

THE GATEHOUSE
WOODHILL ROAD
BURY

DESK BASED COAL MINING
RISK ASSESSMENT

Job Number: LKC 22 1686
Date: December 2022
Client: Shahana Begum



INCREASING LAND VALUE

LK
GROUP

INCREASING LAND VALUE



LK Consult			
Document Verification			
Site Address	The Gatehouse, Woodhill Road, Bury, BL8 1BN		
Report Title	Desk Based Coal Mining Risk Assessment		
Job Number	LKC 22 1686	Document Ref.	CL-602-LKC 22 1686-01
Date Issued	December 2022	Report Version	R0
Prepared By	Catherine Baranek	Reviewed By	Colin Crompton

Revision Record			
Revision No.	Date	Nature of Revision	Approved By

DISCLAIMER

This report has been prepared by LKC who have exercised such professional skill, care and diligence as may reasonably be expected of a properly qualified and competent consultant experienced in preparing reports of a similar scope.

However, to the extent that the report is based on or relies upon information contained in records, reports or other materials provided to LKC which have not been independently produced or verified, LKC gives no warranty, representation or assurance as to the accuracy or completeness of such information.

This report is prepared solely for the benefit of Shahana Begum. It may not be relied upon by, or submitted to a third party for their reliance for the purposes of valuation, mortgage, insurance and regulatory approval, until all invoices have been settled in full. Those using this information in subsequent assessments or evaluations do so at their own risk.

It should be noted this report pertains solely to potential ground stability issues relating to potential shallow mining within the proposed planning boundary only.

Contents

1	Introduction	1
2	Review of Information	2
2.1	Information Sources	2
2.2	Geological Mapping	2
2.3	Coal Authority Consultants Coal Mining Report	3
2.4	Coal Authority Interactive Mapping	4
2.5	Combustible Coal Seams	4
2.6	Historical BGS Logs	5
2.7	Historical Mapping	5
3	Coal Mining Risk Assessment.....	6
4	Conclusions and Recommendations	7

Figures

Figure 1: Site Location and Boundary Plan

Appendices

Appendix A: Geological Mapping

Appendix B: Coal Authority Consultants Coal Mining Report

1 Introduction

LK Consult Ltd (LKC) has been commissioned to carry out a Desk Based Coal Mining Risk Assessment Report (CMRA) for The Gatehouse, Woodhill Road, Bury.

A Coal Mining Risk Assessment Report is required for a planning application within a designated 'Coal Mining Development High Risk Area'. 'Coal Mining Development High Risk Areas' are areas, based upon Coal Authority records, where the potential land instability and other safety risks associated with former coal mining activities are likely to be greatest. They include, for example, areas of known or suspected shallow coal mining, recorded mine entries and areas of former surface mining.

This assessment is based upon guidance provided by the Coal Authority¹ and comprises a review of available desk based information.

The scope of this Coal Mining Risk Assessment (as per Coal Authority guidance) is to:

- Present a desk-based review of all available information on the coal mining issues which are relevant to the application site.
- Use the above information to identify and assess the risks to the proposed development from coal mining legacy, including the cumulative impact of issues.
- Set out appropriate mitigation measures to address the coal mining legacy issues affecting the site, including any necessary remedial works and/or demonstrate how coal mining issues have influenced the proposed development.
- Demonstrate to the Local Planning Authority that the application site is, or can be made, safe and stable to meet the requirements of national planning policy with regard to development on unstable land.

Site details are provided in Table 1-1. Figure 1 shows the site location and boundary.

Site Location	The Gatehouse, Woodhill Road, Bury, BL8 1BN. Centred at approximate National Grid Reference 379980E 411860N.
Approximate Area	2,000m ² .
Topography	92-94 metres Above Ordnance Datum (AOD).
Current Site Use	Residential.
Purpose of Report	Planning.
Planning Ref.	68799.
Proposed Development	Partial demolition and replacement of 1no. dwelling.

Table 1-1: Summary of site details

¹Risk Based Approach to Development Management. Guidance for Developers. Version 4 2017.

2 Review of Information

2.1 Information Sources

LKC have obtained and reviewed information from the following sources, which is summarised in Section 2:

- Review of Published BGS Geological Mapping including:
 - Lancashire Sheet 88, Published 1851, Scale 1:10,560.
 - Sheet 85 Manchester Solid, Published 1975, Scale 1:50,000.
 - Sheet 85 Manchester Bedrock, Published 2010, Scale 1:50,000.
 - Sheet 85 Manchester Bedrock and Superficial, Published 2011, Scale 1:50,000.
 - Digital Geology, dated 2007, Scale 1:10,000 (Appendix A).
- Geology of the Manchester district, a brief explanation of the geological map Sheet 85 Manchester.
- Coal Authority Consultants Coal Mining Report (Appendix B).
- Coal Authority Interactive Map Viewer².
- Coal Authority List of Combustible Coal Seams³.
- Historical BGS boreholes within the site vicinity⁴.
- Publicly available historical mapping.
- Abandoned Mine Plan 16820 Sheet 6 of 11.

2.2 Geological Mapping

Artificial

No BGS recorded artificial deposits are mapped on site.

Superficial

The superficial geology is mapped as River Terrace Deposits (sand and gravel). Linear features on the digital mapping shows the site lies within the eastern edge of a buried channel; therefore, deep superficial deposits may be present below the site.

Bedrock

The bedrock is mapped as the Pennine Lower Coal Measures Formation comprising mudstone, siltstone and sandstone across the majority of the site and sandstone in the southern corner of the site. The strata in the wider area is shown to dip to the south at 5-6°.

A coal seam is shown to subcrop (at rockhead) approximately 120m north which is expected to dip below the site. This coal seam is named as the Arley Coal on sheet mapping.

Based on the above information and assuming a similar topography, the Arley Coal is expected at a depth of 10.5-12.5m below rockhead in the north of the site.

Sheet 85 explanatory notes show the Arley coal seam to be 0.9-2.0m thick. The type of workings include deep mined, crop working and surface mined (opencast).

² <http://mapapps2.bgs.ac.uk/coalauthority/home.html>

³ <https://www.gov.uk/government/publications/coal-seams-with-a-history-of-spontaneous-combustion>

⁴ <http://mapapps2.bgs.ac.uk/geoindex/home.html>

2.3 Coal Authority Consultants Coal Mining Report

The consultants coal mining report is summarised in Table 2-1.

