: Rotary drilling rig	Scale: 1:150
	Logged By: J.C — Checked By: A.L
	Driller: Sirius Drilling Ltd

SAMPLE DETAILS | STRATA RECORD

Depth From - To(m)	TCR	SCR	RQD	FI	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Well
						MADE GROUND: Brown GRAVEL of mudstone (Driller's description).				
						MADE GROUND: Dark grey GRAVEL (Driller's description).	1.50	78.14		
						MADE GROUND: Very loose grey GRAVEL (Driller's description).	3.50	76.14		
						Grey MUDSTONE (Driller's description).	5.00	74.64		
						Black MUDSTONE (Driller's description).	12.50	67.14		
						Grey MUDSTONE & SILTSTONE (Driller's description).	16.00	63.64		
	TCR	SCR	RQD	FI						

Remarks and Groundwater Observations:

1. Drilled using water flush. 2. Logged based on arisings from the borehole during drilling. 3. Backfilled with gravel and a bentonite seal upon completion.

GL (m AOD) 79.64
Eastings: 431201.56
Northings: 410908.43

Fig No.
RO301N

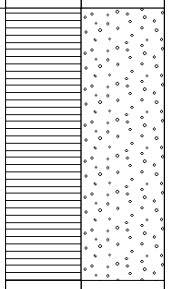
BOREHOLE RECORD

BH No. **RO301N**
Sheet 2 of 2

Site: Woolley Colliery Road, Darton
Contract No: C10128
Client: Gleeson Homes Ltd
Date(s): 29/05/2024
Method: Rotary drilling rig
Scale: 1:150
Logged By: J.C
Checked By: A.L
Driller: Sirius Drilling Ltd

SAMPLE DETAILS | STRATA RECORD

Depth From - To(m)	TCR	SCR	RQD	FI	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Well
						Grey MUDSTONE & SILTSTONE (Driller's description).				
						End of Borehole at 36.00m	36.00	43.64		



Remarks and Groundwater Observations:

1. Drilled using water flush. 2. Logged based on arisings from the borehole during drilling. 3. Backfilled with gravel and a bentonite seal upon completion.

GL (m AOD) 79.64
Eastings: 431201.56
Northings: 410908.43

Fig No. RO301N

BOREHOLE RECORD

BH No. **RO302N**
Sheet 1 of 1

Site: Woolley Colliery Road, Darton
Contract No: C10128
Client: Gleeson Homes Ltd
Date(s): 29/05/2024
Method: Rotary drilling rig
Scale: 1:150
Logged By: J.C
Checked By: A.L
Driller: Sirius Drilling Ltd

SAMPLE DETAILS | STRATA RECORD

Depth From - To(m)	TCR	SCR	RQD	FI	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Well
						MADE GROUND: Grey GRAVEL of mudstone (Driller's description).				
						Grey MUDSTONE (Driller's description).	4.00	73.08		
						Black COAL (Driller's description).	17.50	59.58		
						Grey MUDSTONE (Driller's description).	17.80	59.28		
						End of Borehole at 21.00m	21.00	56.08		

Remarks and Groundwater Observations:

1. Drilled using water flush. 2. Logged based on arisings from the borehole during drilling. 3. Backfilled with gravel and a bentonite seal upon completion.

GL (m AOD) 77.08
Eastings: 431169.22
Northings: 410896.23

Fig No. RO302N

BOREHOLE RECORD

BH No. **RO303N**
Sheet 1 of 1

Site: Woolley Colliery Road, Darton
Contract No: C10128
Client: Gleeson Homes Ltd
Date(s): 29/05/2024
Method: Rotary drilling rig
Scale: 1:150
Logged By: J.C
Checked By: A.L
Driller: Sirius Drilling Ltd

SAMPLE DETAILS | STRATA RECORD

Depth From - To(m)	TCR	SCR	RQD	FI	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Well
						MADE GROUND: Brown CLAY (Driller's description).	0.50	80.83		
						MADE GROUND: Brown GRAVEL of mudstone (Driller's description).	1.50	79.83		
						MADE GROUND: Grey GRAVEL of mudstone (Driller's description).	5.50	75.83		
						Black COAL (Driller's description).	6.50	74.83		
						Grey MUDSTONE (Driller's description).	14.00	67.33		
						Black COAL (Driller's description).	14.80	66.53		
						Grey MUDSTONE (Driller's description).	18.00	63.33		
						End of Borehole at 18.00m				

TCR SCR RQD FI

Remarks and Groundwater Observations:

1. Drilled using water flush. 2. Logged based on arisings from the borehole during drilling. 3. Backfilled with gravel and a bentonite seal upon completion.

GL (m AOD) 81.33
Eastings: 431235.08
Northings: 410865.81

Fig No.
RO303N

BOREHOLE RECORD

BH No. **RO304N**
Sheet 1 of 2

Site: Woolley Colliery Road, Darton
Contract No: C10128
Client: Gleeson Homes Ltd
Date(s): 28/05/2024
Method: Rotary drilling rig
Scale: 1:150
Logged By: J.C
Checked By: A.L
Driller: Sirius Drilling Ltd

SAMPLE DETAILS | STRATA RECORD

Depth From - To(m)	TCR	SCR	RQD	FI	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Well
						MADE GROUND: Brown CLAY (Driller's description).				
						MADE GROUND: Dark grey GRAVEL of mudstone (Driller's description).	1.00	77.42		
						MADE GROUND: Brown GRAVEL of mudstone (Driller's description).	1.20	77.22		
						Brown MUDSTONE (Driller's description).	2.00	76.42		
						Grey MUDSTONE (Driller's description).	4.00	74.42		
						Dark grey MUDSTONE (Driller's description).	6.40	72.02		
						Grey MUDSTONE (Driller's description).	9.20	69.22		
						Brown SANDSTONE (Driller's description).	16.50	61.92		
						Grey MUDSTONE & SILTSTONE (Driller's description).	17.30	61.12		
	TCR	SCR	RQD	FI						

Remarks and Groundwater Observations:

1. Drilled using air mist flush. 2. Logged based on arisings from the borehole during drilling. 3. Backfilled with gravel and a bentonite seal upon completion.

GL (m AOD) 78.42
Eastings: 431209.03
Northings: 410844.14

Fig No.
RO304N

BOREHOLE RECORD

BH No. **RO304N**
Sheet 2 of 2

Site: Woolley Colliery Road, Darton
Contract No: C10128

Client: Gleeson Homes Ltd
Date(s): 28/05/2024

Method: Rotary drilling rig
Scale: 1:150

Logged By: J.C | Checked By: A.L

Driller: Sirius Drilling Ltd

SAMPLE DETAILS						STRATA RECORD			
Depth From - To(m)	TCR	SCR	RQD	FI	Ground -water	Description	Depth (m)	Level (m AOD)	Legend / Well
					31	Grey MUDSTONE & SILTSTONE (Driller's description).			
					32	End of Borehole at 32.00m	32.00	46.42	
					33				
					34				
					35				
					36				
					37				
					38				
					39				
					40				
					41				
					42				
					43				
					44				
					45				
					46				
					47				
					48				
					49				
					50				
					51				
					52				
					53				
					54				
					55				
					56				
					57				
					58				
					59				
					60				
					61				
	TCR	SCR	RQD	FI					

Remarks and Groundwater Observations:

1. Drilled using air mist flush. 2. Logged based on arisings from the borehole during drilling. 3. Backfilled with gravel and a bentonite seal upon completion.

GL (m AOD) 78.42
Eastings: 431209.03
Northings: 410844.14

Fig No.
RO304N

BOREHOLE RECORD

BH No. **RO305N**
Sheet 1 of 2

Site: Woolley Colliery Road, Darton
Contract No: C10128
Client: Gleeson Homes Ltd
Date(s): 28/05/2024
Method: Rotary drilling rig
Scale: 1:150
Logged By: J.C
Checked By: A.L
Driller: Sirius Drilling Ltd

SAMPLE DETAILS | STRATA RECORD

Depth From - To(m)	TCR	SCR	RQD	FI	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Well
						MADE GROUND: CONCRETE (Driller's description).	0.10	78.51		
						MADE GROUND: Grey GRAVEL of mudstone (Driller's description).				
						Grey MUDSTONE (Driller's description).	5.30	73.31		
						Black COAL (Driller's description).	6.30	72.31		
						Grey MUDSTONE & SILTSTONE (Driller's description).	6.50	72.11		
						Black COAL (Driller's description).	27.50	51.11		
						Grey MUDSTONE (Driller's description).	28.50	50.11		
	TCR	SCR	RQD	FI						

Remarks and Groundwater Observations:

1. Drilled using air mist flush. 2. Logged based on arisings from the borehole during drilling. 3. Backfilled with gravel and a bentonite seal upon completion.

GL (m AOD) 78.61
Eastings: 431194.83
Northings: 410806.17

Fig No.
RO305N

BOREHOLE RECORD

BH No. **RO305N**
Sheet 2 of 2

Site: Woolley Colliery Road, Darton
Contract No: C10128

Client: Gleeson Homes Ltd
Date(s): 28/05/2024

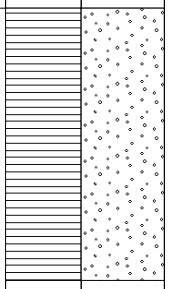
Method: Rotary drilling rig
Scale: 1:150

Logged By: J.C
Checked By: A.L

Driller: Sirius Drilling Ltd

SAMPLE DETAILS | STRATA RECORD

Depth From - To(m)	TCR	SCR	RQD	FI	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Well
						Grey MUDSTONE (Driller's description).				
						End of Borehole at 36.00m	36.00	42.61		



Remarks and Groundwater Observations:

1. Drilled using air mist flush. 2. Logged based on arisings from the borehole during drilling. 3. Backfilled with gravel and a bentonite seal upon completion.

GL (m AOD) 78.61
Eastings: 431194.83
Northings: 410806.17

Fig No.
RO305N

BOREHOLE RECORD

BH No. **RO306N**
Sheet 1 of 2

Site: Woolley Colliery Road, Darton
Contract No: C10128
Client: Gleeson Homes Ltd
Date(s): 29/05/2024
Method: Rotary drilling rig
Scale: 1:150
Logged By: J.C
Checked By: A.L
Driller: Sirius Drilling Ltd

SAMPLE DETAILS | STRATA RECORD

Depth From - To(m)	TCR	SCR	RQD	FI	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Well
						MADE GROUND: Grey GRAVEL of mudstone (Driller's description).				
						Weathered brown MUDSTONE (Driller's description).	6.50	77.86		
						Brown MUDSTONE (Driller's description).	7.50	76.86		
						Grey MUDSTONE (Driller's description).	9.00	75.36		
						Black COAL (Driller's description).	15.00	69.36		
						Grey MUDSTONE (Driller's description).	15.30	69.06		
						Black COAL (Driller's description).	17.50	66.86		
						Grey MUDSTONE (Driller's description).	17.60	66.76		
						Black COAL (Driller's description).	23.40	60.96		
						Grey MUDSTONE (Driller's description).	23.70	60.66		

TCR SCR RQD FI

Remarks and Groundwater Observations:

1. Drilled using air mist flush. 2. Logged based on arisings from the borehole during drilling. 3. Backfilled with gravel and a bentonite seal upon completion.

GL (m AOD) 84.36
Eastings: 431109.24
Northings: 410761.23

Fig No.
RO306N

BOREHOLE RECORD

BH No. **RO306N** Sheet 2 of 2

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date(s): 29/05/2024

Method: Rotary drilling rig

Scale: 1:150

Logged By: J.C | Checked By: A.L

Driller: Sirius Drilling Ltd

SAMPLE DETAILS | STRATA RECORD

Depth From - To(m)	TCR	SCR	RQD	FI	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Well
					31	Grey MUDSTONE (Driller's description).				
					32					
					33					
					34					
					35					
					36					
					37	End of Borehole at 36.50m	36.50	47.86		
					38					
					39					
					40					
					41					
					42					
					43					
					44					
					45					
					46					
					47					
					48					
					49					
					50					
					51					
					52					
					53					
					54					
					55					
					56					
					57					
					58					
					59					
					60					
					61					
	TCR	SCR	RQD	FI						

Remarks and Groundwater Observations:

1. Drilled using air mist flush. 2. Logged based on arisings from the borehole during drilling. 3. Backfilled with gravel and a bentonite seal upon completion.

GL (m AOD) 84.36

Eastings: 431109.24

Northings: 410761.23

Fig No. RO306N

BOREHOLE RECORD

BH No. **RO307N** Sheet 1 of 2

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date(s): 29/05/2024

Method: Rotary drilling rig

Scale: 1:150

Logged By: J.C | Checked By: A.L

Driller: Sirius Drilling Ltd

SAMPLE DETAILS | STRATA RECORD

Depth From - To(m)	TCR	SCR	RQD	FI	Ground -water	Description	Depth (m)	Level (m AOD)
						MADE GROUND: Brown CLAY (Driller's description).		
						MADE GROUND: CONCRETE (Driller's description).	1.50	83.04
						MADE GROUND: Reddish-brown GRAVEL of mudstone (Driller's description).	1.70	82.84
						Weathered brown MUDSTONE (Driller's description).	2.30	82.24
						Brown MUDSTONE (Driller's description).	4.00	80.54
						Grey MUDSTONE (Driller's description).	6.00	78.54
						Black COAL (Driller's description).	12.10	72.44
						Grey MUDSTONE (Driller's description).	12.40	72.14
						Black COAL (Driller's description).	14.90	69.64
						Grey MUDSTONE (Driller's description).	15.10	69.44
						Black COAL (Driller's description).	20.70	63.84
						Grey MUDSTONE & SILTSTONE (Driller's description).	21.00	63.54
						Black COAL (Driller's description).	28.40	56.14
						Black COAL (Driller's description).	28.80	55.74
	TCR	SCR	RQD	FI				

Legend | Well

Remarks and Groundwater Observations:

1. Drilled using air mist flush. 2. Logged based on arisings from the borehole during drilling. 3. Backfilled with gravel and a bentonite seal upon completion.

GL (m AOD) 84.54

Eastings: 431157.45

Northings: 410719.95

Fig No. RO307N

BOREHOLE RECORD

BH No. **RO307N**
Sheet 2 of 2

Site: Woolley Colliery Road, Darton
Contract No: C10128
Client: Gleeson Homes Ltd
Date(s): 29/05/2024
Method: Rotary drilling rig
Scale: 1:150
Logged By: J.C
Checked By: A.L
Driller: Sirius Drilling Ltd

SAMPLE DETAILS | STRATA RECORD

Depth From - To(m)	TCR	SCR	RQD	FI	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Well
						Black COAL (Driller's description).				
						End of Borehole at 32.50m	32.50	52.04		

Remarks and Groundwater Observations:

1. Drilled using air mist flush. 2. Logged based on arisings from the borehole during drilling. 3. Backfilled with gravel and a bentonite seal upon completion.

GL (m AOD) 84.54
Eastings: 431157.45
Northings: 410719.95

Fig No.
RO307N

BOREHOLE RECORD

BH No. **RO308N**
Sheet 1 of 2

Site: Woolley Colliery Road, Darton	Contract No: C10128
Client: Gleeson Homes Ltd	Date(s): 29/05/2024
Method: Rotary drilling rig	Scale: 1:150
	Logged By: J.C — Checked By: A.L
	Driller: Sirius Drilling Ltd

SAMPLE DETAILS | STRATA RECORD

Depth From - To(m)	TCR	SCR	RQD	FI	Ground -water	Description	Depth (m)	Level (m AOD)
						MADE GROUND: Brown CLAY (Driller's description).		
						Brown SANDSTONE (Driller's description).	2.80	82.33
						Brown MUDSTONE (Driller's description).	3.20	81.93
						Grey MUDSTONE (Driller's description).	5.00	80.13
						Black COAL (Driller's description).	11.00	74.13
						Grey MUDSTONE (Driller's description).	11.20	73.93
						Black COAL (Driller's description).	13.50	71.63
						Grey MUDSTONE (Driller's description).	13.80	71.33
						Black COAL (Driller's description).	20.00	65.13
						Grey MUDSTONE (Driller's description).	20.30	64.83
						Black COAL (Driller's description).	27.20	57.93
						Grey MUDSTONE (Driller's description).	27.70	57.43
	TCR	SCR	RQD	FI				

Legend | Well

Remarks and Groundwater Observations:

1. Drilled using air mist flush. 2. Logged based on arisings from the borehole during drilling. 3. Backfilled with gravel and a bentonite seal upon completion.

GL (m AOD) 85.13
Eastings: 431200.89
Northings: 410685.42

Fig No. RO308N

BOREHOLE RECORD

BH No. **RO308N**
Sheet 2 of 2

Site: Woolley Colliery Road, Darton
Contract No: C10128
Client: Gleeson Homes Ltd
Date(s): 29/05/2024
Method: Rotary drilling rig
Scale: 1:150
Logged By: J.C
Checked By: A.L
Driller: Sirius Drilling Ltd

SAMPLE DETAILS | STRATA RECORD

Depth From - To(m)	TCR	SCR	RQD	FI	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Well
						Grey MUDSTONE (Driller's description).				
						End of Borehole at 33.00m	33.00	52.13		

TCR SCR RQD FI

Remarks and Groundwater Observations:

1. Drilled using air mist flush. 2. Logged based on arisings from the borehole during drilling. 3. Backfilled with gravel and a bentonite seal upon completion.

GL (m AOD) 85.13
Eastings: 431200.89
Northings: 410685.42

Fig No.
RO308N

BOREHOLE RECORD

BH No. **RO309N**
Sheet 1 of 2

Site: Woolley Colliery Road, Darton
Contract No: C10128
Client: Gleeson Homes Ltd
Date(s): 29/05/2024
Method: Rotary drilling rig
Scale: 1:150
Logged By: J.C
Checked By: A.L
Driller: Sirius Drilling Ltd

SAMPLE DETAILS | STRATA RECORD

Depth From - To(m)	TCR	SCR	RQD	FI	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Well
						MADE GROUND: CONCRETE (Driller's description).	0.20	79.74		
						MADE GROUND: Reddish-brown GRAVEL of mudstone (Driller's description).	0.80	79.14		
						MADE GROUND: Grey GRAVEL of mudstone - easy drilling (Driller's description).				
						Weathered brown MUDSTONE (Driller's description).	5.20	74.74		
						Grey MUDSTONE & SILTSTONE (Driller's description).	6.00	73.94		

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

TCR SCR RQD FI

Remarks and Groundwater Observations:

1. Drilled using air mist flush. 2. Logged based on arisings from the borehole during drilling. 3. Backfilled with gravel and a bentonite seal upon completion.

GL (m AOD) 79.94
Eastings: 431212.02
Northings: 410760.29

Fig No.
RO309N

BOREHOLE RECORD

BH No. **RO309N**
Sheet 2 of 2

Site: Woolley Colliery Road, Darton
Contract No: C10128

Client: Gleeson Homes Ltd
Date(s): 29/05/2024

Method: Rotary drilling rig
Scale: 1:150

Logged By: J.C
Checked By: A.L

Driller: Sirius Drilling Ltd

SAMPLE DETAILS | STRATA RECORD

Depth From - To(m)	TCR	SCR	RQD	FI	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Well
						Grey MUDSTONE & SILTSTONE (Driller's description).				
						End of Borehole at 36.00m	36.00	43.94		

TCR SCR RQD FI

Remarks and Groundwater Observations:

1. Drilled using air mist flush. 2. Logged based on arisings from the borehole during drilling. 3. Backfilled with gravel and a bentonite seal upon completion.

GL (m AOD) 79.94
Eastings: 431212.02
Northings: 410760.29

Fig No.
RO309N

TRIAL PIT RECORD

TP No. **TP301S** Sheet 1 of 1

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date: 30/05/2024

Method: JCB 3CX with 600mm toothed bucket

Scale: 1:25

Logged By: J.C

Checked By: A.L

SAMPLE DETAILS

STRATA RECORD

Type	Depth From - To(m)	Vane Results (kN/m2) {}{ppm}	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Backfill
ES	0.05			MADE GROUND: Black ASPHALT.	0.10	79.87		
				MADE GROUND: Light grey CONCRETE.	0.20	79.77		
ES	0.30			MADE GROUND: Reddish brown locally greyish brown sandy angular to subangular fine to coarse GRAVEL of brick, sandstone, coal and red mudstone.	0.60	79.37		
ES	0.70			MADE GROUND: Black sandy clayey angular to subangular fine to coarse GRAVEL of ash, brick, coal and mudstone.	0.80	79.17		
D	0.90		1	Firm greyish brown slightly sandy slightly gravelly friable CLAY. Low plasticity (field description). Gravel is angular to subrounded fine to medium of sandstone, mudstone and rare coal with occasional rootlets and faint humic odour - noted to be too friable for hand shear vane.	1.20	78.77		
				Moderately weak yellowish brown SANDSTONE. Recovered as sandy angular to subangular fine to coarse gravel.				
				End of trial pit at 1.60m	1.60	78.37		
			2					
			3					
			4					
			5					

Remarks and Groundwater Observations

1. Trial pit complete at 1.60m bgl in bedrock. 2. Remained dry and stable. 3. Backfilled with arisings upon completion.

GL (m AOD) 79.97

Easting: 431194.42

Northing: 410410.27

Fig No. TP301S

TRIAL PIT RECORD

TP No. **TP302S** Sheet 1 of 1

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date: 30/05/2024

Method: JCB 3CX with 600mm toothed bucket

Scale: 1:25

Logged By: J.C | Checked By: A.L

SAMPLE DETAILS				STRATA RECORD				
Type	Depth From - To(m)	Vane Results (kN/m2) {}{ppm}	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Backfill
ES	0.05			MADE GROUND: Black ASPHALT.	0.10	79.71		
				MADE GROUND: Light grey CONCRETE.	0.20	79.61		
B	0.30 - 0.80			MADE GROUND: Reddish brown locally dark brown sandy clayey angular to subangular fine to coarse GRAVEL of brick, sandstone, coal, red mudstone and rare slag (less than 5%).				
B	0.30 - 0.80							
ES	0.50							
			1	Moderately weak yellowish brown SANDSTONE. Recovered as sandy clayey angular to subangular fine to coarse gravel.	0.90	78.91		
				End of trial pit at 1.70m	1.70	78.11		
			2					
			3					
			4					
			5					

Remarks and Groundwater Observations

1. Trial pit complete at 1.70m bgl in bedrock. 2. Remained dry and stable. 3. Backfilled with arisings upon completion.

GL (m AOD) 79.81

Easting: 431171.52

Northing: 410394.14

Fig No. TP302S

TRIAL PIT RECORD

TP No. **TP303S** Sheet 1 of 1

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date: 30/05/2024

Method: JCB 3CX with 600mm toothed bucket

Scale: 1:25

Logged By: J.C Checked By: A.L

SAMPLE DETAILS				STRATA RECORD				
Type	Depth From - To(m)	Vane Results (kN/m2) {}{ppm}	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Backfill
				MADE GROUND: Black ASPHALT.	0.10	79.55		
				MADE GROUND: Light grey CONCRETE.	0.20	79.45		
ES	0.30			MADE GROUND: Reddish brown locally dark brown sandy clayey angular to subangular fine to coarse GRAVEL of brick, sandstone, coal and red mudstone.	0.40	79.25		
B	0.50 - 1.00			Firm greyish brown slightly sandy slightly gravelly friable CLAY. Low plasticity (field description). Gravel is angular to subrounded fine to medium of sandstone, mudstone and rare coal with occasional rootlets and faint humic odour - noted to be too friable for hand shear vane.	0.50	79.15		
B	0.50 - 1.00							
		92.0						
D	0.80	94.0						
		98.0						
			1	Stiff high strength bluish grey mottled mottled orange slightly sandy slightly gravelly CLAY. Low plasticity (field description). Gravel is angular to subrounded fine to coarse of sandstone.	1.10	78.55		
				Very weak greyish brown locally bluish grey SANDSTONE. Recovered as slightly clayey sandy angular to subangular fine to coarse gravel.				
				End of trial pit at 1.90m	1.90	77.75		
			2					
			3					
			4					
			5					

Remarks and Groundwater Observations

1. Trial pit complete at 1.90m bgl in bedrock. 2. Remained dry and stable. 3. Backfilled with arisings upon completion.

GL (m AOD) 79.65

Easting: 431190.83

Northing: 410430.29

Fig No. TP303S

TRIAL PIT RECORD

TP No. **TP304S** Sheet 1 of 1

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date: 30/05/2024

Method: JCB 3CX with 600mm toothed bucket

Scale: 1:25

Logged By: J.C

Checked By: A.L

SAMPLE DETAILS				STRATA RECORD				
Type	Depth From - To(m)	Vane Results (kN/m2) {}{ppm}	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Backfill
ES	0.10			MADE GROUND: Grass over dark brown clayey gravelly fine to coarse SAND. Gravel is angular to subangular fine to coarse of brick, mudstone, sandstone, concrete and occasional coal with many rootlets.	0.20	79.61		
ES	0.40			MADE GROUND: Reddish brown slightly clayey sandy angular to subangular fine to coarse GRAVEL of brick, sandstone, coal, red mudstone and rare slag (less than 5%).	0.80	79.01		
				Moderately weak yellowish brown SANDSTONE. Recovered as sandy clayey angular to subangular fine to coarse gravel.				
				End of trial pit at 1.50m	1.50	78.31		

Remarks and Groundwater Observations

1. Trial pit complete at 1.50m bgl in bedrock. 2. Remained dry and stable. 3. Backfilled with arisings upon completion.

GL (m AOD) 79.81

Easting: 431171.42

Northing: 410417.13

Fig No. TP304S

TRIAL PIT RECORD

TP No. **TP305S** Sheet 1 of 1

Site: Woolley Colliery Road, Darton	Contract No: C10128
Client: Gleeson Homes Ltd	Date: 31/05/2024
Method: JCB 3CX with 600mm toothed bucket	Scale: 1:25
	Logged By: J.C — Checked By: A.L

SAMPLE DETAILS				STRATA RECORD				
Type	Depth From - To(m)	Vane Results (kN/m2) {}{ppm}	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Backfill
ES	0.10			MADE GROUND: Grass over dark brown locally reddish brown clayey gravelly fine to coarse SAND. Gravel is angular to subangular fine to coarse of brick, mudstone, sandstone and occasional coal with many rootlets.	0.60	78.75		
				Moderately weak yellowish brown locally greyish brown SANDSTONE. Recovered as sandy clayey angular to subangular fine to coarse gravel.				
				End of trial pit at 1.30m	1.30	78.05		

Remarks and Groundwater Observations

1. Trial pit complete at 1.30m bgl in bedrock. 2. Remained dry and stable. 3. Backfilled with arisings upon completion.

GL (m AOD) 79.35
Easting: 431154.77
Northing: 410419.57

Fig No. TP305S

TRIAL PIT RECORD

TP No. **TP306S** Sheet 1 of 1

Site: Woolley Colliery Road, Darton	Contract No: C10128
Client: Gleeson Homes Ltd	Date: 31/05/2024
Method: JCB 3CX with 600mm toothed bucket	Scale: 1:25
	Logged By: J.C — Checked By: A.L

SAMPLE DETAILS				STRATA RECORD				
Type	Depth From - To(m)	Vane Results (kN/m2) {}{ppm}	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Backfill
ES	0.50			MADE GROUND: Dark grey to black sandy clayey angular to subangular fine to coarse GRAVEL of ash, coal, mudstone and occasional brick.				
				Moderately weak yellowish brown SANDSTONE. Recovered as slightly clayey sandy angular to subangular fine to coarse gravel.	1.50	78.83		
				End of trial pit at 1.90m	1.90	78.43		

1
2
3
4
5

Remarks and Groundwater Observations

1. Trial pit complete at 1.90m bgl in bedrock. 2. Remained dry and stable. 3. Backfilled with arisings upon completion.

GL (m AOD) 80.33
Easting: 431124.19
Northing: 410398.33

Fig No. TP306S

TRIAL PIT RECORD

TP No. **TP307S** Sheet 1 of 1

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date: 31/05/2024

Method: JCB 3CX with 600mm toothed bucket

Scale: 1:25

Logged By: J.C | Checked By: A.L

SAMPLE DETAILS				STRATA RECORD				
Type	Depth From - To(m)	Vane Results (kN/m2) {}{ppm}	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Backfill
B B	0.30 - 0.80 0.30 - 0.80			MADE GROUND: Black silty clayey SAND & GRAVEL. Gravel is angular to subangular, fine to coarse, of ash, coal, mudstone and brick. With rare cobble-sized pockets of firm gravelly CLAY.				
				MADE GROUND: Dark grey slightly sandy clayey angular to subangular fine to coarse GRAVEL of mudstone, sandstone, coal and rare possible slag (less than 5%).	1.50	79.39		
ES	1.80			*From 2.00m bgl: With low cobble content. Cobbles are subangular of sandstone.*				
				Very weak yellowish brown SANDSTONE. Recovered as slightly clayey sandy angular to subangular fine to coarse gravel.	2.20	78.69		
				End of trial pit at 2.80m	2.80	78.09		

Remarks and Groundwater Observations

1. Trial pit complete at 2.80m bgl in bedrock. 2. Remained dry and stable. 3. Backfilled with arisings upon completion.

GL (m AOD) 80.89

Easting: 431111.66

Northing: 410415.61

Fig No. TP307S

TRIAL PIT RECORD

TP No. **TP308S** Sheet 1 of 1

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date: 31/05/2024

Method: JCB 3CX with 600mm toothed bucket

Scale: 1:25

Logged By: J.C

Checked By: A.L

SAMPLE DETAILS				STRATA RECORD				
Type	Depth From - To(m)	Vane Results (kN/m2) {}{ppm}	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Backfill
ES	0.10			MADE GROUND: Dark greyish brown clayey gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse of mudstone and coal with occasional rootlets.	0.15	79.68		
ES	0.60			MADE GROUND: Dark grey sandy clayey GRAVEL with low cobble content. Gravel is angular to subangular fine to coarse of mudstone and sandstone. Cobbles are angular to subangular of sandstone.				
			1					
			2					
				From 2.30m bgl: With low boulder content. Boulders are angular of concrete up 30cm in diameter.				
			3	*From 3.00m bgl: With medium cobble content. Cobbles are subangular of sandstone and mudstone.*				
				Very weak yellowish brown SANDSTONE. Recovered as slightly clayey sandy angular to subangular fine to coarse gravel.	3.50	76.32		
				End of trial pit at 3.80m	3.80	76.03		
			4					
			5					

Remarks and Groundwater Observations

1. Trial pit complete at 3.80m bgl due to reach of machine. 2. No groundwater encountered. 3. Noted to be loose from 2.50m bgl. 4. Backfilled with arisings upon completion.

GL (m AOD) 79.83

Easting: 431089.87

Northing: 410437.96

Fig No. TP308S

TRIAL PIT RECORD

TP No. **TP309S** Sheet 1 of 1

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date: 31/05/2024

Method: JCB 3CX with 600mm toothed bucket

Scale: 1:25

Logged By: J.C | Checked By: A.L

SAMPLE DETAILS				STRATA RECORD				
Type	Depth From - To(m)	Vane Results (kN/m2) {}{ppm}	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Backfill
ES	0.20			MADE GROUND: Dark brown to black slightly sandy very clayey angular to subangular fine to coarse GRAVEL of ash, mudstone, coal and brick.				
					1.20	77.60		
B	1.50 - 2.00			MADE GROUND: Dark grey sandy clayey GRAVEL with low cobble content. Gravel is angular to subangular fine to coarse of mudstone and sandstone. Cobbles are angular to subangular of sandstone.				
				From 2.80m bgl: With medium cobble content. Cobbles are subangular of sandstone and mudstone.				
				End of trial pit at 3.80m	3.80	75.00		

Remarks and Groundwater Observations

1. Trial pit complete at 3.80m bgl due to reach of machine. 2. No groundwater encountered. 3. Noted to be loose from 2.00m bgl. 4. Backfilled with arisings upon completion.

GL (m AOD) 78.80

Easting: 431072.70

Northing: 410459.25

Fig No. TP309S

TRIAL PIT RECORD

TP No. **TP310S** Sheet 1 of 1

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date: 31/05/2024

Method: JCB 3CX with 600mm toothed bucket

Scale: 1:25

Logged By: J.C Checked By: A.L

SAMPLE DETAILS				STRATA RECORD				
Type	Depth From - To(m)	Vane Results (kN/m2) {}{ppm}	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Backfill
ES	0.30			MADE GROUND: Dark grey to black sandy clayey angular to subangular fine to coarse GRAVEL of ash, coal, mudstone and brick with rare rootlets.				
				Moderately weak yellowish brown SANDSTONE. Recovered as sandy angular to subangular fine to coarse gravel.	1.20	78.48		
				End of trial pit at 2.10m	2.10	77.58		

Remarks and Groundwater Observations

1. Trial pit complete at 2.10m bgl in bedrock. 2. Remained dry and stable. 3. Backfilled with arisings upon completion.

GL (m AOD) 79.68

Easting: 431129.70

Northing: 410445.13

Fig No. TP310S

TRIAL PIT RECORD

TP No. **TP311S** Sheet 1 of 1

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date: 31/05/2024

Method: JCB 3CX with 600mm toothed bucket

Scale: 1:25

Logged By: J.C Checked By: A.L

SAMPLE DETAILS | STRATA RECORD

Type	Depth From - To(m)	Vane Results (kN/m2) {}{ppm}	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Backfill
ES	0.10			MADE GROUND: Firm dark brown to black slightly sandy gravelly friable CLAY of low plasticity (field description). Gravel is angular to subrounded fine to medium of mudstone, sandstone and brick with many rootlets [TOPSOIL].	0.30	78.00		
ES	0.40			MADE GROUND: Reddish brown locally greyish brown slightly clayey sandy angular to subangular fine to coarse GRAVEL of brick, sandstone and rare possible slag (less than 5%).	0.60	77.70		
B	0.60 - 1.10			MADE GROUND: Dark grey to black slightly clayey silty very sandy angular to subangular fine to coarse GRAVEL of ash, coal, brick and mudstone with rare wood fragments.				
B	0.60 - 1.10							
			1					
			2	Moderately weak yellowish brown SANDSTONE. Recovered as sandy angular to subangular fine to coarse gravel.	1.80	76.50		
				End of trial pit at 2.50m	2.50	75.80		
			3					
			4					
			5					

Remarks and Groundwater Observations

1. Trial pit complete at 2.50m bgl in bedrock. 2. Remained dry and stable. 3. Backfilled with arisings upon completion.

GL (m AOD) 78.30

Easting: 431110.13

Northing: 410460.39

Fig No. TP311S

TRIAL PIT RECORD

TP No. **TP312S** Sheet 1 of 1

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date: 31/05/2024

Method: JCB 3CX with 600mm toothed bucket

Scale: 1:25

Logged By: J.C

Checked By: A.L

SAMPLE DETAILS				STRATA RECORD				
Type	Depth From - To(m)	Vane Results (kN/m2) {}{ppm}	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Backfill
ES	0.10			MADE GROUND: Dark grey to black sandy clayey angular to subangular fine to coarse GRAVEL of ash, mudstone, coal and brick with rare rootlets.	0.20	77.23		
ES	0.40			MADE GROUND: Reddish brown slightly clayey sandy angular to subangular fine to coarse GRAVEL of brick, red mudstone and sandstone.	0.70	76.73		
ES	0.90		1	MADE GROUND: Dark grey slightly sandy clayey angular to subangular fine to coarse GRAVEL of mudstone, sandstone, coal and rare possible slag (less than 5%).				
D	1.20							
			2					
D	2.90			Firm dark brown slightly gravelly sandy friable CLAY. Low plasticity (laboratory description). Gravel is subangular to subrounded fine to medium of sandstone and mudstone with faint humic odour and rare rootlets - noted to be too friable for hand shear vane.	2.80	74.63		
D	2.90		3					
D	3.40	76.0 84.0 92.0		Stiff high strength orangish brown slightly sandy slightly gravelly CLAY. Low plasticity (field description). Gravel is angular to subrounded fine to coarse of sandstone.	3.20	74.23		
				End of trial pit at 3.90m	3.90	73.53		
			4					
			5					

Remarks and Groundwater Observations

1. Trial pit complete at 3.90m bgl due to reach of machine. 2. Remained dry and stable. 3. Backfilled with arisings upon completion.

GL (m AOD) 77.43

Easting: 431090.74

Northing: 410485.16

Fig No. TP312S

TRIAL PIT RECORD

TP No. **TP313S** Sheet 1 of 1

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date: 31/05/2024

Method: JCB 3CX with 600mm toothed bucket

Scale: 1:25

Logged By: J.C

Checked By: A.L

SAMPLE DETAILS

STRATA RECORD

Type	Depth From - To(m)	Vane Results (kN/m2) {}{ppm}	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Backfill
ES B	0.30 0.40 - 0.90			MADE GROUND: Dark grey to black slightly sandy very clayey angular to subangular fine to coarse GRAVEL of ash, coal, brick and mudstone.				
			1		1.40	76.50		
ES	1.80			MADE GROUND: Dark grey sandy clayey GRAVEL with low cobble content. Gravel is angular to subangular fine to coarse of mudstone and sandstone. Cobbles are angular to subangular of sandstone.				
			2					
			3					
					3.70	74.20		
D	3.80			Firm dark brown slightly gravelly sandy friable CLAY. Low plasticity (field description). Gravel is subangular to subrounded fine to coarse of sandstone and mudstone with faint humic odour and rare rootlets - noted to be too friable for hand shear vane.				
			4		3.90	74.00		
				End of trial pit at 3.90m				
			5					

Remarks and Groundwater Observations

1. Trial pit complete at 3.90m bgl due to reach of machine. 2. Remained dry and stable. 3. Backfilled with arisings upon completion.

GL (m AOD) 77.90

Easting: 431055.00

Northing: 410485.00

Fig No.

