

78 COUNTLESS LANE RADCLIFFE

DESK BASED COAL MINING RISK ASSESSMENT

Job Number: LKC 23 1042
Date: February 2023
Client: Idnan Anwar



INCREASING LAND VALUE

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LK Consult			
Document Verification			
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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.....	6
2.5	Combustible Coal Seams.....	8
2.6	Historical BGS Logs	8
2.7	Historical Mapping	8
3	Mine Shaft Assessment.....	9
4	Coal Mining Risk Assessment	10
5	Conclusions and Recommendations.....	11

Figures

Figure 1: Site Location and Boundary Plan

Appendices

Appendix A: Geological Mapping

Appendix B: Coal Authority Consultants Coal Mining Report

Appendix C: Policy For Building Over Or Within The Influencing Distance Of A Mine Entry

1 Introduction

LK Consult Ltd (LKC) has been commissioned to carry out a Desk Based Coal Mining Risk Assessment Report (CMRA) for 78 Countess Lane, Radcliffe.

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	North of Countess Lane, Radcliffe, Greater Manchester. Centred at approximate National Grid Reference 376760E 407990N.
Approximate Area	1,100m ² .
Topography	107 metres Above Ordnance Datum (AOD). Site is approximately level.
Current Site Use	Site is currently vacant and comprised grass covered land.
Purpose of Report	Planning.
Planning Ref.	69215.
Proposed Development	Residential housing with gardens / soft landscaping.

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 95, Published 1862, Scale 1:10,560.
 - Sheet 85 Manchester Solid, Published 1975, Scale 1:50,000.
 - Sheet 85 Manchester Bedrock, Published 2010, Scale 1:50,000.
 - Digital Geology, dated 2008, 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

2.2 Geological Mapping

Artificial

No BGS recorded artificial deposits are recorded on site.

Superficial

The superficial geology is mapped as Devensian Till (Diamicton).

Bedrock

The bedrock is mapped as the Pennine Middle Coal Measures Formation (Sandstone) across the southern portion of site, and the Pennine Middle Coal Measures Formation (Sandstone, Siltstone and Mudstone) across the northern portion of site.

No dip data is available on site. Strata in the wider area dips towards the southwest by 22° and the southeast by 22°, however given significant faulting in the area, the data may not be reflective of the strata beneath the site. Based on the mapped locations of the coal seams and the generalised vertical section for BGS sheet 85 scale 1:50,000 it is likely that the strata dips towards the south. The data provided by the Coal Authority indicates that the strata beneath site dips towards the south/southwest at 14°.

A coal seam is shown to subcrop (at rockhead) approximately 10m north which is expected to dip below the site, potentially at shallow depth assuming a dip of between 14-22° south/southwest (approximately 2.50-4.00 metres below rockhead). This coal seam is anticipated to be the White (also known as the Foxholes or Lower Florida) seam (based on 1:50,000 sheet mapping).

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>

Another coal seam is shown to subcrop (at rockhead) approximately 65m north of site on BGS sheet 85 1:10,000 scale mapping. This is likely dip beneath site at shallow depth (between approximately 16.00-26.30metres below rockhead) and is anticipated to be the Pemberton Two Feet seam based on 1:50,000 sheet mapping. This seam is not shown on the Coal Authority maps.

Extracts from geological mapping are shown on Plate 2-1. These show the differences in geological mapping between BGS sheet 85 1:50,000 scale 2010 mapping, 1:10,000 scale digital geology maps dated 2008, and Coal Authority mapping.