Mining Activity and Geology	
Past underground mining	Yes: See Plate 2-1.
Probable unrecorded shallow workings	Yes.
Spine roadways at shallow depth	No spine roadway recorded at shallow depth.
Mine entries (within 100m)	None recorded within 100m of the enquiry boundary.
Abandoned mine plan catalogue numbers	16820.
Outcrops	No outcrops recorded.
Geological faults, fissures and breaklines	No faults, fissures or breaklines recorded.
Opencast mines	None recorded within 500m of the enquiry boundary.
Coal Authority managed tips	None recorded within 500m of the enquiry boundary.
Investigative or Remedial Activity	
Site investigations	None recorded within 50m of the enquiry boundary.
Remediated sites	None recorded within 50m of the enquiry boundary.
Coal mining subsidence	Not received a damage notice or claim for the subject property, or any property within 50m, since 1994. No current Stop Notice delaying remedial works or repairs to property. Not aware of any request made to carry out preventative works before coal is worked.
Mine gas	None recorded within 500m of the enquiry boundary.
Mine water treatment schemes	None recorded within 500m of the enquiry boundary.
Licensing and Future Mining Activity	
Future underground mining	None recorded.
Coal mining licensing	None recorded within 200m of the enquiry boundary.
Court Orders	None recorded.
Section 46 notices	No notices have been given, stating that the land is at risk of subsidence.
Withdrawal of support notices	Not in an area where a notice to withdraw support has been given or where a notice has been given cancelling the entitlement to withdraw support.
Payments to owners of former copyhold land	Not in an area where a relevant notice has been published.
Further Information	
The following potential risks have been identified and as part of your risk assessment should be investigated further. 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 500m of 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.	

Table 2-1: Summary of Coal Authority Consultants Coal Mining Report.

Plate 2-1 shows the past underground mining. This is defined by the Coal Authority as *'details of all recorded underground mining relative to the enquiry boundary. Only underground workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination, will be included'*.

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
unnamed	ARLEY	Coal	6DMG	15	Beneath Property	3.1	South-East	130	1900

Plate 2-1: Extract from Coal Authority Report showing past underground mining.

Probable unrecorded shallow workings are defined as *'areas where the Coal Authority believes there to be unrecorded coal workings that exist at or close to the surface (less than 30m deep)'*.

2.4 Coal Authority Interactive Mapping

Plate 2-2 shows the development high risk areas.

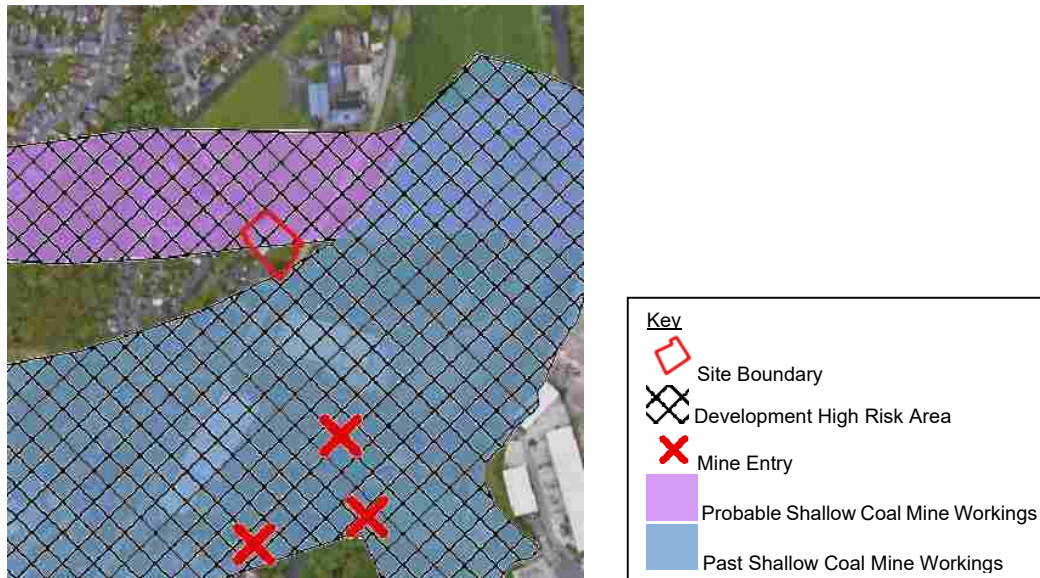


Plate 2-7: Development High Risk Area

The northern half of the site is shown as probable shallow coal mine workings and the far south of the site is shown as past shallow coal mine working (known workings). These are both assumed to be associated with the Arley Coal.

2.5 Combustible Coal Seams

Some coal seams have been known to suffer from occurrences of spontaneous combustion and are consequently regarded as at 'high risk' of succumbing to spontaneous combustion when being entered, worked or disturbed. The Coal Authority have produced a list of seams for different areas of the UK.

None of the coal seams listed are expected at shallow depth below the site. However, if roof coal has been left, this could also pose a risk.

2.6 Historical BGS Logs

Ref: SD71SE143⁵ 250m west of site:

Made Ground to 2.0mbgl
Soft to still silty sandy CLAY to 9.0mbgl
Medium dense clayey SAND to 9.5mbgl
Stiff CLAY to 12.5mbgl
Very dense silty SAND to 13.15mbgl

Ref: SD71SE144⁶ 200m northwest of site:

Made Ground to 2.4mbgl
Soft to firm clayey sandy SILT to 5.1mbgl
Firm to stiff silty sandy CLAY to 14.0mbgl
Very dense silty SAND to 15.0mbgl

2.7 Historical Mapping

Available historical mapping has not identified any significant coal mining features within influencing distance.

2.8 Abandoned Mine Plans

Abandoned mine plan 16820 (6 of 11) shows workings to the south of the site, possibly encroaching into the southern boundary. A possible coal crop is also shown on or close to the southern boundary of the site. An extract is provided below:



⁵ http://scans.bgs.ac.uk/sobi_scans/boreholes/13325501/images/13114661.html

⁶ http://scans.bgs.ac.uk/sobi_scans/boreholes/13325502/images/13114665.html

3 Coal Mining Risk Assessment

Table 3-1 below summarises the potential risks associated with coal mining legacy for the proposed development site.

Coal Mining Issue	Potential Risk	Risk Assessment
Underground coal mining (recorded at shallow depths)	✓	Known underground shallow workings recorded by the Coal Authority in the southern corner of the site. Workings within the Arley coal seam at 15m depth (130cm extraction thickness). It is assumed that the 15m depth also includes superficial deposits. Until the depth (including depth of bedrock and superficial), thickness and extent of workings are confirmed, there is assumed to be a potential risk of ground instability. Investigation work recommended.
Underground coal mining (probable at shallow depths)	✓	Probable underground shallow workings recorded by the Coal Authority. This is assumed to be associated with the Arley coal seam. Although the probable shallow workings on Coal Authority data are only shown in the northern half of the site, given the depth of known workings in the south (15m), LKC considers the risk to extend across the site. Further coal seams may also be present. A possible coal crop was shown on abandoned mine plan 16820 on or close to the southern boundary of the site. If shallow coal seams have been worked, they could pose a risk of ground instability at the site surface. Investigation work recommended and a watching brief during groundworks.
Mine entries (shafts / adits)	?	No recorded mine entries within influencing distance of the site. However, there is also a risk of unrecorded mine entries as the site is within a coal mining area. No specific investigation work is advised. However, a watching brief should be undertaken during any intrusive investigation work and groundworks to check for any signs of unrecorded mine entries.
Coal mining geology (geological faults, fissures and breaklines)	X	Not recorded on Coal Authority data.
Record of past mine gas emissions	?	Not recorded on Coal Authority data. However, shallow potentially worked coal seams may be present below the site, which have the potential to be a source of ground gas. Mine gas could migrate to the site surface and accumulate in confined spaces posing a risk to site users and buildings. Investigation work recommended (gas monitoring and gas risk assessment).
Recorded coal mining surface hazard	X	No recorded coal mining surface hazard.
Surface mining (opencast workings)	X	No recorded surface mining (opencast workings).