TP313S

TRIAL PIT RECORD

TP No. **TP314S** Sheet 1 of 1

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date: 31/05/2024

Method: JCB 3CX with 600mm toothed bucket

Scale: 1:25

Logged By: J.C

Checked By: A.L

SAMPLE DETAILS

STRATA RECORD

Type	Depth From - To(m)	Vane Results (kN/m2) {}{ppm}	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Backfill
				MADE GROUND: Grass over firm dark brown slightly gravelly sandy friable CLAY of low plasticity (field description). Gravel is angular to subrounded fine to coarse of mudstone, sandstone and brick with many rootlets [TOPSOIL].	0.10	79.01		
ES	0.30			MADE GROUND: Reddish brown sandy angular to subangular fine to coarse GRAVEL of brick, sandstone and red mudstone.	0.50	78.61		
D	0.60			Firm dark greenish grey slightly gravelly sandy friable CLAY. Low plasticity (field description). Gravel is subangular to subrounded fine to medium of sandstone and mudstone with faint humic odour and rare rootlets - noted to be too friable for hand shear vane.	0.70	78.41		
			1	Very weak yellowish brown locally greyish brown SANDSTONE. Recovered as sandy angular to subangular fine to coarse gravel.				
				End of trial pit at 1.80m	1.80	77.31		
			2					
			3					
			4					
			5					

Remarks and Groundwater Observations

1. Trial pit complete at 1.80m bgl in bedrock. 2. Remained dry and stable. 3. Backfilled with arisings upon completion.

GL (m AOD) 79.11

Easting: 431117.65

Northing: 410432.80

Fig No. TP314S

WINDOW SAMPLING RECORD

BH No. **WS301S** Sheet 1 of 1

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date: 03/06/2024

Method: Tracked window sampling rig.

Scale: 1:25

Logged By: J.C | Checked By: A.L

Driller: RP Drilling Ltd

SAMPLE DETAILS				STRATA RECORD				
Type	Depth From - To(m)	SPT (N), {ppm}, Vane Result (kN/m2)	Ground-water	Description	Depth (m)	Level (m AOD)	Legend	Well
ES	0.30			MADE GROUND: Grass over firm dark brown slightly sandy gravelly friable CLAY of low plasticity (field assessment). Gravel is angular to subrounded fine to medium of mudstone, sandstone and brick with occasional rootlets [TOPSOIL].	0.10	79.60		
				MADE GROUND: Dark reddish brown slightly clayey sandy angular to subangular fine to coarse GRAVEL of brick, sandstone, red mudstone and rare slag (less than 5%).	0.40	79.31		
D	0.80			Weak yellowish brown SANDSTONE. Recovered as slightly clayey sandy angular to subangular fine to coarse gravel.				
		50 (25 for 115mm/50 for 245mm)	1	End of Borehole at 1.00m	1.00	78.70		
			2					
			3					
			4					
			5					

Remarks and Groundwater Observations:

1. Borehole refusal at 1.00m bgl. 2. No groundwater encountered. 3. Installed with gas/groundwater monitoring well, as detailed above.

GL (m AOD) 79.70m AOD

Easting: 431144.58

Northing: 410401.77

Fig No. WS301S

WINDOW SAMPLING RECORD

BH No. **WS302S** Sheet 1 of 1

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date: 03/06/2024

Method: Tracked window sampling rig.

Scale: 1:25

Logged By: J.C | Checked By: A.L

Driller: RP Drilling Ltd

SAMPLE DETAILS				STRATA RECORD				
Type	Depth From - To(m)	SPT (N), {ppm}, Vane Result (kN/m2)	Ground-water	Description	Depth (m)	Level (m AOD)	Legend	Well
				MADE GROUND: Firm dark greyish brown slightly sandy gravelly friable CLAY of low plasticity (field assessment). Gravel is angular to subrounded fine to coarse of sandstone and mudstone with rare rootlets [TOPSOIL].	0.10	81.26		
ES	0.40			MADE GROUND: Medium dense light grey slightly clayey sandy angular to subrounded fine to coarse GRAVEL of sandstone, mudstone and rare coal.				
ES	0.90			*From 0.90m to 1.50m bgl: Becomes dark grey.*				
		N=10 (3,4/3,2,3,2)	1					
		N=12 (5,2/3,3,3,3)	2					
		N=10 (3,2/2,1,3,4)	3	Firm medium strength orangish brown slightly sandy slightly gravelly friable CLAY of low plasticity (laboratory assessment). Gravel is angular to subrounded fine to coarse of sandstone- noted to be too friable for hand shear vane.	3.00	78.36		
D	3.50							
D	3.50			Weak yellowish brown SANDSTONE. Recovered as sandy angular to subangular fine to coarse gravel.	3.60	77.76		
		50 (10,12/50 for 265mm)		End of Borehole at 3.80m	3.80	77.56		
			4					
			5					

Remarks and Groundwater Observations:

1. Borehole refusal at 3.80m bgl. 2. No groundwater encountered. 3. Installed with gas/groundwater monitoring well, as detailed above.

GL (m AOD) 81.36m AOD

Easting: 431098.29

Northing: 410412.75

Fig No. WS302S

WINDOW SAMPLING RECORD

BH No. **WS303S** Sheet 1 of 1

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date: 03/06/2024

Method: Tracked window sampling rig.

Scale: 1:25

Logged By: J.C | Checked By: A.L

Driller: RP Drilling Ltd

SAMPLE DETAILS				STRATA RECORD				
Type	Depth From - To(m)	SPT (N), {ppm}, Vane Result (kN/m2)	Ground-water	Description	Depth (m)	Level (m AOD)	Legend	Well
ES	0.30			MADE GROUND: Dark grey to black sandy clayey angular to subangular fine to coarse GRAVEL of ash, coal, mudstone and sandstone with occasional pockets of Firm gravelly CLAY.				
				MADE GROUND: Medium dense light grey slightly clayey sandy angular to subrounded fine to coarse GRAVEL of sandstone, mudstone and rare coal.	0.70	78.63		
		N=11 (3,3/2,4,2,3)	1					
ES	1.70							
		N=12 (3,2/2,3,3,4)	2					
		N=12 (3,3/3,2,4,3)	3					
		N=11 (3,4/3,2,3,3)	4					
				Firm dark greyish brown slightly gravelly sandy friable CLAY of low plasticity (field assessment). Gravel is angular to subrounded fine to medium of mudstone and sandstone with occasional rootlets and faint humic odour.	4.70	74.63		
D	4.80							
				Very weak yellowish brown SANDSTONE. Recovered as slightly clayey sandy angular to subangular fine to coarse gravel.	4.85	74.48		
		N=38 (6,8/12,6,7,13)	5					
				End of Borehole at 5.00m	5.00	74.33		

Remarks and Groundwater Observations:

1. Borehole complete at 5.00m bgl. 2. No groundwater encountered. 3. Backfilled with arisings upon completion.

GL (m AOD) 79.33m AOD

Easting: 431071.29

Northing: 410445.39

Fig No. WS303S

WINDOW SAMPLING RECORD

BH No. **WS304S** Sheet 1 of 1

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date: 03/06/2024

Method: Tracked window sampling rig.

Scale: 1:25

Logged By: J.C Checked By: A.L

Driller: RP Drilling Ltd

SAMPLE DETAILS				STRATA RECORD				
Type	Depth From - To(m)	SPT (N), {ppm}, Vane Result (kN/m2)	Ground-water	Description	Depth (m)	Level (m AOD)	Legend	Well
				MADE GROUND: Medium dense dark grey to black sandy clayey angular to subangular fine to coarse GRAVEL of ash, coal, mudstone and brick.				
ES	0.50							
		N=17 (12,9/5,5,4,3)	1	MADE GROUND: Dark reddish brown slightly clayey sandy angular to subangular fine to coarse GRAVEL of brick, sandstone, red mudstone and rare coal.	1.00	76.43		
ES	1.60							
		N=7 (3,2/2,2,2,1)	2					
		52.0		Firm medium strength dark brown slightly gravelly sandy friable CLAY of low plasticity (field assessment). Gravel is angular to subrounded fine to medium of mudstone and sandstone with occasional rootlets and faint humic odour.	2.40	75.03		
D	2.60							
				Very weak yellowish brown SANDSTONE. Recovered as slightly clayey sandy angular to subangular fine to coarse gravel.	2.70	74.73		
		N=33 (3,4/6,9,7,11)	3					
D	3.60							
		50 (25 for 115mm/50 for 230mm)	4	End of Borehole at 4.00m	4.00	73.43		
			5					

Remarks and Groundwater Observations:

1. Borehole refusal at 4.00m bgl. 2. No groundwater encountered. 3. Installed with gas/groundwater monitoring well, as detailed above.

GL (m AOD) 77.43m AOD

Easting: 431066.12

Northing: 410490.11

Fig No. WS304S

WINDOW SAMPLING RECORD

BH No. **WS305S** Sheet 1 of 1

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date: 03/06/2024

Method: Tracked window sampling rig.

Scale: 1:25

Logged By: J.C Checked By: A.L

Driller: RP Drilling Ltd

SAMPLE DETAILS				STRATA RECORD				
Type	Depth From - To(m)	SPT (N), {ppm}, Vane Result (kN/m2)	Ground-water	Description	Depth (m)	Level (m AOD)	Legend	Well
				MADE GROUND: Firm dark grey slightly sandy gravelly friable CLAY of low plasticity (field assessment). Gravel is angular to subrounded fine to medium of mudstone, sandstone, coal and brick with occasional rootlets [TOPSOIL].	0.10	77.36		
ES	0.30			MADE GROUND: Dark reddish brown slightly clayey sandy angular to subangular fine to coarse GRAVEL of brick, sandstone, red mudstone and rare coal.	0.60	76.86		
ES	0.80			MADE GROUND: Loose dark grey to black sandy clayey angular to subangular fine to coarse GRAVEL of sandstone, mudstone and occasional coal.				
		N=8 (3,2/2,2,2,2)	1					
		N=9 (2,2/2,2,2,3)	2	Firm medium strength dark brown slightly gravelly sandy friable CLAY of low plasticity (laboratory assessment). Gravel is angular to subrounded fine to medium of mudstone and sandstone with occasional rootlets and faint humic odour.	2.00	75.46		
		48.0		Firm medium strength orangish brown slightly sandy slightly gravelly friable CLAY of low plasticity (field assessment). Gravel is angular to subrounded fine to coarse of sandstone.	2.50	74.96		
D	2.80							
D	2.80							
		N=17 (2,3/3,4,5,5)	3					
				Very weak yellowish brown SANDSTONE. Recovered as sandy angular to subangular fine to coarse gravel.	3.30	74.16		
		N=50 (11,13/50 for 245mm)		End of Borehole at 3.80m	3.80	73.66		
			4					
			5					

Remarks and Groundwater Observations:

1. Borehole refusal at 3.80m bgl. 2. No groundwater encountered. 3. Backfilled with arisings upon completion.

GL (m AOD) 77.46m AOD

Easting: 431089.94

Northing: 410465.07

Fig No. WS305S

WINDOW SAMPLING RECORD

BH No. **WS306S** Sheet 1 of 1

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date: 03/06/2024

Method: Tracked window sampling rig.

Scale: 1:25

Logged By: J.C | Checked By: A.L

Driller: RP Drilling Ltd

SAMPLE DETAILS				STRATA RECORD				
Type	Depth From - To(m)	SPT (N), {ppm}, Vane Result (kN/m2)	Ground-water	Description	Depth (m)	Level (m AOD)	Legend	Well
ES	0.20			MADE GROUND: Firm dark grey slightly sandy gravelly friable CLAY of low plasticity (field assessment). Gravel is angular to subrounded fine to medium of mudstone, sandstone and brick with occasional rootlets [TOPSOIL].	0.05	79.76		
D	0.60			MADE GROUND: Dark reddish brown sandy angular to subangular fine to coarse GRAVEL of brick, sandstone, red mudstone and rare coal.	0.50	79.31		
				Firm dark brown slightly gravelly sandy friable CLAY of low plasticity (field assessment). Gravel is angular to subrounded fine to medium of mudstone and sandstone with occasional rootlets and faint humic odour - noted to be too friable for hand shear vane.	0.70	79.11		
		N=17 (3,2/3,3,6,5)	1	Very weak yellowish brown locally greyish brown SANDSTONE. Recovered as sandy angular to subangular fine to coarse gravel.				
		N=50 (11,13/50 for 245mm)	2	End of Borehole at 2.00m	2.00	77.81		
			3					
			4					
			5					

Remarks and Groundwater Observations:

1. Borehole refusal at 2.00m bgl. 2. No groundwater encountered. 3. Backfilled with arisings upon completion.

GL (m AOD) 79.81m AOD

Easting: 431122.22

Northing: 410434.66

Fig No. WS306S

WINDOW SAMPLING RECORD

BH No. **WS307S** Sheet 1 of 1

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date: 03/06/2024

Method: Tracked window sampling rig.

Scale: 1:25

Logged By: J.C | Checked By: A.L

Driller: RP Drilling Ltd

SAMPLE DETAILS				STRATA RECORD				
Type	Depth From - To(m)	SPT (N), {ppm}, Vane Result (kN/m2)	Ground-water	Description	Depth (m)	Level (m AOD)	Legend	Well
				MADE GROUND: Light grey CONCRETE.	0.10	79.75		
				MADE GROUND: Dark reddish brown locally greyish brown sandy angular to subangular fine to coarse GRAVEL of brick, sandstone, red mudstone and rare coal.	0.40	79.45		
ES	0.60			MADE GROUND: Dark grey to black sandy clayey angular to subangular fine to coarse GRAVEL of ash, coal, mudstone and brick.	0.60	79.25		
		84.0		Stiff high strength orangish brown slightly sandy gravelly CLAY of low to intermediate plasticity (laboratory assessment). Gravel is angular to subangular fine to coarse of sandstone.				
D	0.90							
D	0.90	N=45 (3,4/13,12,11,9)	1	Very weak yellowish brown locally greyish brown SANDSTONE. Recovered as sandy angular to subangular fine to coarse gravel.	1.00	78.85		
		50 (25,/50 for 170mm)		End of Borehole at 1.70m	1.70	78.15		
			2					
			3					
			4					
			5					

Remarks and Groundwater Observations:

1. Borehole refusal at 1.70m bgl. 2. No groundwater encountered. 3. Backfilled with arisings upon completion.

GL (m AOD) 79.85m AOD

Easting: 431188.33

Northing: 410420.06

Fig No. WS307S

WINDOW SAMPLING RECORD

BH No. **WS308S** Sheet 1 of 1

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date: 03/06/2024

Method: Tracked window sampling rig.

Scale: 1:25

Logged By: J.C | Checked By: A.L

Driller: RP Drilling Ltd

SAMPLE DETAILS				STRATA RECORD				
Type	Depth From - To(m)	SPT (N), {ppm}, Vane Result (kN/m2)	Ground-water	Description	Depth (m)	Level (m AOD)	Legend	Well
				MADE GROUND: Light grey CONCRETE.	0.10	79.82		
ES	0.40			MADE GROUND: Dark reddish brown locally greyish brown sandy angular to subangular fine to coarse GRAVEL of brick, sandstone, red mudstone and rare coal.	0.90	79.02		
		N=10 (3,2/3,2,3,2)	1	MADE GROUND: Dark grey to black slightly sandy very clayey angular to subangular fine to coarse GRAVEL of ash, coal, mudstone and brick.	1.00	78.92		
D	1.60	82.0		Stiff high strength greyish brown slightly sandy gravelly CLAY of intermediate plasticity (laboratory assessment). Gravel is angular to subangular fine to coarse of sandstone.				
D	1.60							
		50 (25 for 115mm/50 for 275mm)	2	Weak yellowish brown SANDSTONE. Recovered as sandy angular to subangular fine to coarse gravel.	1.80	78.12		
				End of Borehole at 1.90m	1.90	78.02		
			3					
			4					
			5					

Remarks and Groundwater Observations:

1. Borehole refusal at 1.90m bgl. 2. No groundwater encountered. 3. Backfilled with arisings upon completion.

GL (m AOD) 79.92m AOD

Easting: 431186.35

Northing: 410393.55

Fig No. WS308S

BOREHOLE RECORD

BH No. **RO301S**
Sheet 1 of 1

Site: Woolley Colliery Road, Darton
Contract No: C10128
Client: Gleeson Homes Ltd
Date(s): 30/05/2024
Method: Rotary drilling rig
Scale: 1:150
Logged By: J.C
Checked By: A.L
Driller: Sirius Drilling Ltd

SAMPLE DETAILS | STRATA RECORD

Depth From - To(m)	TCR	SCR	RQD	FI	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Well
						Brown weathered SANDSTONE (Driller's description).				
						Brown SANDSTONE (Driller's description).	2.00	77.92		
						Brown fractured SANDSTONE (Driller's description).	5.00	74.92		
						Brown SANDSTONE (Driller's description).	5.60	74.32		
						Brown fractured SANDSTONE (Driller's description).	8.20	71.72		
						Brown SANDSTONE (Driller's description).	8.50	71.42		
						Broken ground (Driller's description).	10.00	69.92		
						Solid strata (Driller's description).	12.00	67.92		
						End of Borehole at 15.00m	15.00	64.92		

Remarks and Groundwater Observations:

1. Drilled using air mist flush. 2. Logged based on arisings from the borehole during drilling. 3. Backfilled with gravel and a bentonite seal upon completion.

GL (m AOD) 79.92
Eastings: 431187.92
Northings: 410381.83

Fig No. RO301S

BOREHOLE RECORD

BH No. **RO302S**
Sheet 1 of 2

Site: Woolley Colliery Road, Darton	Contract No: C10128
Client: Gleeson Homes Ltd	Date(s): 30/05/2024
Method: Rotary drilling rig	Scale: 1:150
	Logged By: J.C — Checked By: A.L
	Driller: Sirius Drilling Ltd

SAMPLE DETAILS | STRATA RECORD

Depth From - To(m)	TCR	SCR	RQD	FI	Ground -water	Description	Depth (m)	Level (m AOD)
						MADE GROUND: Reddish-brown GRAVEL of mudstone (Driller's description).		
					1		1.00	78.76
						Brown weathered SANDSTONE (Driller's description).		
					2		2.00	77.76
						Brown SANDSTONE (Driller's description).		
					3		3.00	76.76
						Brown fractured SANDSTONE (Driller's description).	3.30	76.46
					4	Brown SANDSTONE (Driller's description).		
					5		5.00	74.76
						Brown fractured SANDSTONE (Driller's description).	5.40	74.36
					6	Brown SANDSTONE (Driller's description).		
					7			
					8			
					9			
					10			
					11			
					12			
					13			
							13.80	65.96
					14	Grey MUDSTONE (Driller's description).	14.20	65.56
						Black COAL (Driller's description).	14.80	64.96
					15	Grey MUDSTONE (Driller's description).	14.90	64.86
						Black COAL (Driller's description).	15.20	64.56
					16	Grey MUDSTONE (Driller's description).		
					17			
					18			
					19			
					20			
					21			
					22			
					23			
							23.50	56.26
					24	Black COAL (Driller's description).	24.20	55.56
						Grey MUDSTONE & SILTSTONE (Driller's description).		
					25			
					26			
					27			
					28			
					29		29.00	50.76
						Fractured SANDSTONE - flush lost (Driller's description).		
					30			
	TCR	SCR	RQD	FI				

Legend | Well

Remarks and Groundwater Observations:

1. Drilled using air mist flush. 2. Logged based on arisings from the borehole during drilling. 3. Backfilled with gravel and a bentonite seal upon completion.

GL (m AOD) 79.76
Eastings: 431163.12
Northings: 410396.31

Fig No.
RO302S

BOREHOLE RECORD

BH No. **RO302S** Sheet 2 of 2

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date(s): 30/05/2024

Method: Rotary drilling rig

Scale: 1:150

Logged By: J.C | Checked By: A.L

Driller: Sirius Drilling Ltd

SAMPLE DETAILS | STRATA RECORD

Depth From - To(m)	TCR	SCR	RQD	FI	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Well
					31	Fractured SANDSTONE - flush lost (Driller's description).				
					32		31.50	48.26		
					33	Solid strata (Driller's description).				
					34					
					35	End of Borehole at 34.50m	34.50	45.26		
					36					
					37					
					38					
					39					
					40					
					41					
					42					
					43					
					44					
					45					
					46					
					47					
					48					
					49					
					50					
					51					
					52					
					53					
					54					
					55					
					56					
					57					
					58					
					59					
					60					
					61					
	TCR	SCR	RQD	FI						

Remarks and Groundwater Observations:

1. Drilled using air mist flush. 2. Logged based on arisings from the borehole during drilling. 3. Backfilled with gravel and a bentonite seal upon completion.

GL (m AOD) 79.76

Eastings: 431163.12

Northings: 410396.31

Fig No. RO302S

BOREHOLE RECORD

BH No. **RO303S**
Sheet 1 of 1

Site: Woolley Colliery Road, Darton
Contract No: C10128
Client: Gleeson Homes Ltd
Date(s): 31/05/2024
Method: Rotary drilling rig
Scale: 1:150
Logged By: J.C
Checked By: A.L
Driller: Sirius Drilling Ltd

SAMPLE DETAILS | STRATA RECORD

Depth From - To(m)	TCR	SCR	RQD	FI	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Well
						MADE GROUND: Reddish-brown GRAVEL of mudstone (Driller's description).	0.30	79.12		
						Brown weathered SANDSTONE (Driller's description).				
						Brown SANDSTONE (Driller's description).	2.00	77.42		
						Black COAL (Driller's description).	16.50	62.92		
						Grey MUDSTONE (Driller's description).	17.00	62.42		
						Black COAL (Driller's description).	17.30	62.12		
						Grey MUDSTONE & SILTSTONE (Driller's description).	17.80	61.62		
						End of Borehole at 28.50m	28.50	50.92		

TCR SCR RQD FI

Remarks and Groundwater Observations:

1. Drilled using air mist flush. 2. Logged based on arisings from the borehole during drilling. 3. Installed with a 50mm diameter gas / groundwater monitoring well upon completion.

GL (m AOD) 79.43
Eastings: 431161.55
Northings: 410433.87

Fig No.
RO303S

BOREHOLE RECORD

BH No. **RO304S**
Sheet 1 of 1

Site: Woolley Colliery Road, Darton
Contract No: C10128

Client: Gleeson Homes Ltd
Date(s): 30/05/2024

Method: Rotary drilling rig
Scale: 1:150

Logged By: J.C | Checked By: A.L

Driller: Sirius Drilling Ltd

SAMPLE DETAILS | STRATA RECORD

Depth From - To(m)	TCR	SCR	RQD	FI	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Well
						MADE GROUND: Brown GRAVEL of mudstone (Driller's description).				
					1					
						MADE GROUND: Grey GRAVEL of mudstone (Driller's description).	1.30	79.79		
					2					
					3		3.00	78.09		
						Soft brown CLAY (Driller's description).	3.20	77.89		
					4	Brown SANDSTONE (Driller's description).	3.50	77.59		
						Brown weathered SANDSTONE (Driller's description).	4.00	77.09		
					5	Brown SANDSTONE (Driller's description).				
					6					
					7					
					8					
					9					
					10					
							10.70	70.39		
					11	Fractured SANDSTONE - flush lost (Driller's description).	11.00	70.09		
						Brown SANDSTONE - partial flush (Driller's description).				
					12		12.00	69.09		
						End of Borehole at 12.00m				
					13					
					14					
					15					
					16					
					17					
					18					
					19					
					20					
					21					
					22					
					23					
					24					
					25					
					26					
					27					
					28					
					29					
					30					
	TCR	SCR	RQD	FI						

Remarks and Groundwater Observations:

1. Drilled using air mist flush. 2. Logged based on arisings from the borehole during drilling. 3. Backfilled with gravel and a bentonite seal upon completion.

GL (m AOD) 81.09
Eastings: 431113.42
Northings: 410402.89

Fig No. RO304S

BOREHOLE RECORD

BH No. **RO305S**
Sheet 1 of 1

Site: Woolley Colliery Road, Darton
Contract No: C10128

Client: Gleeson Homes Ltd
Date(s): 30/05/2024

Method: Rotary drilling rig
Scale: 1:150

Logged By: J.C | Checked By: A.L

Driller: Sirius Drilling Ltd

SAMPLE DETAILS | STRATA RECORD

Depth From - To(m)	TCR	SCR	RQD	FI	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Well
						MADE GROUND: Brown GRAVEL of mudstone (Driller's description).	0.30	80.56		
						MADE GROUND: Grey GRAVEL of mudstone (Driller's description).				
						Brown weathered SANDSTONE (Driller's description).	4.80	76.06		
						Brown SANDSTONE (Driller's description).	5.20	75.66		
						Fractured SANDSTONE (Driller's description).	9.00	71.86		
						Brown SANDSTONE (Driller's description).	9.50	71.36		
						Hightly fractured SANDSTONE - flush lost (Driller's description).	10.50	70.36		
						Solid strata (Driller's description).	11.50	69.36		
						End of Borehole at 12.00m	12.00	68.86		

Remarks and Groundwater Observations:

1. Drilled using air mist flush. 2. Logged based on arisings from the borehole during drilling. 3. Backfilled with gravel and a bentonite seal upon completion.

GL (m AOD) 80.86
Eastings: 431083.25
Northings: 410428.00

Fig No.
RO305S

BOREHOLE RECORD

BH No. **RO306S** Sheet 1 of 2

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date(s): 31/05/2024

Method: Rotary drilling rig

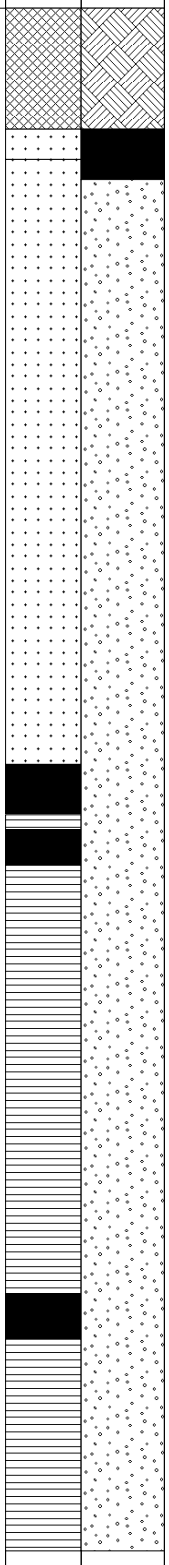
Scale: 1:150

Logged By: J.C | Checked By: A.L

Driller: Sirius Drilling Ltd

SAMPLE DETAILS | STRATA RECORD

Depth From - To(m)	TCR	SCR	RQD	FI	Ground -water	Description	Depth (m)	Level (m AOD)
						MADE GROUND: Brown GRAVEL of mudstone (Driller's description).		
						Brown weathered SANDSTONE (Driller's description).	2.40	77.36
						Brown SANDSTONE (Driller's description).	3.00	76.76
						Black COAL (Driller's description).	15.00	64.76
						Grey MUDSTONE (Driller's description).	16.00	63.76
						Black COAL (Driller's description).	16.30	63.46
						Grey MUDSTONE (Driller's description).	17.00	62.76
						Black COAL (Driller's description).	25.50	54.26
						Grey MUDSTONE & SILTSTONE (Driller's description).	26.40	53.36
	TCR	SCR	RQD	FI				



Remarks and Groundwater Observations:

1. Drilled using air mist flush. 2. Logged based on arisings from the borehole during drilling. 3. Backfilled with gravel and a bentonite seal upon completion.

GL (m AOD) 79.76

Eastings: 431123.37

Northings: 410452.43

Fig No. RO306S

BOREHOLE RECORD

BH No. **RO306S** Sheet 2 of 2

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date(s): 31/05/2024

Method: Rotary drilling rig

Scale: 1:150

Logged By: J.C | Checked By: A.L

Driller: Sirius Drilling Ltd

SAMPLE DETAILS | STRATA RECORD

Depth From - To(m)	TCR	SCR	RQD	FI	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Well
						Grey MUDSTONE & SILTSTONE (Driller's description).				
						Fractured SANDSTONE - flush lost (Driller's description).	31.60	48.16		
						Solid strata (Driller's description).	34.00	45.76		
						End of Borehole at 36.00m	36.00	43.76		

Remarks and Groundwater Observations:

1. Drilled using air mist flush. 2. Logged based on arisings from the borehole during drilling. 3. Backfilled with gravel and a bentonite seal upon completion.

GL (m AOD) 79.76

Eastings: 431123.37

Northings: 410452.43

Fig No. RO306S

BOREHOLE RECORD

BH No. **RO307S**
Sheet 1 of 2

Site: Woolley Colliery Road, Darton	Contract No: C10128
Client: Gleeson Homes Ltd	Date(s): 31/05/2024
Method: Rotary drilling rig	Scale: 1:150
	Logged By: J.C — Checked By: A.L
	Driller: Sirius Drilling Ltd

SAMPLE DETAILS | STRATA RECORD

Depth From - To(m)	TCR	SCR	RQD	FI	Ground -water	Description	Depth (m)	Level (m AOD)
						MADE GROUND: Brown GRAVEL of mudstone (Driller's description).		
						Brown weathered SANDSTONE (Driller's description).	3.00	75.46
						Brownish-grey SANDSTONE (Driller's description).	5.00	73.46
						Black COAL (Driller's description).	13.00	65.46
						Grey MUDSTONE (Driller's description).	13.70	64.76
						Black COAL (Driller's description).	14.00	64.46
						Grey MUDSTONE (Driller's description).	14.50	63.96
						Black COAL (Driller's description).	22.50	55.96
						Grey MUDSTONE & SILTSTONE (Driller's description).	23.50	54.96
						Fractured SANDSTONE - flush lost (Driller's description).	28.50	49.96
						Solid strata (Driller's description).	30.00	48.46
	TCR	SCR	RQD	FI				

Legend | Well

Remarks and Groundwater Observations:

1. Drilled using air mist flush. 2. Logged based on arisings from the borehole during drilling. 3. Backfilled with gravel and a bentonite seal upon completion.

GL (m AOD) 78.46
Eastings: 431096.14
Northings: 410471.70

Fig No. RO307S

BOREHOLE RECORD

BH No. **RO307S** Sheet 2 of 2

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date(s): 31/05/2024

Method: Rotary drilling rig

Scale: 1:150

Logged By: J.C | Checked By: A.L

Driller: Sirius Drilling Ltd

SAMPLE DETAILS | STRATA RECORD

Depth From - To(m)	TCR	SCR	RQD	FI	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Well
					31	Solid strata (Driller's description).				
					32					
					33	End of Borehole at 33.00m	33.00	45.46		
					34					
					35					
					36					
					37					
					38					
					39					
					40					
					41					
					42					
					43					
					44					
					45					
					46					
					47					
					48					
					49					
					50					
					51					
					52					
					53					
					54					
					55					
					56					
					57					
					58					
					59					
					60					
					61					
	TCR	SCR	RQD	FI						

Remarks and Groundwater Observations:

1. Drilled using air mist flush. 2. Logged based on arisings from the borehole during drilling. 3. Backfilled with gravel and a bentonite seal upon completion.

GL (m AOD) 78.46

Eastings: 431096.14

Northings: 410471.70

Fig No. RO307S

BOREHOLE RECORD

BH No. **RO308S** Sheet 1 of 2

Site: Woolley Colliery Road, Darton

Contract No: C10128

Client: Gleeson Homes Ltd

Date(s): 31/05/2024

Method: Rotary drilling rig

Scale: 1:150

Logged By: J.C | Checked By: A.L

Driller: Sirius Drilling Ltd

SAMPLE DETAILS | STRATA RECORD

Depth From - To(m)	TCR	SCR	RQD	FI	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Well
						MADE GROUND: Grey GRAVEL of mudstone (Driller's description).	0.40	77.00		
						MADE GROUND: Brown CLAY (Driller's description).	0.70	76.70		
						MADE GROUND: Grey GRAVEL of mudstone (Driller's description).				
						Brown weathered SANDSTONE (Driller's description).	3.20	74.20		
						Brownish-grey SANDSTONE (Driller's description).	4.00	73.40		
						Black COAL (Driller's description).	13.50	63.90		
						Grey MUDSTONE (Driller's description).	14.00	63.40		
						Black COAL (Driller's description).	14.20	63.20		
						Grey MUDSTONE (Driller's description).	14.80	62.60		
						Black COAL (Driller's description).	22.80	54.60		
						Grey MUDSTONE & SILTSTONE (Driller's description).	23.20	54.20		

TCR SCR RQD FI

Remarks and Groundwater Observations:

1. Drilled using air mist flush. 2. Logged based on arisings from the borehole during drilling. 3. Backfilled with gravel and a bentonite seal upon completion.

GL (m AOD) 77.40

Eastings: 431071.50

Northings: 410484.00

Fig No. RO308S

BOREHOLE RECORD

BH No. **RO308S**
Sheet 2 of 2

Site: Woolley Colliery Road, Darton
Contract No: C10128
Client: Gleeson Homes Ltd
Date(s): 31/05/2024
Method: Rotary drilling rig
Scale: 1:150
Logged By: J.C
Checked By: A.L
Driller: Sirius Drilling Ltd

SAMPLE DETAILS | STRATA RECORD

Depth From - To(m)	TCR	SCR	RQD	FI	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Well
						Grey MUDSTONE & SILTSTONE (Driller's description).				
						End of Borehole at 33.00m	33.00	44.40		

Remarks and Groundwater Observations:

1. Drilled using air mist flush. 2. Logged based on arisings from the borehole during drilling. 3. Backfilled with gravel and a bentonite seal upon completion.

GL (m AOD) 77.40
Eastings: 431071.50
Northings: 410484.00

Fig No. RO308S

BOREHOLE RECORD

BH No. **RO309S**
Sheet 1 of 2

Site: Woolley Colliery Road, Darton	Contract No: C10128
Client: Gleeson Homes Ltd	Date(s): 31/05/2024
Method: Rotary drilling rig	Scale: 1:150
	Logged By: J.C — Checked By: A.L
	Driller: Sirius Drilling Ltd

SAMPLE DETAILS | STRATA RECORD

Depth From - To(m)	TCR	SCR	RQD	FI	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Well
						MADE GROUND: Grey GRAVEL of mudstone (Driller's description).				
					1	MADE GROUND: Reddish-brown GRAVEL of mudstone (Driller's description).	1.00	76.72		
					2					
					3	Brown weathered SANDSTONE (Driller's description).	3.00	74.72		
					4					
					5	Brown and grey SANDSTONE (Driller's description).	4.50	73.22		
					6					
					7					
					8					
					9					
					10					
					11					
					12					
					13					
					14					
					15	Grey MUDSTONE (Driller's description).	14.70	63.02		
						Black COAL (Driller's description).	15.00	62.72		
					16	Grey MUDSTONE (Driller's description).	16.00	61.72		
					17					
					18					
					19					
					20					
					21					
					22					
					23					
					24					
					25	Black COAL (Driller's description).	24.50	53.22		
						Grey MUDSTONE & SILTSTONE (Driller's description).	25.20	52.52		
					26					
					27					
					28	Grey MUDSTONE (Driller's description).	28.00	49.72		
					29					
					30					
	TCR	SCR	RQD	FI						

Remarks and Groundwater Observations:

1. Drilled using air mist flush. 2. Logged based on arisings from the borehole during drilling. 3. Backfilled with gravel and a bentonite seal upon completion.

GL (m AOD) 77.72
Eastings: 431073.32
Northings: 410500.57

Fig No.
RO309S

BOREHOLE RECORD

BH No. **RO309S**
Sheet 2 of 2

Site: Woolley Colliery Road, Darton
Contract No: C10128
Client: Gleeson Homes Ltd
Date(s): 31/05/2024
Method: Rotary drilling rig
Scale: 1:150
Logged By: J.C
Checked By: A.L
Driller: Sirius Drilling Ltd

SAMPLE DETAILS | STRATA RECORD

Depth From - To(m)	TCR	SCR	RQD	FI	Ground -water	Description	Depth (m)	Level (m AOD)	Legend	Well
						Grey MUDSTONE (Driller's description).				
						End of Borehole at 33.00m	33.00	44.72		

Remarks and Groundwater Observations:

1. Drilled using air mist flush. 2. Logged based on arisings from the borehole during drilling. 3. Backfilled with gravel and a bentonite seal upon completion.