Table 3-1: Potential Coal Mining Risks.

Notes:

✓ = Risk identified; X = No risk identified; ? = Possible risk identified

4 Conclusions and Recommendations

Summary

Based upon the available information, LKC have identified potential shallow coal mining risks which are summarised in Table 4-1.

Coal Mining Issue	Potential Risk
Underground coal mining (recorded at shallow depths)	✓
Underground coal mining (probable at shallow depths)	✓
Mine entries (shafts / adits)	?
Coal mining geology (fissures)	X
Record of past mine gas emissions	?
Recorded coal mining surface hazard	X
Surface mining (opencast workings)	X

Table 4-1: Summary of coal mining potential risks.

Site Investigation Recommendations

Considering the available information and guidance given in CIRIA C758⁷, LKC consider that intrusive investigation work should be carried out to confirm the risk associated with coal mining. The intrusive investigation works should be designed by a suitably qualified mining engineer; these works are likely to include the options detailed in Table 4-2.

Coal Mining Issue	Investigation Work
Underground coal mining (recorded at shallow depths)	Rotary drilling across the site to confirm the depth to coal seams, the thickness of seams, signs of workings and evidence of treatment work.
Underground coal mining (probable at shallow depths)	
Mine entries (shafts / adits)	No specific investigation work required. However, watching brief during intrusive investigation work and groundworks to check for any signs of mine entries (see below).
Coal mining geology (fissures)	N/A
Record of past mine gas emissions	Gas monitoring and detailed gas risk assessment in line with CIRIA 655 ⁸ and CL:AIRE Coal Mine Gas Emissions guidance ⁹ .
Recorded coal mining surface hazard	N/A
Surface mining (opencast workings)	N/A

Table 4-2: Summary of investigation requirements.

Prior to carrying out investigation work, it would be advisable to consult available abandoned mine plans to aid in the design of any future works.

Investigation work should be carried out in line with CIRIA C758¹⁰ and Coal Authority guidance.

A Coal Authority Permit¹¹ is required for intrusive activities which will disturb or enter any coal seams, coal mine workings or coal mine entries (shafts and adits).

⁷ CIRIA (2019). "Abandoned Mine Workings Manual". CIRIA C758

⁸ CIRIA (2007). "Assessing Risks Posed by Hazardous Ground Gases to Buildings". CIRIA C665.

⁹ CL:AIRE (2020). "Good Practice for Risk Assessment for Coal Mine Gas Emissions".

¹⁰ CIRIA (2019). "Abandoned Mine Workings Manual". CIRIA C758

¹¹ <https://www.gov.uk/get-a-permit-to-deal-with-a-coal-mine-on-your-property>

Watching Brief

A watching brief is recommended in all coal mining areas. This could be undertaken by experienced site staff on low risk sites or by a suitably qualified coal mining engineer or consultant on high risk sites. This site is considered to be high risk, given the recorded shallow mining below the site and the presence of mine entries on / close to the site.

The watching brief should cover the period in which any earthworks, reduce level dig or foundation excavation works are being undertaken. Particular care should be taken to identify any potential features which may indicate the presence of shallow coal mining hazards.

Such hazards may include, but not limited to, features such as unexplained depressions or voids, outcropping coal seams, localised areas of deep made ground (which could represent backfilled areas of coal mining related ground subsidence, crown holes or mine entries), or unexpected man-made items at depth (e.g. brickwork, concrete, timber or steelwork).

Mine entries may manifest during excavation works as circular, square or rectangular areas of deep Made Ground (typically several metres in size) set against the natural strata (e.g. Glacial Till or weathered rock). Mine shafts may also be covered with a large, thick concrete cap.

If any of the above features are identified during the course of the development works then work should be stopped to allow the mining engineer / consultant to assess them and if necessary design further or additional investigation and / or remediation works.

Mitigation Measures

Depending on the findings of the mining investigation, mitigation measures may be required. Table 4-3 provides possible mitigation options.

Coal Mining Issue	Mitigation Measures
Underground coal mining (recorded at shallow depths)	Move structures to 'safe' areas of the site. Stabilisation of the ground (i.e. grouting) and suitable foundations to be implemented.
Underground coal mining (probable at shallow depths)	
Mine entries (shafts / adits)	Move structures to 'safe' areas of the site. Treat mine entry (backfill, cap). Follow The Coal Authority's 'Policy for Building Over or Within The Influencing Distance of A Mine Entry' ¹² .
Coal mining geology (fissures)	N/A
Record of past mine gas emissions	Gas protection measures.
Recorded coal mining surface hazard	N/A
Surface mining (opencast workings)	N/A

Table 4-3: Summary of potential mitigation measures.

Conclusions and Safe Development

At this stage the possibility for shallow workings can only be ascertained from site investigation; however, LKC consider that the site could be safely developed with regards to shallow mining subject to an appropriate site investigation and, if required,

¹² https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/363064/policy-for-building-over-or-within-the-influencing.pdf

appropriate mitigation measures which may include some of those measures as detailed above.

Therefore, LKC consider the study site should be capable of being made safe and stable to meet the requirements of national planning policy with regard to development on unstable land.

Figures



Client: Shahana Begum				Title: Site Location & Boundary Plan			
Site: The Gatehouse, Woodhill Road, Bury				Scale (see scale bar): 1:25,000 & 1:2,500 @ A4			
Job No.: LKC 22 1686		Drawn By: CB	Checked By: BS	Drawn: Dec 2022	Figure: 1		

Appendix A
Geological Mapping

Geology 1:10,000 Maps Legends

Artificial Ground and Landslip

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	MGR	Made Ground (Undivided)	Artificial Deposit	Holocene - Holocene
	WGR	Worked Ground (Undivided)	Void	Holocene - Holocene
	WMGR	Infilled Ground	Artificial Deposit	Holocene - Holocene
	SLIP	Landslide Deposit	Unknown/Unclassified Entry	Quaternary - Quaternary

Superficial Geology

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	ALV	Alluvium	Clay, Silt, Sand and Gravel	Flandrian - Pleistocene
	TILLD	Till, Devensian	Diamicton	Devensian - Ipswichian
	GFDUD	Glaciofluvial Deposits, Devensian	Sand and Gravel	Devensian - Ipswichian
	RTD1	River Terrace Deposits, 1	Sand and Gravel	Quaternary - Ryazanian
	RTD2	River Terrace Deposits, 2	Sand and Gravel	Quaternary - Ryazanian
	ALF	Alluvial Fan Deposits	Sand and Gravel	Quaternary - Ryazanian

Bedrock and Faults

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	PLCM	Pennine Lower Coal Measures Formation	Sandstone	Langsettian - Langsettian
	PLCM	Pennine Lower Coal Measures Formation	Mudstone, Siltstone and Sandstone	Langsettian - Langsettian
	OL	Old Lawrence Rock	Sandstone	Langsettian - Langsettian
	CAR	Cannel Rock (South Lancashire)	Sandstone	Langsettian - Langsettian
	TRBR	Trencherbone Rock	Sandstone	Langsettian - Langsettian
	UH	Upper Haslingden Flags	Sandstone	Yeadonian - Yeadonian
	ROSSE	Rossendale Formation	Mudstone and Siltstone	Yeadonian - Yeadonian
	RR	Rough Rock	Sandstone	Yeadonian - Yeadonian
	Rock			
	Fault			



Geology 1:10,000 Maps

This report contains geological map extracts taken from the BGS Digital Geological map of Great Britain at 1:10,000 scale and is designed for users carrying out preliminary site assessments who require geological maps for the area around a site. This mapping may be more up to date than previously published paper maps.

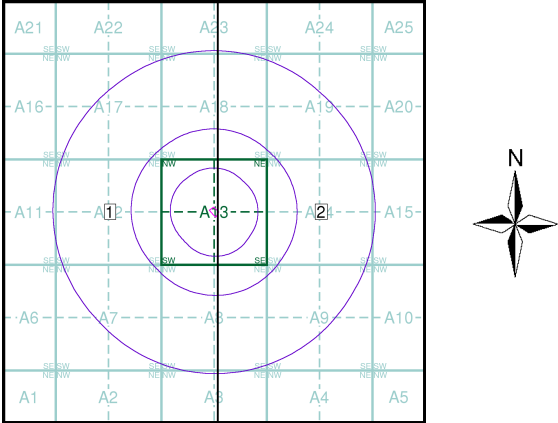
The various geological layers - artificial and landslip deposits, superficial geology and solid (bedrock) geology are displayed in separate maps, but superimposed on the final 'Combined Surface Geology' map. All map legends feature on this page.

Please Note: Not all of the layers have complete nationwide coverage, so availability of data for relevant map sheets is indicated below.

Geology 1:10,000 Maps Coverage

Map ID:	2	Map ID:	1
Map Name:	SD81SW	Map Name:	SD71SE
Map Date:	2007	Map Date:	2007
Bedrock Geology:	Available	Bedrock Geology:	Available
Superficial Geology:	Available	Superficial Geology:	Available
Artificial Geology:	Available	Artificial Geology:	Available
Faults:	Available	Faults:	Available
Landslip:	Available	Landslip:	Available
Rock Segments:	Available	Rock Segments:	Available

Geology 1:10,000 Maps - Slice A

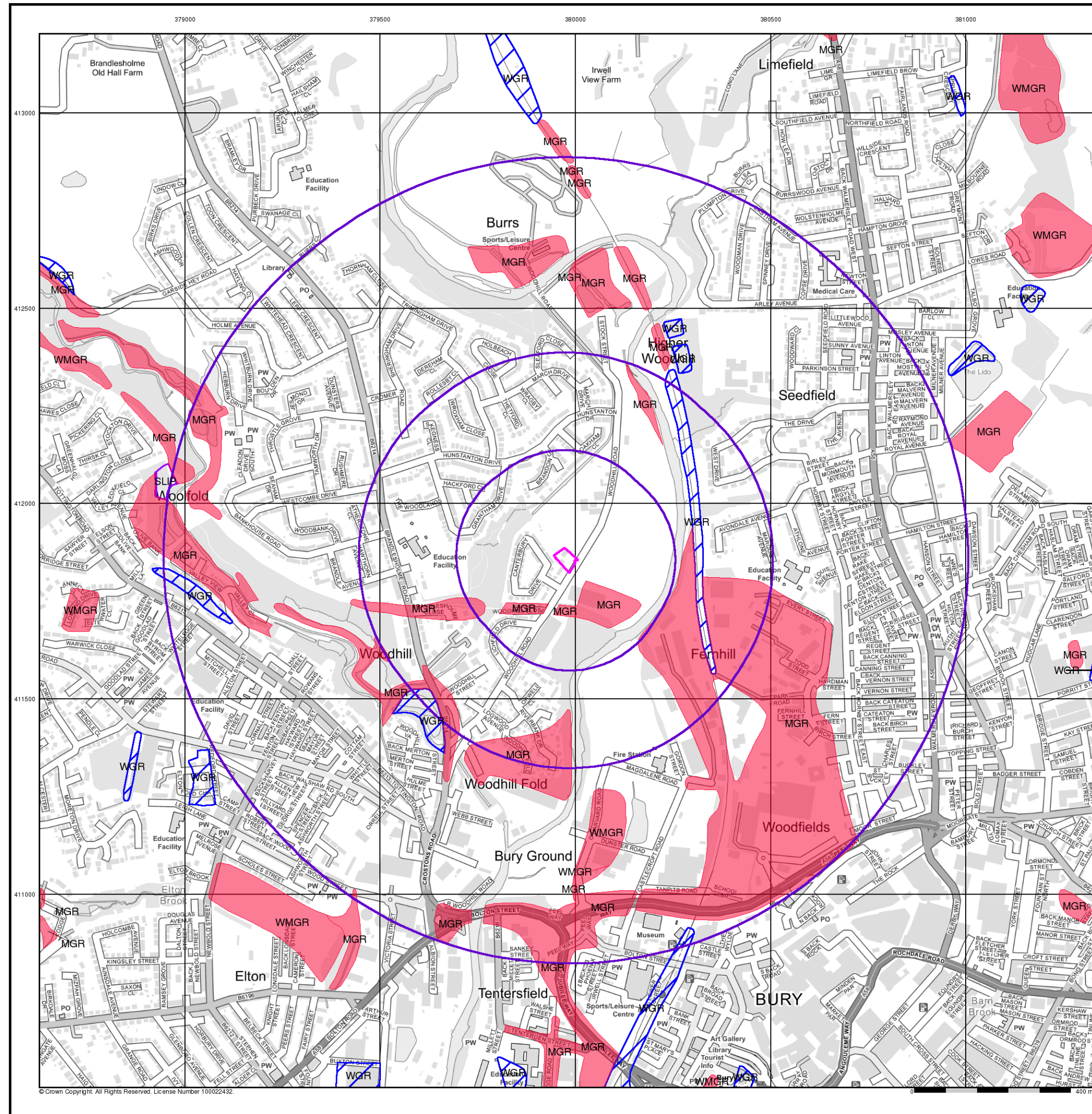


Order Details

Order Number:	304903456_1_1
Customer Ref:	LKC 22 1686
National Grid Reference:	379980, 411860
Slice:	A
Site Area (Ha):	0.19
Search Buffer (m):	1000

Site Details

The Gatehouse, Woodhill Road, Bury, BL8 1BN



Artificial Ground and Landslip

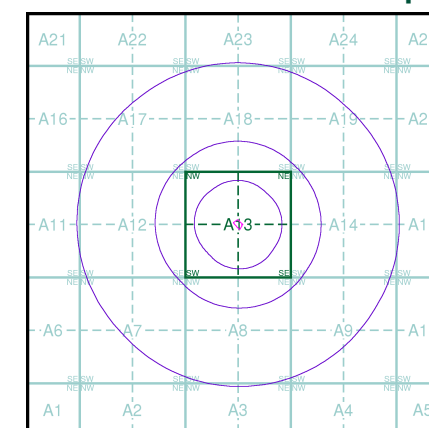
Artificial ground is a term used by BGS for those areas where the ground surface has been significantly modified by human activity. Information about previously developed ground is especially important, as it is often associated with potentially contaminated material, unpredictable engineering conditions and unstable ground.