GL (m AOD) 77.72
Eastings: 431073.32
Northings: 410500.57

Fig No.
RO309S

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

ARCHWAY ENGINEERING (UK) LTD
AINLEYS INDUSTRIAL ESTATE
ELLAND
WEST YORKSHIRE
HX5 9JP

SPT Hammer Ref:	RP04
Test Date:	17/05/2024
Report Date:	17/05/2024
File Name:	RP04.spt
Test Operator:	JL

Instrumented Rod Data

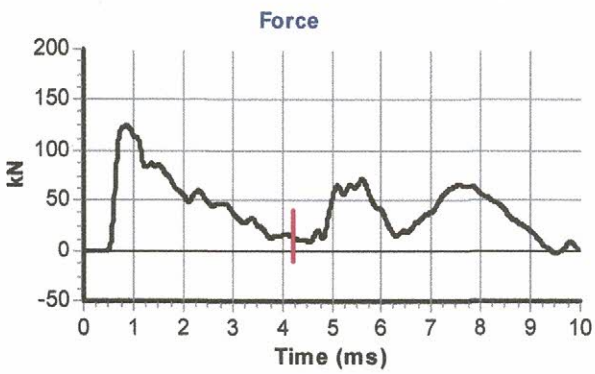
Diameter d_r (mm):	54
Wall Thickness t_r (mm):	6.4
Assumed Modulus E_a (GPa):	208
Accelerometer No.1:	72572
Accelerometer No.2:	72572

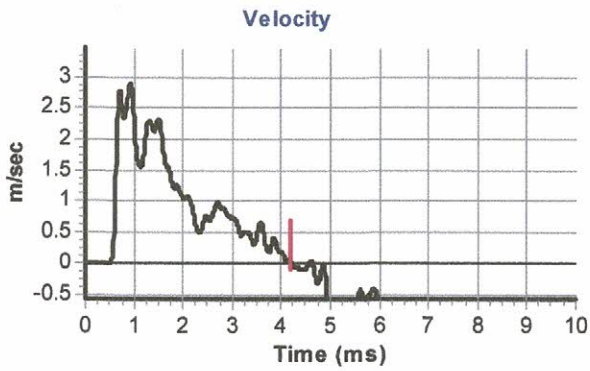
SPT Hammer Information

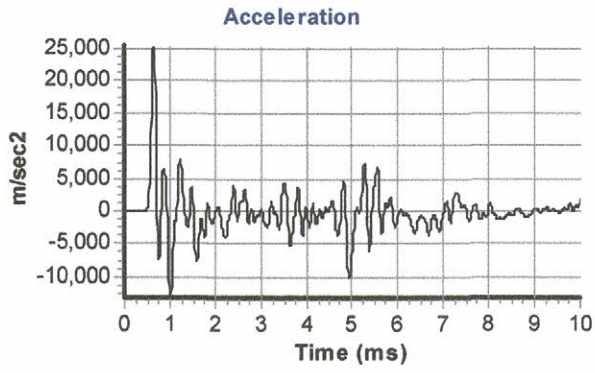
Hammer Mass m (kg):	63.5
Falling Height h (mm):	760
SPT String Length L (m):	10.0

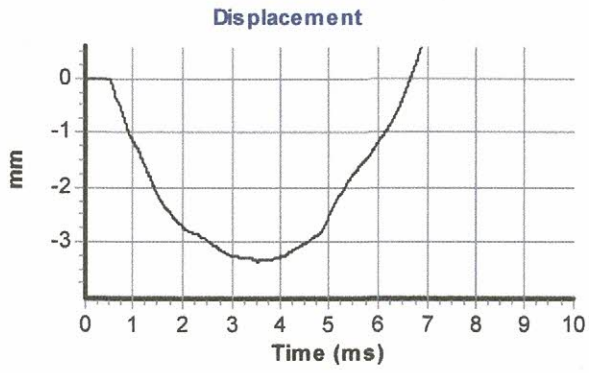
Comments / Location

R P DRILLING - 89447









Calculations

Area of Rod A (mm2):	957
Theoretical Energy E_{theor} (J):	473
Measured Energy E_{meas} (J):	297

Energy Ratio E_r (%): **63**

Signed: J.LOCK

Title: FITTER

The recommended calibration interval is 12 months

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APPENDIX E
Geotechnical Laboratory Test Results

The Testing Lab PLC
Unit 2 James Road
Adwick-le-Street
Doncaster
DN6 7HH

Document Transmittal Sheet

To
Andrew Lake
Sirius Geotechnical Ltd
4245 Park Approach
Leeds
LS15 8GB

Despatch Date	10/07/2024
Issue Number	1
Issuer Name	M Athorne
Issuer Signatory	M. Athorne
Date of Sample Receipt:	12/06/2024
Start Date of Test:	12/06/2024
Date of Issue of report:	10/07/2024

Report Remarks

Note: Test carried out at TTL laboratory facility as detaied in contact information

Project Name:
Woolley Colliery

Project No:
J275560

Details of Report Contents

*Tests in the following list marked * are not UKAS accredited*

ITEM	Sheet Nos	Comments
Document Transmittal sheet / Contents	page(s) 1 to 1	

TESTS	Sheet Nos	Authoriser Signatory
Index Properties - Summary of Results	INDX 1 to 1	M. Athorne
California Bearing Ratio - single test	CBR 1 to 4	M. Athorne
Compaction test, 2.5kg, light	COMPL 1 to 4	M. Athorne
Particle Size Distribution Analyses	PSD 1 to 4	M. Athorne
End of Report		

Total number of pages in this report 14

The results contained in this report relate only to samples received in the laboratory and are tested 'as received' unless otherwise stated.Opinions and interpretations expressed in this report are outside the scope of accreditation.
Reports referenced by this document shall not be reproduced except in full without prior approval from the issuing laboratory.

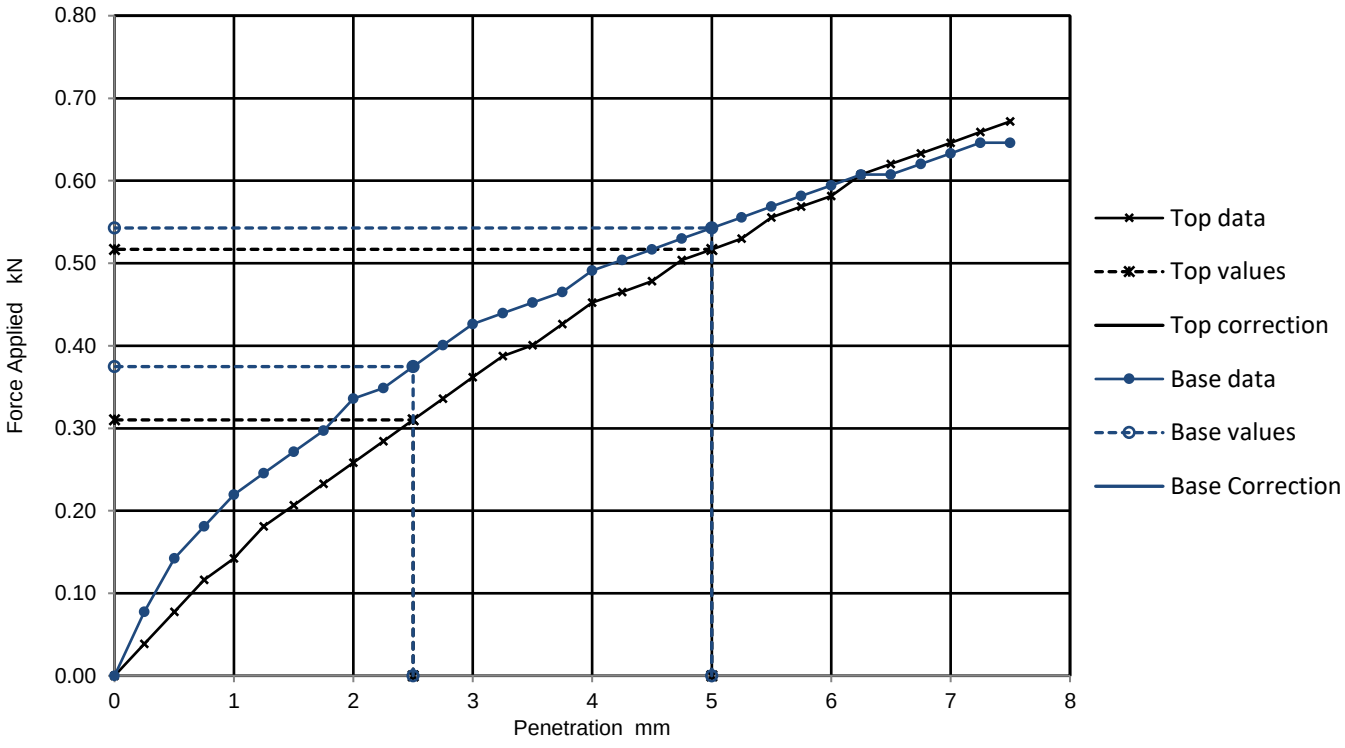
The Testing Lab PLC. All rights reserved

GQF-008-36 Issue 01 - Oct 22	**California Bearing Ratio (CBR)**			Job Ref	J275560
				Borehole/Pit No.	TP301N
Project Name	Wooley Colliery Road, Darton			Sample No.	
Soil Description	Grey brown gravelly CLAY			Depth m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Specimen Description				KeyLAB ID	TTLP202406127
Test Method	BS1377 : Part 4 : 1990, clause 7			CBR Test Number	1

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking		days
				Time to surface		days
				Amount of swell recorded		mm
Material retained on 20mm sieve removed		10	%	Dry density after soaking		Mg/m3
Initial Specimen details	Bulk density	2.03	Mg/m3	Surcharge applied	4.2	kg
	Dry density	1.68	Mg/m3		3	kPa
	Moisture content	20.5	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	2.3	2.6	2.6	2.7	20.4
BASE	No	2.8	2.7	2.8		20.7

Remarks

Date Printed	10/07/2024

UKAS TESTING
7758

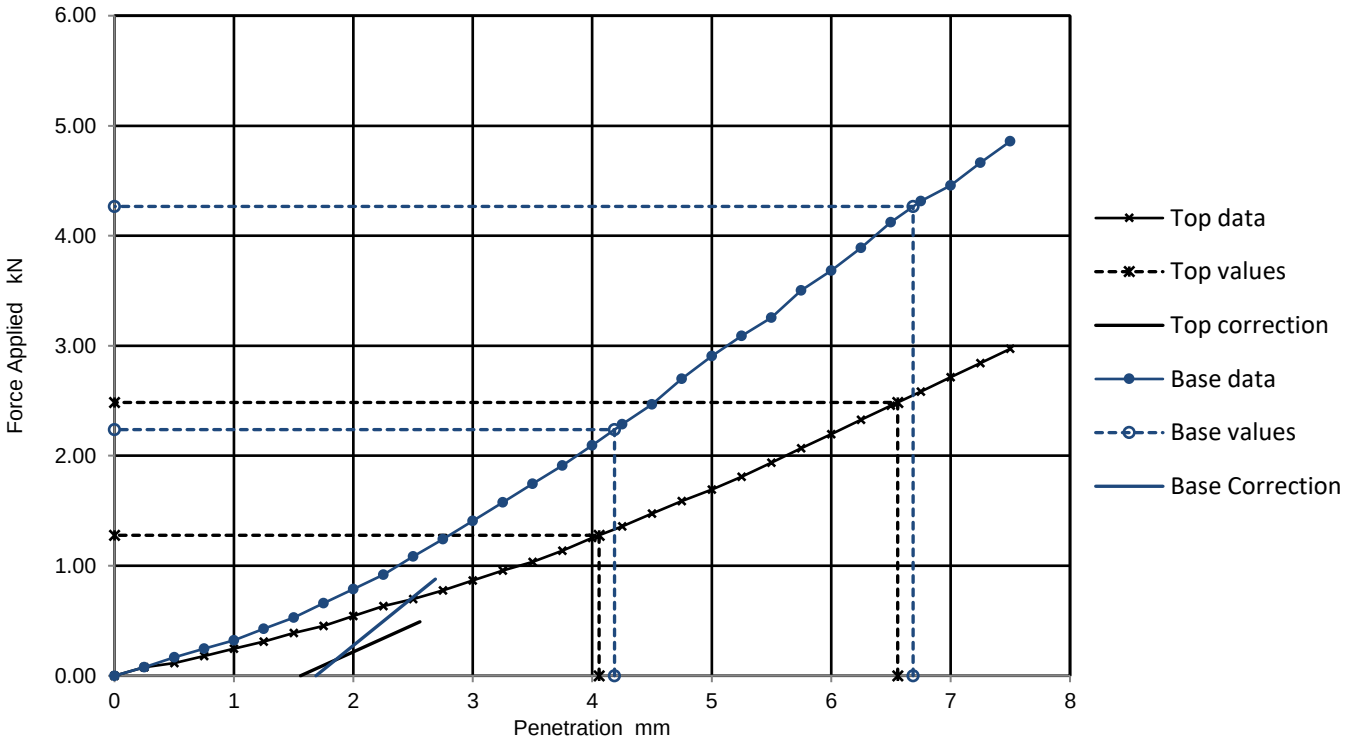
CBR

GQF-008-36 Issue 01 - Oct 22	**California Bearing Ratio (CBR)**			Job Ref	J275560
				Borehole/Pit No.	TP302S
Project Name	Wooley Colliery Road, Darton			Sample No.	
Soil Description	Brown slightly sandy gravelly CLAY			Depth m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Specimen Description				KeyLAB ID	TTLP2024061216
Test Method	BS1377 : Part 4 : 1990, clause 7			CBR Test Number	1

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking		days
				Time to surface		days
				Amount of swell recorded		mm
Material retained on 20mm sieve removed		13	%	Dry density after soaking		Mg/m3
Initial Specimen details	Bulk density	2.12	Mg/m3	Surcharge applied	4.2	kg
	Dry density	1.83	Mg/m3		3	kPa
	Moisture content	15.6	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	Yes	9.7	12.0	12.0	N/A	15.4
BASE	Yes	17.0	21.0	21.0		15.8

Remarks

Date Printed	10/07/2024

UKAS TESTING
7758

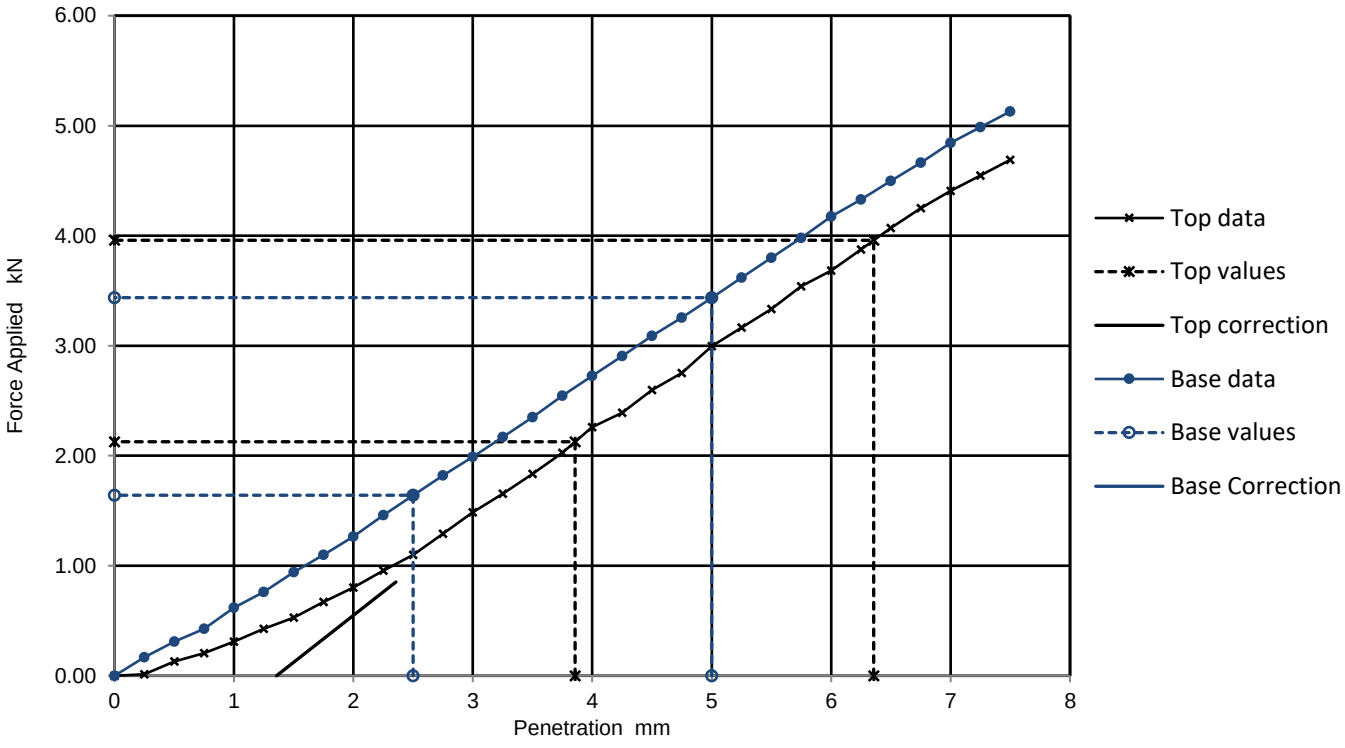
CBR

GQF-008-36 Issue 01 - Oct 22	**California Bearing Ratio (CBR)**			Job Ref	J275560
				Borehole/Pit No.	TP303N
Project Name	Wooley Colliery Road, Darton			Sample No.	
Soil Description	Dark grey gravelly sandy CLAY			Depth m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Specimen Description				KeyLAB ID	TTLP202406128
Test Method	BS1377 : Part 4 : 1990, clause 7			CBR Test Number	1

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking		days
				Time to surface		days
				Amount of swell recorded		mm
Material retained on 20mm sieve removed		14	%	Dry density after soaking		Mg/m3
Initial Specimen details	Bulk density	1.63	Mg/m3	Surcharge applied	4.2	kg
	Dry density	1.32	Mg/m3		3	kPa
	Moisture content	23.2	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	Yes	16.0	20.0	20.0	18.0	23.4
BASE	No	12.0	17.0	17.0		23.7

Remarks

Date Printed	10/07/2024

UKAS TESTING
7758

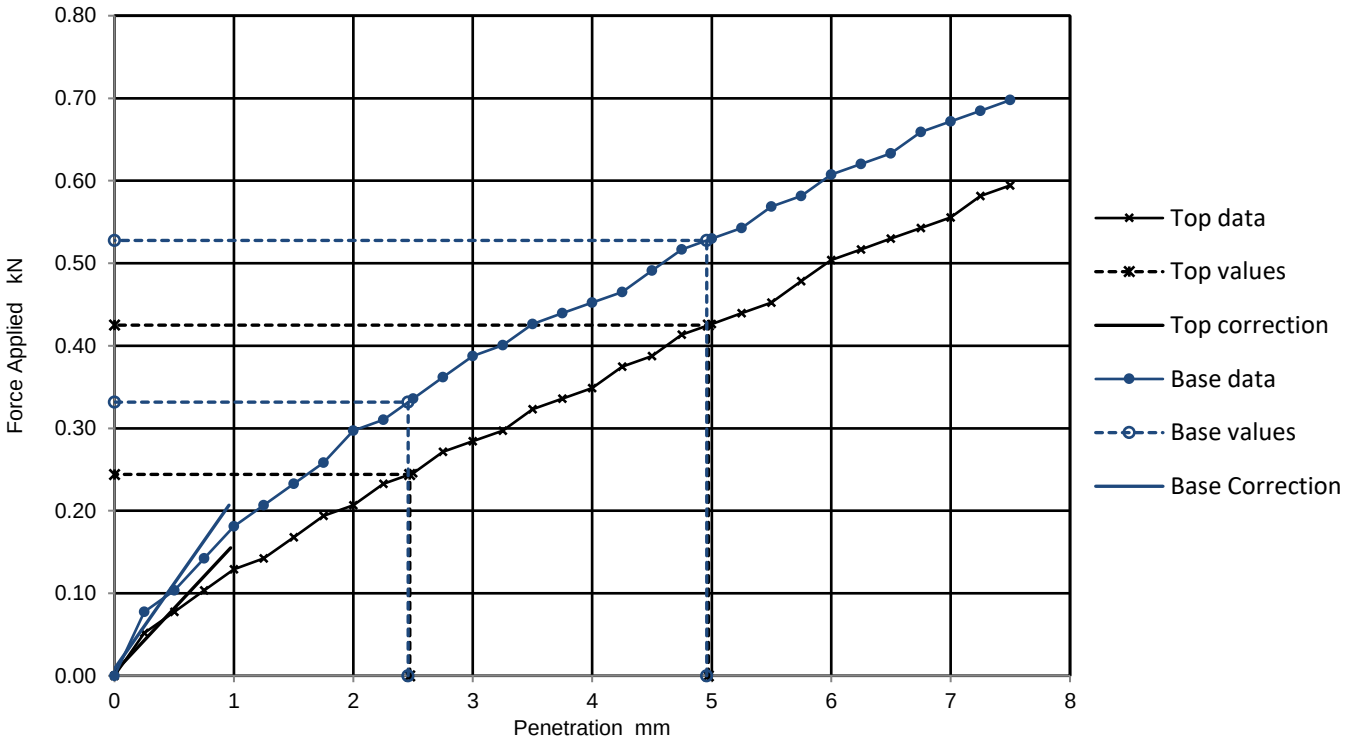
CBR

GQF-008-36 Issue 01 - Oct 22	**California Bearing Ratio (CBR)**			Job Ref	J275560
				Borehole/Pit No.	TP303S
Project Name	Wooley Colliery Road, Darton			Sample No.	
Soil Description	Brown slightly gravelly CLAY			Depth m	0.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Specimen Description				KeyLAB ID	TTLP2024061217
Test Method	BS1377 : Part 4 : 1990, clause 7			CBR Test Number	1

Specimen Preparation

Condition	REMOULDED			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking		days
				Time to surface		days
				Amount of swell recorded		mm
Material retained on 20mm sieve removed		3	%	Dry density after soaking		Mg/m3
Initial Specimen details	Bulk density	2.07	Mg/m3	Surcharge applied	4.2	kg
	Dry density	1.73	Mg/m3		3	kPa
	Moisture content	19.9	%			

Force v Penetration Plots



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	Yes	1.8	2.1	2.1	N/A	20.1
BASE	Yes	2.5	2.6	2.6		19.7

Remarks

Date Printed	10/07/2024

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CBR

GQF-008-48
Issue 01 - Oct 22

Summary of Classification Test Results

Project No.
J275560

Project Name
Wooley Colliery Road, Darton

Hole No.	Sample				Soil Description	Density bulk	Density dry	w	Passing 425µm	LL	PL	PI	Particle density	Remarks
	Ref	Top	Base	Type		Mg/m^3		%	%	%	%	%	Mg/m^3	
TP306N		0.40	0.90	B	Brown slightly sandy slightly gravelly CLAY			16						
TP307N		2.10		D	Brown slightly sandy slightly gravelly CLAY			25	83	40	25	15		
TP307S		0.30	0.80	B	Dark grey gravelly CLAY. Gravel is ash			15						
TP308N		0.50	1.00	B	Dark grey slightly sandy gravelly CLAY. Gravel is ash			16						
TP310N		1.30		D	Brown mottled grey slightly sandy slightly gravelly CLAY			17	92	37	20	17		
TP311S		0.60	1.10	B	Dark grey slightly sandy very gravelly CLAY			9.7						
TP312S		2.90		D	Brown slightly sandy slightly gravelly CLAY			23	82	33	22	11		
WS301N		0.90		D	Brown mottled grey slightly sandy gravelly CLAY			15	49	36	22	14		
WS302S		3.50		D	Brown sandy gravelly CLAY			15	56	28 -1pt	19	9		
WS304N		1.60		D	Brown mottled grey slightly sandy slightly gravelly CLAY			14	57	37	21	16		
WS305S		2.80		D	Orange brown slightly sandy slightly gravelly CLAY			16	60	27 -1pt	19	8		
WS307S		0.90		D	Brown mottled grey slightly sandy slightly gravelly CLAY			12	51	35	21	14		
WS308S		1.60		D	Brown mottled grey slightly sandy slightly gravelly CLAY			16	82	43	27	16		
WS309N		0.90		D	Brown mottled grey slightly sandy slightly gravelly CLAY			13	78	37	23	14		
WS310N		1.60		D	Multicoloured slightly sandy slightly gravelly CLAY			25	95	33	20	13		
WS311N		3.80		D	Brown slightly sandy slightly gravelly CLAY			27	95	37	23	14		

All tests performed in accordance with BS1377:1990 unless specified otherwise

Date Printed 17/07/2024

Key

Density test
Linear measurement unless :
wd - water displacement
wi - immersion in water

Liquid Limit
4pt cone unless :
cas - Casagrande method
1pt - single point test

Particle density
sp - small pyknometer
gj - gas jar

TTL

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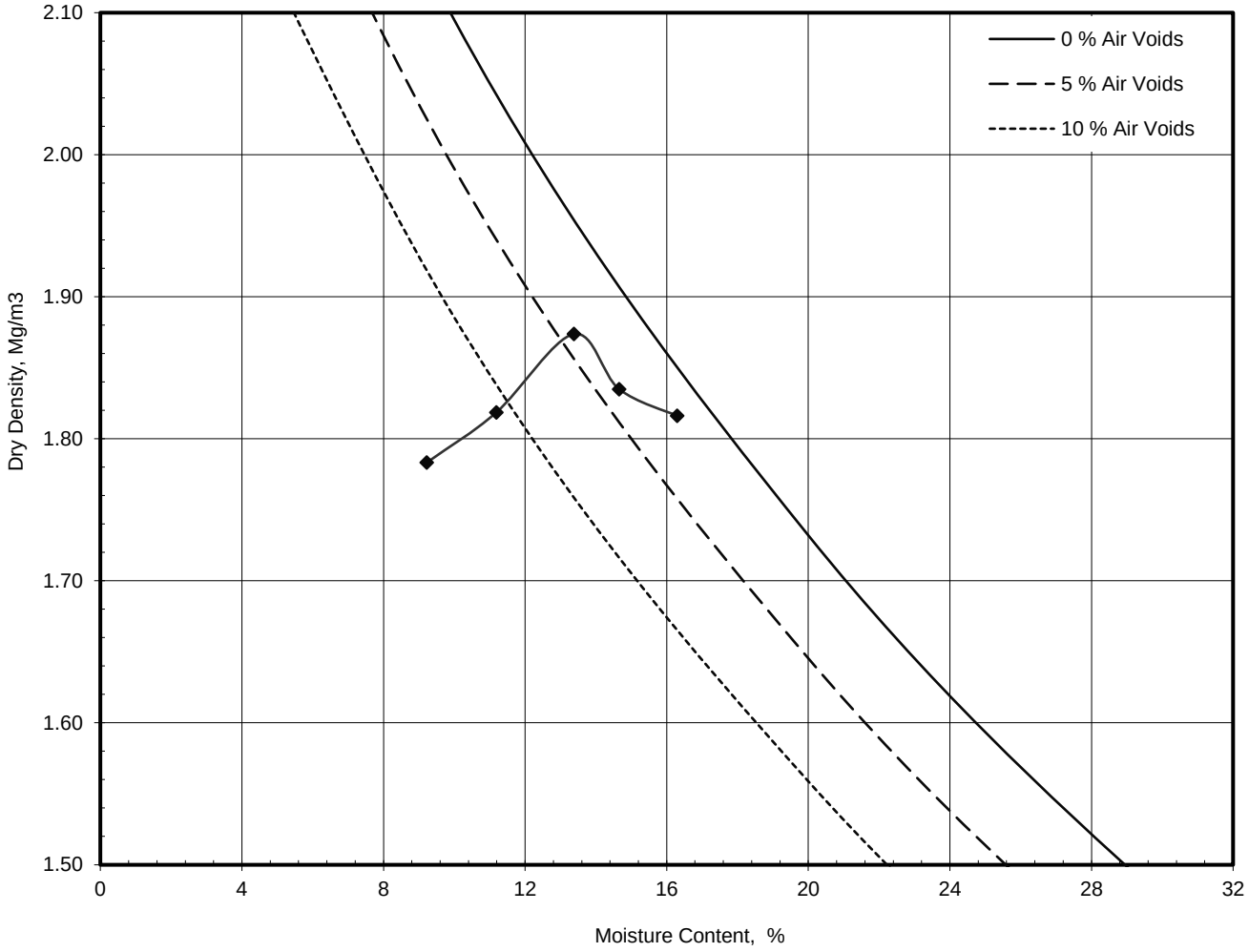
INDEX

	Dry Density / Moisture Content Relationship Light Compaction			Job Ref	J275560
				Borehole / Pit No	TP306N
Site Name	**Wooley Colliery Road, Darton**			Sample No	
Soil Description	Brown slightly sandy slightly gravelly CLAY			Depth	0.40 m
Specimen Ref.		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 4:1990, clause 3.4, 2.5kg rammer			Keylab ID	TTLP202406129
				Compaction Test Reference/No.	

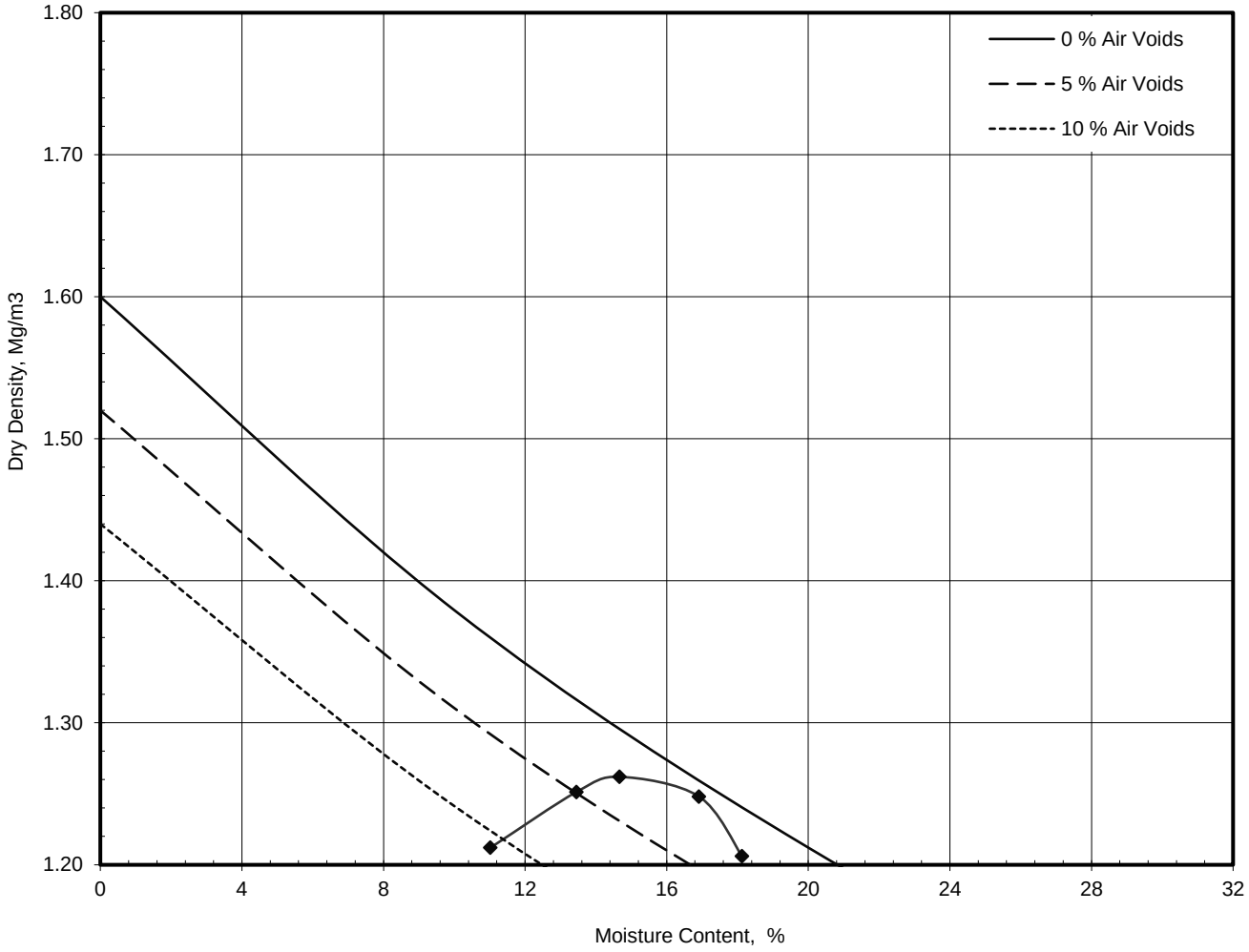


Preparation		Material used was natural
Mould Type		CBR
Samples Used		Composite specimens tested
Material Retained on 37.5 mm Sieve	%	3
Material Retained on 20.0 mm Sieve	%	5
Particle Density - Assumed	Mg/m³	2.65

Maximum Dry Density	Mg/m³	**1.88**
Optimum Moisture Content	%	**13**

Operator	Checked	Approved	Remarks	Fig
	Administrator	Mark Athorne		Sheet 1 of 1

	Dry Density / Moisture Content Relationship Light Compaction			Job Ref	J275560
				Borehole / Pit No	TP307S
Site Name	**Wooley Colliery Road, Darton**			Sample No	
Soil Description	Dark grey gravelly CLAY. Gravel is ash			Depth	0.30 m
Specimen Ref.		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 4:1990, clause 3.3, 2.5kg rammer			Keylab ID	TTLP2024061218
				Compaction Test Reference/No.	

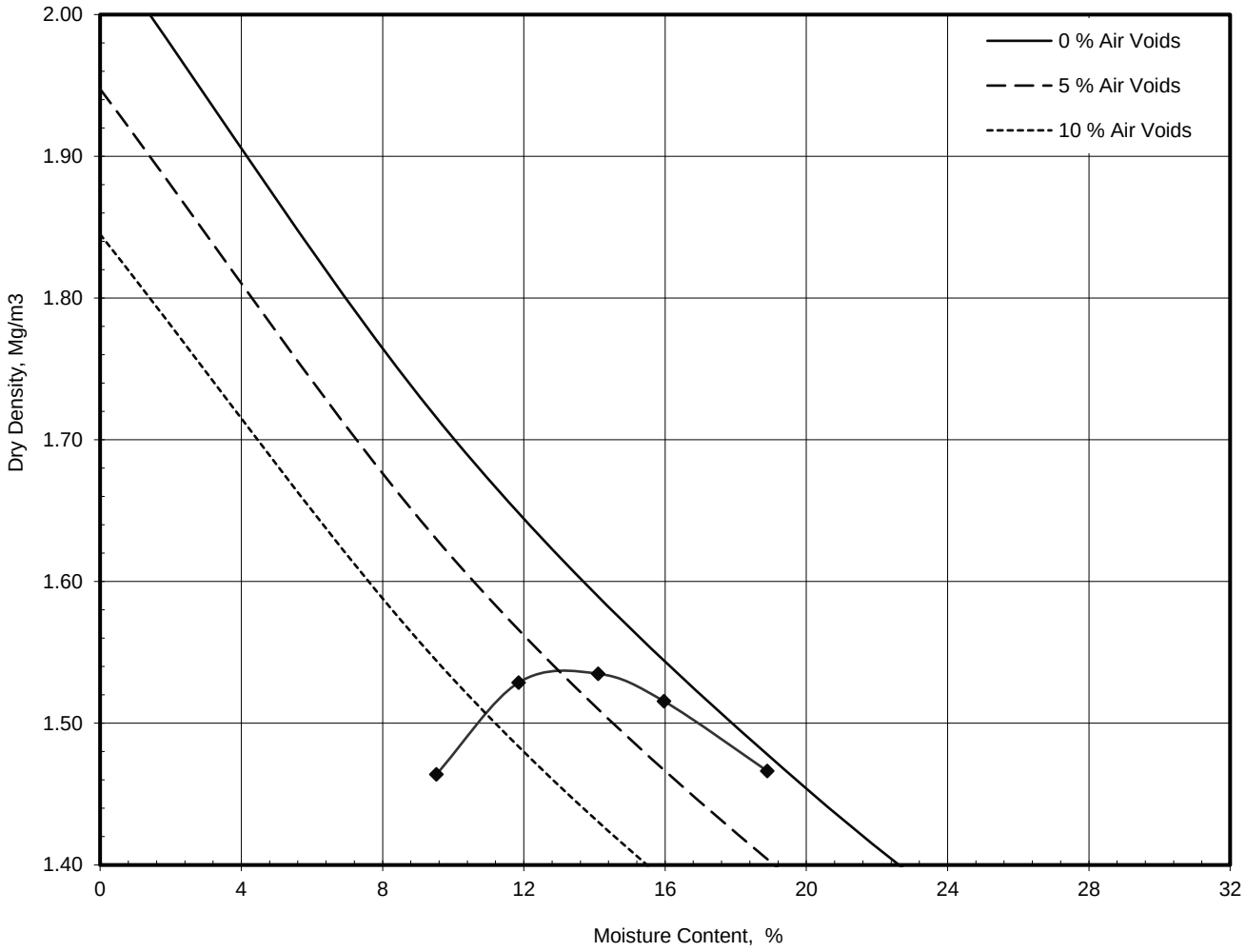


Preparation		Material used was natural
Mould Type		1 Litre
Samples Used		Composite specimens tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	1
Particle Density - Assumed	Mg/m³	1.60

Maximum Dry Density	Mg/m³	**1.27**
Optimum Moisture Content	%	**15**

Operator	Checked	Approved	Remarks	Fig
	Administrator	Mark Athorne		Sheet 1 of 1

	Dry Density / Moisture Content Relationship Light Compaction			Job Ref	J275560
				Borehole / Pit No	TP308N
Site Name	**Wooley Colliery Road, Darton**			Sample No	
Soil Description	Dark grey slightly sandy gravelly CLAY. Gravel is ash			Depth	0.50 m
Specimen Ref.		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 4:1990, clause 3.3, 2.5kg rammer			Keylab ID	TTLP2024061210
				Compaction Test Reference/No.	