Artificial ground includes:

- Made ground - man-made deposits such as embankments and spoil heaps on the natural ground surface.
- Worked ground - areas where the ground has been cut away such as quarries and road cuttings.
- Infilled ground - areas where the ground has been cut away then wholly or partially backfilled.
- Landscaped ground - areas where the surface has been reshaped.
- Disturbed ground - areas of ill-defined shallow or near surface mineral workings where it is impracticable to map made and worked ground separately.

Mass movement (landslip) deposits on BGS geological maps are primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground. The dataset also includes founded strata, where the ground has collapsed due to subsidence.

Artificial Ground and Landslip Map - Slice A

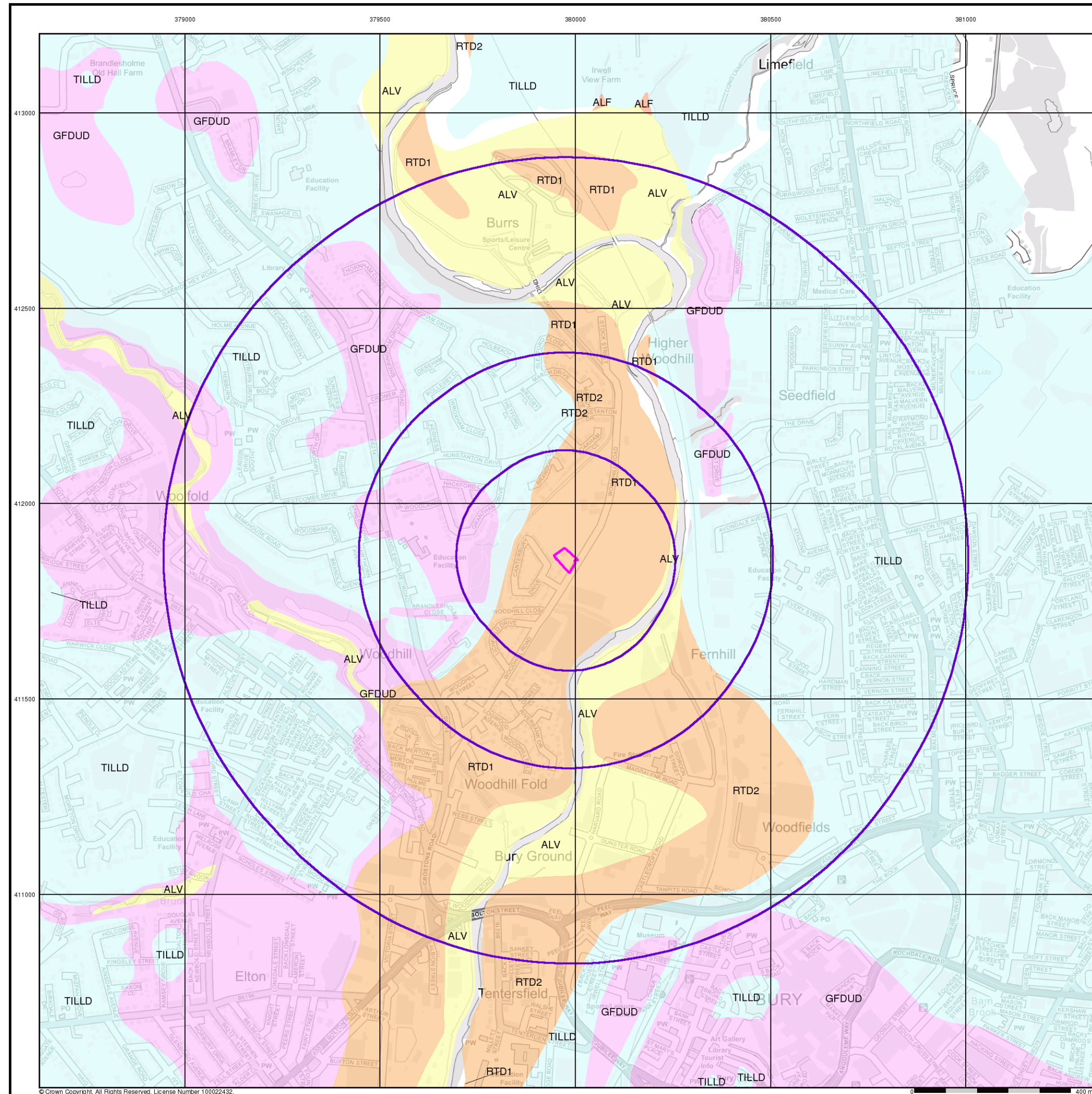


Order Details

Order Number: 304903456_1_1
Customer Ref: LKC 22 1686
National Grid Reference: 379980, 411860
Slice: A
Site Area (Ha): 0.19
Search Buffer (m): 1000

Site Details

The Gatehouse, Woodhill Road, Bury, BL8 1BN



© Crown Copyright. All Rights Reserved. License Number 100022432.

LK GROUP

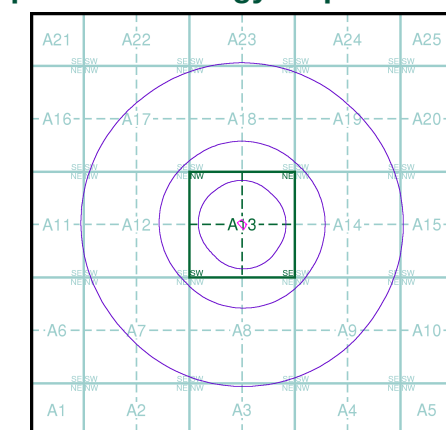
Superficial Geology

BGS 1:10,000 Superficial Deposits are the youngest geological deposits formed during the most recent period of geological time, which extends back about 1.8 million years from the present.

They rest on older deposits or rocks referred to as Bedrock. This dataset contains Superficial deposits that are of natural origin and 'in place'. Other superficial strata may be held in the Mass Movement dataset where they have been moved, or in the Artificial Ground dataset where they are of man-made origin.

Most of these Superficial deposits are unconsolidated sediments such as gravel, sand, silt and clay, and onshore they form relatively thin, often discontinuous patches or larger spreads.

Superficial Geology Map - Slice A



Order Details

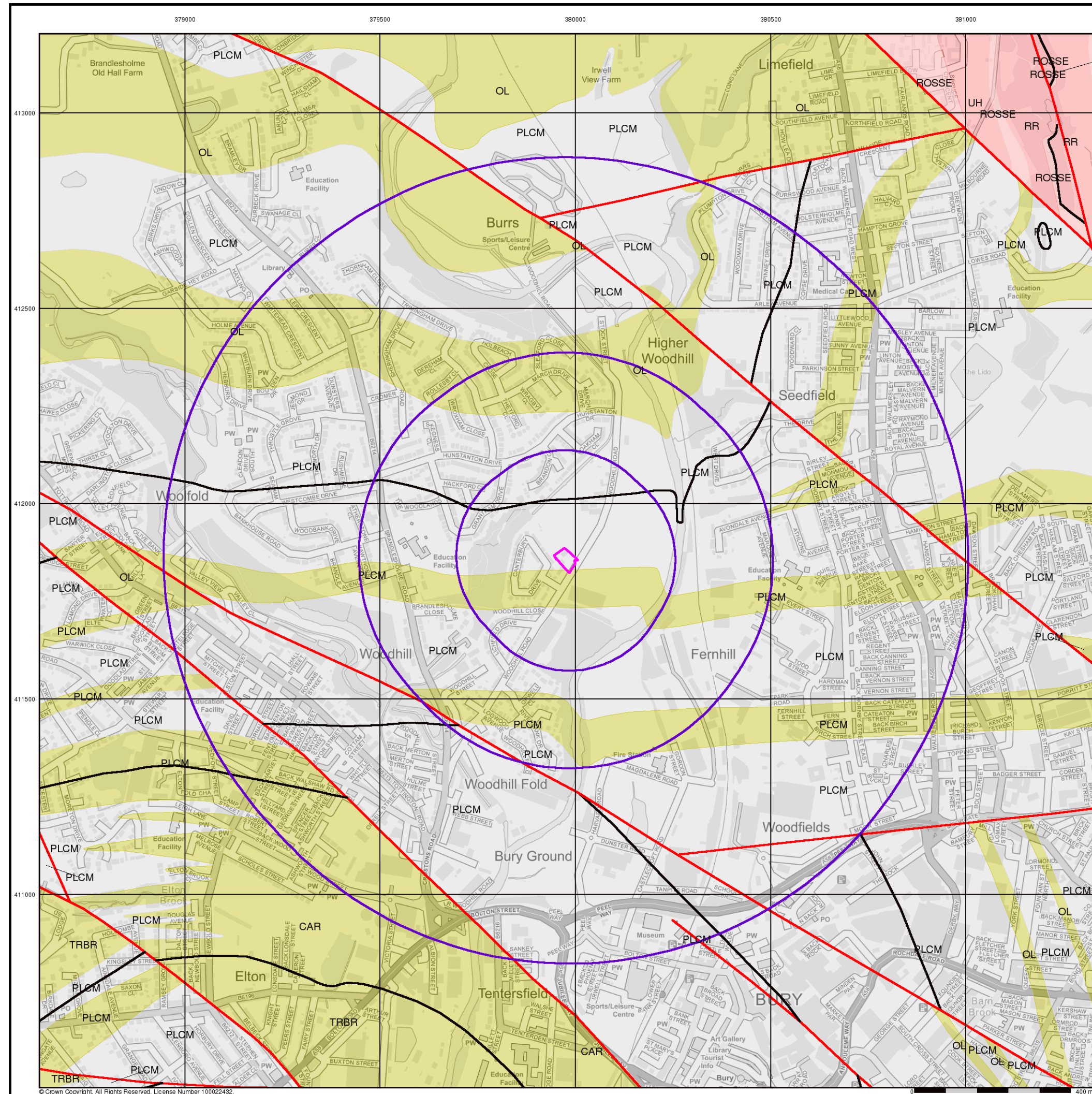
Order Number: 304903456_1_1
Customer Ref: LKC 22 1686
National Grid Reference: 379980, 411860
Slice: A
Site Area (Ha): 0.19
Search Buffer (m): 1000

Site Details

The Gatehouse, Woodhill Road, Bury, BL8 1BN

Landmark
INFORMATION GROUP

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



© Crown Copyright. All Rights Reserved. License Number 100022432.



Bedrock and Faults

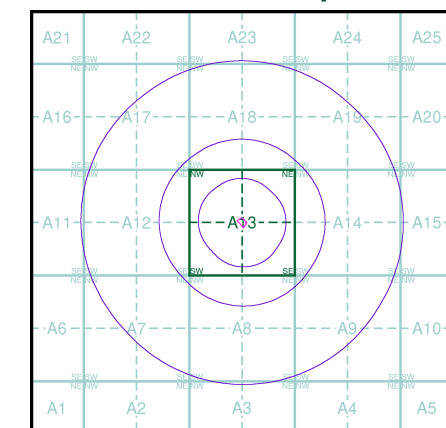
Bedrock geology is a term used for the main mass of rocks forming the Earth and are present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

The bedrock has formed over vast lengths of geological time ranging from ancient and highly altered rocks of the Proterozoic, some 2500 million years ago, or older, up to the relatively young Pliocene, 1.8 million years ago.

The bedrock geology includes many lithologies, often classified into three types based on origin: igneous, metamorphic and sedimentary.

The BGS Faults and Rock Segments dataset includes geological faults and thin beds mapped as lines such as coal seams and mineral veins. These are not restricted by age and could relate to features of any of the 1:10,000 geology datasets.