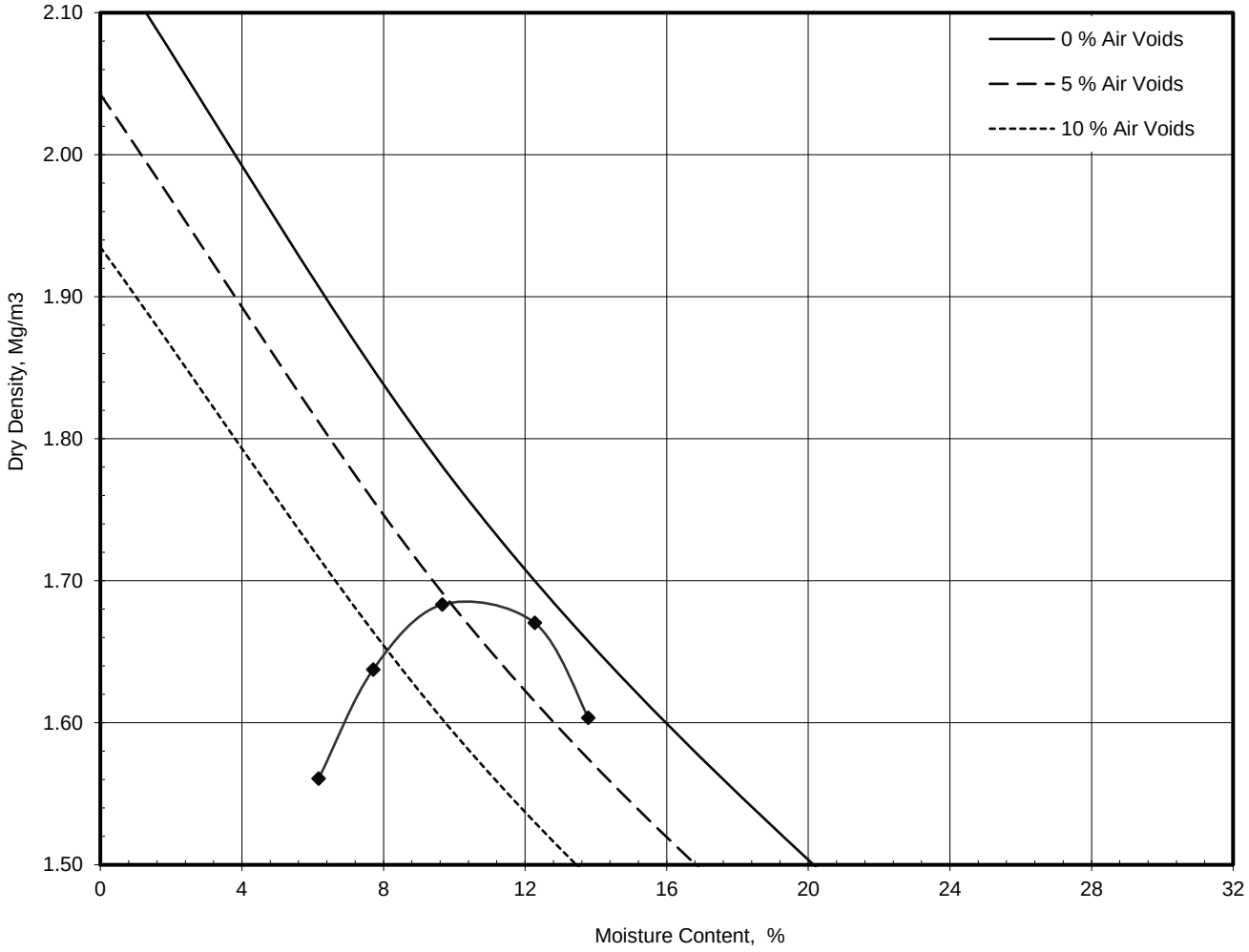
Preparation		Material used was natural
Mould Type		1 Litre
Samples Used		Composite specimens tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	3
Particle Density - Assumed	Mg/m³	2.05

Maximum Dry Density	Mg/m³	**1.54**

Optimum Moisture Content	%	**13**

Operator	Checked	Approved	Remarks	**Fig**
	Administrator	Mark Athorne		Sheet 1 of 1

	Dry Density / Moisture Content Relationship Light Compaction			Job Ref	J275560
				Borehole / Pit No	TP311S
Site Name	**Wooley Colliery Road, Darton**			Sample No	
Soil Description	Dark grey slightly sandy very gravelly CLAY			Depth	0.60 m
Specimen Ref.		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 4:1990, clause 3.3, 2.5kg rammer			Keylab ID	TTLP2024061219
				Compaction Test Reference/No.	



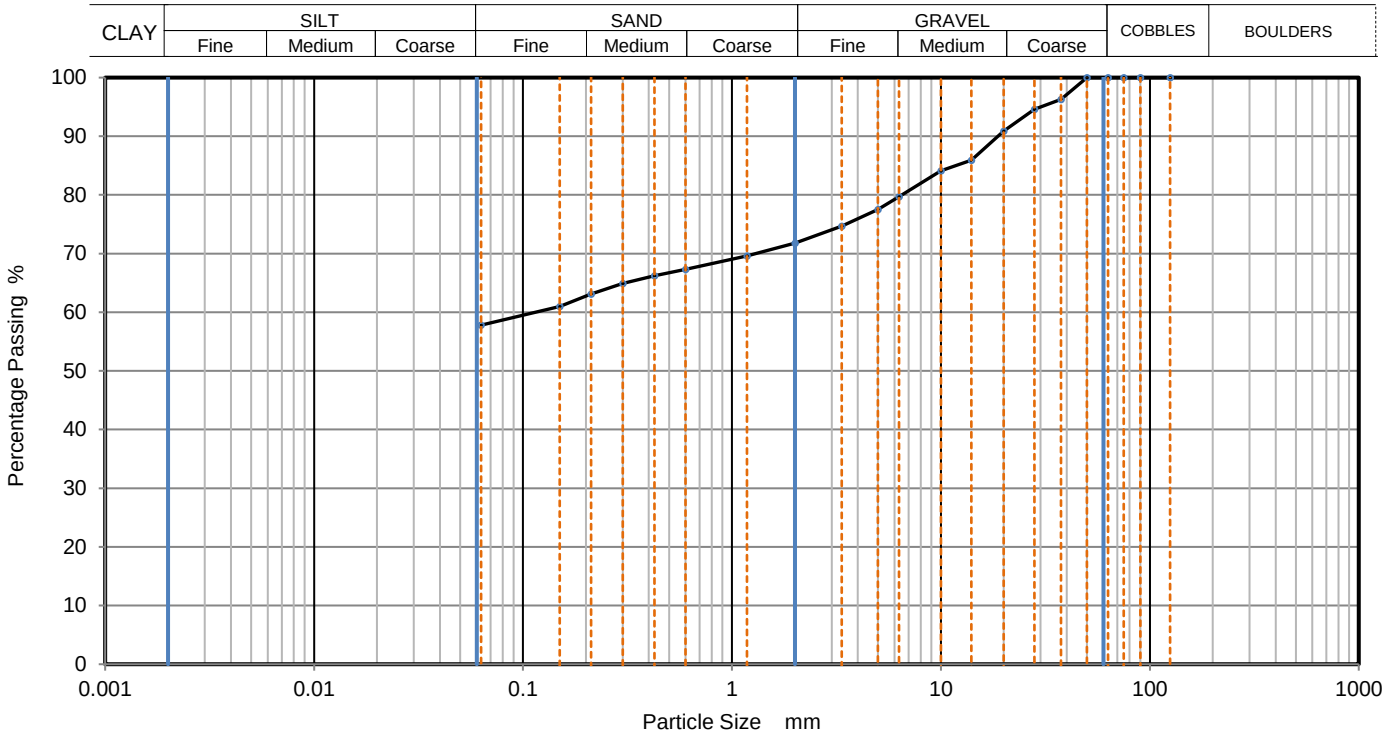
Preparation		Material used was natural
Mould Type		1 Litre
Samples Used		Composite specimens tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	5
Particle Density - Assumed	Mg/m³	2.15

Maximum Dry Density	Mg/m³	**1.69**

Optimum Moisture Content	%	**10**

Operator	Checked	Approved	Remarks	**Fig**
	Administrator	Mark Athorne		Sheet 1 of 1

GQF-008-55 Issue 01 - Oct 22	**PARTICLE SIZE DISTRIBUTION**			Job Ref	J275560
				Borehole/Pit No.	TP306N
Project Name	Wooley Colliery Road, Darton			Sample No.	
Soil Description	Brown slightly sandy slightly gravelly CLAY			Depth, m	0.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	TTLP202406129



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	96		
28	95		
20	91		
14	86		
10	84		
6.3	80		
5	78		
3.35	75		
2	72		
1.18	70		
0.6	67		
0.425	66		
0.3	65		
0.212	63		
0.15	61		
0.063	58		

Dry Mass of sample, g	11617

Sample Proportions	% dry mass
Very coarse	0
Gravel	28
Sand	14
Fines <0.063mm	58

Grading Analysis		
D100	mm	
D60	mm	0.114
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Date Printed	10/07/2024

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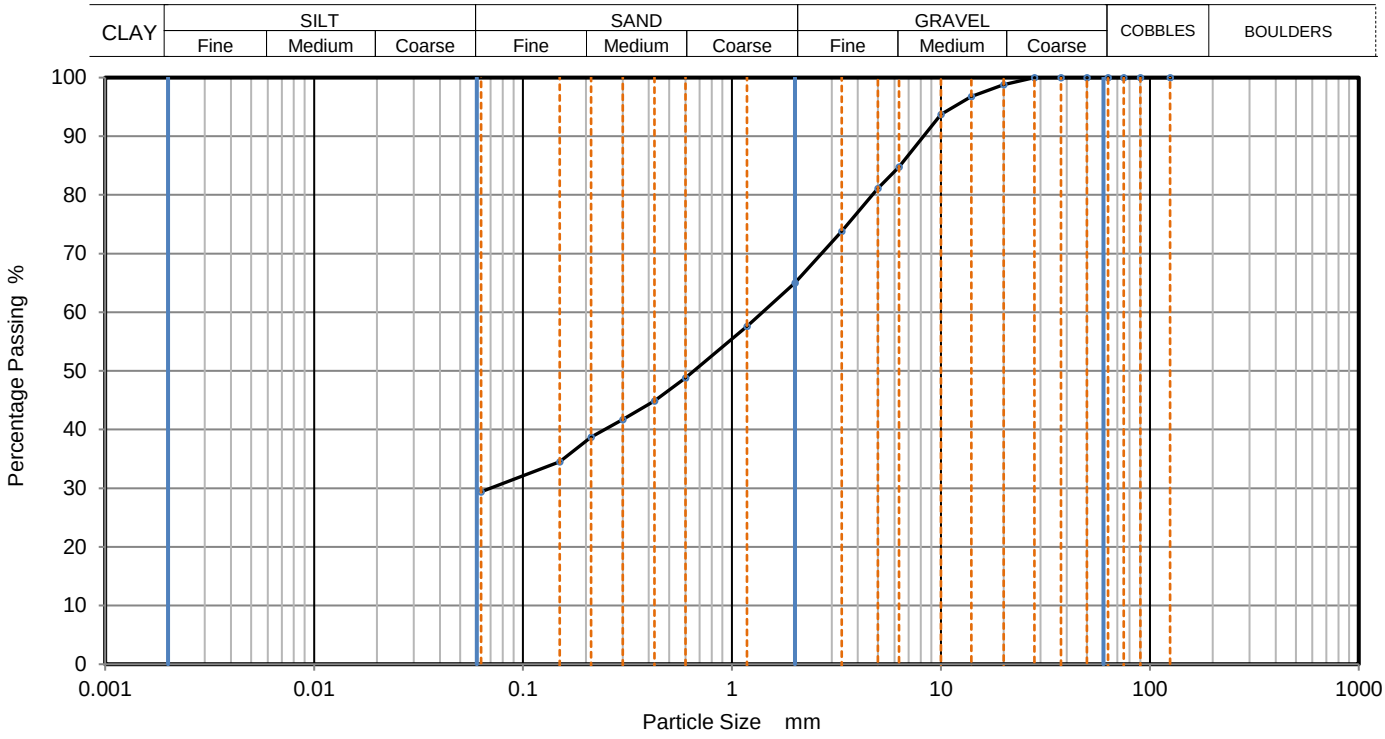
GQF-008-55 Issue 01 - Oct 22	**PARTICLE SIZE DISTRIBUTION**			Job Ref	J275560
				Borehole/Pit No.	TP307S
Project Name	Wooley Colliery Road, Darton			Sample No.	
Soil Description	Dark grey gravelly CLAY. Gravel is ash			Depth, m	0.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	TTLP2024061218



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	99		
14	97		
10	94		
6.3	85		
5	81		
3.35	74		
2	65		
1.18	58		
0.6	49		
0.425	45		
0.3	42		
0.212	39		
0.15	35		
0.063	29		

Dry Mass of sample, g	4860

Sample Proportions	% dry mass
Very coarse	0
Gravel	35
Sand	36
Fines <0.063mm	29

Grading Analysis		
D100	mm	
D60	mm	1.4
D30	mm	0.07
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Date Printed	10/07/2024

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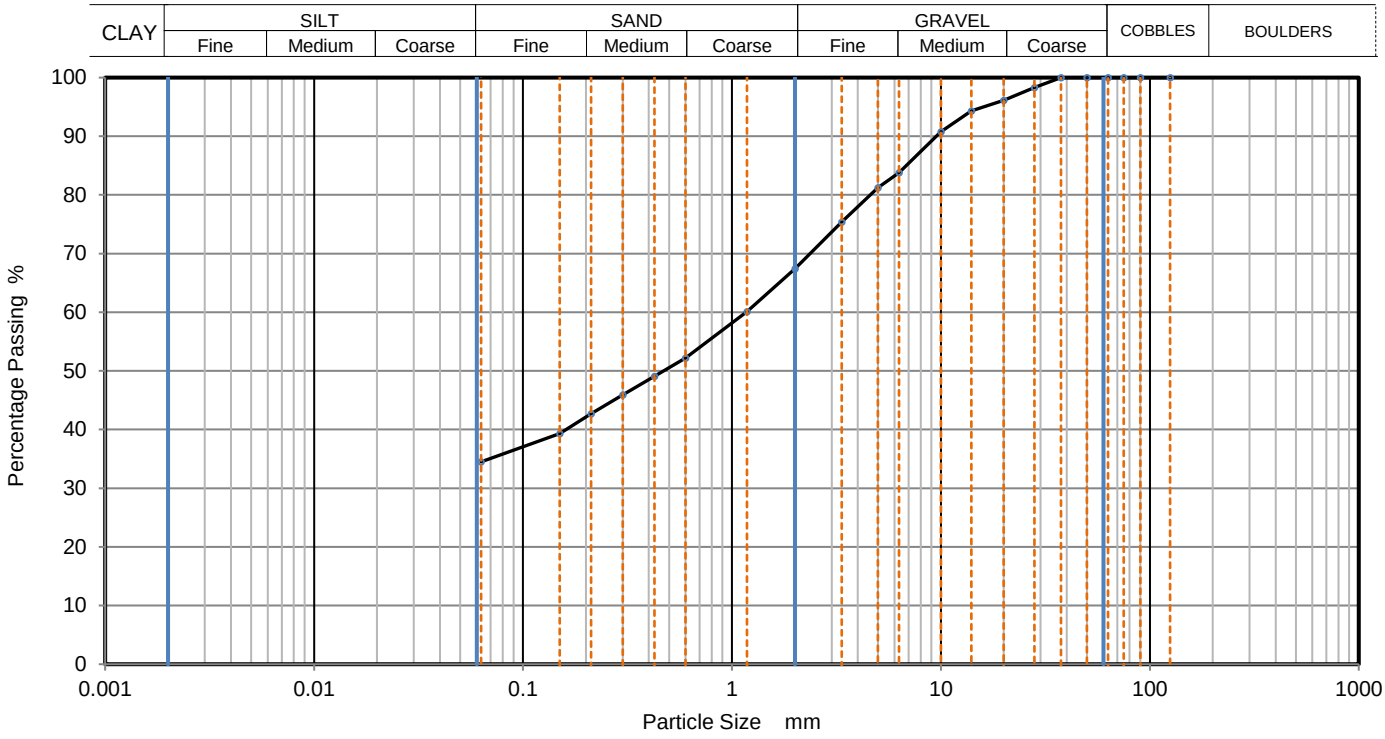
GQF-008-55 Issue 01 - Oct 22	**PARTICLE SIZE DISTRIBUTION**			Job Ref	J275560
				Borehole/Pit No.	TP308N
Project Name	Wooley Colliery Road, Darton			Sample No.	
Soil Description	Dark grey slightly sandy gravelly CLAY. Gravel is ash			Depth, m	0.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	TTLP2024061210



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	98		
20	96		
14	94		
10	91		
6.3	84		
5	81		
3.35	75		
2	67		
1.18	60		
0.6	52		
0.425	49		
0.3	46		
0.212	43		
0.15	39		
0.063	35		

Dry Mass of sample, g	10395

Sample Proportions	% dry mass
Very coarse	0
Gravel	33
Sand	33
Fines <0.063mm	34

Grading Analysis		
D100	mm	
D60	mm	1.17
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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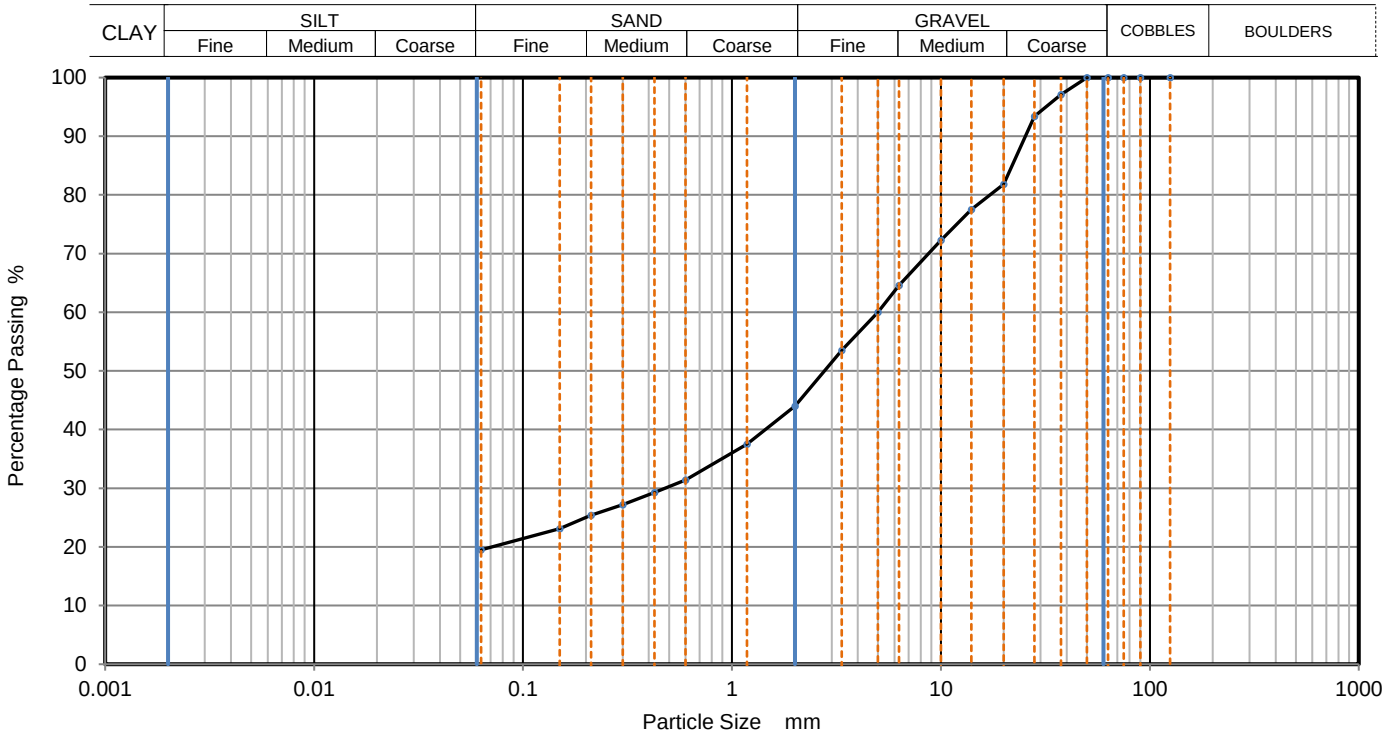
GQF-008-55 Issue 01 - Oct 22	**PARTICLE SIZE DISTRIBUTION**			Job Ref	J275560
				Borehole/Pit No.	TP311S
Project Name	Wooley Colliery Road, Darton			Sample No.	
Soil Description	Dark grey slightly sandy very gravelly CLAY			Depth, m	0.60
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	TTLP2024061219



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	97		
28	93		
20	82		
14	78		
10	72		
6.3	65		
5	60		
3.35	54		
2	44		
1.18	38		
0.6	31		
0.425	29		
0.3	27		
0.212	25		
0.15	23		
0.063	20		

Dry Mass of sample, g	4200

Sample Proportions	% dry mass
Very coarse	0
Gravel	56
Sand	25
Fines <0.063mm	20

Grading Analysis		
D100	mm	
D60	mm	5
D30	mm	0.476
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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APPENDIX F
Chemical Laboratory Test Results

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Amended Report

Report No.:	24-18559-3		
Initial Date of Issue:	20-Jun-2024	**Date of Re-Issue:**	05-Jul-2024
Re-Issue Details:	This report has been revised and directly supersedes 24-18559-2 in its entirety		
Client	Sirius Geotechnical Ltd		
Client Address:	Russel House Mill Road Langley Moor Durham County Durham DH7 8HJ		
Contact(s):	Andrew Lake		
Project	C10128 Woolley Colliery Road, Darton - South		
Quotation No.:		**Date Received:**	12-Jun-2024
Order No.:	24548/C10128/AL	**Date Instructed:**	01-Jul-2024
No. of Samples:	31		
Turnaround (Wkdays):	6	**Results Due:**	08-Jul-2024
Date Approved:	05-Jul-2024		

Approved By:

Details: David Smith, Technical Director

For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report

Results - Leachate

Project: C10128 Woolley Colliery Road, Darton - South

Client: Sirius Geotechnical Ltd				**Chemtest Job No.:**		24-18559	24-18559	24-18559
Quotation No.:				**Chemtest Sample ID.:**		1819979	1819980	1819991
				Client Sample ID.:		TP309S	TP310S	TP305N
				Sample Type:		SOIL	SOIL	SOIL
				Top Depth (m):		0.20	0.30	0.70
				Date Sampled:		31-May-2024	31-May-2024	29-May-2024
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**			
pH at 20C	U	1010	10:1		4.0	6.7	4.6	6.7
Sulphate	U	1220	10:1	mg/l	1.0	1500	130	270
Arsenic (Dissolved)	U	1455	10:1	µg/l	0.20	0.21	< 0.20	< 0.20
Cadmium (Dissolved)	U	1455	10:1	µg/l	0.11	0.60	0.20	< 0.11
Chromium (Dissolved)	U	1455	10:1	µg/l	0.50	1.1	1.3	1.0
Copper (Dissolved)	U	1455	10:1	µg/l	0.50	0.89	9.6	0.58
Mercury (Dissolved)	U	1455	10:1	µg/l	0.05	< 0.05	< 0.05	< 0.05
Nickel (Dissolved)	U	1455	10:1	µg/l	0.50	63	20	< 0.50
Lead (Dissolved)	U	1455	10:1	µg/l	0.50	< 0.50	< 0.50	< 0.50
Selenium (Dissolved)	U	1455	10:1	µg/l	0.50	1.2	0.87	0.77
Zinc (Dissolved)	U	1455	10:1	µg/l	2.5	65	46	< 2.5
Naphthalene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Pyrene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Chrysene	N	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	1700	10:1	µg/l	0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	N	1700	10:1	µg/l	2.0	< 2.0	< 2.0	< 2.0
Total Phenols	U	1920	10:1	mg/l	0.030	< 0.030	< 0.030	< 0.030

Results - Soil

Project: C10128 Woolley Colliery Road, Darton - South

Client: Sirius Geotechnical Ltd				**Chemtest Job No.:**		24-18559	24-18559	24-18559	24-18559	24-18559	24-18559	24-18559
Quotation No.:				**Chemtest Sample ID.:**		1819975	1819976	1819977	1819978	1819979	1819980	1819981
				Client Sample ID.:		TP302S	TP303S	TP305S	TP306S	TP309S	TP310S	TP311S
				Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):		0.50	0.30	0.10	0.50	0.20	0.30	0.40
				Date Sampled:		30-May-2024	30-May-2024	31-May-2024	31-May-2024	31-May-2024	31-May-2024	31-May-2024
				Asbestos Lab:				DURHAM		DURHAM		DURHAM
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**							
ACM Type		U	2192		N/A			-		-		-
Asbestos Identification		U	2192		N/A			No Asbestos Detected		No Asbestos Detected		No Asbestos Detected
Moisture		N	2030	%	0.020	13	9.0	11	10	12	11	14
Soil Colour		N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown	Brown
Other Material		N	2040		N/A	Stones	Stones	Stones and Roots	Stones and Roots	Stones	Stones and Roots	Stones and Roots
Soil Texture		N	2040		N/A	Sand	Sand	Sand	Sand	Sand	Sand	Sand
pH at 20C		M	2010		4.0	8.0	7.7	7.4	< 4.0	[B] 5.6	[B] < 4.0	< 4.0
Sulphate (2:1 Water Soluble) as SO4		M	2120	g/l	0.010	0.18	0.84	0.35	0.093	[B] 0.71	[B] 1.6	1.6
Total Sulphur		U	2175	%	0.010							
Sulphate (Total)		U	2430	%	0.010	0.81	0.40	1.4	1.9	[B] 8.8	[B] 2.9	0.63
Sulphate (Acid Soluble)		U	2430	%	0.010							
Arsenic		M	2455	mg/kg	0.5	44	17	79	24	110	71	32
Cadmium		M	2455	mg/kg	0.10	< 0.10	< 0.10	0.10	< 0.10	0.37	< 0.10	< 0.10
Chromium		M	2455	mg/kg	0.5	29	13	20	4.6	24	22	9.7
Copper		M	2455	mg/kg	0.50	43	25	51	21	99	67	32
Mercury		M	2455	mg/kg	0.05	0.08	< 0.05	0.34	0.07	0.47	0.43	0.13
Nickel		M	2455	mg/kg	0.50	45	22	31	9.7	52	16	11
Lead		M	2455	mg/kg	0.50	33	17	56	19	58	44	20
Selenium		M	2455	mg/kg	0.25	1.5	0.64	2.3	0.92	4.0	2.9	1.2
Zinc		M	2455	mg/kg	0.50	86	43	94	22	120	40	28
Chromium (Hexavalent)		N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Aliphatic VPH >C5-C6	HS_2D_AL	U	2780	mg/kg	0.05		< 0.05					
Aliphatic VPH >C6-C7	HS_2D_AL	U	2780	mg/kg	0.05		< 0.05					
Aliphatic VPH >C7-C8	HS_2D_AL	U	2780	mg/kg	0.05		< 0.05					
Aliphatic VPH >C6-C8 (Sum)	HS_2D_AL	N	2780	mg/kg	0.10		< 0.10					
Aliphatic VPH >C8-C10	HS_2D_AL	U	2780	mg/kg	0.05		< 0.05					
Total Aliphatic VPH >C5-C10	HS_2D_AL	U	2780	mg/kg	0.25		< 0.25					
Aliphatic EPH >C10-C12 MC	EH_2D_AL_#1	M	2690	mg/kg	2.00		< 2.0					
Aliphatic EPH >C12-C16 MC	EH_2D_AL_#1	M	2690	mg/kg	1.00		< 1.0					
Aliphatic EPH >C16-C21 MC	EH_2D_AL_#1	M	2690	mg/kg	2.00		< 2.0					
Aliphatic EPH >C21-C35 MC	EH_2D_AL_#1	M	2690	mg/kg	3.00		< 3.0					
Aliphatic EPH >C35-C40 MC	EH_2D_AL_#1	N	2690	mg/kg	10.00		< 10					
Total Aliphatic EPH >C10-C35 MC	EH_2D_AL_#1	M	2690	mg/kg	5.00		< 5.0					
Total Aliphatic EPH >C10-C40 MC	EH_2D_AL_#1	N	2690	mg/kg	10.00		< 10					
Aromatic VPH >C5-C7	HS_2D_AR	U	2780	mg/kg	0.05		< 0.05					
Aromatic VPH >C7-C8	HS_2D_AR	U	2780	mg/kg	0.05		< 0.05					
Aromatic VPH >C8-C10	HS_2D_AR	U	2780	mg/kg	0.05		< 0.05					

Results - Soil

Project: C10128 Woolley Colliery Road, Darton - South

Client: Sirius Geotechnical Ltd				**Chemtest Job No.:**		24-18559	24-18559	24-18559	24-18559	24-18559	24-18559	24-18559
Quotation No.:				**Chemtest Sample ID.:**		1819975	1819976	1819977	1819978	1819979	1819980	1819981
				Client Sample ID.:		TP302S	TP303S	TP305S	TP306S	TP309S	TP310S	TP311S
				Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):		0.50	0.30	0.10	0.50	0.20	0.30	0.40
				Date Sampled:		30-May-2024	30-May-2024	31-May-2024	31-May-2024	31-May-2024	31-May-2024	31-May-2024
				Asbestos Lab:				DURHAM		DURHAM		DURHAM
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**							
Total Aromatic VPH >C5-C10	HS_2D_AR	U	2780	mg/kg	0.25		< 0.25					
Aromatic EPH >C10-C12 MC	EH_2D_AR_#1	U	2690	mg/kg	1.00		< 1.0					
Aromatic EPH >C12-C16 MC	EH_2D_AR_#1	U	2690	mg/kg	1.00		< 1.0					
Aromatic EPH >C16-C21 MC	EH_2D_AR_#1	U	2690	mg/kg	2.00		5.3					
Aromatic EPH >C21-C35 MC	EH_2D_AR_#1	U	2690	mg/kg	2.00		< 2.0					
Aromatic EPH >C35-C40 MC	EH_2D_AR_#1	N	2690	mg/kg	1.00		23					
Total Aromatic EPH >C10-C35 MC	EH_2D_AR_#1	U	2690	mg/kg	5.00		5.3					
Total Aromatic EPH >C10-C40 MC	EH_2D_AR_#1	N	2690	mg/kg	10.00		28					
Total VPH >C5-C10	HS_2D_Total	U	2780	mg/kg	0.50		< 0.50					
Total EPH >C10-C35 MC	EH_2D_Total_#1	U	2690	mg/kg	10.00		< 10					
Total EPH >C10-C40 MC	EH_2D_Total_#1	N	2690	mg/kg	10.00		23					
Total Organic Carbon		M	2625	%	0.20	7.9	3.3	6.6	52	[B] 24	[B] 27	34
Naphthalene		M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	3.8	[B] 6.6	[B] 15	8.6
Acenaphthylene		M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	0.50	[B] 1.1	[B] 2.5	1.4
Acenaphthene		M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	0.66	[B] 1.5	[B] 2.5	1.5
Fluorene		M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	1.1	[B] 2.4	[B] 4.5	2.3
Phenanthrene		M	2700	mg/kg	0.10	< 0.10	< 0.10	0.29	2.0	[B] 7.3	[B] 6.0	3.7
Anthracene		M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	[B] 1.8	[B] 0.55	0.13
Fluoranthene		M	2700	mg/kg	0.10	< 0.10	0.20	0.36	0.70	[B] 8.9	[B] 0.88	2.5
Pyrene		M	2700	mg/kg	0.10	< 0.10	0.25	0.38	0.92	[B] 9.0	[B] 1.7	3.0
Benzo[a]anthracene		M	2700	mg/kg	0.10	< 0.10	0.18	< 0.10	0.30	[B] 3.5	[B] 0.49	1.4
Chrysene		M	2700	mg/kg	0.10	< 0.10	0.55	< 0.10	0.55	[B] 5.1	[B] 2.2	4.1
Benzo[b]fluoranthene		M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	[B] 3.2	[B] 0.50	2.3
Benzo[k]fluoranthene		M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	[B] 1.2	[B] 0.10	0.73
Benzo[a]pyrene		M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	[B] 2.8	[B] 0.20	1.5
Indeno(1,2,3-c,d)Pyrene		M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	[B] 1.1	[B] < 0.10	1.1
Dibenz(a,h)Anthracene		M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	[B] 0.84	[B] < 0.10	0.14
Benzo[g,h,i]perylene		M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	[B] 1.3	[B] < 0.10	1.5
Coronene		N	2700	mg/kg	0.10							
Total Of 16 PAH's		M	2700	mg/kg	2.0	< 2.0	< 2.0	< 2.0	11	[B] 58	[B] 37	36
Total Of 17 PAH's		N	2700	mg/kg	2.0							
Benzene		M	2760	µg/kg	1.0		< 1.0					
Toluene		M	2760	µg/kg	1.0		< 1.0					
Ethylbenzene		M	2760	µg/kg	1.0		< 1.0					
m & p-Xylene		M	2760	µg/kg	1.0		< 1.0					
o-Xylene		M	2760	µg/kg	1.0		< 1.0					
Methyl Tert-Butyl Ether		M	2760	µg/kg	1.0		< 1.0					
Total Phenols		M	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Cairney Screen		N			N/A				F			

Results - Soil

Project: C10128 Woolley Colliery Road, Darton - South

Client: Sirius Geotechnical Ltd				**Chemtest Job No.:**		24-18559	24-18559	24-18559	24-18559	24-18559	24-18559	24-18559
Quotation No.:				**Chemtest Sample ID.:**		1819982	1819983	1819984	1819985	1819986	1819987	1819988
				Client Sample ID.:		TP312S	TP313S	TP314S	WS303S	TP308S	WS304S	TP301N
				Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):		0.90	0.30	0.30	0.30	0.60	1.60	1.10
				Date Sampled:		31-May-2024	31-May-2024	31-May-2024	03-Jun-2024	31-May-2024	03-Jun-2024	28-May-2024
				Asbestos Lab:				DURHAM				
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**							
ACM Type		U	2192		N/A			-				
Asbestos Identification		U	2192		N/A			No Asbestos Detected				
Moisture		N	2030	%	0.020	13	9.8	13	7.1	8.9	7.4	17
Soil Colour		N	2040		N/A	Brown	Brown	Brown	Grey	Brown	Brown	Brown
Other Material		N	2040		N/A	Stones	Stones and Roots	Stones	Stones	Stones	Stones	Stones
Soil Texture		N	2040		N/A	Sand	Sand	Sand	Sand	Sand	Sand	Sand
pH at 20C		M	2010		4.0	< 4.0	6.9	6.9	7.0	7.0	7.5	6.1
Sulphate (2:1 Water Soluble) as SO4		M	2120	g/l	0.010	1.6	1.6	< 0.010	0.022	0.032	0.031	0.057
Total Sulphur		U	2175	%	0.010					0.19	1.4	
Sulphate (Total)		U	2430	%	0.010	3.3	1.3	8.5	0.68			0.33
Sulphate (Acid Soluble)		U	2430	%	0.010					0.22	3.4	
Arsenic		M	2455	mg/kg	0.5	88	34	160	13			40
Cadmium		M	2455	mg/kg	0.10	< 0.10	< 0.10	0.13	< 0.10			< 0.10
Chromium		M	2455	mg/kg	0.5	11	7.9	24	6.8			12
Copper		M	2455	mg/kg	0.50	57	36	66	21			97
Mercury		M	2455	mg/kg	0.05	0.18	0.19	0.35	0.10			0.07
Nickel		M	2455	mg/kg	0.50	15	12	27	13			34
Lead		M	2455	mg/kg	0.50	34	21	57	22			51
Selenium		M	2455	mg/kg	0.25	2.1	1.2	3.3	0.75			1.8
Zinc		M	2455	mg/kg	0.50	37	26	63	30			78
Chromium (Hexavalent)		N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50			< 0.50
Aliphatic VPH >C5-C6	HS_2D_AL	U	2780	mg/kg	0.05				< 0.05			[B] < 0.05
Aliphatic VPH >C6-C7	HS_2D_AL	U	2780	mg/kg	0.05				< 0.05			[B] < 0.05
Aliphatic VPH >C7-C8	HS_2D_AL	U	2780	mg/kg	0.05				< 0.05			[B] < 0.05
Aliphatic VPH >C6-C8 (Sum)	HS_2D_AL	N	2780	mg/kg	0.10				< 0.10			[B] < 0.10
Aliphatic VPH >C8-C10	HS_2D_AL	U	2780	mg/kg	0.05				< 0.05			[B] < 0.05
Total Aliphatic VPH >C5-C10	HS_2D_AL	U	2780	mg/kg	0.25				< 0.25			[B] < 0.25
Aliphatic EPH >C10-C12 MC	EH_2D_AL_#1	M	2690	mg/kg	2.00				3.2			[B] 6.4
Aliphatic EPH >C12-C16 MC	EH_2D_AL_#1	M	2690	mg/kg	1.00				5.2			[B] 9.9
Aliphatic EPH >C16-C21 MC	EH_2D_AL_#1	M	2690	mg/kg	2.00				5.7			[B] 10
Aliphatic EPH >C21-C35 MC	EH_2D_AL_#1	M	2690	mg/kg	3.00				7.5			[B] 25
Aliphatic EPH >C35-C40 MC	EH_2D_AL_#1	N	2690	mg/kg	10.00				< 10			[B] 10
Total Aliphatic EPH >C10-C35 MC	EH_2D_AL_#1	M	2690	mg/kg	5.00				21			[B] 52
Total Aliphatic EPH >C10-C40 MC	EH_2D_AL_#1	N	2690	mg/kg	10.00				21			[B] 62
Aromatic VPH >C5-C7	HS_2D_AR	U	2780	mg/kg	0.05				< 0.05			[B] < 0.05
Aromatic VPH >C7-C8	HS_2D_AR	U	2780	mg/kg	0.05				< 0.05			[B] < 0.05
Aromatic VPH >C8-C10	HS_2D_AR	U	2780	mg/kg	0.05				< 0.05			[B] < 0.05