Bedrock and Faults Map - Slice A



Order Details

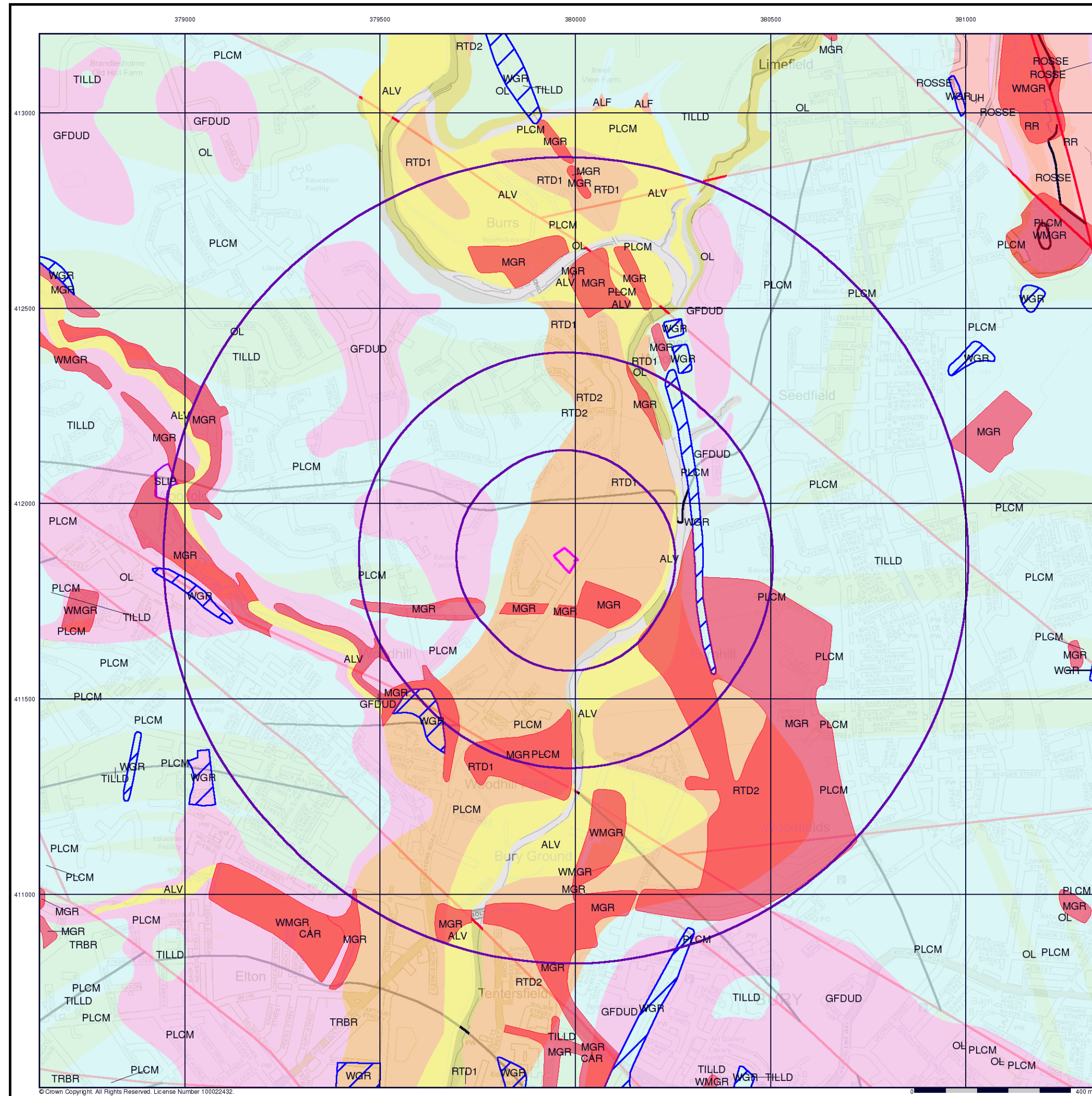
Order Number: 304903456_1_1
Customer Ref: LKC 22 1686
National Grid Reference: 379980, 411860
Slice: A
Site Area (Ha): 0.19
Search Buffer (m): 1000

Site Details

The Gatehouse, Woodhill Road, Bury, BL8 1BN



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



© Crown Copyright. All Rights Reserved. License Number 100022432.



GROUP

Combined Surface Geology

The Combined Surface Geology map combines all the previous maps into one combined geological overview of your site.

Please consult the legends to the previous maps to interpret the Combined "Surface Geology" map.

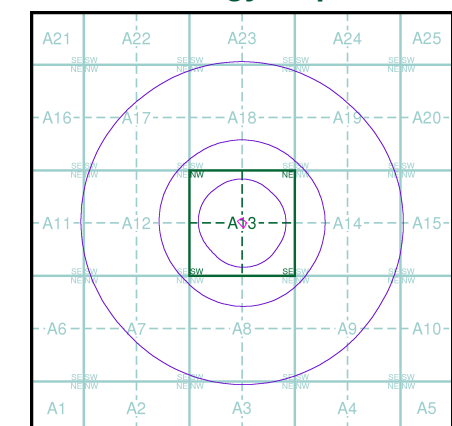
Additional Information

More information on 1:10,000 Geological mapping and explanations of rock classifications can be found on the BGS website. Using the LEX Codes in this report, further descriptions of rock types can be obtained by interrogating the 'BGS Lexicon of Named Rock Units'. This database can be accessed by following the 'Information and Data' link on the BGS website.

Contact

British Geological Survey
Kingsley Dunham Centre
Keyworth
Nottingham
NG12 5GG
Telephone: 0115 936 3143
Fax: 0115 936 3276
email: enquiries@bgs.ac.uk
website: www.bgs.ac.uk

Combined Geology Map - Slice A



Order Details

Order Number: 304903456_1_1
Customer Ref: LKC 22 1686
National Grid Reference: 379980, 411860
Slice: A
Site Area (Ha): 0.19
Search Buffer (m): 1000

Site Details

The Gatehouse, Woodhill Road, Bury, BL8 1BN



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

Appendix B

Coal Authority Consultants Coal Mining Report



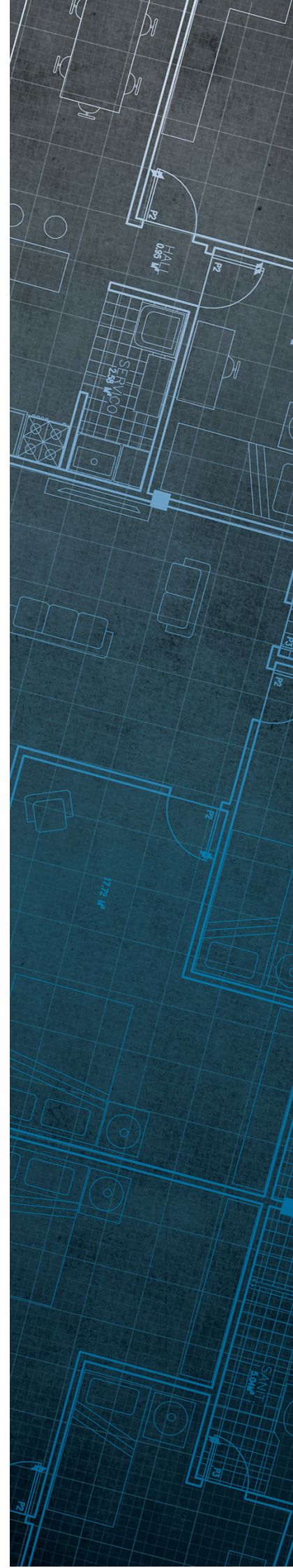
The Coal
Authority

Consultants Coal Mining Report

The Gatehouse
Woodhill Road
Bury
BL8 1BN

Date of enquiry:	9 December 2022
Date enquiry received:	9 December 2022
Issue date:	9 December 2022

Our reference:	51003329637001
Your reference:	LKC 22 1686



Consultants

Coal Mining Report

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

Client name

The LK Group

Enquiry address

The Gatehouse
Woodhill Road
Bury
BL8 1BN

How to contact us

0345 762 6848 (UK)
+44 (0)1623 637 000 (International)

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

www.groundstability.com

 @coalauthority

 /company/the-coal-authority

 /thecoalauthority

 /thecoalauthority



Approximate position of property



Reproduced by permission of Ordnance Survey on behalf of HMSO. © Crown copyright and database right 2018. All rights reserved.