Results - Soil

Project: C10128 Woolley Colliery Road, Darton - South

Client: Sirius Geotechnical Ltd				**Chemtest Job No.:**		24-18559	24-18559	24-18559	24-18559	24-18559	24-18559	24-18559
Quotation No.:				**Chemtest Sample ID.:**		1819982	1819983	1819984	1819985	1819986	1819987	1819988
				Client Sample ID.:		TP312S	TP313S	TP314S	WS303S	TP308S	WS304S	TP301N
				Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):		0.90	0.30	0.30	0.30	0.60	1.60	1.10
				Date Sampled:		31-May-2024	31-May-2024	31-May-2024	03-Jun-2024	31-May-2024	03-Jun-2024	28-May-2024
				Asbestos Lab:				DURHAM				
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**							
Total Aromatic VPH >C5-C10	HS_2D_AR	U	2780	mg/kg	0.25				< 0.25			[B] < 0.25
Aromatic EPH >C10-C12 MC	EH_2D_AR_#1	U	2690	mg/kg	1.00				< 1.0			[B] 7.1
Aromatic EPH >C12-C16 MC	EH_2D_AR_#1	U	2690	mg/kg	1.00				1.2			[B] 29
Aromatic EPH >C16-C21 MC	EH_2D_AR_#1	U	2690	mg/kg	2.00				5.7			[B] 80
Aromatic EPH >C21-C35 MC	EH_2D_AR_#1	U	2690	mg/kg	2.00				< 2.0			[B] 350
Aromatic EPH >C35-C40 MC	EH_2D_AR_#1	N	2690	mg/kg	1.00				1.3			[B] 54
Total Aromatic EPH >C10-C35 MC	EH_2D_AR_#1	U	2690	mg/kg	5.00				7.1			[B] 460
Total Aromatic EPH >C10-C40 MC	EH_2D_AR_#1	N	2690	mg/kg	10.00				< 10			[B] 520
Total VPH >C5-C10	HS_2D_Total	U	2780	mg/kg	0.50				< 0.50			[B] < 0.50
Total EPH >C10-C35 MC	EH_2D_Total_#1	U	2690	mg/kg	10.00				29			[B] 520
Total EPH >C10-C40 MC	EH_2D_Total_#1	N	2690	mg/kg	10.00				30			[B] 580
Total Organic Carbon		M	2625	%	0.20	29	32	3.4	44			27
Naphthalene		M	2700	mg/kg	0.10	10	13	< 0.10	73			1.8
Acenaphthylene		M	2700	mg/kg	0.10	1.1	1.8	< 0.10	11			0.67
Acenaphthene		M	2700	mg/kg	0.10	1.1	2.3	< 0.10	8.6			0.65
Fluorene		M	2700	mg/kg	0.10	1.8	4.0	< 0.10	17			1.4
Phenanthrene		M	2700	mg/kg	0.10	3.0	5.9	0.63	15			2.7
Anthracene		M	2700	mg/kg	0.10	< 0.10	0.28	0.11	1.6			0.64
Fluoranthene		M	2700	mg/kg	0.10	0.29	1.4	0.39	1.7			1.9
Pyrene		M	2700	mg/kg	0.10	0.66	2.2	0.44	3.8			2.4
Benzo[a]anthracene		M	2700	mg/kg	0.10	0.13	0.68	< 0.10	< 0.10			2.0
Chrysene		M	2700	mg/kg	0.10	0.48	1.4	< 0.10	5.0			3.7
Benzo[b]fluoranthene		M	2700	mg/kg	0.10	< 0.10	0.71	< 0.10	< 0.10			2.3
Benzo[k]fluoranthene		M	2700	mg/kg	0.10	< 0.10	0.20	< 0.10	< 0.10			2.1
Benzo[a]pyrene		M	2700	mg/kg	0.10	< 0.10	0.62	< 0.10	< 0.10			1.7
Indeno(1,2,3-c,d)Pyrene		M	2700	mg/kg	0.10	< 0.10	0.19	< 0.10	< 0.10			0.76
Dibenz(a,h)Anthracene		M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10			0.90
Benzo[g,h,i]perylene		M	2700	mg/kg	0.10	< 0.10	0.54	< 0.10	< 0.10			1.2
Coronene		N	2700	mg/kg	0.10							
Total Of 16 PAH's		M	2700	mg/kg	2.0	19	35	< 2.0	140			27
Total Of 17 PAH's		N	2700	mg/kg	2.0							
Benzene		M	2760	µg/kg	1.0				< 1.0			[B] < 1.0
Toluene		M	2760	µg/kg	1.0				1.6			[B] < 1.0
Ethylbenzene		M	2760	µg/kg	1.0				< 1.0			[B] < 1.0
m & p-Xylene		M	2760	µg/kg	1.0				< 1.0			[B] < 1.0
o-Xylene		M	2760	µg/kg	1.0				< 1.0			[B] < 1.0
Methyl Tert-Butyl Ether		M	2760	µg/kg	1.0				< 1.0			[B] < 1.0
Total Phenols		M	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10			< 0.10
Cairney Screen		N			N/A							

Results - Soil

Project: C10128 Woolley Colliery Road, Darton - South

Client: Sirius Geotechnical Ltd				**Chemtest Job No.:**		24-18559	24-18559	24-18559	24-18559	24-18559	24-18559	24-18559
Quotation No.:				**Chemtest Sample ID.:**		1819989	1819990	1819991	1819992	1819993	1819994	1819995
				Client Sample ID.:		TP302N	TP304N	TP305N	TP306N	TP310N	TP312N	WS301N
				Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):		0.50	0.10	0.70	0.10	0.40	0.90	2.70
				Date Sampled:		28-May-2024	28-May-2024	29-May-2024	29-May-2024	29-May-2024	29-May-2024	04-Jun-2024
				Asbestos Lab:			DURHAM		DURHAM			
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**							
ACM Type		U	2192		N/A		-		-			
Asbestos Identification		U	2192		N/A		No Asbestos Detected		No Asbestos Detected			
Moisture		N	2030	%	0.020	12	15	17	15	11	14	11
Soil Colour		N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown	Black
Other Material		N	2040		N/A	Stones and Roots	Stones and Roots	Stones	Roots and Stones	Stones	Stones	Stones
Soil Texture		N	2040		N/A	Sand	Sand	Sand	Sand	Sand	Sand	Sand
pH at 20C		M	2010		4.0	6.1	6.3	[B] 6.5	8.1	5.7	6.8	6.5
Sulphate (2:1 Water Soluble) as SO4		M	2120	g/l	0.010	< 0.010	0.034	[B] 0.017	0.050	1.6	1.3	0.014
Total Sulphur		U	2175	%	0.010							
Sulphate (Total)		U	2430	%	0.010	5.0	0.36	[B] 1.7	0.12	1.7	1.4	0.46
Sulphate (Acid Soluble)		U	2430	%	0.010							
Arsenic		M	2455	mg/kg	0.5	110	21	74	11	22	93	15
Cadmium		M	2455	mg/kg	0.10	< 0.10	< 0.10	0.13	0.20	< 0.10	< 0.10	< 0.10
Chromium		M	2455	mg/kg	0.5	8.8	16	20	18	6.8	15	4.7
Copper		M	2455	mg/kg	0.50	67	36	240	28	33	32	27
Mercury		M	2455	mg/kg	0.05	0.24	0.11	0.71	< 0.05	0.10	< 0.05	0.10
Nickel		M	2455	mg/kg	0.50	25	25	58	32	16	24	6.3
Lead		M	2455	mg/kg	0.50	47	25	370	29	25	26	23
Selenium		M	2455	mg/kg	0.25	2.7	0.91	1.9	0.79	0.95	2.0	1.1
Zinc		M	2455	mg/kg	0.50	61	66	120	90	37	75	17
Chromium (Hexavalent)		N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Aliphatic VPH >C5-C6	HS_2D_AL	U	2780	mg/kg	0.05						< 0.05	
Aliphatic VPH >C6-C7	HS_2D_AL	U	2780	mg/kg	0.05						< 0.05	
Aliphatic VPH >C7-C8	HS_2D_AL	U	2780	mg/kg	0.05						< 0.05	
Aliphatic VPH >C6-C8 (Sum)	HS_2D_AL	N	2780	mg/kg	0.10						< 0.10	
Aliphatic VPH >C8-C10	HS_2D_AL	U	2780	mg/kg	0.05						< 0.05	
Total Aliphatic VPH >C5-C10	HS_2D_AL	U	2780	mg/kg	0.25						< 0.25	
Aliphatic EPH >C10-C12 MC	EH_2D_AL_#1	M	2690	mg/kg	2.00						< 2.0	
Aliphatic EPH >C12-C16 MC	EH_2D_AL_#1	M	2690	mg/kg	1.00						< 1.0	
Aliphatic EPH >C16-C21 MC	EH_2D_AL_#1	M	2690	mg/kg	2.00						< 2.0	
Aliphatic EPH >C21-C35 MC	EH_2D_AL_#1	M	2690	mg/kg	3.00						< 3.0	
Aliphatic EPH >C35-C40 MC	EH_2D_AL_#1	N	2690	mg/kg	10.00						< 10	
Total Aliphatic EPH >C10-C35 MC	EH_2D_AL_#1	M	2690	mg/kg	5.00						< 5.0	
Total Aliphatic EPH >C10-C40 MC	EH_2D_AL_#1	N	2690	mg/kg	10.00						< 10	
Aromatic VPH >C5-C7	HS_2D_AR	U	2780	mg/kg	0.05						< 0.05	
Aromatic VPH >C7-C8	HS_2D_AR	U	2780	mg/kg	0.05						< 0.05	
Aromatic VPH >C8-C10	HS_2D_AR	U	2780	mg/kg	0.05						< 0.05	

Results - Soil

Project: C10128 Woolley Colliery Road, Darton - South

Client: Sirius Geotechnical Ltd				**Chemtest Job No.:**		24-18559	24-18559	24-18559	24-18559	24-18559	24-18559	24-18559
Quotation No.:				**Chemtest Sample ID.:**		1819989	1819990	1819991	1819992	1819993	1819994	1819995
				Client Sample ID.:		TP302N	TP304N	TP305N	TP306N	TP310N	TP312N	WS301N
				Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):		0.50	0.10	0.70	0.10	0.40	0.90	2.70
				Date Sampled:		28-May-2024	28-May-2024	29-May-2024	29-May-2024	29-May-2024	29-May-2024	04-Jun-2024
				Asbestos Lab:			DURHAM		DURHAM			
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**							
Total Aromatic VPH >C5-C10	HS_2D_AR	U	2780	mg/kg	0.25						< 0.25	
Aromatic EPH >C10-C12 MC	EH_2D_AR_#1	U	2690	mg/kg	1.00						< 1.0	
Aromatic EPH >C12-C16 MC	EH_2D_AR_#1	U	2690	mg/kg	1.00						< 1.0	
Aromatic EPH >C16-C21 MC	EH_2D_AR_#1	U	2690	mg/kg	2.00						5.6	
Aromatic EPH >C21-C35 MC	EH_2D_AR_#1	U	2690	mg/kg	2.00						< 2.0	
Aromatic EPH >C35-C40 MC	EH_2D_AR_#1	N	2690	mg/kg	1.00						< 1.0	
Total Aromatic EPH >C10-C35 MC	EH_2D_AR_#1	U	2690	mg/kg	5.00						6.3	
Total Aromatic EPH >C10-C40 MC	EH_2D_AR_#1	N	2690	mg/kg	10.00						< 10	
Total VPH >C5-C10	HS_2D_Total	U	2780	mg/kg	0.50						< 0.50	
Total EPH >C10-C35 MC	EH_2D_Total_#1	U	2690	mg/kg	10.00						< 10	
Total EPH >C10-C40 MC	EH_2D_Total_#1	N	2690	mg/kg	10.00						< 10	
Total Organic Carbon		M	2625	%	0.20	26	14	[B] 29	1.9	24	0.50	29
Naphthalene		M	2700	mg/kg	0.10	5.2	1.6	[B] 3.7	< 0.10	6.3	< 0.10	9.5
Acenaphthylene		M	2700	mg/kg	0.10	0.89	0.29	[B] 1.2	0.57	1.4	< 0.10	1.6
Acenaphthene		M	2700	mg/kg	0.10	1.0	0.43	[B] 1.3	0.31	1.7	< 0.10	2.0
Fluorene		M	2700	mg/kg	0.10	2.0	0.59	[B] 2.5	0.48	3.0	< 0.10	4.2
Phenanthrene		M	2700	mg/kg	0.10	2.6	1.1	[B] 5.0	0.93	5.6	< 0.10	5.1
Anthracene		M	2700	mg/kg	0.10	0.12	0.10	[B] 1.0	0.23	0.82	< 0.10	0.17
Fluoranthene		M	2700	mg/kg	0.10	0.39	0.90	[B] 8.9	1.1	5.9	< 0.10	0.91
Pyrene		M	2700	mg/kg	0.10	1.2	1.0	[B] 9.2	1.4	5.6	< 0.10	1.1
Benzo[a]anthracene		M	2700	mg/kg	0.10	0.30	0.49	[B] 5.3	< 0.10	2.0	< 0.10	0.40
Chrysene		M	2700	mg/kg	0.10	2.4	1.6	[B] 7.3	< 0.10	2.4	< 0.10	3.7
Benzo[b]fluoranthene		M	2700	mg/kg	0.10	< 0.10	0.87	[B] 6.6	< 0.10	3.2	< 0.10	0.51
Benzo[k]fluoranthene		M	2700	mg/kg	0.10	< 0.10	0.93	[B] 3.9	< 0.10	2.4	< 0.10	2.0
Benzo[a]pyrene		M	2700	mg/kg	0.10	< 0.10	0.82	[B] 5.2	< 0.10	2.0	< 0.10	0.37
Indeno(1,2,3-c,d)Pyrene		M	2700	mg/kg	0.10	< 0.10	0.49	[B] 3.1	< 0.10	1.3	< 0.10	0.41
Dibenz(a,h)Anthracene		M	2700	mg/kg	0.10	< 0.10	0.45	[B] 1.6	< 0.10	0.32	< 0.10	0.86
Benzo[g,h,i]perylene		M	2700	mg/kg	0.10	< 0.10	0.58	[B] 3.0	< 0.10	1.7	< 0.10	0.60
Coronene		N	2700	mg/kg	0.10							
Total Of 16 PAH's		M	2700	mg/kg	2.0	16	12	[B] 69	5.0	46	< 2.0	33
Total Of 17 PAH's		N	2700	mg/kg	2.0							
Benzene		M	2760	µg/kg	1.0						< 1.0	
Toluene		M	2760	µg/kg	1.0						< 1.0	
Ethylbenzene		M	2760	µg/kg	1.0						< 1.0	
m & p-Xylene		M	2760	µg/kg	1.0						< 1.0	
o-Xylene		M	2760	µg/kg	1.0						< 1.0	
Methyl Tert-Butyl Ether		M	2760	µg/kg	1.0						< 1.0	
Total Phenols		M	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Cairney Screen		N			N/A			F				F

Results - Soil

Project: C10128 Woolley Colliery Road, Darton - South

Client: Sirius Geotechnical Ltd				**Chemtest Job No.:**		24-18559	24-18559	24-18559	24-18559	24-18559	24-18559	24-18559
Quotation No.:				**Chemtest Sample ID.:**		1819996	1819997	1819998	1819999	1820000	1820001	1820003
				Client Sample ID.:		WS302N	WS303N	WS304N	WS307N	WS311N	TP303N	TP314S
				Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):		0.30	0.40	0.50	0.70	0.20	2.00	0.60
				Date Sampled:		04-Jun-2024	04-Jun-2024	04-Jun-2024	05-Jun-2024	05-Jun-2024	28-May-2024	31-May-2024
				Asbestos Lab:			DURHAM			DURHAM		
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**							
ACM Type		U	2192		N/A		-			-		
Asbestos Identification		U	2192		N/A		No Asbestos Detected			No Asbestos Detected		
Moisture		N	2030	%	0.020	6.6	9.2	12	15	16	21	15
Soil Colour		N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown	Brown
Other Material		N	2040		N/A	Stones	Stones	Roots and Stones	Stones	Stones	Stones	Stones
Soil Texture		N	2040		N/A	Sand	Sand	Sand	Sand	Sand	Sand	Sand
pH at 20C		M	2010		4.0	7.2	6.6	6.8	7.1	7.0	6.7	8.2
Sulphate (2:1 Water Soluble) as SO4		M	2120	g/l	0.010	1.6	0.94	0.018	0.013	< 0.010	0.57	0.36
Total Sulphur		U	2175	%	0.010						0.16	
Sulphate (Total)		U	2430	%	0.010	7.4	0.087	0.15	0.42	0.11		
Sulphate (Acid Soluble)		U	2430	%	0.010						0.045	
Arsenic		M	2455	mg/kg	0.5	88	9.5	18	25	11		
Cadmium		M	2455	mg/kg	0.10	1.2	0.19	0.24	< 0.10	0.31		
Chromium		M	2455	mg/kg	0.5	7.3	18	28	18	29		
Copper		M	2455	mg/kg	0.50	45	31	41	59	24		
Mercury		M	2455	mg/kg	0.05	0.49	0.05	0.08	0.21	< 0.05		
Nickel		M	2455	mg/kg	0.50	23	30	40	26	41		
Lead		M	2455	mg/kg	0.50	30	32	56	47	38		
Selenium		M	2455	mg/kg	0.25	2.8	0.61	1.2	0.90	0.83		
Zinc		M	2455	mg/kg	0.50	320	110	130	81	150		
Chromium (Hexavalent)		N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50		
Aliphatic VPH >C5-C6	HS_2D_AL	U	2780	mg/kg	0.05							
Aliphatic VPH >C6-C7	HS_2D_AL	U	2780	mg/kg	0.05							
Aliphatic VPH >C7-C8	HS_2D_AL	U	2780	mg/kg	0.05							
Aliphatic VPH >C6-C8 (Sum)	HS_2D_AL	N	2780	mg/kg	0.10							
Aliphatic VPH >C8-C10	HS_2D_AL	U	2780	mg/kg	0.05							
Total Aliphatic VPH >C5-C10	HS_2D_AL	U	2780	mg/kg	0.25							
Aliphatic EPH >C10-C12 MC	EH_2D_AL_#1	M	2690	mg/kg	2.00							
Aliphatic EPH >C12-C16 MC	EH_2D_AL_#1	M	2690	mg/kg	1.00							
Aliphatic EPH >C16-C21 MC	EH_2D_AL_#1	M	2690	mg/kg	2.00							
Aliphatic EPH >C21-C35 MC	EH_2D_AL_#1	M	2690	mg/kg	3.00							
Aliphatic EPH >C35-C40 MC	EH_2D_AL_#1	N	2690	mg/kg	10.00							
Total Aliphatic EPH >C10-C35 MC	EH_2D_AL_#1	M	2690	mg/kg	5.00							
Total Aliphatic EPH >C10-C40 MC	EH_2D_AL_#1	N	2690	mg/kg	10.00							
Aromatic VPH >C5-C7	HS_2D_AR	U	2780	mg/kg	0.05							
Aromatic VPH >C7-C8	HS_2D_AR	U	2780	mg/kg	0.05							
Aromatic VPH >C8-C10	HS_2D_AR	U	2780	mg/kg	0.05							

Results - Soil

Project: C10128 Woolley Colliery Road, Darton - South

Client: Sirius Geotechnical Ltd				**Chemtest Job No.:**		24-18559	24-18559	24-18559	24-18559	24-18559	24-18559	24-18559
Quotation No.:				**Chemtest Sample ID.:**		1819996	1819997	1819998	1819999	1820000	1820001	1820003
				Client Sample ID.:		WS302N	WS303N	WS304N	WS307N	WS311N	TP303N	TP314S
				Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Top Depth (m):		0.30	0.40	0.50	0.70	0.20	2.00	0.60
				Date Sampled:		04-Jun-2024	04-Jun-2024	04-Jun-2024	05-Jun-2024	05-Jun-2024	28-May-2024	31-May-2024
				Asbestos Lab:			DURHAM			DURHAM		
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**							
Total Aromatic VPH >C5-C10	HS_2D_AR	U	2780	mg/kg	0.25							
Aromatic EPH >C10-C12 MC	EH_2D_AR_#1	U	2690	mg/kg	1.00							
Aromatic EPH >C12-C16 MC	EH_2D_AR_#1	U	2690	mg/kg	1.00							
Aromatic EPH >C16-C21 MC	EH_2D_AR_#1	U	2690	mg/kg	2.00							
Aromatic EPH >C21-C35 MC	EH_2D_AR_#1	U	2690	mg/kg	2.00							
Aromatic EPH >C35-C40 MC	EH_2D_AR_#1	N	2690	mg/kg	1.00							
Total Aromatic EPH >C10-C35 MC	EH_2D_AR_#1	U	2690	mg/kg	5.00							
Total Aromatic EPH >C10-C40 MC	EH_2D_AR_#1	N	2690	mg/kg	10.00							
Total VPH >C5-C10	HS_2D_Total	U	2780	mg/kg	0.50							
Total EPH >C10-C35 MC	EH_2D_Total_#1	U	2690	mg/kg	10.00							
Total EPH >C10-C40 MC	EH_2D_Total_#1	N	2690	mg/kg	10.00							
Total Organic Carbon		M	2625	%	0.20	15	2.6	2.8	24	1.6		
Naphthalene		M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	4.1	< 0.10		
Acenaphthylene		M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	0.72	< 0.10		
Acenaphthene		M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	0.78	< 0.10		
Fluorene		M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	1.5	< 0.10		
Phenanthrene		M	2700	mg/kg	0.10	< 0.10	0.79	0.32	2.3	< 0.10		
Anthracene		M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		
Fluoranthene		M	2700	mg/kg	0.10	< 0.10	0.91	0.59	0.97	< 0.10		
Pyrene		M	2700	mg/kg	0.10	< 0.10	0.96	0.61	1.1	< 0.10		
Benzo[a]anthracene		M	2700	mg/kg	0.10	< 0.10	0.33	0.32	0.50	< 0.10		
Chrysene		M	2700	mg/kg	0.10	< 0.10	0.70	0.60	2.1	< 0.10		
Benzo[b]fluoranthene		M	2700	mg/kg	0.10	< 0.10	0.60	0.67	0.85	< 0.10		
Benzo[k]fluoranthene		M	2700	mg/kg	0.10	< 0.10	0.36	0.37	1.3	< 0.10		
Benzo[a]pyrene		M	2700	mg/kg	0.10	< 0.10	0.60	0.41	0.47	< 0.10		
Indeno(1,2,3-c,d)Pyrene		M	2700	mg/kg	0.10	< 0.10	0.27	0.34	0.42	< 0.10		
Dibenz(a,h)Anthracene		M	2700	mg/kg	0.10	< 0.10	0.21	< 0.10	0.63	< 0.10		
Benzo[g,h,i]perylene		M	2700	mg/kg	0.10	< 0.10	0.34	0.32	0.69	< 0.10		
Coronene		N	2700	mg/kg	0.10							
Total Of 16 PAH's		M	2700	mg/kg	2.0	< 2.0	6.1	4.6	18	< 2.0		
Total Of 17 PAH's		N	2700	mg/kg	2.0							
Benzene		M	2760	µg/kg	1.0							
Toluene		M	2760	µg/kg	1.0							
Ethylbenzene		M	2760	µg/kg	1.0							
m & p-Xylene		M	2760	µg/kg	1.0							
o-Xylene		M	2760	µg/kg	1.0							
Methyl Tert-Butyl Ether		M	2760	µg/kg	1.0							
Total Phenols		M	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		
Cairney Screen		N			N/A							

Results - Soil

Project: C10128 Woolley Colliery Road, Darton - South

Client: Sirius Geotechnical Ltd				**Chemtest Job No.:**		24-18559	24-18559	24-18559
Quotation No.:				**Chemtest Sample ID.:**		1820004	1820006	1820007
				Client Sample ID.:		TP301S	TP306N	WS304S
				Sample Type:		SOIL	SOIL	SOIL
				Top Depth (m):		0.05	1.20	2.60
				Date Sampled:		30-May-2024	29-May-2024	03-Jun-2024
				Asbestos Lab:				
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**			
ACM Type		U	2192		N/A			
Asbestos Identification		U	2192		N/A			
Moisture		N	2030	%	0.020	0.44	7.1	18
Soil Colour		N	2040		N/A	Black	Black	Brown
Other Material		N	2040		N/A	None	Stones	Stones
Soil Texture		N	2040		N/A	Tarmac	Sand	Sand
pH at 20C		M	2010		4.0		5.8	5.4
Sulphate (2:1 Water Soluble) as SO4		M	2120	g/l	0.010		1.7	1.5
Total Sulphur		U	2175	%	0.010		1.2	
Sulphate (Total)		U	2430	%	0.010			
Sulphate (Acid Soluble)		U	2430	%	0.010		5.5	
Arsenic		M	2455	mg/kg	0.5			
Cadmium		M	2455	mg/kg	0.10			
Chromium		M	2455	mg/kg	0.5			
Copper		M	2455	mg/kg	0.50			
Mercury		M	2455	mg/kg	0.05			
Nickel		M	2455	mg/kg	0.50			
Lead		M	2455	mg/kg	0.50			
Selenium		M	2455	mg/kg	0.25			
Zinc		M	2455	mg/kg	0.50			
Chromium (Hexavalent)		N	2490	mg/kg	0.50			
Aliphatic VPH >C5-C6	HS_2D_AL	U	2780	mg/kg	0.05			
Aliphatic VPH >C6-C7	HS_2D_AL	U	2780	mg/kg	0.05			
Aliphatic VPH >C7-C8	HS_2D_AL	U	2780	mg/kg	0.05			
Aliphatic VPH >C6-C8 (Sum)	HS_2D_AL	N	2780	mg/kg	0.10			
Aliphatic VPH >C8-C10	HS_2D_AL	U	2780	mg/kg	0.05			
Total Aliphatic VPH >C5-C10	HS_2D_AL	U	2780	mg/kg	0.25			
Aliphatic EPH >C10-C12 MC	EH_2D_AL_#1	M	2690	mg/kg	2.00			
Aliphatic EPH >C12-C16 MC	EH_2D_AL_#1	M	2690	mg/kg	1.00			
Aliphatic EPH >C16-C21 MC	EH_2D_AL_#1	M	2690	mg/kg	2.00			
Aliphatic EPH >C21-C35 MC	EH_2D_AL_#1	M	2690	mg/kg	3.00			
Aliphatic EPH >C35-C40 MC	EH_2D_AL_#1	N	2690	mg/kg	10.00			
Total Aliphatic EPH >C10-C35 MC	EH_2D_AL_#1	M	2690	mg/kg	5.00			
Total Aliphatic EPH >C10-C40 MC	EH_2D_AL_#1	N	2690	mg/kg	10.00			
Aromatic VPH >C5-C7	HS_2D_AR	U	2780	mg/kg	0.05			
Aromatic VPH >C7-C8	HS_2D_AR	U	2780	mg/kg	0.05			
Aromatic VPH >C8-C10	HS_2D_AR	U	2780	mg/kg	0.05			

Results - Soil

Project: C10128 Woolley Colliery Road, Darton - South

Client: Sirius Geotechnical Ltd				**Chemtest Job No.:**		24-18559	24-18559	24-18559
Quotation No.:				**Chemtest Sample ID.:**		1820004	1820006	1820007
				Client Sample ID.:		TP301S	TP306N	WS304S
				Sample Type:		SOIL	SOIL	SOIL
				Top Depth (m):		0.05	1.20	2.60
				Date Sampled:		30-May-2024	29-May-2024	03-Jun-2024
				Asbestos Lab:				
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**			
Total Aromatic VPH >C5-C10	HS_2D_AR	U	2780	mg/kg	0.25			
Aromatic EPH >C10-C12 MC	EH_2D_AR_#1	U	2690	mg/kg	1.00			
Aromatic EPH >C12-C16 MC	EH_2D_AR_#1	U	2690	mg/kg	1.00			
Aromatic EPH >C16-C21 MC	EH_2D_AR_#1	U	2690	mg/kg	2.00			
Aromatic EPH >C21-C35 MC	EH_2D_AR_#1	U	2690	mg/kg	2.00			
Aromatic EPH >C35-C40 MC	EH_2D_AR_#1	N	2690	mg/kg	1.00			
Total Aromatic EPH >C10-C35 MC	EH_2D_AR_#1	U	2690	mg/kg	5.00			
Total Aromatic EPH >C10-C40 MC	EH_2D_AR_#1	N	2690	mg/kg	10.00			
Total VPH >C5-C10	HS_2D_Total	U	2780	mg/kg	0.50			
Total EPH >C10-C35 MC	EH_2D_Total_#1	U	2690	mg/kg	10.00			
Total EPH >C10-C40 MC	EH_2D_Total_#1	N	2690	mg/kg	10.00			
Total Organic Carbon		M	2625	%	0.20			
Naphthalene		M	2700	mg/kg	0.10	30		
Acenaphthylene		M	2700	mg/kg	0.10	6.2		
Acenaphthene		M	2700	mg/kg	0.10	20		
Fluorene		M	2700	mg/kg	0.10	20		
Phenanthrene		M	2700	mg/kg	0.10	46		
Anthracene		M	2700	mg/kg	0.10	14		
Fluoranthene		M	2700	mg/kg	0.10	37		
Pyrene		M	2700	mg/kg	0.10	36		
Benzo[a]anthracene		M	2700	mg/kg	0.10	17		
Chrysene		M	2700	mg/kg	0.10	14		
Benzo[b]fluoranthene		M	2700	mg/kg	0.10	18		
Benzo[k]fluoranthene		M	2700	mg/kg	0.10	7.3		
Benzo[a]pyrene		M	2700	mg/kg	0.10	15		
Indeno(1,2,3-c,d)Pyrene		M	2700	mg/kg	0.10	14		
Dibenz(a,h)Anthracene		M	2700	mg/kg	0.10	8.7		
Benzo[g,h,i]perylene		M	2700	mg/kg	0.10	13		
Coronene		N	2700	mg/kg	0.10	< 0.10		
Total Of 16 PAH's		M	2700	mg/kg	2.0			
Total Of 17 PAH's		N	2700	mg/kg	2.0	320		
Benzene		M	2760	µg/kg	1.0			
Toluene		M	2760	µg/kg	1.0			
Ethylbenzene		M	2760	µg/kg	1.0			
m & p-Xylene		M	2760	µg/kg	1.0			
o-Xylene		M	2760	µg/kg	1.0			
Methyl Tert-Butyl Ether		M	2760	µg/kg	1.0			
Total Phenols		M	2920	mg/kg	0.10			
Cairney Screen		N			N/A			

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request.The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1819979		TP309S		31-May-2024	B	Amber Glass 250ml
1819979		TP309S		31-May-2024	B	Amber Glass 60ml
1819979		TP309S		31-May-2024	B	Plastic Tub 500g
1819980		TP310S		31-May-2024	B	Amber Glass 250ml
1819980		TP310S		31-May-2024	B	Amber Glass 60ml
1819980		TP310S		31-May-2024	B	Plastic Tub 500g
1819988		TP301N		28-May-2024	B	Amber Glass 250ml
1819988		TP301N		28-May-2024	B	Amber Glass 60ml
1819988		TP301N		28-May-2024	B	Plastic Tub 500g
1819991		TP305N		29-May-2024	B	Amber Glass 250ml
1819991		TP305N		29-May-2024	B	Amber Glass 60ml
1819991		TP305N		29-May-2024	B	Plastic Tub 500g

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
1010	pH Value of Waters	pH at 20°C	pH Meter	
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.	
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).	
1700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)	
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.	
2010	pH Value of Soils	pH at 20°C	pH Meter	
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.	
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930	
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES	
2140	Calorific Value	Calorific Value	Bomb Calorimeter	
2175	Total Sulphur in Soils	Total Sulphur	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.	
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry	
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.	
2455	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.	
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.	
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.	
2690	EPH A/A Split	Aliphatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40 Aromatics: >C10–C12, >C12–C16, >C16–C21, >C21– C35, >C35– C40	Acetone/Heptane extraction / GCxGC FID detection	
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)	
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.	

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
2780	VPH A/A Split	Aliphatics: >C5–C6, >C6–C7,>C7–C8,>C8-C10 Aromatics: >C5–C7,>C7-C8,>C8–C10	Water extraction / Headspace GCxGC FID detection	
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.	
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge	

Report Information

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I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

This report shall not be reproduced except in full, and only with the prior approval of the laboratory.
Any comments or interpretations are outside the scope of UKAS accreditation.
The Laboratory is not accredited for any sampling activities and reported results relate to the samples 'as received' at the laboratory.
Uncertainty of measurement for the determinands tested are available upon request .
None of the results in this report have been recovery corrected.
All results are expressed on a dry weight basis.

The following tests were analysed on samples 'as received' and the results subsequently corrected to a dry weight basis EPH, VPH, TPH, BTEX, VOCs, SVOCs, PCBs, Phenols.

For all other tests the samples were dried at ≤ 30°C prior to analysis.
All Asbestos testing is performed at the indicated laboratory .
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1.

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt.
All water samples will be retained for 14 days from the date of receipt.
Charges may apply to extended sample storage.

Water Sample Category Key for Accreditation

DW - Drinking Water
GW - Ground Water
LE - Land Leachate
NA - Not Applicable

Report Information

PL - Prepared Leachate
PW - Processed Water
RE - Recreational Water
SA - Saline Water
SW - Surface Water
TE - Treated Effluent
TS - Treated Sewage
UL - Unspecified Liquid

Clean Up Codes

NC - No Clean Up
MC - Mathematical Clean Up
FC - Florisil Clean Up

HWOL Acronym System

HS - Headspace analysis
EH - Extractable hydrocarbons – i.e. everything extracted by the solvent
CU - Clean-up – e.g. by Florisil, silica gel
1D - GC – Single coil gas chromatography
Total - Aliphatics & Aromatics
AL - Aliphatics only
AR - Aromatic only
2D - GC-GC – Double coil gas chromatography
#1 - EH_2D_Total but with humics mathematically subtracted
#2 - EH_2D_Total but with fatty acids mathematically subtracted
+ - Operator to indicate cumulative e.g. EH+EH_Total or EH_CU+HS_Total

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	24-20992-1
Initial Date of Issue:	08-Jul-2024
Re-Issue Details:	
Client	Sirius Geotechnical Ltd
Client Address:	Russel House Mill Road Langley Moor Durham County Durham DH7 8HJ
Contact(s):	Andrew Lake
Project	C10128 Woolley Collery Road

Quotation No.:		**Date Received:**	02-Jul-2024
Order No.:	24621/C10128/AL	**Date Instructed:**	02-Jul-2024
No. of Samples:	1		
Turnaround (Wkdays):	5	**Results Due:**	08-Jul-2024
Date Approved:	08-Jul-2024		

Approved By:

Details: David Smith, Technical Director

For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report

Results - Water

Project: C10128 Woolley Collery Road

Client: Sirius Geotechnical Ltd				**Chemtest Job No.:**		24-20992
Quotation No.:				**Chemtest Sample ID.:**		1829409
				Client Sample ID.:		RO213
				Sample Type:		WATER
				Sample Sub Type:		
				Date Sampled:		28-Jun-2024
				Time Sampled:		15:30
Determinand	**HWOL Code**	**Accred.**	**SOP**	**Units**	**LOD**	
pH at 20C		U	1010		4.0	8.0
Electrical Conductivity at 25C		U	1020	µS/cm	1.0	1700
Ammoniacal Nitrogen		U	1220	mg/l	0.050	0.064
Sulphate		U	1220	mg/l	1.0	510
Arsenic (Dissolved)		U	1455	µg/l	0.20	< 0.20
Cadmium (Dissolved)		U	1455	µg/l	0.11	0.16
Chromium (Dissolved)		U	1455	µg/l	0.50	1.4
Copper (Dissolved)		U	1455	µg/l	0.50	1.6
Mercury (Dissolved)		U	1455	µg/l	0.05	< 0.05
Nickel (Dissolved)		U	1455	µg/l	0.50	59
Lead (Dissolved)		U	1455	µg/l	0.50	< 0.50
Selenium (Dissolved)		U	1455	µg/l	0.50	< 0.50
Zinc (Dissolved)		U	1455	µg/l	2.5	13
Naphthalene		U	1700	µg/l	0.10	< 0.10
Acenaphthylene		U	1700	µg/l	0.10	< 0.10
Acenaphthene		U	1700	µg/l	0.10	< 0.10
Fluorene		U	1700	µg/l	0.10	< 0.10
Phenanthrene		U	1700	µg/l	0.10	< 0.10
Anthracene		U	1700	µg/l	0.10	< 0.10
Fluoranthene		U	1700	µg/l	0.10	< 0.10
Pyrene		U	1700	µg/l	0.10	< 0.10
Benzo[a]anthracene		U	1700	µg/l	0.10	< 0.10
Chrysene		N	1700	µg/l	0.10	< 0.10
Benzo[b]fluoranthene		U	1700	µg/l	0.10	< 0.10
Benzo[k]fluoranthene		U	1700	µg/l	0.10	< 0.10
Benzo[a]pyrene		U	1700	µg/l	0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene		U	1700	µg/l	0.10	< 0.10
Dibenz(a,h)Anthracene		U	1700	µg/l	0.10	< 0.10
Benzo[g,h,i]perylene		U	1700	µg/l	0.10	< 0.10
Total Of 16 PAH's		N	1700	µg/l	2.0	< 2.0
Total Phenols		U	1920	mg/l	0.030	< 0.030

Test Methods

SOP	Title	Parameters included	Method summary	Water Accred.
1010	pH Value of Waters	pH at 20°C	pH Meter	RE PW TE TS PL DW GW
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity at 25°C and Total Dissolved Solids (TDS) in Waters	Conductivity Meter	TE TS PL LE SW GW
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.	RE PW PL LE DW GW
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).	RE PW PL SW DW GW
1700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)	PL GW
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.	PL GW

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AR - Aromatic only
2D - GC-GC – Double coil gas chromatography
#1 - EH_2D_Total but with humics mathematically subtracted
#2 - EH_2D_Total but with fatty acids mathematically subtracted
+ - Operator to indicate cumulative e.g. EH+EH_Total or EH_CU+HS_Total

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

APPENDIX G
Interim Monitoring Results

Ground Gas and Groundwater Monitoring Record Sheet

JOB DETAILS:

Client: Gleeson Homes Ltd
Site: Woolley Colliery Road, Darton
Date: 14/06/2024
Job No: C10128
Visit No: 1 **of** 6
Operator: J.C
Project Manager: A.L

Monitoring Point	GAS CONCENTRATIONS												VOLATILES		FLOW DATA				Qhg per borehole		WELL AND WATER DATA					Comments
	Methane (%v/v)		%LEL		Carbon dioxide (%v/v)		Carbon monoxide (ppmv)		Hydrogen sulphide (ppmv)		Oxygen (%v/v)		PID Peak (ppm)	Product thickness (mm)	Flow rate (l/hr)		Differential borehole Pressure (Pa)	Time for flow to equalise (secs)	Methane (l/hr)	CO2 (l/hr)	Water level (mbgl)	Depth of well (m)	Top of BH (mAOD)	Water level (mAOD)	Response Zone	
	Peak	Steady	Peak	Steady	Peak	**Steady**	Peak	Steady	Peak	Steady	Min.	Steady			Peak	Steady										
CP01	**ND**	**ND**	ND	ND	3.1	**3.1**	ND	ND	ND	ND	18.6	18.6	ND	NR	ND	ND	ND	NR	0.0001	0.0031	2.86	3.00	80.99	78.13	2.5 - 3m	Purged dry - no recharge
CP02	**ND**	**ND**	ND	ND	0.8	**0.8**	ND	ND	ND	ND	19.4	19.4	ND	NR	ND	ND	ND	NR	0.0001	0.0008	6.56	7.55	84.36	77.80	6.5 - 7.5m	Purged dry - no recharge
CP03	**ND**	**ND**	ND	ND	0.8	**0.8**	1	1	ND	ND	20.1	20.1	ND	NR	ND	ND	ND	NR	0.0001	0.0008	1.97	2.84	84.51	82.54	2.5 - 3m	Purged dry - no recharge
CP04	**ND**	**ND**	ND	ND	ND	**ND**	ND	ND	ND	ND	20.6	20.6	ND	NR	ND	ND	ND	NR	0.0001	0.0001	8.28	8.37	84.99	76.71	2 - 8m	Purged dry - no recharge
CP05	**ND**	**ND**	ND	ND	6.7	**6.7**	1	1	1	ND	0.3	0.3	ND	NR	ND	ND	ND	NR	0.0001	0.0067	3.57	3.65	78.90	75.33	1 - 4m	Purged dry - no recharge
RO04	**ND**	**ND**	ND	ND	15.3	**15.3**	2	2	1	ND	4.5	4.5	ND	NR	ND	ND	ND	NR	0.0001	0.0153	4.26	4.89	79.05	74.79	3 - 5m	Purged dry - no recharge
RO213	**ND**	**ND**	ND	ND	7.2	**7.2**	1	1	ND	ND	9.2	9.2	ND	NR	ND	ND	ND	NR	0.0001	0.0072	14.38	20.81	84.30	69.92	2 - 20m	Purged 30L - recharged to 19.62 after 42 minutes
WS04	**ND**	**ND**	ND	ND	6.4	**6.4**	ND	ND	2	ND	11.1	11.1	ND	NR	ND	ND	ND	NR	0.0001	0.0064	2.86	3.95	80.56	77.70	1 - 4m	Purged dry - no recharge
WS05	**ND**	**ND**	ND	ND	0.7	**0.7**	1	1	ND	ND	19.9	19.9	ND	NR	ND	ND	ND	NR	0.0001	0.0007	1.02	2.23	80.28	79.26	0.5 - 2m	Purged dry - no recharge
WS06	**ND**	**ND**	ND	ND	0.8	**0.8**	ND	ND	ND	ND	19.7	19.7	ND	NR	ND	ND	ND	NR	0.0001	0.0008	2.78	2.84	80.66	77.88	0.75 - 2.8m	Purged dry - no recharge
WS205	**NR**	**NR**	NR	NR	NR	**NR**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	79.68	NR	1 - 2.8m	Unable to locate well
WS301N	**ND**	**ND**	ND	ND	4.4	**4.4**	ND	ND	ND	ND	15.0	15.0	ND	NR	ND	ND	ND	NR	0.0001	0.0044	6.98	7.31	83.78	76.80	1 - 7.6m	Purged dry - no recharge
CPS02	**ND**	**ND**	ND	ND	ND	**ND**	ND	ND	ND	ND	20.1	20.1	ND	NR	ND	ND	ND	NR	0.0001	0.0001	DRY	7.54	79.01	DRY	1 - 7.5m	
RO202	**ND**	**ND**	ND	ND	1.2	**1.2**	ND	ND	ND	ND	17.4	17.4	ND	NR	ND	ND	ND	NR	0.0001	0.0012	15.50	16.30	79.33	63.83	1 - 15m	Purged dry - no recharge
RO303S	**ND**	**ND**	ND	ND	0.7	**0.7**	ND	ND	ND	ND	19.5	19.5	ND	NR	ND	ND	ND	NR	0.0001	0.0007	DRY	4.42	79.43	DRY	1 - 5m	
RS2	**NR**	**NR**	NR	NR	NR	**NR**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	DRY	12.38	79.29	DRY	7 - 12m	Damaged bung - unable to monitor
WS201	**ND**	**ND**	ND	ND	0.1	**0.1**	ND	ND	ND	ND	20.3	20.3	ND	NR	ND	ND	ND	NR	0.0001	0.0001	DRY	2.90	78.13	DRY	1 - 2.9m	
WS202	**ND**	**ND**	ND	ND	0.4	**0.4**	ND	ND	ND	ND	19.9	19.9	ND	NR	ND	ND	ND	NR	0.0001	0.0004	2.96	3.01	80.92	77.96	1 - 3m	Purged dry - no recharge
WS301S	**ND**	**ND**	ND	ND	4.2	**4.2**	ND	ND	ND	ND	16.3	16.3	ND	NR	ND	ND	ND	NR	0.0001	0.0042	DRY	1.00	79.70	DRY	0.5 - 1m	
WS302S	**ND**	**ND**	ND	ND	0.6	**0.6**	ND	ND	ND	ND	19.8	19.8	ND	NR	ND	ND	ND	NR	0.0001	0.0006	DRY	3.62	81.36	DRY	1 - 3.8m	
WS304S	**ND**	**ND**	ND	ND	4.4	**4.4**	ND	ND	ND	ND	12.6	12.6	ND	NR	ND	ND	ND	NR	0.0001	0.0044	DRY	4.10	77.43	DRY	1 - 4m	
Max	**ND**	**ND**	**ND**	**ND**	**15.3**	**15.3**	**2**	**2**	**2**	**ND**	**20.6**	**20.6**	**ND**	**NR**	**ND**	**ND**	**ND**	**NR**	**0.0001**	**0.0153**	**15.50**			**82.54**		
Min	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**0.3**	**0.3**	**ND**	**NR**	**ND**	**ND**	**ND**	**NR**	**0.0001**	**0.0001**	**DRY**			**DRY**		

ND - Not detected

NR - Not recorded

NB: Where no flow (ND) recorded, Qhg values are calculated using equiment limit of detection (0.1l/hr). Where negative flows recorded, these are converted to positive values for calculation of Qhg.

METEOROLOGICAL AND SITE INFORMATION: (Select correct box with X or enter data, as applicable)

State of ground:		Dry	X	Moist		Wet		Snow		Frozen
Wind:		Calm	X	Light		Moderate		Strong		
Cloud cover:		None		Slight	X	Cloudy		Overcast		
Precipitation:	X	None		Slight		Moderate		Heavy		
Time monitoring performed:			08:15	Start			12:30	End		
Barometric pressure (mbar):			989	Start			988	End		
Pressure trend (Daily):			X	Falling		Steady		Rising		
Source:	https://www.timeanddate.com/weather/@2651497/historic									
Air Temperature (Deg. C):			13	Before			15	After		

INSTRUMENTATION TECHNICAL SPECIFICATIONS:

Ground gas meter: GFM 430 (BM51)
Gas Range: **CH_4** 0-100% **CO_2** 0-100% **O_2** 0-25%
Gas Flow range: +100/-50 l/ hour
Differential Pressure: (+/- 100 Pa)
Date of last external calibration: 17/10/2023
Date of next external calibration: 17/10/2024
Date of last in-house calibration: 10/04/2024

Ambient air check: **CH_4** ND **CO_2** ND **O_2** 20.8

PID: LE/76
Calibrated range: 5
Calibration gas: Benzene C6H6
Response time: 2 seconds
Accuracy: (+/-) 3% displayed reading
Date of last external calibration: 06/07/2023
Date of next external calibration: 05/07/2024
Date of last in-house calibration: 10/04/2024

Ground Gas and Groundwater Monitoring Record Sheet

JOB DETAILS:

Client: Gleeson Homes Ltd **Job No:** C10128
Site: Woolley Colliery Road, Darton **Visit No:** 2 **of** 6
Date: 28/06/2024 **Operator:** A.L. **Project Manager:** A.L.

Monitoring Point	GAS CONCENTRATIONS												VOLATILES		FLOW DATA				Qhg per borehole		WELL AND WATER DATA					Comments
	Methane (%v/v)		%LEL		Carbon dioxide (%v/v)		Carbon monoxide (ppmv)		Hydrogen sulphide (ppmv)		Oxygen (%v/v)		PID Peak (ppm)	Product thickness (mm)	Flow rate (l/hr)		Differential borehole Pressure (Pa)	Time for flow to equalise (secs)	Methane (l/hr)	CO2 (l/hr)	Water level (mbgl)	Depth of well (m)	Top of BH (mAOD)	Water level (mAOD)	Response Zone	
	Peak	Steady	Peak	Steady	Peak	**Steady**	Peak	Steady	Peak	Steady	Min.	Steady			Peak	Steady										
CP01	**ND**	ND	ND	ND	4.0	**4.0**	ND	ND	ND	ND	16.8	16.8	NR	NR	ND	ND	ND	ND	0.0001	0.0040	2.90	3.00	80.99	78.09	2.5 - 3m	
CP02	**ND**	ND	ND	ND	0.3	**ND**	ND	ND	ND	ND	19.9	19.9	NR	NR	ND	ND	ND	ND	0.0001	0.0001	6.48	7.55	84.36	77.88	6.5 - 7.5m	
CP03	**ND**	ND	ND	ND	6.1	**6.1**	ND	ND	ND	ND	6.5	6.5	NR	NR	ND	ND	ND	ND	0.0001	0.0061	2.65	2.84	84.51	81.86	2.5 - 3m	
CP04	**ND**	ND	ND	ND	ND	**ND**	ND	ND	ND	ND	20.8	20.8	NR	NR	ND	ND	ND	ND	0.0001	0.0001	8.02	8.37	84.99	76.97	2 - 8m	
CP05	**ND**	ND	ND	ND	4.5	**4.5**	ND	ND	ND	ND	0.5	0.5	NR	NR	ND	ND	ND	ND	0.0001	0.0045	DRY	3.65	78.90	DRY	1 - 4m	
RO04	**ND**	ND	ND	ND	4.2	**4.2**	ND	ND	ND	ND	12.9	12.9	NR	NR	ND	ND	ND	ND	0.0001	0.0042	4.29	4.89	79.05	74.76	3 - 5m	
RO213	**ND**	ND	ND	ND	4.3	**4.3**	ND	ND	ND	ND	8.6	8.6	NR	NR	ND	ND	ND	ND	0.0001	0.0043	14.60	20.81	84.30	69.70	2 - 20m	
WS04	**ND**	ND	ND	ND	ND	**ND**	ND	ND	ND	ND	20.8	20.8	NR	NR	ND	ND	ND	ND	0.0001	0.0001	3.03	3.95	80.56	77.53	1 - 4m	
WS05	**ND**	ND	ND	ND	2.1	**2.1**	ND	ND	ND	ND	18.7	18.7	NR	NR	ND	ND	ND	ND	0.0001	0.0021	0.89	2.23	80.28	79.39	0.5 - 2m	
WS06	**ND**	ND	ND	ND	4.5	**4.5**	ND	ND	ND	ND	13.4	13.4	NR	NR	ND	ND	ND	ND	0.0001	0.0045	DRY	2.84	80.66	DRY	0.75 - 2.8m	
WS205	**ND**	ND	ND	ND	7.7	**7.7**	ND	ND	ND	ND	8.2	8.2	NR	NR	ND	ND	ND	ND	0.0001	0.0077	2.27	2.78	79.68	77.41	1 - 2.8m	
WS301N	**ND**	ND	ND	ND	3.2	**3.2**	ND	ND	ND	ND	18.0	18.0	NR	NR	-0.2	ND	ND	ND	0.0002	0.0032	6.96	7.31	83.78	76.82	1 - 7.6m	
CPS02	**ND**	ND	ND	ND	ND	**ND**	ND	ND	ND	ND	20.7	20.7	NR	NR	1.2	ND	4.0	ND	0.0012	0.0001	DRY	7.54	79.01	DRY	1 - 7.5m	
RO202	**ND**	ND	ND	ND	0.4	**0.4**	ND	ND	ND	ND	20.2	20.2	NR	NR	ND	ND	ND	ND	0.0001	0.0004	15.18	16.30	79.33	64.15	1 - 15m	
RO303S	**ND**	ND	ND	ND	0.6	**0.6**	ND	ND	ND	ND	19.1	19.1	NR	NR	ND	ND	ND	ND	0.0001	0.0006	DRY	4.42	79.43	DRY	1 - 5m	
RS2	**ND**	ND	ND	ND	ND	**ND**	ND	ND	ND	ND	20.3	20.3	NR	NR	0.9	ND	4.0	ND	0.0009	0.0001	DRY	12.38	79.29	DRY	7 - 12m	
WS201	**ND**	ND	ND	ND	ND	**ND**	ND	ND	ND	ND	19.4	19.7	NR	NR	ND	ND	ND	ND	0.0001	0.0001	DRY	2.90	78.13	DRY	1 - 2.9m	
WS202	**ND**	ND	ND	ND	0.6	**0.6**	ND	ND	ND	ND	19.8	19.8	NR	NR	ND	ND	ND	ND	0.0001	0.0006	2.95	3.01	80.92	77.97	1 - 3m	
WS301S	**ND**	ND	ND	ND	2.6	**2.6**	ND	ND	ND	ND	16.7	16.7	NR	NR	ND	ND	ND	ND	0.0001	0.0026	DRY	1.00	79.70	DRY	0.5 - 1m	
WS302S	**ND**	ND	ND	ND	0.4	**0.4**	ND	ND	ND	ND	20.5	20.5	NR	NR	ND	ND	ND	ND	0.0001	0.0004	DRY	3.62	81.36	DRY	1 - 3.8m	
WS304S	**ND**	ND	ND	ND	2.7	**2.7**	ND	ND	ND	ND	11.6	11.6	NR	NR	ND	ND	ND	ND	0.0001	0.0027	DRY	4.10	77.43	DRY	1 - 4m	
Max	**ND**	**ND**	**ND**	**ND**	**7.7**	**7.7**	**ND**	**ND**	**ND**	**ND**	**20.8**	**20.8**	**NR**	**NR**	**1.2**	**ND**	**4.0**	**ND**	**0.0012**	**0.0077**	**15.18**			**81.86**		
Min	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**0.5**	**0.5**	**NR**	**NR**	**-0.2**	**ND**	**ND**	**ND**	**0.0001**	**0.0001**	**DRY**			**DRY**		

ND - Not detected

NR - Not recorded

NB: Where no flow (ND) recorded, Qhg values are calculated using equiment limit of detection (0.1l/hr). Where negative flows recorded, these are converted to positive values for calculation of Qhg.

METEOROLOGICAL AND SITE INFORMATION: (Select correct box with X or enter data, as applicable)

State of ground:	X	Dry		Moist		Wet		Snow		Frozen
Wind:		Calm		Light	X	Moderate		Strong		
Cloud cover:		None		Slight		Cloudy	X	Overcast		
Precipitation:		None	X	Slight		Moderate		Heavy		
Time monitoring performed:			10:00	Start			14:30	End		
Barometric pressure (mbar):			1002	Start			1001	End		
Pressure trend (Daily):				Falling		Steady	X	Rising		
Source:	https://www.timeanddate.com/weather/@2651497/historic									
Air Temperature (Deg. C):			14	Before			16	After		

INSTRUMENTATION TECHNICAL SPECIFICATIONS:

Ground gas meter: GFM 430 (BM36)
Gas Range: **CH_4** 0-100% **CO_2** 0-100% **O_2** 0-25%
Gas Flow range: +100/-50 l/ hour
Differential Pressure: (+/- 100 Pa)
Date of last external calibration: 13/05/2024 **Date of last in-house calibration:** N/A
Date of next external calibration: 13/05/2025

Ambient air check: **CH_4** ND **CO_2** ND **O_2** 21.0

Ground Gas and Groundwater Monitoring Record Sheet

JOB DETAILS:

Client: Gleeson Homes Ltd **Job No:** C10128
Site: Woolley Colliery Road, Darton **Visit No:** 3 **of** 6
Date: 11/07/2024 **Operator:** A.L. **Project Manager:** A.L

Monitoring Point	GAS CONCENTRATIONS												VOLATILES		FLOW DATA				Qhg per borehole		WELL AND WATER DATA					Comments
	Methane (%v/v)		%LEL		Carbon dioxide (%v/v)		Carbon monoxide (ppmv)		Hydrogen sulphide (ppmv)		Oxygen (%v/v)		PID Peak (ppm)	Product thickness (mm)	Flow rate (l/hr)		Differential borehole Pressure (Pa)	Time for flow to equalise (secs)	Methane (l/hr)	CO2 (l/hr)	Water level (mbgl)	Depth of well (m)	Top of BH (mAOD)	Water level (mAOD)	Response Zone	
	Peak	Steady	Peak	Steady	Peak	**Steady**	Peak	Steady	Peak	Steady	Min.	Steady			Peak	Steady										
CP01	**ND**	ND	ND	ND	4.4	**4.4**	ND	ND	ND	ND	16.3	16.3	NR	NR	ND	ND	ND	ND	0.0001	0.0044	DRY	3.00	80.99	DRY	2.5 - 3m	
CP02	**ND**	ND	ND	ND	0.5	**0.5**	ND	ND	ND	ND	19.6	19.6	NR	NR	ND	ND	ND	ND	0.0001	0.0005	6.62	7.55	84.36	77.74	6.5 - 7.5m	
CP03	**ND**	ND	ND	ND	8.5	**8.1**	ND	ND	ND	ND	8.4	8.4	NR	NR	ND	ND	ND	ND	0.0001	0.0081	DRY	2.84	84.51	DRY	2.5 - 3m	
CP04	**ND**	ND	ND	ND	4.0	**4.0**	ND	ND	ND	ND	15.6	15.6	NR	NR	ND	ND	ND	ND	0.0001	0.0040	DRY	8.37	84.99	DRY	2 - 8m	
CP05	**ND**	ND	ND	ND	6.2	**6.2**	ND	ND	ND	ND	ND	ND	NR	NR	ND	ND	ND	ND	0.0001	0.0062	3.00	3.65	78.90	75.90	1 - 4m	
RO04	**ND**	ND	ND	ND	11.6	**11.6**	ND	ND	ND	ND	5.6	5.6	NR	NR	ND	ND	ND	ND	0.0001	0.0116	4.24	4.89	79.05	74.81	3 - 5m	
RO213	**ND**	ND	ND	ND	4.9	**4.9**	ND	ND	ND	ND	11.0	11.0	NR	NR	ND	ND	ND	ND	0.0001	0.0049	14.90	20.81	84.30	69.40	2 - 20m	
WS04	**ND**	ND	ND	ND	0.1	**0.1**	ND	ND	ND	ND	20.1	20.1	NR	NR	ND	ND	ND	ND	0.0001	0.0001	2.05	3.95	80.56	78.51	1 - 4m	
WS05	**ND**	ND	ND	ND	2.4	**2.4**	ND	ND	ND	ND	17.2	17.2	NR	NR	ND	ND	ND	ND	0.0001	0.0024	DRY	2.23	80.28	DRY	0.5 - 2m	
WS06	**ND**	ND	ND	ND	9.4	**9.4**	ND	ND	ND	ND	1.0	1.0	NR	NR	ND	ND	ND	ND	0.0001	0.0094	DRY	2.84	80.66	DRY	0.75 - 2.8m	
WS205	**ND**	ND	ND	ND	8.6	**8.6**	ND	ND	ND	ND	9.1	9.1	NR	NR	ND	ND	ND	ND	0.0001	0.0086	DRY	NR	79.68	DRY	1 - 2.8m	
WS301N	**ND**	ND	ND	ND	5.5	**5.5**	ND	ND	ND	ND	14.0	14.0	NR	NR	ND	ND	ND	ND	0.0001	0.0055	6.98	7.31	83.78	76.80	1 - 7.6m	
CPS02	**ND**	ND	ND	ND	0.2	**0.2**	ND	ND	2	ND	20.1	20.1	NR	NR	ND	ND	ND	ND	0.0001	0.0002	DRY	7.54	79.01	DRY	1 - 7.5m	
RO202	**ND**	ND	ND	ND	ND	**ND**	ND	ND	ND	ND	20.1	20.1	NR	NR	ND	ND	ND	ND	0.0001	0.0001	15.23	16.30	79.33	64.10	1 - 15m	
RO303S	**ND**	ND	ND	ND	0.3	**0.3**	ND	ND	ND	ND	19.9	19.9	NR	NR	ND	ND	ND	ND	0.0001	0.0003	DRY	4.42	79.43	DRY	1 - 5m	
RS2	**ND**	ND	ND	ND	0.4	**0.4**	ND	ND	ND	ND	19.9	19.9	NR	NR	ND	ND	ND	ND	0.0001	0.0004	DRY	12.38	79.29	DRY	7 - 12m	
WS201	**ND**	ND	ND	ND	0.7	**0.7**	ND	ND	ND	ND	19.0	19.0	NR	NR	ND	ND	ND	ND	0.0001	0.0007	DRY	2.90	78.13	DRY	1 - 2.9m	
WS202	**ND**	ND	ND	ND	2.2	**2.2**	ND	ND	ND	ND	17.6	17.6	NR	NR	ND	ND	ND	ND	0.0001	0.0022	DRY	3.01	80.92	DRY	1 - 3m	
WS301S	**ND**	ND	ND	ND	0.8	**0.8**	ND	ND	ND	ND	19.5	19.5	NR	NR	ND	ND	ND	ND	0.0001	0.0008	0.61	1.00	79.70	79.09	0.5 - 1m	
WS302S	**ND**	ND	ND	ND	0.8	**0.8**	ND	ND	ND	ND	19.2	19.2	NR	NR	ND	ND	ND	ND	0.0001	0.0008	DRY	3.62	81.36	DRY	1 - 3.8m	
WS304S	**ND**	ND	ND	ND	3.8	**3.8**	ND	ND	ND	ND	12.2	12.2	NR	NR	ND	ND	ND	ND	0.0001	0.0038	DRY	4.10	77.43	DRY	1 - 4m	
Max	**ND**	**ND**	**ND**	**ND**	**11.6**	**11.6**	**ND**	**ND**	**2**	**ND**	**20.1**	**20.1**	**NR**	**NR**	**ND**	**ND**	**ND**	**ND**	**0.0001**	**0.0116**	**15.23**			**79.09**		
Min	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**NR**	**NR**	**ND**	**ND**	**ND**	**ND**	**0.0001**	**0.0001**	**DRY**			**DRY**		

ND - Not detected

NR - Not recorded

NB: Where no flow (ND) recorded, Qhg values are calculated using equiment limit of detection (0.1l/hr). Where negative flows recorded, these are converted to positive values for calculation of Qhg.

METEOROLOGICAL AND SITE INFORMATION: (Select correct box with X or enter data, as applicable)

State of ground:		Dry		Moist	X	Wet		Snow		Frozen
Wind:		Calm	X	Light		Moderate		Strong		
Cloud cover:		None		Slight		Cloudy	X	Overcast		
Precipitation:	X	None		Slight		Moderate		Heavy		
Time monitoring performed:			08:30	Start			11:30	End		
Barometric pressure (mbar):			1003	Start			1005	End		
Pressure trend (Daily):				Falling		Steady	X	Rising		
Source:	https://www.timeanddate.com/weather/@2651497/historic									
Air Temperature (Deg. C):			12	Before			13	After		

INSTRUMENTATION TECHNICAL SPECIFICATIONS:

Ground gas meter: GFM 430 (BM51)
Gas Range: **CH_4** 0-100% **CO_2** 0-100% **O_2** 0-25%
Gas Flow range: +100/-50 l/ hour
Differential Pressure: (+/- 100 Pa)
Date of last external calibration: 17/10/2023 **Date of last in-house calibration:** 10/04/2024
Date of next external calibration 17/10/2024

Ambient air check: **CH_4** ND **CO_2** ND **O_2** 20.2

PID:
Calibrated range:
Calibration gas:
Response time:
Accuracy:
Date of last external calibration: **Date of last in-house calibration:**
Date of next external calibration

Ground Gas and Groundwater Monitoring Record Sheet

Summary of all gas monitoring events

JOB DETAILS:

Client: Gleeson Homes Ltd
Site: Woolley Colliery Road, Darton
Start Date: 14/06/2024
End Date: 11/07/2024

Job No: C10128
No. events: 3

Monitoring Point	GAS CONCENTRATIONS												PID	FLOW DATA						Max. Qhg Recorded		Worst-credible Qhg		Comments
	Methane (%v/v)		%LEL		Carbon dioxide (%v/v)		Carbon monoxide (ppmv)		Hydrogen sulphide (ppmv)		Oxygen (%v/v)		Peak (ppm)	Peak flow rate (l/hr)		Steady flow rate (l/hr)		Differential borehole Pressure (Pa)	Time for flow to equalise (secs)	Methane (l/hr)	CO2 (l/hr)	Methane (l/hr)	CO2 (l/hr)	
	Peak	Steady	Peak	Steady	Peak	**Steady**	Peak	Steady	Peak	Steady	Min.	Steady		Max.	Min.	Max.	Min.						
CP01	**ND**	ND	ND	ND	4.4	**4.4**	ND	ND	ND	ND	16.3	16.3	ND	ND	ND	ND	ND	ND	ND	0.0001	0.0044	0.0001	0.0044	
CP02	**ND**	ND	ND	ND	0.8	**0.8**	ND	ND	ND	ND	19.4	19.4	ND	ND	ND	ND	ND	ND	ND	0.0001	0.0008	0.0001	0.0008	
CP03	**ND**	ND	ND	ND	8.5	**8.1**	1	1	ND	ND	6.5	6.5	ND	ND	ND	ND	ND	ND	ND	0.0001	0.0081	0.0001	0.0081	
CP04	**ND**	ND	ND	ND	4.0	**4.0**	ND	ND	ND	ND	15.6	15.6	ND	ND	ND	ND	ND	ND	ND	0.0001	0.0040	0.0001	0.0040	
CP05	**ND**	ND	ND	ND	6.7	**6.7**	1	1	1	ND	0.3	0.3	ND	ND	ND	ND	ND	ND	ND	0.0001	0.0067	0.0001	0.0067	
RO04	**ND**	ND	ND	ND	15.3	**15.3**	2	2	1	ND	4.5	4.5	ND	ND	ND	ND	ND	ND	ND	0.0001	0.0153	0.0001	0.0153	
RO213	**ND**	ND	ND	ND	7.2	**7.2**	1	1	ND	ND	8.6	8.6	ND	ND	ND	ND	ND	ND	ND	0.0001	0.0072	0.0001	0.0072	
WS04	**ND**	ND	ND	ND	6.4	**6.4**	ND	ND	2	ND	11.1	11.1	ND	ND	ND	ND	ND	ND	ND	0.0001	0.0064	0.0001	0.0064	
WS05	**ND**	ND	ND	ND	2.4	**2.4**	1	1	ND	ND	17.2	17.2	ND	ND	ND	ND	ND	ND	ND	0.0001	0.0024	0.0001	0.0024	
WS06	**ND**	ND	ND	ND	9.4	**9.4**	ND	ND	ND	ND	1.0	1.0	ND	ND	ND	ND	ND	ND	ND	0.0001	0.0094	0.0001	0.0094	
WS205	**ND**	ND	ND	ND	8.6	**8.6**	ND	ND	ND	ND	8.2	8.2	ND	ND	ND	ND	ND	ND	ND	0.0001	0.0086	0.0001	0.0086	
WS301N	**ND**	ND	ND	ND	5.5	**5.5**	ND	ND	ND	ND	14.0	14.0	ND	-0.2	-0.2	ND	ND	ND	ND	0.0002	0.0055	0.0002	0.0055	
CPS02	**ND**	ND	ND	ND	0.2	**0.2**	ND	ND	2	ND	20.1	20.1	ND	1.2	ND	ND	ND	4.0	ND	0.0012	0.0002	0.0012	0.0002	
RO202	**ND**	ND	ND	ND	1.2	**1.2**	ND	ND	ND	ND	17.4	17.4	ND	ND	ND	ND	ND	ND	ND	0.0001	0.0012	0.0001	0.0012	
RO303S	**ND**	ND	ND	ND	0.7	**0.7**	ND	ND	ND	ND	19.1	19.1	ND	ND	ND	ND	ND	ND	ND	0.0001	0.0007	0.0001	0.0007	
RS2	**ND**	ND	ND	ND	0.4	**0.4**	ND	ND	ND	ND	19.9	19.9	ND	0.9	ND	ND	ND	4.0	ND	0.0009	0.0004	0.0009	0.0004	
WS201	**ND**	ND	ND	ND	0.7	**0.7**	ND	ND	ND	ND	19.0	19.0	ND	ND	ND	ND	ND	ND	ND	0.0001	0.0007	0.0001	0.0007	
WS202	**ND**	ND	ND	ND	2.2	**2.2**	ND	ND	ND	ND	17.6	17.6	ND	ND	ND	ND	ND	ND	ND	0.0001	0.0022	0.0001	0.0022	
WS301S	**ND**	ND	ND	ND	4.2	**4.2**	ND	ND	ND	ND	16.3	16.3	ND	ND	ND	ND	ND	ND	ND	0.0001	0.0042	0.0001	0.0042	
WS302S	**ND**	ND	ND	ND	0.8	**0.8**	ND	ND	ND	ND	19.2	19.2	ND	ND	ND	ND	ND	ND	ND	0.0001	0.0008	0.0001	0.0008	
WS304S	**ND**	ND	ND	ND	4.4	**4.4**	ND	ND	ND	ND	11.6	11.6	ND	ND	ND	ND	ND	ND	ND	0.0001	0.0044	0.0001	0.0044	
Max	**ND**	**ND**	**ND**	**ND**	**15.3**	**15.3**	**2**	**2**	**2**	**ND**	**20.1**	**20.1**	**ND**	**1.2**	**-0.2**	**ND**	**ND**	**4.0**	**ND**	**0.0012**	**0.0153**	**0.0012**	**0.0153**	
Min	**ND**	**ND**	**ND**	**ND**	**0.2**	**0.2**	**ND**	**ND**	**ND**	**ND**	**0.3**	**0.3**	**ND**	**-0.2**	**-0.2**	**ND**	**ND**	**ND**	**ND**	**0.0001**	**0.0002**	**0.0001**	**0.0002**	

ND - Not detected
NR - Not recorded

Worst-possible Qhg	
0.0012	**0.0153**

Qhg calculated for methane on the basis of peak flow and concentration (short-term explosive risk).
Qhg calculated for carbon dioxide on the basis of steady flow and concentration (risk of long-term accumulation of suffocating mixture).
For calculation purposes, it is assumed that negative flows could be realised as positive flows.
Max. Qhg recorded is the highest Qhg determined in any individual monitoring event.
Worst-credible Qhg is the value calculated from the highest concentration and flow recorded in any monitoring event for an individual borehole.
Worst-possible Qhg is the value calculated from the highest concentration and flow recorded in any monitoring event for any borehole.

Ground Gas and Groundwater Monitoring Record Sheet

JOB DETAILS:

Client: Gleeson Homes Ltd
Site: Woolley Colliery Road, Darton
Date: 14/06/2024
Job No: C10128
Visit No: 1 **of** 6
Operator: J.C
Project Manager: A.L

Monitoring Point	GAS CONCENTRATIONS												VOLATILES		FLOW DATA				Qhg per borehole		WELL AND WATER DATA					Comments
	Methane (%v/v)		%LEL		Carbon dioxide (%v/v)		Carbon monoxide (ppmv)		Hydrogen sulphide (ppmv)		Oxygen (%v/v)		PID Peak (ppm)	Product thickness (mm)	Flow rate (l/hr)		Differential borehole Pressure (Pa)	Time for flow to equalise (secs)	Methane (l/hr)	CO2 (l/hr)	Water level (mbgl)	Depth of well (m)	Top of BH (mAOD)	Water level (mAOD)	Response Zone	
	Peak	Steady	Peak	Steady	Peak	**Steady**	Peak	Steady	Peak	Steady	Min.	Steady			Peak	Steady										
CP01	**ND**	**ND**	ND	ND	3.1	**3.1**	ND	ND	ND	ND	18.6	18.6	ND	NR	ND	ND	ND	NR	0.0001	0.0031	2.86	3.00	80.99	78.13	2.5 - 3m	Purged dry - no recharge
CP02	**ND**	**ND**	ND	ND	0.8	**0.8**	ND	ND	ND	ND	19.4	19.4	ND	NR	ND	ND	ND	NR	0.0001	0.0008	6.56	7.55	84.36	77.80	6.5 - 7.5m	Purged dry - no recharge
CP03	**ND**	**ND**	ND	ND	0.8	**0.8**	1	1	ND	ND	20.1	20.1	ND	NR	ND	ND	ND	NR	0.0001	0.0008	1.97	2.84	84.51	82.54	2.5 - 3m	Purged dry - no recharge
CP04	**ND**	**ND**	ND	ND	ND	**ND**	ND	ND	ND	ND	20.6	20.6	ND	NR	ND	ND	ND	NR	0.0001	0.0001	8.28	8.37	84.99	76.71	2 - 8m	Purged dry - no recharge
CP05	**ND**	**ND**	ND	ND	6.7	**6.7**	1	1	1	ND	0.3	0.3	ND	NR	ND	ND	ND	NR	0.0001	0.0067	3.57	3.65	78.90	75.33	1 - 4m	Purged dry - no recharge
RO04	**ND**	**ND**	ND	ND	15.3	**15.3**	2	2	1	ND	4.5	4.5	ND	NR	ND	ND	ND	NR	0.0001	0.0153	4.26	4.89	79.05	74.79	3 - 5m	Purged dry - no recharge
RO213	**ND**	**ND**	ND	ND	7.2	**7.2**	1	1	ND	ND	9.2	9.2	ND	NR	ND	ND	ND	NR	0.0001	0.0072	14.38	20.81	84.30	69.92	2 - 20m	Purged 30L - recharged to 19.62 after 42 minutes
WS04	**ND**	**ND**	ND	ND	6.4	**6.4**	ND	ND	2	ND	11.1	11.1	ND	NR	ND	ND	ND	NR	0.0001	0.0064	2.86	3.95	80.56	77.70	1 - 4m	Purged dry - no recharge
WS05	**ND**	**ND**	ND	ND	0.7	**0.7**	1	1	ND	ND	19.9	19.9	ND	NR	ND	ND	ND	NR	0.0001	0.0007	1.02	2.23	80.28	79.26	0.5 - 2m	Purged dry - no recharge
WS06	**ND**	**ND**	ND	ND	0.8	**0.8**	ND	ND	ND	ND	19.7	19.7	ND	NR	ND	ND	ND	NR	0.0001	0.0008	2.78	2.84	80.66	77.88	0.75 - 2.8m	Purged dry - no recharge
WS205	**NR**	**NR**	NR	NR	NR	**NR**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	79.68	NR	1 - 2.8m	Unable to locate well
WS301N	**ND**	**ND**	ND	ND	4.4	**4.4**	ND	ND	ND	ND	15.0	15.0	ND	NR	ND	ND	ND	NR	0.0001	0.0044	6.98	7.31	83.78	76.80	1 - 7.6m	Purged dry - no recharge
CPS02	**ND**	**ND**	ND	ND	ND	**ND**	ND	ND	ND	ND	20.1	20.1	ND	NR	ND	ND	ND	NR	0.0001	0.0001	DRY	7.54	79.01	DRY	1 - 7.5m	
RO202	**ND**	**ND**	ND	ND	1.2	**1.2**	ND	ND	ND	ND	17.4	17.4	ND	NR	ND	ND	ND	NR	0.0001	0.0012	15.50	16.30	79.33	63.83	1 - 15m	Purged dry - no recharge
RO303S	**ND**	**ND**	ND	ND	0.7	**0.7**	ND	ND	ND	ND	19.5	19.5	ND	NR	ND	ND	ND	NR	0.0001	0.0007	DRY	4.42	79.43	DRY	1 - 5m	
RS2	**NR**	**NR**	NR	NR	NR	**NR**	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	DRY	12.38	79.29	DRY	7 - 12m	Damaged bung - unable to monitor
WS201	**ND**	**ND**	ND	ND	0.1	**0.1**	ND	ND	ND	ND	20.3	20.3	ND	NR	ND	ND	ND	NR	0.0001	0.0001	DRY	2.90	78.13	DRY	1 - 2.9m	
WS202	**ND**	**ND**	ND	ND	0.4	**0.4**	ND	ND	ND	ND	19.9	19.9	ND	NR	ND	ND	ND	NR	0.0001	0.0004	2.96	3.01	80.92	77.96	1 - 3m	Purged dry - no recharge
WS301S	**ND**	**ND**	ND	ND	4.2	**4.2**	ND	ND	ND	ND	16.3	16.3	ND	NR	ND	ND	ND	NR	0.0001	0.0042	DRY	1.00	79.70	DRY	0.5 - 1m	
WS302S	**ND**	**ND**	ND	ND	0.6	**0.6**	ND	ND	ND	ND	19.8	19.8	ND	NR	ND	ND	ND	NR	0.0001	0.0006	DRY	3.62	81.36	DRY	1 - 3.8m	
WS304S	**ND**	**ND**	ND	ND	4.4	**4.4**	ND	ND	ND	ND	12.6	12.6	ND	NR	ND	ND	ND	NR	0.0001	0.0044	DRY	4.10	77.43	DRY	1 - 4m	
Max	**ND**	**ND**	**ND**	**ND**	**15.3**	**15.3**	**2**	**2**	**2**	**ND**	**20.6**	**20.6**	**ND**	**NR**	**ND**	**ND**	**ND**	**NR**	**0.0001**	**0.0153**	**15.50**			**82.54**		
Min	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**0.3**	**0.3**	**ND**	**NR**	**ND**	**ND**	**ND**	**NR**	**0.0001**	**0.0001**	**DRY**			**DRY**		

ND - Not detected

NR - Not recorded

NB: Where no flow (ND) recorded, Qhg values are calculated using equiment limit of detection (0.1l/hr). Where negative flows recorded, these are converted to positive values for calculation of Qhg.