Ordnance Survey Licence number: 100020315

Section 1 – Mining activity and geology

Past underground mining

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
unnamed	ARLEY	Coal	6DMG	15	Beneath Property	3.1	South-East	130	1900

Probable unrecorded shallow workings

Yes.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

None recorded within 100 metres of the enquiry boundary.

Abandoned mine plan catalogue numbers

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

16820		
-------	--	--

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

Outcrops

No outcrops recorded.

Geological faults, fissures and breaklines

No faults, fissures or breaklines recorded.

Opencast mines

None recorded within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

Section 2 – Investigative or remedial activity

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

Site investigations

None recorded within 50 metres of the enquiry boundary.

Remediated sites

None recorded within 50 metres of the enquiry boundary.

Coal mining subsidence

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

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

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

Mine gas

None recorded within 500 metres of the enquiry boundary.

Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

Section 3 – Licensing and future mining activity

Future underground mining

None recorded.

Coal mining licensing

None recorded within 200 metres of the enquiry boundary.

Court orders

None recorded.

Section 46 notices

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

Withdrawal of support notices

The property is not in an area where a notice to withdraw support has been given.

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

Payments to owners of former copyhold land

The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Section 4 – Further information

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

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 500m of 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.

Development advice

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

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

Section 5 – Data definitions

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

Past underground coal mining

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

Probable unrecorded shallow workings

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

Spine roadways at shallow depth

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

Mine entries

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

Abandoned mine plan catalogue numbers

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

Outcrops

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

Geological faults, fissures and breaklines

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

Opencast mines

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

Coal Authority managed tips

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

Site investigations

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

Remediated sites

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

Coal mining subsidence

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

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

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

Mine gas

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

Mine water treatment schemes

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

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

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

Future underground mining

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

Coal mining licensing

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

Court orders

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

Section 46 notices

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

Withdrawal of support notices

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

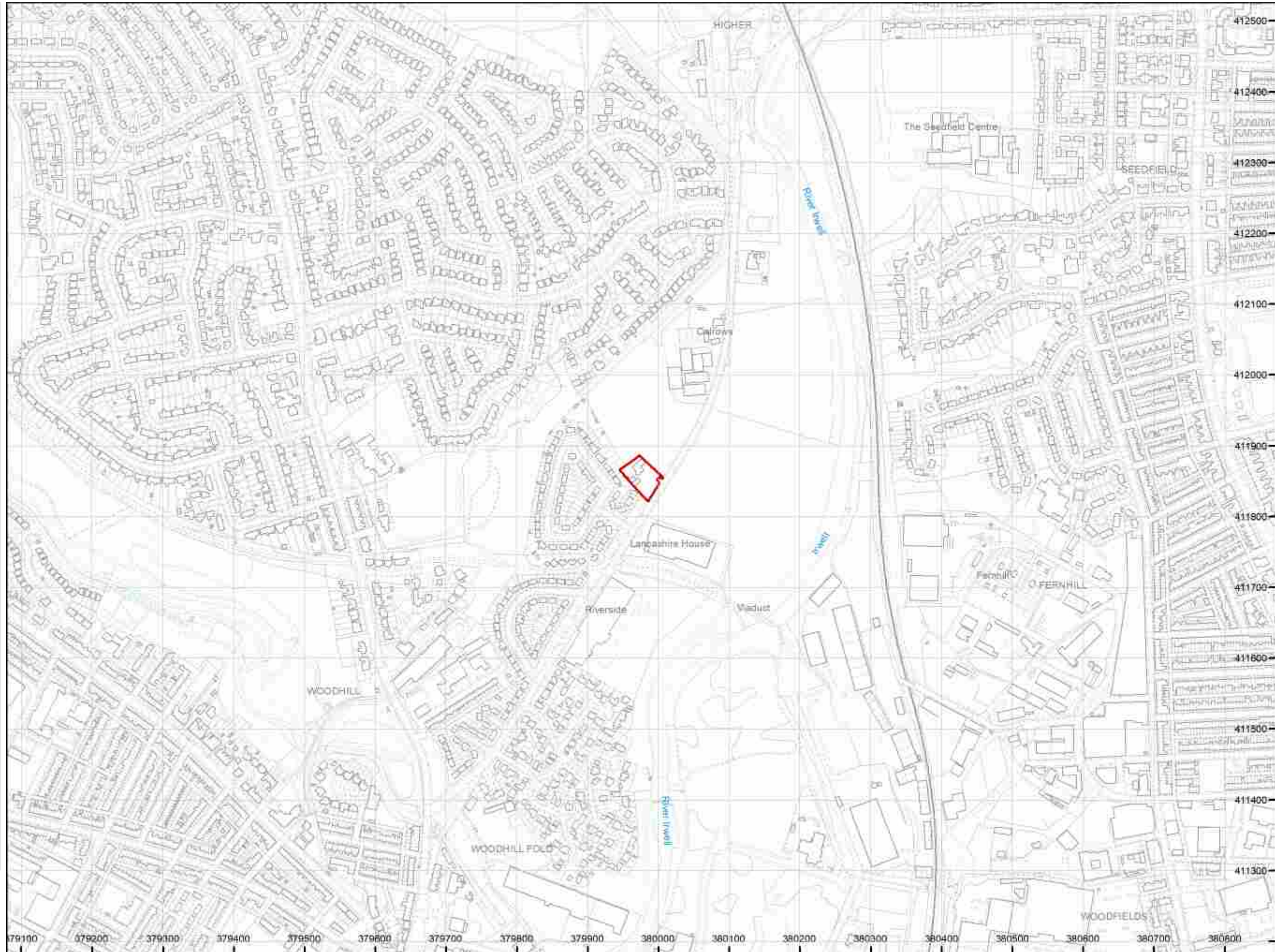
Payment to owners of former copyhold land

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

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

Key

Approximate position of the enquiry
boundary shown



How to contact us

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

Based across the UK with offices in
Manchester, London,
Liverpool, Swindon and Glasgow.

Manchester (Head Office)

Unit 29
Eton Business Park
Eton Hill Rd, Radcliffe
M26 2ZS

t: 0161 763 7200
e: info@thelkgroup.com

Swindon

39 Bowman House Business Centre
Bowman Court
Whitehill Lane
Royal Wootton Bassett
Swindon
SN4 7DB

t: 01793 987 390
e: info@thelkgroup.com

London

Brooklands Business Park
Wellington Way
Weybridge
KT13 0TT

t: 01932 871872
e: info@thelkgroup.com

Glasgow

Wright Business Centre
1 Lonmay Road
Glasgow
G33 4EL

t: 0141 773 6269
e: info@thelkgroup.com

Liverpool

The Corn Exchange
Fenwick Street
Liverpool
L2 7QL

t: 0151 235 8716
e: info@thelkgroup.com



- Geotechnical
- Contaminated Land
- Flood Risk and Drainage
- Asbestos
- Invasive Species
- Land Remediation
- Project Management
- Land Drilling