METEOROLOGICAL AND SITE INFORMATION: (Select correct box with X or enter data, as applicable)

State of ground:		Dry	X	Moist		Wet		Snow		Frozen
Wind:		Calm	X	Light		Moderate		Strong		
Cloud cover:		None		Slight	X	Cloudy		Overcast		
Precipitation:	X	None		Slight		Moderate		Heavy		
Time monitoring performed:			08:15	Start			12:30	End		
Barometric pressure (mbar):			989	Start			988	End		
Pressure trend (Daily):			X	Falling		Steady		Rising		
Source:	https://www.timeanddate.com/weather/@2651497/historic									
Air Temperature (Deg. C):			13	Before			15	After		

INSTRUMENTATION TECHNICAL SPECIFICATIONS:

Ground gas meter: GFM 430 (BM51)
Gas Range: **CH_4** 0-100% **CO_2** 0-100% **O_2** 0-25%
Gas Flow range: +100/-50 l/ hour
Differential Pressure: (+/- 100 Pa)
Date of last external calibration: 17/10/2023
Date of next external calibration: 17/10/2024
Date of last in-house calibration: 10/04/2024

Ambient air check: **CH_4** ND **CO_2** ND **O_2** 20.8

PID: LE/76
Calibrated range: 5
Calibration gas: Benzene C6H6
Response time: 2 seconds
Accuracy: (+/-) 3% displayed reading
Date of last external calibration: 06/07/2023
Date of next external calibration: 05/07/2024
Date of last in-house calibration: 10/04/2024

Ground Gas and Groundwater Monitoring Record Sheet

JOB DETAILS:

Client: Gleeson Homes Ltd **Job No:** C10128
Site: Woolley Colliery Road, Darton **Visit No:** 2 **of** 6
Date: 28/06/2024 **Operator:** A.L. **Project Manager:** A.L.

Monitoring Point	GAS CONCENTRATIONS												VOLATILES		FLOW DATA				Qhg per borehole		WELL AND WATER DATA					Comments
	Methane (%v/v)		%LEL		Carbon dioxide (%v/v)		Carbon monoxide (ppmv)		Hydrogen sulphide (ppmv)		Oxygen (%v/v)		PID Peak (ppm)	Product thickness (mm)	Flow rate (l/hr)		Differential borehole Pressure (Pa)	Time for flow to equalise (secs)	Methane (l/hr)	CO2 (l/hr)	Water level (mbgl)	Depth of well (m)	Top of BH (mAOD)	Water level (mAOD)	Response Zone	
	Peak	Steady	Peak	Steady	Peak	**Steady**	Peak	Steady	Peak	Steady	Min.	Steady			Peak	Steady										
CP01	**ND**	ND	ND	ND	4.0	**4.0**	ND	ND	ND	ND	16.8	16.8	NR	NR	ND	ND	ND	ND	0.0001	0.0040	2.90	3.00	80.99	78.09	2.5 - 3m	
CP02	**ND**	ND	ND	ND	0.3	**ND**	ND	ND	ND	ND	19.9	19.9	NR	NR	ND	ND	ND	ND	0.0001	0.0001	6.48	7.55	84.36	77.88	6.5 - 7.5m	
CP03	**ND**	ND	ND	ND	6.1	**6.1**	ND	ND	ND	ND	6.5	6.5	NR	NR	ND	ND	ND	ND	0.0001	0.0061	2.65	2.84	84.51	81.86	2.5 - 3m	
CP04	**ND**	ND	ND	ND	ND	**ND**	ND	ND	ND	ND	20.8	20.8	NR	NR	ND	ND	ND	ND	0.0001	0.0001	8.02	8.37	84.99	76.97	2 - 8m	
CP05	**ND**	ND	ND	ND	4.5	**4.5**	ND	ND	ND	ND	0.5	0.5	NR	NR	ND	ND	ND	ND	0.0001	0.0045	DRY	3.65	78.90	DRY	1 - 4m	
RO04	**ND**	ND	ND	ND	4.2	**4.2**	ND	ND	ND	ND	12.9	12.9	NR	NR	ND	ND	ND	ND	0.0001	0.0042	4.29	4.89	79.05	74.76	3 - 5m	
RO213	**ND**	ND	ND	ND	4.3	**4.3**	ND	ND	ND	ND	8.6	8.6	NR	NR	ND	ND	ND	ND	0.0001	0.0043	14.60	20.81	84.30	69.70	2 - 20m	
WS04	**ND**	ND	ND	ND	ND	**ND**	ND	ND	ND	ND	20.8	20.8	NR	NR	ND	ND	ND	ND	0.0001	0.0001	3.03	3.95	80.56	77.53	1 - 4m	
WS05	**ND**	ND	ND	ND	2.1	**2.1**	ND	ND	ND	ND	18.7	18.7	NR	NR	ND	ND	ND	ND	0.0001	0.0021	0.89	2.23	80.28	79.39	0.5 - 2m	
WS06	**ND**	ND	ND	ND	4.5	**4.5**	ND	ND	ND	ND	13.4	13.4	NR	NR	ND	ND	ND	ND	0.0001	0.0045	DRY	2.84	80.66	DRY	0.75 - 2.8m	
WS205	**ND**	ND	ND	ND	7.7	**7.7**	ND	ND	ND	ND	8.2	8.2	NR	NR	ND	ND	ND	ND	0.0001	0.0077	2.27	2.78	79.68	77.41	1 - 2.8m	
WS301N	**ND**	ND	ND	ND	3.2	**3.2**	ND	ND	ND	ND	18.0	18.0	NR	NR	-0.2	ND	ND	ND	0.0002	0.0032	6.96	7.31	83.78	76.82	1 - 7.6m	
CPS02	**ND**	ND	ND	ND	ND	**ND**	ND	ND	ND	ND	20.7	20.7	NR	NR	1.2	ND	4.0	ND	0.0012	0.0001	DRY	7.54	79.01	DRY	1 - 7.5m	
RO202	**ND**	ND	ND	ND	0.4	**0.4**	ND	ND	ND	ND	20.2	20.2	NR	NR	ND	ND	ND	ND	0.0001	0.0004	15.18	16.30	79.33	64.15	1 - 15m	
RO303S	**ND**	ND	ND	ND	0.6	**0.6**	ND	ND	ND	ND	19.1	19.1	NR	NR	ND	ND	ND	ND	0.0001	0.0006	DRY	4.42	79.43	DRY	1 - 5m	
RS2	**ND**	ND	ND	ND	ND	**ND**	ND	ND	ND	ND	20.3	20.3	NR	NR	0.9	ND	4.0	ND	0.0009	0.0001	DRY	12.38	79.29	DRY	7 - 12m	
WS201	**ND**	ND	ND	ND	ND	**ND**	ND	ND	ND	ND	19.4	19.7	NR	NR	ND	ND	ND	ND	0.0001	0.0001	DRY	2.90	78.13	DRY	1 - 2.9m	
WS202	**ND**	ND	ND	ND	0.6	**0.6**	ND	ND	ND	ND	19.8	19.8	NR	NR	ND	ND	ND	ND	0.0001	0.0006	2.95	3.01	80.92	77.97	1 - 3m	
WS301S	**ND**	ND	ND	ND	2.6	**2.6**	ND	ND	ND	ND	16.7	16.7	NR	NR	ND	ND	ND	ND	0.0001	0.0026	DRY	1.00	79.70	DRY	0.5 - 1m	
WS302S	**ND**	ND	ND	ND	0.4	**0.4**	ND	ND	ND	ND	20.5	20.5	NR	NR	ND	ND	ND	ND	0.0001	0.0004	DRY	3.62	81.36	DRY	1 - 3.8m	
WS304S	**ND**	ND	ND	ND	2.7	**2.7**	ND	ND	ND	ND	11.6	11.6	NR	NR	ND	ND	ND	ND	0.0001	0.0027	DRY	4.10	77.43	DRY	1 - 4m	
Max	**ND**	**ND**	**ND**	**ND**	**7.7**	**7.7**	**ND**	**ND**	**ND**	**ND**	**20.8**	**20.8**	**NR**	**NR**	**1.2**	**ND**	**4.0**	**ND**	**0.0012**	**0.0077**	**15.18**			**81.86**		
Min	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**0.5**	**0.5**	**NR**	**NR**	**-0.2**	**ND**	**ND**	**ND**	**0.0001**	**0.0001**	**DRY**			**DRY**		

ND - Not detected

NR - Not recorded

NB: Where no flow (ND) recorded, Qhg values are calculated using equiment limit of detection (0.1l/hr). Where negative flows recorded, these are converted to positive values for calculation of Qhg.

METEOROLOGICAL AND SITE INFORMATION: (Select correct box with X or enter data, as applicable)

State of ground:	X	Dry		Moist		Wet		Snow		Frozen
Wind:		Calm		Light	X	Moderate		Strong		
Cloud cover:		None		Slight		Cloudy	X	Overcast		
Precipitation:		None	X	Slight		Moderate		Heavy		
Time monitoring performed:			10:00	Start			14:30	End		
Barometric pressure (mbar):			1002	Start			1001	End		
Pressure trend (Daily):				Falling		Steady	X	Rising		
Source:	https://www.timeanddate.com/weather/@2651497/historic									
Air Temperature (Deg. C):			14	Before			16	After		

INSTRUMENTATION TECHNICAL SPECIFICATIONS:

Ground gas meter: GFM 430 (BM36)
Gas Range: **CH_4** 0-100% **CO_2** 0-100% **O_2** 0-25%
Gas Flow range: +100/-50 l/ hour
Differential Pressure: (+/- 100 Pa)
Date of last external calibration: 13/05/2024 **Date of last in-house calibration:** N/A
Date of next external calibration:13/05/2025

Ambient air check: **CH_4** ND **CO_2** ND **O_2** 21.0

Ground Gas and Groundwater Monitoring Record Sheet

JOB DETAILS:

Client: Gleeson Homes Ltd
Site: Woolley Colliery Road, Darton
Date: 11/07/2024

Job No: C10128
Visit No: 3 **of** 6
Operator: A.L. **Project Manager:** A.L

Monitoring Point	GAS CONCENTRATIONS												VOLATILES		FLOW DATA				Qhg per borehole		WELL AND WATER DATA					Comments
	Methane (%v/v)		%LEL		Carbon dioxide (%v/v)		Carbon monoxide (ppmv)		Hydrogen sulphide (ppmv)		Oxygen (%v/v)		PID Peak (ppm)	Product thickness (mm)	Flow rate (l/hr)		Differential borehole Pressure (Pa)	Time for flow to equalise (secs)	Methane (l/hr)	CO2 (l/hr)	Water level (mbgl)	Depth of well (m)	Top of BH (mAOD)	Water level (mAOD)	Response Zone	
	Peak	Steady	Peak	Steady	Peak	**Steady**	Peak	Steady	Peak	Steady	Min.	Steady			Peak	Steady										
CP01	**ND**	ND	ND	ND	4.4	**4.4**	ND	ND	ND	ND	16.3	16.3	NR	NR	ND	ND	ND	ND	0.0001	0.0044	DRY	3.00	80.99	DRY	2.5 - 3m	
CP02	**ND**	ND	ND	ND	0.5	**0.5**	ND	ND	ND	ND	19.6	19.6	NR	NR	ND	ND	ND	ND	0.0001	0.0005	6.62	7.55	84.36	77.74	6.5 - 7.5m	
CP03	**ND**	ND	ND	ND	8.5	**8.1**	ND	ND	ND	ND	8.4	8.4	NR	NR	ND	ND	ND	ND	0.0001	0.0081	DRY	2.84	84.51	DRY	2.5 - 3m	
CP04	**ND**	ND	ND	ND	4.0	**4.0**	ND	ND	ND	ND	15.6	15.6	NR	NR	ND	ND	ND	ND	0.0001	0.0040	DRY	8.37	84.99	DRY	2 - 8m	
CP05	**ND**	ND	ND	ND	6.2	**6.2**	ND	ND	ND	ND	ND	ND	NR	NR	ND	ND	ND	ND	0.0001	0.0062	3.00	3.65	78.90	75.90	1 - 4m	
RO04	**ND**	ND	ND	ND	11.6	**11.6**	ND	ND	ND	ND	5.6	5.6	NR	NR	ND	ND	ND	ND	0.0001	0.0116	4.24	4.89	79.05	74.81	3 - 5m	
RO213	**ND**	ND	ND	ND	4.9	**4.9**	ND	ND	ND	ND	11.0	11.0	NR	NR	ND	ND	ND	ND	0.0001	0.0049	14.90	20.81	84.30	69.40	2 - 20m	
WS04	**ND**	ND	ND	ND	0.1	**0.1**	ND	ND	ND	ND	20.1	20.1	NR	NR	ND	ND	ND	ND	0.0001	0.0001	2.05	3.95	80.56	78.51	1 - 4m	
WS05	**ND**	ND	ND	ND	2.4	**2.4**	ND	ND	ND	ND	17.2	17.2	NR	NR	ND	ND	ND	ND	0.0001	0.0024	DRY	2.23	80.28	DRY	0.5 - 2m	
WS06	**ND**	ND	ND	ND	9.4	**9.4**	ND	ND	ND	ND	1.0	1.0	NR	NR	ND	ND	ND	ND	0.0001	0.0094	DRY	2.84	80.66	DRY	0.75 - 2.8m	
WS205	**ND**	ND	ND	ND	8.6	**8.6**	ND	ND	ND	ND	9.1	9.1	NR	NR	ND	ND	ND	ND	0.0001	0.0086	DRY	NR	79.68	DRY	1 - 2.8m	
WS301N	**ND**	ND	ND	ND	5.5	**5.5**	ND	ND	ND	ND	14.0	14.0	NR	NR	ND	ND	ND	ND	0.0001	0.0055	6.98	7.31	83.78	76.80	1 - 7.6m	
CPS02	**ND**	ND	ND	ND	0.2	**0.2**	ND	ND	2	ND	20.1	20.1	NR	NR	ND	ND	ND	ND	0.0001	0.0002	DRY	7.54	79.01	DRY	1 - 7.5m	
RO202	**ND**	ND	ND	ND	ND	**ND**	ND	ND	ND	ND	20.1	20.1	NR	NR	ND	ND	ND	ND	0.0001	0.0001	15.23	16.30	79.33	64.10	1 - 15m	
RO303S	**ND**	ND	ND	ND	0.3	**0.3**	ND	ND	ND	ND	19.9	19.9	NR	NR	ND	ND	ND	ND	0.0001	0.0003	DRY	4.42	79.43	DRY	1 - 5m	
RS2	**ND**	ND	ND	ND	0.4	**0.4**	ND	ND	ND	ND	19.9	19.9	NR	NR	ND	ND	ND	ND	0.0001	0.0004	DRY	12.38	79.29	DRY	7 - 12m	
WS201	**ND**	ND	ND	ND	0.7	**0.7**	ND	ND	ND	ND	19.0	19.0	NR	NR	ND	ND	ND	ND	0.0001	0.0007	DRY	2.90	78.13	DRY	1 - 2.9m	
WS202	**ND**	ND	ND	ND	2.2	**2.2**	ND	ND	ND	ND	17.6	17.6	NR	NR	ND	ND	ND	ND	0.0001	0.0022	DRY	3.01	80.92	DRY	1 - 3m	
WS301S	**ND**	ND	ND	ND	0.8	**0.8**	ND	ND	ND	ND	19.5	19.5	NR	NR	ND	ND	ND	ND	0.0001	0.0008	0.61	1.00	79.70	79.09	0.5 - 1m	
WS302S	**ND**	ND	ND	ND	0.8	**0.8**	ND	ND	ND	ND	19.2	19.2	NR	NR	ND	ND	ND	ND	0.0001	0.0008	DRY	3.62	81.36	DRY	1 - 3.8m	
WS304S	**ND**	ND	ND	ND	3.8	**3.8**	ND	ND	ND	ND	12.2	12.2	NR	NR	ND	ND	ND	ND	0.0001	0.0038	DRY	4.10	77.43	DRY	1 - 4m	
Max	**ND**	**ND**	**ND**	**ND**	**11.6**	**11.6**	**ND**	**ND**	**2**	**ND**	**20.1**	**20.1**	**NR**	**NR**	**ND**	**ND**	**ND**	**ND**	**0.0001**	**0.0116**	**15.23**			**79.09**		
Min	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**	**NR**	**NR**	**ND**	**ND**	**ND**	**ND**	**0.0001**	**0.0001**	**DRY**			**DRY**		

ND - Not detected

NR - Not recorded

NB: Where no flow (ND) recorded, Qhg values are calculated using equiment limit of detection (0.1l/hr). Where negative flows recorded, these are converted to positive values for calculation of Qhg.

METEOROLOGICAL AND SITE INFORMATION: (Select correct box with X or enter data, as applicable)

State of ground:		Dry		Moist	X	Wet		Snow		Frozen
Wind:		Calm	X	Light		Moderate		Strong		
Cloud cover:		None		Slight		Cloudy	X	Overcast		
Precipitation:	X	None		Slight		Moderate		Heavy		
Time monitoring performed:			08:30	Start			11:30	End		
Barometric pressure (mbar):			1003	Start			1005	End		
Pressure trend (Daily):				Falling		Steady	X	Rising		
Source:	https://www.timeanddate.com/weather/@2651497/historic									
Air Temperature (Deg. C):			12	Before			13	After		

INSTRUMENTATION TECHNICAL SPECIFICATIONS:

Ground gas meter: GFM 430 (BM51)
Gas Range: **CH_4** 0-100% **CO_2** 0-100% **O_2** 0-25%
Gas Flow range: +100/-50 l/ hour
Differential Pressure: (+/- 100 Pa)
Date of last external calibration: 17/10/2023 **Date of last in-house calibration:** 10/04/2024
Date of next external calibration 17/10/2024

Ambient air check: **CH_4** ND **CO_2** ND **O_2** 20.2

PID:
Calibrated range:
Calibration gas:
Response time:
Accuracy:
Date of last external calibration: **Date of last in-house calibration:**
Date of next external calibration

Ground Gas and Groundwater Monitoring Record Sheet

Summary of all gas monitoring events

JOB DETAILS:

Client: Gleeson Homes Ltd
Site: Woolley Colliery Road, Darton
Start Date: 14/06/2024
End Date: 11/07/2024

Job No: C10128
No. events: 3

	GAS CONCENTRATIONS												PID	FLOW DATA						Max. Qhg Recorded		Worst-credible Qhg		Comments
Monitoring Point	Methane (%v/v)		%LEL		Carbon dioxide (%v/v)		Carbon monoxide (ppmv)		Hydrogen sulphide (ppmv)		Oxygen (%v/v)		Peak (ppm)	Peak flow rate (l/hr)		Steady flow rate (l/hr)		Differential borehole Pressure (Pa)	Time for flow to equalise (secs)	Methane (l/hr)	CO2 (l/hr)	Methane (l/hr)	CO2 (l/hr)	
	Peak	Steady	Peak	Steady	Peak	**Steady**	Peak	Steady	Peak	Steady	Min.	Steady		Max.	Min.	Max.	Min.						
CP01	**ND**	ND	ND	ND	4.4	**4.4**	ND	ND	ND	ND	16.3	16.3	ND	ND	ND	ND	ND	ND	ND	0.0001	0.0044	0.0001	0.0044	
CP02	**ND**	ND	ND	ND	0.8	**0.8**	ND	ND	ND	ND	19.4	19.4	ND	ND	ND	ND	ND	ND	ND	0.0001	0.0008	0.0001	0.0008	
CP03	**ND**	ND	ND	ND	8.5	**8.1**	1	1	ND	ND	6.5	6.5	ND	ND	ND	ND	ND	ND	ND	0.0001	0.0081	0.0001	0.0081	
CP04	**ND**	ND	ND	ND	4.0	**4.0**	ND	ND	ND	ND	15.6	15.6	ND	ND	ND	ND	ND	ND	ND	0.0001	0.0040	0.0001	0.0040	
CP05	**ND**	ND	ND	ND	6.7	**6.7**	1	1	1	ND	0.3	0.3	ND	ND	ND	ND	ND	ND	ND	0.0001	0.0067	0.0001	0.0067	
RO04	**ND**	ND	ND	ND	15.3	**15.3**	2	2	1	ND	4.5	4.5	ND	ND	ND	ND	ND	ND	ND	0.0001	0.0153	0.0001	0.0153	
RO213	**ND**	ND	ND	ND	7.2	**7.2**	1	1	ND	ND	8.6	8.6	ND	ND	ND	ND	ND	ND	ND	0.0001	0.0072	0.0001	0.0072	
WS04	**ND**	ND	ND	ND	6.4	**6.4**	ND	ND	2	ND	11.1	11.1	ND	ND	ND	ND	ND	ND	ND	0.0001	0.0064	0.0001	0.0064	
WS05	**ND**	ND	ND	ND	2.4	**2.4**	1	1	ND	ND	17.2	17.2	ND	ND	ND	ND	ND	ND	ND	0.0001	0.0024	0.0001	0.0024	
WS06	**ND**	ND	ND	ND	9.4	**9.4**	ND	ND	ND	ND	1.0	1.0	ND	ND	ND	ND	ND	ND	ND	0.0001	0.0094	0.0001	0.0094	
WS205	**ND**	ND	ND	ND	8.6	**8.6**	ND	ND	ND	ND	8.2	8.2	ND	ND	ND	ND	ND	ND	ND	0.0001	0.0086	0.0001	0.0086	
WS301N	**ND**	ND	ND	ND	5.5	**5.5**	ND	ND	ND	ND	14.0	14.0	ND	-0.2	-0.2	ND	ND	ND	ND	0.0002	0.0055	0.0002	0.0055	
CPS02	**ND**	ND	ND	ND	0.2	**0.2**	ND	ND	2	ND	20.1	20.1	ND	1.2	ND	ND	ND	4.0	ND	0.0012	0.0002	0.0012	0.0002	
RO202	**ND**	ND	ND	ND	1.2	**1.2**	ND	ND	ND	ND	17.4	17.4	ND	ND	ND	ND	ND	ND	ND	0.0001	0.0012	0.0001	0.0012	
RO303S	**ND**	ND	ND	ND	0.7	**0.7**	ND	ND	ND	ND	19.1	19.1	ND	ND	ND	ND	ND	ND	ND	0.0001	0.0007	0.0001	0.0007	
RS2	**ND**	ND	ND	ND	0.4	**0.4**	ND	ND	ND	ND	19.9	19.9	ND	0.9	ND	ND	ND	4.0	ND	0.0009	0.0004	0.0009	0.0004	
WS201	**ND**	ND	ND	ND	0.7	**0.7**	ND	ND	ND	ND	19.0	19.0	ND	ND	ND	ND	ND	ND	ND	0.0001	0.0007	0.0001	0.0007	
WS202	**ND**	ND	ND	ND	2.2	**2.2**	ND	ND	ND	ND	17.6	17.6	ND	ND	ND	ND	ND	ND	ND	0.0001	0.0022	0.0001	0.0022	
WS301S	**ND**	ND	ND	ND	4.2	**4.2**	ND	ND	ND	ND	16.3	16.3	ND	ND	ND	ND	ND	ND	ND	0.0001	0.0042	0.0001	0.0042	
WS302S	**ND**	ND	ND	ND	0.8	**0.8**	ND	ND	ND	ND	19.2	19.2	ND	ND	ND	ND	ND	ND	ND	0.0001	0.0008	0.0001	0.0008	
WS304S	**ND**	ND	ND	ND	4.4	**4.4**	ND	ND	ND	ND	11.6	11.6	ND	ND	ND	ND	ND	ND	ND	0.0001	0.0044	0.0001	0.0044	
Max	**ND**	**ND**	**ND**	**ND**	**15.3**	**15.3**	**2**	**2**	**2**	**ND**	**20.1**	**20.1**	**ND**	**1.2**	**-0.2**	**ND**	**ND**	**4.0**	**ND**	**0.0012**	**0.0153**	**0.0012**	**0.0153**	
Min	**ND**	**ND**	**ND**	**ND**	**0.2**	**0.2**	**ND**	**ND**	**ND**	**ND**	**0.3**	**0.3**	**ND**	**-0.2**	**-0.2**	**ND**	**ND**	**ND**	**ND**	**0.0001**	**0.0002**	**0.0001**	**0.0002**	

ND - Not detected
NR - Not recorded

Worst-possible Qhg	
0.0012	**0.0153**

Qhg calculated for methane on the basis of peak flow and concentration (short-term explosive risk).
Qhg calculated for carbon dioxide on the basis of steady flow and concentration (risk of long-term accumulation of suffocating mixture).
For calculation purposes, it is assumed that negative flows could be realised as positive flows.
Max. Qhg recorded is the highest Qhg determined in any individual monitoring event.
Worst-credible Qhg is the value calculated from the highest concentration and flow recorded in any monitoring event for an individual borehole.
Worst-possible Qhg is the value calculated from the highest concentration and flow recorded in any monitoring event for any borehole.

APPENDIX H
Sirius Generic Assessment Criteria

SIRIUS GENERIC ASSESSMENT CRITERIA

Context

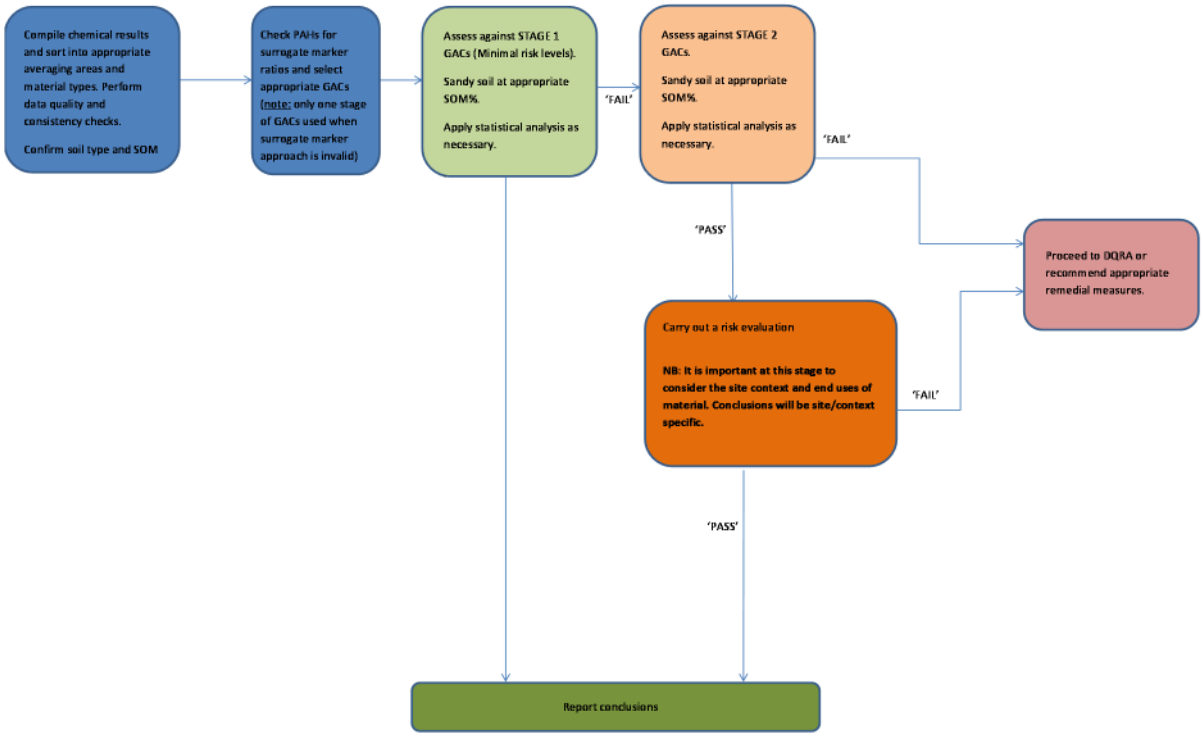
The framework for conducting site investigations, risk assessments and undertaking any necessary remedial works in the UK is provided by Environment Agency report CLR11 "Model Procedures for the Management of Contaminated Land". This presents a phased approach to risk assessment, involving: identification and qualitative assessment of potential pollutant linkages (source-pathway-receptor relationships) by means of a Conceptual Site Model; Generic Quantitative Risk Assessment (GQRA) of potentially significant pollutant links by comparing contaminant concentrations with appropriate Generic Assessment Criteria (GAC) values; and, if required, a Detailed Quantitative Risk Assessment (DQRA) based on site-specific conditions.

Assessment of Risk to Human Health

Introduction

A staged approach to GQRA has been adopted by Sirius for the evaluation of soil concentration data, as shown schematically in Figure 1.

Figure 1. GQRA Process.



The first stage of GQRA comprises assessment of the data against GAC values derived using toxicological parameter values based on "minimum risk". Any contaminants exceeding their GACs at this stage are further assessed against Stage 2 GACs, which have been derived using Low Level of Toxicological Concern (LLTC) criteria, where these are available.

With appropriate justification, a contaminant concentration that does not exceed the relevant Stage 2 GAC value may be considered to indicate that the land is "suitable for use". The appropriate use of LLTC-based criteria within the planning regime is considered reasonable by government agencies, as most recently highlighted in the letter (dated 3rd September 2014) to all local authorities from Lord de Mauley, Parliamentary Under Secretary at DEFRA.

A narrative "risk evaluation" must therefore accompany any Stage 2 assessment to justify the conclusions drawn. Where appropriate, this may provide a basis for eliminating from further consideration those contaminants whose concentrations do not exceed the applicable Stage 2 GAC value.

For the specific case of lead, the Category 4 Screening Level criteria given in CL:AIRE (2014)[1] have been adopted directly as GACs, as these are considered to be based on expert interpretation of current toxicological evidence.

In some areas, background concentrations of lead, other metals and metalloids, and/or individual PAHs may exceed their respective GACs and it may be appropriate to consider relative site and background concentration data as part of a more detailed assessment of the data.

Derivation of GACs

Except where otherwise stated, GACs have been derived by Sirius using CLEA version 1.071.

The GAC values have been derived for a sandy soil type, which will be conservative for the majority of soils (including made ground) encountered on historically contaminated sites. For organic contaminants of concern, criteria have been derived for a number of Soil Organic Matter (SOM) contents.

Genotoxic PAHs are assessed by the "Surrogate Method" using benzo(a)pyrene. Further information on this approach is given below.

Unless specifically stated, chemical properties and Health Criteria Values (HCVs) were obtained from:

- Environment Agency Science Report SC050021 series;
- Nathanail *et al*. (2009) "The LQM/CIEH Generic Assessment Criteria for Human Health Risk Assessment", 2nd edition, Land Quality Press, Nottingham;
- CL:AIRE - AGS - EIC (2010) "Soil Generic Assessment Criteria for Human Health Risk Assessment". CL:AIRE, London.

GACs for arsenic, benzene, benzo(a)pyrene, cadmium and chromium (VI) have been derived using the

[1] CL:AIRE (2014) "Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination", Report SP1010, rev. 2.

Low Level of Toxicological Concern (LLTC) criteria given in CL:AIRE (2013). These criteria are considered a reasonable basis for assessment as they are still highly precautionary and definitely do not approach an intake level that could be defined as approaching Significant Possibility of Significant Harm to human health in the context of Part 2A of the Environmental Protection Act 1990. It must be further understood that the GACs derived will still incorporate a residual level of conservatism resulting from the exposure parameters used and the assumptions inherent in the model algorithms.

GACs for Genotoxic PAHs

Our approach to the assessment of genotoxic PAHs retains the use of benzo(a)pyrene as a surrogate marker. This approach for genotoxic PAHs is recommended by the HPA (2010)[2], which we consider to be the authoritative current guidance produced by a UK expert body and note that it was retained in the DEFRA Category 4 Screening Levels project (CL:AIRE, 2014).

The surrogate marker approach allows the assessment of the combined carcinogenic risk associated with all genotoxic PAHs[3] present as a mixture within soil, even though detailed toxicological information for many of the individual compounds may be lacking. The approach is based on determining the risk posed by the genotoxic PAH mixture using the concentration of benzo(a)pyrene present as an indicator.

To use the GAC for benzo(a)pyrene as a surrogate marker, a number of requirements must be met (HPA, 2010):

- Benzo(a)pyrene must be present in all soil samples containing genotoxic PAHs for which this method of assessment is being used;
- A similar profile of the genotoxic PAHs relative to benzo(a)pyrene should be present in all of the samples being assessed;
- The PAH profile of PAHs in the soil samples should be similar to that present in the pivotal toxicity study on which toxicological criterion for benzo(a)pyrene was based (Culp et al., 1998[4]). Table 1 provides the basis for defining the acceptable range.

Data indicate that contaminated soils in the UK generally meet these criteria[5] but the assessor must review their dataset before adopting this approach. If the above criteria are not met, then the surrogate marker approach must not be adopted and individual GAC or SSAC values are to be applied.

[2] HPA (2010) "Risk Assessment Approaches for Polycyclic Aromatic Hydrocarbons (PAHs)", version 5.

[3] The genotoxic PAHs included in the USEPA PAH 16 analysis reported by analytical labs are: benz[a]anthracene, benzo[b]fluoranthene, benzo[k]fluoranthene, benzo[g,h,i]perylene, benzo(a)pyrene, chrysene, dibenz[a,h]anthracene and indeno[1,2,3-c,d]pyrene.

[4] Culp, S. *et al*. (1998) Carcinogenesis, 19, 117-124.

[5] Bull, S. & Collins, C. (2013) Environ. Geochem. Health, 31, 101-109.

Table 1. Profile of Genotoxic PAHs Relative to Benzo(a)pyrene that are Considered Acceptable for Application of Benzo(a)pyrene as a Surrogate Marker.

PAH	Acceptable Ratio of PAH Concentration to Benzo(a)pyrene for Application of Surrogate Marker Assessment	
	Lower Limit	Upper Limit
Benz[a]anthracene	0.12	12.43
Benzo[b]fluoranthene	0.11	10.85
Benzo[k]fluoranthene	0.04	3.72
Benzo[g,h,i]perylene	0.08	8.22
Chrysene	0.12	11.61
Dibenz[a,h]anthracene	0.01	1.38
Indeno[1,2,3-c,d]pyrene	0.07	7.27

For further information see: HPA (2010).

Soil Criteria Set for Purposes Other Than Human Health Protection

The Sirius GACs for sulphate, total organic carbon (TOC) and calorific value are set on basis of risks other than human health and their exceedance does not indicate a potential risk to future site users:

- The GAC for sulphate content is based on potential detrimental effects on buried concrete[6] and must be assessed with reference to the soil pH;
- The GAC for TOC content is provided for indicative assessment of disposal options if off-site landfill of soil were to be considered. This GAC is set at the 'Inert' waste threshold and should be considered as being applied for information purposes only;
- The GAC for calorific value is set to assist in an initial assessment of the potential fire risk posed by made ground or natural soils containing elevated concentrations of potentially combustible organic matter.

Assessment criteria more stringent than those for human health may be set for specific purposes, for example, elimination of nuisance odours or ensuring that potentially mobile free-phase organic products are not present.

Controlled Waters

The Environment Agency's "Remedial Targets Methodology" (2006) provides a framework for assessing the potential for pollution of controlled waters and for deriving remedial target concentrations in soil and groundwater.

There are no generic groundwater or surface water quality standards that are applicable to all sites. Drinking Water Standards and Environmental Quality Standards (EQS) are used by Sirius as assessment criteria where they are appropriate to the contaminant linkages under consideration. Given that these standards apply at the receptor point, this is a conservative approach for samples collected at a source or along a transport pathway.

[6] BRE (2005) "Concrete in Aggressive Ground", Special Digest No. 1; 3rd Edition.

Soil Leachability

Sirius specifies that the analytical laboratory undertakes leachate preparation by BS EN 12475-2:2002. Where specific circumstances require a different method to be used, then this will be explained and justified within the report body text.

The results of leachate analysis are compared to the relevant GAC values for controlled waters.

The Sirius Group
Stage 1 Generic Assessment Criteria for Soils

Revision: 24 January 2020

Parameter	Residential (mg/kg, unless otherwise stated)						Commercial / Industrial (mg/kg, unless otherwise stated)			Note
	With Homegrown Produce			Without Homegrown Produce						
	1% SOM	2.5% SOM	5% SOM	1% SOM	2.5% SOM	5% SOM	1% SOM	2.5% SOM	5% SOM	
Metals/Metalloids										
Arsenic (inorganic)	37			40			630			[1]
Cadmium	11			85			190			[2]
Chromium (III)	910			4000			8600			
Chromium (VI)	6.0			6.1			33			[3]
Copper	200			7100			68000			[4]
Lead	200			310			2300			[5]
Mercury (inorganic)	40			56			1100			[6]
Nickel	130			180			980			[7]
Selenium	250			430			12000			
Vanadium	410			1200			9000			
Zinc	450			40000			750000			[4]
Other Inorganics										
pH	<5 or >9			<5 or >9			<5 or >9			
Total Sulphate	2400			2400			2400			[8]
Water-Soluble Sulphate	0.5 g/l			0.5 g/l			0.5 g/l			[8]
Free Cyanide	34			34			1400			[9]
Organics										
PAHs										
Acenaphthene	200	490	920	2000	3600	4900	75000	92000	100000	
Acenaphthylene	170	400	760	2000	3600	4900	76000	93000	100000	
Anthracene	2300	5300	9400	30000	34000	36000	520000	540000	540000	[10]
Benzo(a)anthracene	Assessed using benzo(a)pyrene as a surrogate marker									[10]
Benzo(a)pyrene	2.1	2.1	2.2	2.3	2.3	2.3	27	27	27	[11]
Benzo(b)fluoranthene	Assessed using benzo(a)pyrene as a surrogate marker									[10]
Benzo(k)fluoranthene	Assessed using benzo(a)pyrene as a surrogate marker									[10]
Benzo(g,h,i)perylene	Assessed using benzo(a)pyrene as a surrogate marker									[10]
Chrysene	Assessed using benzo(a)pyrene as a surrogate marker									[10]
Dibenzo(a,h)anthracene	Assessed using benzo(a)pyrene as a surrogate marker									[10]
Fluoranthene	280	560	820	1500	1600	1600	23000	23000	23000	
Fluorene	170	390	730	2200	3400	4000	60000	67000	70000	
Indeno(1,2,3-c,d)pyrene	Assessed using benzo(a)pyrene as a surrogate marker									[10]
Naphthalene	1.0	2.3	4.6	1.0	2.4	4.7	110	260	510	
Phenanthrene	95	220	380	1300	1400	1500	22000	22000	23000	
Pyrene	620	1200	1900	3700	3800	3800	54000	54000	54000	
BTEX and related										
Benzene	0.063	0.13	0.24	0.16	0.30	0.38	15	28	49	
Toluene	100	240	460	370	830	1100	33000	68000	110000	
Ethylbenzene	26	62	120	34	81	110	3200	7400	14000	
Xylenes (total)	28	67	130	33	78	110	3200	7700	15000	[12]
1,2,4-trimethylbenzene	0.22	0.53	1.1	0.24	0.58	1.2	39	93	170	
Iso-propylbenzene	6.6	16	32	6.8	17	33	1300	3100	6100	
Propylbenzene	21	51	100	23	57	110	3800	9100	17000	
Styrene	6.9	16	32	21	49	93	3100	6100	9500	
TPH										
Aliphatic EC 5-6	24	41	68	24	41	68	2400	4100	6900	
Aliphatic EC >6-8	53	110	210	53	110	210	5300	11000	21000	
Aliphatic EC >8-10	13	31	61	13	31	61	1300	3100	6000	
Aliphatic EC >10-12	62	150	300	62	150	300	6100	15000	28000	
Aliphatic EC >12-16	510	1200	2300	510	1200	2300	43000	72000	85000	
Aliphatic EC >16-35	41000	70000	90000	42000	70000	90000	>1E6	>1E6	>1E6	[13]
Aromatic EC >5-7	53	110	200	150	300	538	15000	28000	48000	
Aromatic EC >7-8	100	240	460	370	820	1500	33000	68000	110000	
Aromatic EC >8-10	20	48	94	22	54	100	2200	5200	9800	
Aromatic EC >10-12	63	150	290	120	290	560	11000	22000	30000	
Aromatic EC >12-16	140	320	570	1100	1900	2200	35000	37000	37000	
Aromatic EC >16-21	260	540	840	1800	1900	1900	28000	28000	28000	
Aromatic EC >21-35	1100	1500	1700	1900	1900	1900	28000	28000	28000	
Chlorinated Organics										
Chlorobenzene	0.19	0.44	0.86	0.19	0.45	0.87	31	71	140	
Dichloromethane (DCM)	0.47	0.78	1.2	1.2	1.7	2.4	250	340	470	
1,1-dichloroethane (DCA)	1.4	2.4	4.0	1.4	2.4	4.1	260	420	690	
1,2-dichloroethane (DCA)	0.0031	0.0048	0.0076	0.0035	0.0053	0.0084	0.34	0.51	0.81	
1,1-dichloroethene (DCE)	0.15	0.26	0.45	0.15	0.26	0.46	24	43	74	
cis -1,2-dichloroethene (DCE)	0.066	0.12	0.20	0.069	0.12	0.21	14	23	38	
trans -1,2-dichloroethene (DCE)	0.11	0.21	0.38	0.12	0.22	0.39	21	37	65	
Pentachlorophenol	0.21	0.52	1.0	27	30	31	400	400	400	
1,1,1,2-tetrachloroethane	0.56	1.3	2.6	0.63	1.5	2.9	59	140	270	

Parameter	Residential (mg/kg, unless otherwise stated)						Commercial / Industrial (mg/kg, unless otherwise stated)			Note
	With Homegrown Produce			Without Homegrown Produce						
	1% SOM	2.5% SOM	5% SOM	1% SOM	2.5% SOM	5% SOM	1% SOM	2.5% SOM	5% SOM	
1,1,2,2-tetrachloroethane	0.98	2.1	4.0	1.6	3.4	6.3	150	310	570	
Tetrachloroethene (PCE)	0.074	0.17	0.32	0.07	0.17	0.33	10	23	45	
Tetrachloromethane (CT)	0.011	0.024	0.046	0.011	0.024	0.046	1.6	3.6	6.9	
1,1,1-trichloroethane (TCA)	3.7	7.8	15	3.8	7.9	15	370	770	1400	
1,1,2-trichloroethane (TCA)	0.39	0.85	1.6	0.51	1.1	2.0	89	180	320	
Trichloroethene (TCE)	0.0070	0.015	0.028	0.0071	0.015	0.028	1.5	2.8	44	
Trichloromethane (CF)	0.43	0.80	1.4	0.48	0.89	53	98	170	300	
Vinyl Chloride	0.00034	0.00045	0.00062	0.00037	0.00048	0.00066	0.038	0.049	0.068	
Miscellaneous Organics										
Carbon disulphide	0.066	0.13	0.25	0.066	0.13	0.25	6.7	14	25	
Di-(2-ethylhexyl)-phthalate	290	660	1100	3900	4000	4100	85000	85000	8600	
MTBE	31	55	94	39	68	120	7400	12000	19000	
Phenol	110	190	330	420	440	440	440			[14]
Methylphenols (cresols), total	78	170	330	5600	8200	9900	160000	170000	18000	[15]
2,4-dimethylphenol (m-xylenol)	18	43	82	200	430	720	15000	23000	28000	
Other Parameters										
TOC	3% w/w			3% w/w			3% w/w			[16]
Calorific Value	2 MJ/kg			2 MJ/kg			2 MJ/kg			[17]
Asbestos	Fibres present			Fibres present			Fibres present			

All concentration-based criteria are rounded to 2 significant figures.

The criteria assume a sandy soil type, which will be conservative for the great majority of soils (including made ground) encountered on historically contaminated sites.

Except where otherwise stated, criteria have been derived by Sirius using CLEA version 1.06. Parameters for the land use cases are consistent with those given in Environment Agency (2009) “Updated Technical Background to the CLEA Model”, report SC050021/SR3 but updated (where relevant) for respiration rate, exposure frequency for dermal contact outdoors, soil adherence factors for children, and plant uptake concentration factors given in CL:AIRE (2014) and Nathanail et al., (2015). No correction has been made for the “Top Two” crop types in the Residential with Homegrown Produce land use and the criteria will therefore be conservative in this regard.

Health Criteria Values (HCVs) and (except where specifically noted) chemical property data were obtained from:
• Environment Agency Science Report SC050021 Series;
• Nathanail et al. (2015);
• CL:AIRE-AGS-EIC (2010).

Footnotes

[1] Based on oral GAC as this is the lower GAC and reflects a cancer risk many orders of magnitude greater than for inhalation.

[2] Determined for lifetime exposure. Plant uptake concentration factors applied were as given in CL:AIRE (2014). The GAC values are based on data for soils having a pH value in the range 6-8; caution should be applied in applying them at pH values outside this range, especially at pH values <5.

[3] Both oral and inhalation HCVs are based on local toxicological effects and therefore the lowest (oral) GAC value is adopted.

[4] For the Residential with Homegrown Produce land use, the GAC values for Cu and Zn are based on potential phytotoxic effects and have been set at the maximum allowable concentrations for sewage sludge-amended soils presented in the "Sludge (Use in Agriculture) Regulations" (SI 1263/1989); these criteria may also be applied in any land use where plants are to be grown. The equivalent GAC values for human health protection in the Residential with Homegrown Produce land use are around an order of magnitude greater.

[5] The Category 4 Screening Levels for lead defined in CL:AIRE (2013) have been adopted directly to provide an acceptable basis for initial assessment of data. Where background concentrations of lead exceed the GAC value, then site-specific evaluation will be required.

[6] The SGV for mercury is based on inorganic mercury which represents the most common form encountered within the environment. This is considered appropriate for most sites as: “…the SGV for inorganic mercury can normally be compared with chemical analysis for total mercury content because the equilibrium concentrations of elemental and methylmercury compounds are likely to be very low” (Environment Agency report SC050021/Mercury SGV). Analysis and specific assessment for elemental or methylated forms of mercury will need to be considered if historical land use or site-specific factors indicate that these forms of mercury are likely to be present.

[7] Toxicological effects by inhalation are localised, therefore the lower of the GAC values for oral and inhalation HCVs have been adopted.

[8] BRE (2005). Sulphate is not considered to pose a potential risk to human health under normal circumstances – this GAC applies to construction cases only and is set at the upper limit for DS-1 Design Sulphate Class concrete.

[9] GAC calculated for acute risk. Further information can be provided upon request.

[10] The genotoxic PAHs (benz(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, chrysene, dibenz(a,h)anthracene, indeno(1,2,3-c,d)pyrene) are routinely assessed using benzo(a)pyrene as a surrogate (HPA (2010) “Risk Assessment Approaches for Polycyclic Aromatic Hydrocarbons (PAHs)”, version 5). Separate information on this approach is provided.

[11] Calculated using a 'minimum risk' oral index dose derived from the application of a 10,000x safety factor to the BMD10 presented in CL:AIRE (2014) for benzo(a)pyrene as a surrogate marker and the inhalation index dose specified in CL:ARE (2014) and Nathanail *et al*. (2015). As a conservative measure, the GAC is based on combined exposure pathways to account for systemic carcinogenic effects. Further information on the derivation can be provided upon request.

[12] For screening purposes, a single GAC has been set for total xylene. This is the lowest of the values calculated for the three individual xylene isomers.

[13] “No GAC” indicates that no value has been specified for this land use as the TDSI cannot be exceeded at achievable soil concentrations.

[14] 440mg/kg is the minimum concentration that is protective for direct skin contact with phenol (See Environment Agency SR050021/Phenol SGV) and is adopted where GACs for chronic exposure are higher.

[15] For screening purposes, a single GAC has been set for total methylphenol. This is the lowest of the values calculated for the three individual methylphenol isomers.

[16] The Hazardous Waste (England and Wales) Regulations 2005. TOC content in itself does not represent a potential risk to human health. This GAC is provided for indicative assessment of disposal options, in the case that off-site landfill of soil is undertaken. This GAC is specified at the ‘Inert’ waste threshold and should be considered as for information purposes only.

[17] ICRCL (1986) Guidance Note 61/84, 2nd Edition, Notes on the Fire Hazards of Contaminated Land. Calorific value is not an indication of direct human health risk but may be useful in assessment of the potential fire risk posed by made ground or natural soils containing elevated concentrations of potentially combustible organic matter.

The Sirius Group
Stage 2 Generic Assessment Criteria for Soils

Revision: 24th January 2020

Parameter	Residential (mg/kg, unless otherwise stated)						Commercial / Industrial (mg/kg, unless otherwise stated)			Note
	With Homegrown Produce			Without Homegrown Produce						
	1% SOM	2.5% SOM	5% SOM	1% SOM	2.5% SOM	5% SOM	1% SOM	2.5% SOM	5% SOM	
Metals/Metalloids										
Arsenic (inorganic)	37			40			630			[1]
Cadmium	18			150			410			[2]
Chromium (III)	910			4000			8600			
Chromium (VI)	21			21			49			[3]
Copper	200			7100			68000			[4]
Lead	200			310			2300			[5]
Mercury (inorganic)	40			56			1100			[6]
Nickel	130			180			980			[7]
Selenium	250			430			12000			
Vanadium	410			1200			9000			
Zinc	450			40000			750000			[4]
Other Inorganics										
pH	<5 or >9			<5 or >9			<5 or >9			
Total Sulphate	2400			2400			2400			[8]
Water-Soluble Sulphate	0.5 g/l			0.5 g/l			0.5 g/l			[8]
Free Cyanide	34			34			1400			[9]
Organics										
PAHs										
Acenaphthene	200	490	920	2000	3600	4900	75000	92000	100000	
Acenaphthylene	170	400	760	2000	3600	4900	76000	93000	100000	
Anthracene	2300	5300	9400	30000	34000	36000	520000	540000	540000	[10]
Benzo(a)anthracene	Assessed using benzo(a)pyrene as a surrogate marker									[10]
Benzo(a)pyrene	4.9	4.9	4.9	5.3	5.3	5.3	76	76	76	[11]
Benzo(b)fluoranthene	Assessed using benzo(a)pyrene as a surrogate marker									[10]
Benzo(k)fluoranthene	Assessed using benzo(a)pyrene as a surrogate marker									[10]
Benzo(g,h,i)perylene	Assessed using benzo(a)pyrene as a surrogate marker									[10]
Chrysene	Assessed using benzo(a)pyrene as a surrogate marker									[10]
Dibenzo(a,h)anthracene	Assessed using benzo(a)pyrene as a surrogate marker									[10]
Fluoranthene	280	560	820	1500	1600	1600	23000	23000	23000	
Fluorene	170	390	730	2200	3400	4000	60000	67000	70000	
Indeno(1,2,3-c,d)pyrene	Assessed using benzo(a)pyrene as a surrogate marker									[10]
Naphthalene	1.0	2.3	4.6	1.0	2.4	4.7	110	260	510	
Phenanthrene	95	220	380	1300	1400	1500	22000	22000	23000	
Pyrene	620	1200	1900	3700	3800	3800	54000	54000	54000	
BTEX and related										
Benzene	0.13	0.27	0.50	0.37	0.71	1.30	15	29	51	[12]
Toluene	100	240	460	370	830	1100	33000	68000	110000	
Ethylbenzene	26	62	120	34	81	110	3200	7400	14000	
Xylenes (total)	28	67	130	33	78	110	3200	7700	15000	[13]
1,2,4-trimethylbenzene	0.22	0.53	1.1	0.24	0.58	1.2	39	93	170	
Iso-propylbenzene	6.6	16	32	6.8	17	33	1300	3100	6100	
Propylbenzene	21	51	100	23	57	110	3800	9100	17000	
Styrene	6.9	16	32	21	49	93	3100	6100	9500	
TPH										
Aliphatic EC 5-6	24	41	68	24	41	68	2400	4100	6900	
Aliphatic EC >6-8	53	110	210	53	110	210	5300	11000	21000	
Aliphatic EC >8-10	13	31	61	13	31	61	1300	3100	6000	
Aliphatic EC >10-12	62	150	300	62	150	300	6100	15000	28000	
Aliphatic EC >12-16	510	1200	2300	510	1200	2300	43000	72000	85000	
Aliphatic EC >16-35	41000	70000	90000	42000	70000	90000	>1E6	>1E6	>1E6	[14]
Aromatic EC >5-7	53	110	200	150	300	530	15000	28000	48000	
Aromatic EC >7-8	100	240	460	370	820	1500	33000	68000	110000	
Aromatic EC >8-10	20	48	94	22	54	100	2200	5200	9800	
Aromatic EC >10-12	63	150	290	120	290	560	11000	22000	30000	
Aromatic EC >12-16	140	320	570	1100	1900	2200	35000	37000	37000	
Aromatic EC >16-21	260	540	840	1800	1900	1900	28000	28000	28000	
Aromatic EC >21-35	1100	1500	1700	1900	1900	1900	28000	28000	28000	
Chlorinated Organics										
Chlorobenzene	0.19	0.44	0.86	0.19	0.45	0.87	31	71	140	
Dichloromethane (DCM)	0.47	0.78	1.2	1.2	1.7	2.4	250	340	470	
1,1-dichloroethane (DCA)	1.4	2.4	4.0	1.4	2.4	4.1	260	420	690	
1,2-dichloroethane (DCA)	0.0031	0.0048	0.0076	0.0035	0.0053	0.0084	0.34	0.51	0.81	
1,1-dichloroethene (DCE)	0.15	0.26	0.45	0.15	0.26	0.46	24	43	74	
cis -1,2-dichloroethene (DCE)	0.066	0.12	0.20	0.069	0.12	0.21	14	23	38	
trans -1,2-dichloroethene (DCE)	0.11	0.21	0.38	0.12	0.22	0.39	21	37	65	
Pentachlorophenol	0.21	0.52	1.0	27	30	31	400	400	400	
1,1,1,2-tetrachloroethane	0.56	1.3	2.6	0.63	1.5	2.9	59	140	270	

Parameter	Residential (mg/kg, unless otherwise stated)						Commercial / Industrial (mg/kg, unless otherwise stated)			Note
	With Homegrown Produce			Without Homegrown Produce						
	1% SOM	2.5% SOM	5% SOM	1% SOM	2.5% SOM	5% SOM	1% SOM	2.5% SOM	5% SOM	
1,1,2,2-tetrachloroethane	1.0	2.1	4.0	1.6	3.4	6.3	150	310	570	
Tetrachloroethene (PCE)	0.074	0.17	0.32	0.074	0.17	0.33	10	23	45	
Tetrachloromethane (CT)	0.011	0.024	0.046	0.011	0.024	0.046	1.6	3.6	7	
1,1,1-trichloroethane (TCA)	3.7	7.8	15	3.8	7.9	15	370	770	1400	
1,1,2-trichloroethane (TCA)	0.39	0.85	1.6	0.51	1.1	2.0	89	180	320	
Trichloroethene (TCE)	0.0070	0.015	0.028	0.0071	0.015	0.028	1.5	2.8	44	
Trichloromethane (CF)	0.43	0.80	1.4	0.48	0.89	53	98	170	300	
Vinyl Chloride	0.00034	0.00045	0.00062	0.00037	0.00048	0.00066	0.038	0.049	0.07	
Miscellaneous Organics										
Carbon disulphide	0.066	0.13	0.25	0.066	0.13	0.25	6.7	14	25	
Di-(2-ethylhexyl)-phthalate	290	660	1100	3900	4000	4100	85000	85000	8600	
MTBE	31	55	94	39	68	120	7400	12000	19000	
Phenol	110	190	330	420	440	440	440			[15]
Methylphenols (cresols), total	78	170	330	5600	8200	9900	160000	170000	18000	[16]
2,4-dimethylphenol (m-xylenol)	18	43	82	200	430	720	15000	23000	28000	
Other Parameters										
TOC	3% w/w			3% w/w			3% w/w			[17]
Calorific Value	2 MJ/kg			2 MJ/kg			2 MJ/kg			[18]
Asbestos	Fibres present			Fibres present			Fibres present			

All concentration-based criteria are rounded to 2 significant figures.

The criteria assume a sandy soil type, which will be conservative for the great majority of soils (including made ground) encountered on historically contaminated sites.

Except where otherwise stated, criteria have been derived by Sirius using CLEA version 1.06. Parameters for the land use cases are consistent with those given in Environment Agency (2009) “Updated Technical Background to the CLEA Model”, report SC050021/SR3 but updated (where relevant) for respiration rate, exposure frequency for dermal contact outdoors, soil adherence factors for children, and plant uptake concentration factors given in CL:AIRE (2014) and Nathanail et al. (2015). No correction has been made for the “Top Two” crop types in the Residential with Homegrown Produce land use and the criteria will therefore be conservative in this regard.

Health Criteria Values (HCVs) and (except where specifically noted) chemical property data were obtained from:
- Environment Agency Science Report SC050021 Series;
- CL:AIRE (2014)
- Nathanail et al. (2015);
- CL:AIRE-AGS-EIC (2010).

Footnotes

[1] Determined using LLTC value and plant uptake concentration factors given in CL:AIRE (2014). The oral GAC is adopted as this is the lower value and reflects a cancer risk many orders of magnitude greater than for inhalation.

[2] Determined for lifetime exposure using the LLTC value and plant uptake concentration factors given in CL:AIRE (2014). The GAC values are based on data for soils having a pH value in the range 6-8; caution should be applied in applying them at pH values outside this range, especially at pH values <5.

[3] Determined using LLTC value and plant uptake concentration factors given in CL:AIRE (2014). Both oral and inhalation LLTCs are based on local toxicological effects and therefore the lowest (oral) GAC value is adopted.

[4] For the Residential with Homegrown Produce land use, the GAC values for Cu and Zn are based on potential phytotoxic effects and have been set at the maximum allowable concentrations for sewage sludge-amended soils presented in the "Sludge (Use in Agriculture) Regulations" (SI 1263/1989); these criteria may also be applied in any land use where plants are to be grown. The equivalent GAC values for human health protection in the Residential with Homegrown Produce land use are around an order of magnitude greater.

[5] The Category 4 Screening Levels for lead defined in CL:AIRE (2013) have been adopted directly to provide an acceptable basis for initial assessment of data. Where background concentrations of lead exceed the GAC value, then site-specific evaluation will be required.

[6] The SGV for mercury is based on inorganic mercury which represents the most common form encountered within the environment. This is considered appropriate for most sites as: “…the SGV for inorganic mercury can normally be compared with chemical analysis for total mercury content because the equilibrium concentrations of elemental and methylmercury compounds are likely to be very low” (SC050021/Mercury SGV). Analysis and specific assessment for elemental or methylated forms of mercury will need to be considered if historical land use or site-specific factors indicate that these forms of mercury are likely to be present.

[7] Toxicological effects by inhalation are localised, therefore the lower of the GAC values for oral and inhalation HCVs have been adopted.

[8] BRE (2005). Sulphate is not considered to pose a potential risk to human health under normal circumstances – this GAC applies to construction cases only and is set at the upper limit for DS-1 Design Sulphate Class concrete.

[9] GAC calculated for acute risk. Further information can be provided upon request.

[10] The genotoxic PAHs (benz(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, chrysene, dibenz(a,h)anthracene, indeno(1,2,3-c,d)pyrene) are routinely assessed using benzo(a)pyrene as a surrogate (HPA (2010) “Risk Assessment Approaches for Polycyclic Aromatic Hydrocarbons (PAHs)”, version 5). Separate information on this approach is provided.

[11] Determined using oral LLTC value (CL:AIRE, 2014) for assessment of all pathways to determine systemic carcinogenic effect; inhalation HCV and LLTC values are based on local pulmonary effects only and result in a less conservative GAC.

[12] Calculated using LLTC value (CL:AIRE, 2014).

[13] For screening purposes, a single GAC has been set for total xylene. This is the lowest of the values calculated for the three individual xylene isomers.

[14] “No GAC” indicates that no value has been specified for this land use as the TDSI cannot be exceeded at achievable soil concentrations.

[15] 440mg/kg is the minimum concentration that is protective for direct skin contact with phenol (See Environment Agency SR050021/Phenol SGV) and is adopted where GACs for chronic exposure are higher.

[16] For screening purposes, a single GAC has been set for total methylphenol. This is the lowest of the values calculated for the three individual methylphenol isomers.

[17] The Hazardous Waste (England and Wales) Regulations 2005. TOC content in itself does not represent a potential risk to human health. This GAC is provided for indicative assessment of disposal options, in the case that off-site landfill of soil is undertaken. This GAC is specified at the ‘Inert’ waste threshold and should be considered as for information purposes only.

[18] ICRCL (1986) Guidance Note 61/84, 2nd Edition, Notes on the Fire Hazards of Contaminated Land. Calorific value is not an indication of direct human health risk but may be useful in assessment of the potential fire risk posed by made ground or natural soils containing elevated concentrations of potentially combustible organic matter.

GAC VALUES FOR CONTROLLED WATERS IN ENGLAND AND WALES

Parameter	GAC (µg/l, unless stated)			Notes
	Inland waters		Coastal and transition waters	
	EQS	DWS	EQS	
Metals and metalloids (dissolved)				
Arsenic	50	10	25	1
Cadmium	See separate table	5	0.2	1, 2
Chromium (total)	4.7	50	N.A.	1, 3
Copper	1.0 (bioavailable)	2000	3.76	1, 4
Lead	1.2 (bioavailable)	10	1.3	1, 4
Mercury	0.07	1.0	0.07	1, 4, 5
Nickel	4.0 (bioavailable)	20	8.6	1, 4
Zinc	10.9 (bioavailable) + background	5000	6.8 + background	1, 4, 6
Misc. inorganics				
Ammonia (total, as N)	See separate table	N.A.	N.A.	7
Ammonia (total, as $NH4^+$)	N.A.	500	N.A.	
Ammonia (un-ionised (NH3), as N)	N.A.	N.A.	21	7
Cyanide (free)	10	50	10	
Sulphate	N.A.	250 mg/l	N.A.	8
Petroleum hydrocarbons and related				
TPH (speciated analysis) *per fraction*	10	10	10	9, 10
Benzene	10	1.0	8	
Toluene	74	700	74	11
Xylenes (sum)	N.A.	500	N.A.	11
MTBE	2600	200	2600	12, 13
PAHs				
Anthracene	0.1	N.A.	0.1	
Benzo(b)fluoranthene + Benzo(k)fluoranthene (sum)	N.A.	Sum of 4 = 0.1	N.A.	
Benzo(g,h,i)perylene + indeno(1,2,3-c,d)pyrene (sum)	N.A.		N.A.	
Benzo(a)pyrene	1.7E-04	0.01	1.7E-04	
Fluoranthene	0.0063	N.A.	0.0063	
Naphthalene	2.0	N.A.	2.0	
Phenol				
Phenol	7.7	N.A.	7.7	
Chlorinated organics				
Dichloromethane	20	N.A.	20	
Trichloromethane (chloroform)	2.5	100	2.5	14
Tetrachloromethane (carbon tetrachloride)	12	3.0	12	
1,2-dichloroethane (1,2-DCA)	10	3.0	10	

Cadmium - inland waters EQS	
Hardness (as mg/l CaCO3)	EQS (µg/l)
<40	0.08
40-50	0.08
50-100	0.09
100-200	0.15
>=200	0.25

Ammonia - inland waters EQS		
Alkalinity (as mg/l CaCO3)	Altitude	EQS (µg/l)
<10	Any	300
10-50	Any	300
50-100	<80m	600
50-100	>80m	300
100-200	<80m	600
100-200	>80m	300
>200	Any	600

Parameter	GAC (µg/l, unless stated)			Notes
	Inland waters		Coastal and transition waters	
	EQS	DWS	EQS	
1,1,1-trichloroethane (1,1,1-TCA)	100	N.A.	100	
1,1,2-trichloroethane (1,1,2-TCA)	400	N.A.	300	
Trichloroethene (TCE)	10	Sum of 2 = 10	10	
Tetrachloroethene (PCE)	10		10	
Vinyl chloride	N.A.	0.5	N.A.	

Notes referenced in table:

1. Metals and metalloid EQS relate to dissolved contamination only (i.e. analysis of filtered samples).
2. Inland waters EQS for cadmium is dependent upon hardness or alkalinity of the receiving surface water. See separate table.
3. Separate EQS standards exist for Cr III and CrVI in fresh water. The fresh water Cr III has been value adopted as the screening value for total Cr analysis as it is normally the predominant form in solution. Specific EQS for Cr VI (3.4µg/l in freshwater; 0.6µg/l in transition and coastal waters) must be applied where relevant.
4. The bioavailable concentration of copper, nickel and zinc in fresh water is dependent upon the pH, DOC and calcium data for the receiving surface water. These data should be collected whenever possible to calculate an equivalent GAC for total metal concentration using the UKTAG m-BAT spreadsheet model. Although the standard indicates that lead should be assessed on a bioavilable basis, no tool is currently avaiable and this criterion should be applied as-is for screening purposes.
5. The value for mercury is the Maximum Acceptable Concentration (MAC) as no annual average EQS is specified in the legislation.
6. The EQS for zinc may be adjusted for the ambient uncontaminated background concentration in the receiving surface water where data are available.
7. EQS for ammonia in inland waters depends on the hardness and altitude of the receiving water body - see separate table. The criteria given here are based on the attainment of "good" chemical quality in the water body.
8. No EQS for sulphate appears in the referenced legislation.
9. No concentration-based EQS values currently exist for TPH. In the absence of specific criteria, our recent discussions with the Environment Agency have led us to adopt 10µg/l *for each individual fraction* determined by speciated TPH (TPHCWG) analysis.
10. No concentration-based DWS exists for TPH. A sum TPH concentration of 200µg/l defines the DW2 Class threshold limit in the Surface Water (Abstraction for Drinking Water) (Classification) Regulations 1996; DW2 waters are generally suitable for abstraction as drinking water supplies, subject to standard filtration and chemical treatment. We therefore consider that the 10µg/l criterion *for each fraction* provides a reasonable and proportionate basis for the initial assessment of risk posed to off-site groundwater and/or surface water potable abstractions that may be impacted at a downgradient abstraction point by TPH contamination originating from the site.
11. The drinking water-based criteria are from World Health Organisation (WHO) Guidelines for Drinking Water Quality, 2008. Taint may result at lower concentrations.
12. The "EQS" given here for MTBE is the PNEC value for fresh and sea water life given in: EU Risk Assessment Report (2002) MTBE, 3rd Priority List, volume 19.
13. DWS for MTBE is a 5-fold dilution of the USEPA (1997) Drinking Water Advisory value for taint, EPA-822-F-97-009. Toxicological thresholds are significantly higher.
14. Sum trihalomethanes limit for drinking water is 100µg/l but chloroform is only compound of this class normally encountered at contaminated sites.

Sources and general comments

Unless otherwise stated, EQS-based GACs are annual average surface water quality criteria given in Table 1 within Part 3 (Priority Substances) or long-term average criteria given in Table 1 within Part 2 (Specific Pollutants) of The Water Framework Directive (Standards and Classification) Directions (England and Wales), 2015.

Unless otherwise stated, drinking water standard-based GACs are taken from the Water Supply (Water Quality) Regulations 2016, and relate to concentration at the supply point and/or consumers' taps.

This list presents recommended GAC values for commonly monitored analytes but is not exhaustive. See the above-referenced legislation for the full lists of criteria.

APPENDIX I
Slope Stability Data

SLOPE STABILITY OUTPUT

ADOPTED SOIL / ROCK PROPERTIES

Based on the ground investigation data, and taking into account the uncertainly of reliable soil/rock properties, Table I1 shows the soil / rock properties which have been adopted in the preliminary slope stability assessment. For sandstone and mudstone, both Mohur-Columb and Hoek-Brown models are adopted, representing properties of soil and rock, respectively.

Table I1 - Summary of Soil / Rock Properties adopted in the Preliminary Slope Stability Assessment

Material	Bulk density γ_b (kN/m^3) Note 1	Mohr-Coulomb Model		Hoek-Brown Model for Rock Note 3			
		Friction angle Ø' (kN/m^2) Note 2	Cohesion c' (kN/m^2)	UCS of intact rock (MN/m^2) Note 4	Intact rock parameter m Note 5	Geological strength index GIS Note 6	Disturbance factor Note 7
Granular Made Ground	18	27	0	n/a	n/a	n/a	n/a
Concrete	24	High strength		n/a	n/a	n/a	n/a
Sandstone (as soil)	21	35	30	n/a	n/a	n/a	n/a
Sandstone (as rock)	21	n/a	n/a	5	10	30	0.5
Coal	15	28	0	n/a	n/a	n/a	n/a
Mudstone (as soil)	21	28	10	n/a	n/a	n/a	n/a
Mudstone (as rock)	21	n/a	n/a	1	8	15	0.5

Note 1: Bulk density of soil determined based on BS 8002:2015 Figures 1 and 2. For rock, it is assumed as dense to very dense materials.
Note 2: Friction angle of granular made ground based on loose granular fill and SPT N values, refer to the correlation of Peck et al (1967). Friction angles of sandstone and mudstone are based on Tomlinson (2001) and former BS 8002:1994 Table 4, which were determined based on the assumed UCS and c' no more than 0.1xUCS. Friction angle of coal is based on the intact coal being loose granular material.
Note 3: Model based on Hoek-Brown Model (1997) to estimate rock mass strength.
Note 4: Assumed conservative values for intact sandstone and mudstone based on engineering judgment, subject to verification by further GI.
Note 5: 'm' value for intact rock depends on rock group refer to Hoek et al 1992 and engineering judgement.
Note 6: GIS of rock determined based on GIS chart after Marinos and Hoek 2000 taking into account engineering judgement.
Note 7: Value between 0 to 1, assumed 0.5 for disturbance.

MODELLING ASSUMPTIONS

The following assumptions have been made as part of the slope stability assessment:

- Bedrock is relatively competent and is not completely weathered or highly weathered (i.e. not recovered as gravel).
- Surcharge loading is assigned on the ground surface. The final foundation solution and depth of foundations should be determined during detailed foundation design.
- Design groundwater level has been considered at c. 1.0m above the recorded groundwater level. Also, a model with Ru = 0.1 for pore water pressure has been considered, to allow for potential shallower groundwater levels during different seasons of the year.
- A foundation loading for the proposed plots at the crest of the slope has not been allowed for within the assessment, owing to the assumption that the foundation will be supported by piled foundations into competent bedrock and will not increase loading to the slope.
- No failure will occur through the existing retaining wall/structure at the toe of the slope, adjacent to the railway.
- The location of the rockface at Section A - A' has been interpreted from historical plans. Given the uncertainties associated with the location of the original rockface (i.e. no visual or ground investigation evidence), the position of the rock has been amended within the models to give a more conservative approximation.

- It is noted a coal seam is conjectured on published geological recorded to outcrop at the toe of the slope; and it has been assumed that this seam is not worked in this location (see Coal Mining Risk Assessment in the main body of this report).
- The modelling undertaken does not take into account potential changes in ground elevation at the crest of the slope, as will be required to achieve final site levels, beyond those required to provide garden areas / roads. However, given the assessment results (which suggest potential instability even without any potential raising of ground levels - see Table I2, below), the current model is considered appropriate.

MODELLING OUTPUT

Table I2 - Summary of Outline Slope Stability Assessment

Section	Rock Model	EC7 Design Approach	Groundwater Condition	Overdesign Factor (ODF)
Section A - A'	Mohr-Coulomb for Rock (Soil Property)	DA1 C1	Piezometric Line	1.11
			PWP Ru=0.1	**0.96**
		DA1 C2	Piezometric Line	**0.87**
			PWP Ru=0.1	**0.88**
	Hoek-Brown for Rock (Rock Property)	DA1 C1	Piezometric Line	**0.99**
			PWP Ru=0.1	1.11
		DA1 C2	Piezometric Line	**0.84**
			PWP Ru=0.1	**0.81**
Section B - B'	Mohr-Coulomb for Rock (Soil Property)	DA1 C1	Piezometric Line	1.36
			PWP Ru=0.1	1.14
		DA1 C2	Piezometric Line	1.08
			PWP Ru=0.1	**0.96**
	Hoek-Brown for Rock (Rock Property)	DA1 C1	Piezometric Line	1.35
			PWP Ru=0.1	1.20
		DA1 C2	Piezometric Line	1.12
			PWP Ru=0.1	**0.89**

Where the Overdesign Factor (ODF) is less than 1.0 (highlighted in bold text) in accordance with the EC7 Design Approach 1 Combinations 1 & 2, the model results indicate that the slope may be unstable for that combination of rock model / design approach / groundwater condition.

APPENDIX J
Terms of Reference

Ref 1	NA to BS EN ISO 1997-2: 2007 UK National Annex to Eurocode 7: Geotechnical Design Part 2: Ground Investigation and Testing.
Ref 2	BS EN ISO 1997-1:2004 Eurocode 7 Geotechnical Design, General Rules
Ref 3	BS EN ISO 1997-2: 2007 Eurocode 7 Geotechnical Design, Ground Investigation and Testing
Ref 4	BS EN ISO 14688-1: 2018 Geotechnical Investigation and Testing – Identification and Classification of Soil, Identification and Description (ISO 14688-1: 2017)
Ref 5	BS EN ISO 14688-2: 2018 Geotechnical Investigation and Testing – Identification and Classification of Soil, Principals of Classification (ISO 14688-2: 2017)
Ref 6	BS EN ISO 14689: 2018 Geotechnical Investigation and Testing – Identification, Description and Classification of Rock (ISO 14689; 2017)
Ref 7	BS EN ISO 22476-3: 2005 +A1: 2011 Geotechnical Investigation and Testing, Field Testing, Standard Penetration Testing
Ref 8	BS5930:2015+A1:2020 Code of Practice for Ground Investigations
Ref 9	BS 1377-1 to 9:1990-2022 Methods of Test for soils for Civil Engineering Purposes.
Ref 10	BS EN ISO 17892-1 to 12: 2014-2022 Geotechnical Investigation and Testing, Laboratory Testing of Soil
Ref 11	BS5975: 2019 Code of Practice for Temporary Works
Ref 12	CIRIA Report 97 1992 (2001 revision) Trenching Practice
Ref 13	Highways England CD225 & CD226 Design for new pavement construction.
Ref 14	BRE Digest SD1 (v3): 2005 Concrete in Aggressive Ground
Ref 15	BRE BD365: 2016 Soakaway Design
Ref 16	CIRIA 758D: 2019 Abandoned Mine Workings Manual
Ref 17	NHBC Standards 2024
Ref 18	Highways Agency Manual of Contract Documents for Highways Works Volume 1 Series 600 Earthworks.
Ref 19	Land Contamination:Risk Management. https://www.gov.uk/guidance/land-contamination-how-to-manage-the-risks

Ref 20	CL:AIRE 2020 'Professional guidance : Comparing Soil Contamination Data with a Critical Concentration'.
Ref 21	BS 10175:2011+A2:2017 Investigation of potentially contaminated sites – Code of practice.
Ref 22	BS 8485:2015+A1:2019 Code or practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings.
Ref 23	BS 8576:2013 Guidance on investigations for ground gas – Permanent gases and Volatile Organic Compounds (VOCs).
Ref 24	CIRIA C665: 2007 Assessing risks posed by hazardous ground gases to buildings.
Ref 25	CIRIA C682: 2009 The VOCs Handbook.
Ref 26	CIRIA C735: 2014 Good practice on the testing and verification of protection systems for buildings against hazardous ground gases.
Ref 27	CIRIA C733: 2014 Asbestos in soil and made ground: a guide to understanding and managing risks.
Ref 28	Environment Agency Technical Guidance WM3 Version 1.2.GB October 2021 Waste Classification guidance on the classification and assessment of waste.
Ref 29	Stroud, M.A. "The standard penetration test in insensitive clay and soft rocks", Proceedings of the European Symposium on Penetration Testing, 2, 367-375 1975.
Ref 30	TRL publication LR1132 "Structural design of bituminous roads", 1984.
Ref 31	BRE FB75 Building on fill: geotechnical aspects. Third edition, 2015.
Ref 32	Health and Safety Executive. 1991. *Protection of Workers and the General Public during Development of Contaminated Land*.
Ref 33	CIRIA. 2016. *Environmental Good Practice on Site Pocket Book* (Fourth Edition).
Ref 34	CL:AIRE. 2021. *Good Practice for Risk Assessment for Coal Mine Gas Emissions.*
Ref 35	CL:AIRE. 2011. *The Definition of Waste: Development Industry Code of Practice*. Version 2.

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