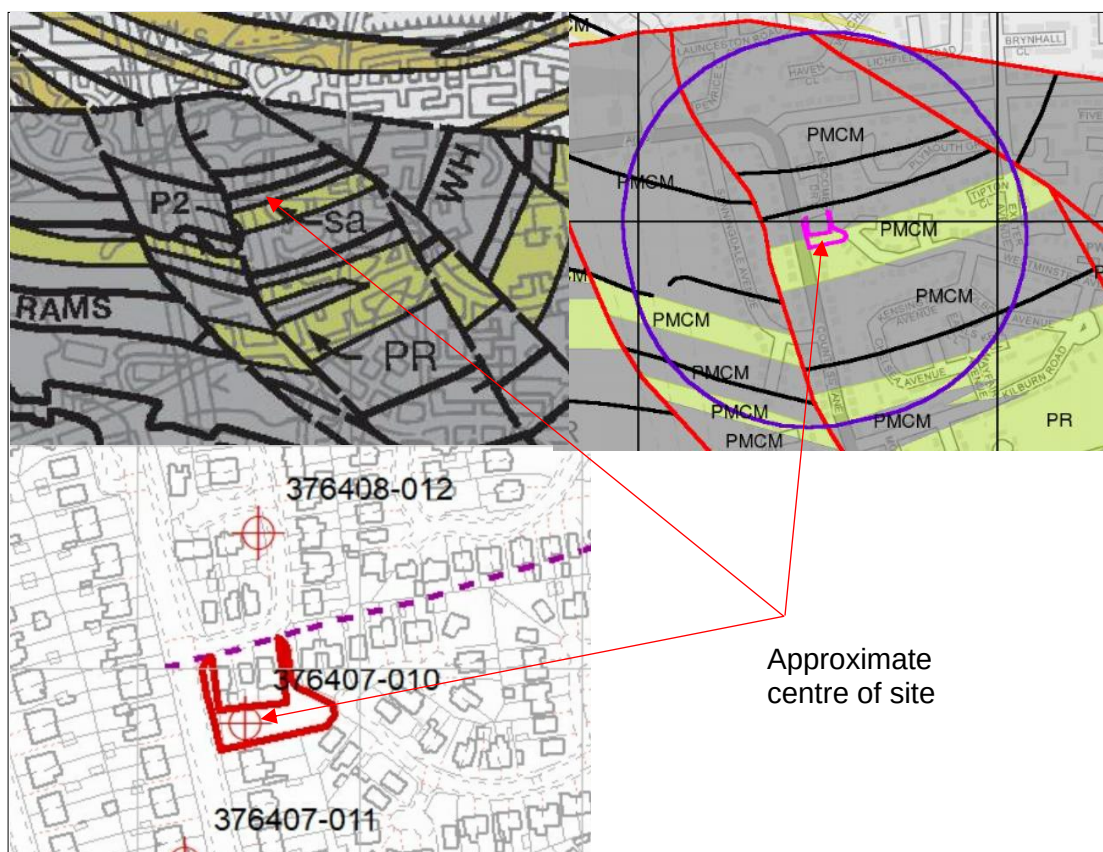


Plate 2-1: Extracts from geological mapping. Top left: 2010 1:50,000 sheet mapping, top right: 2008 1:10,000 digital mapping (left) and bottom left: Coal Authority mapping. Not to scale.

Sheet 85 explanatory notes provide additional information on the coal seams within the Manchester Area and this information is summarised in Table 2-1. The table shows the anticipated shallowest coal seam below the site (White) and the coal seams below this in age order. It should be noted that not all coal seams may be present below the site due to geological variation.

White (Foxholes, Lower Florida)	WH	0.3–1.5	Deep mined and surface mined (opencast)
Pemberton Two Foot (Cannel, Two Feet)	P2	0.0–0.8	Not worked
Pemberton Four Foot (Black, Town Lane)	P4	0.0–1.3	Not worked

Table 2-1. Extract from the Geology of Manchester district explanatory notes.

2.3 Coal Authority Consultants Coal Mining Report

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

Mining Activity and Geology	
Past underground mining	Yes: See Plate 2-3.
Probable unrecorded shallow workings	Yes.
Spine roadways at shallow depth	No spine roadway recorded at shallow depth.
Mine entries (within 100m)	Yes: See Plate 2-4.
Abandoned mine plan catalogue numbers	5419, 9822, NW998, NW983, 0, 16820, NW290, PO0, NW1000.
Outcrops	Yes: see Plate 2-5.
Geological faults, fissures and breaklines	No faults, fissures or breaklines recorded.
Opencast mines	Opencast mine recorded within 500m of the enquiry boundary. See 'Summary of Findings' map in Appendix B.
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. 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.	

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

Plate 2-3 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	DOE	Coal	3Z3J	56	West	16.0	South-West	240	1926
unnamed	WIGAN FIVE FEET	Coal	3XBX	69	North-West	16.0	South-West	110	1908
unnamed	TRENCHERB ONE	Coal	3YWZ	148	Beneath Property	14.0	South	160	1908
unnamed	TRENCHERB ONE	Coal	3Y93	148	North	14.0	South	160	1908
unnamed	TRENCHERB ONE	Coal	3YX7	180	South-East	9.5	South	160	1908
unnamed	CANNEL	Coal	3YQR	182	Beneath Property	14.0	South	150	1908
unnamed	CANNEL	Coal	3Y5F	184	North	14.0	South	150	1908

Plate 2-3: 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 shows the mine entries within 100m of the site boundary.

Entry type	Reference	Grid reference	Treatment description	Mineral	Conveyancing details
Shaft	376407-010	376749 407975	This shaft was searched for in 1979 by George Wimpey @ Co but no evidence of the shaft was found	Coal	
Shaft	376407-011	376722 407912	This shaft was filled circa 1961 by Whelan the site developers to an unknown specification	Coal	
Shaft	376408-012	376755 408060	This shaft was located and capped with a 8.0m square x 0.55m thick reinforced concrete cap in 1981 to the then National Coal Board specification by Wimpey Construction UK Ltd.	Coal	

Plate 2-4: Extract from Coal Authority Report showing mine entries within 100m.

Shaft references 376749-010 is within the site boundary. Shaft references 376407-011 is located over 50m from the site boundary, and 376408-012 is located approximately 50m from the site boundary (offsite).

Plate 2-5 shows the coal outcrops. This is defined by the Coal Authority as ‘*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 50m 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.*’

Seam name	Mineral	Seam workable	Distance to outcrop (m)	Direction to outcrop	Bearing of outcrop
LOWER FLORIDA	Coal	Yes	11.8	North-East	75
LOWER FLORIDA	Coal	Yes	0.3	North	255

Plate 2-5: Extract from Coal Authority Report showing outcrops.

Plate 2-6 shows an extract of the plan provided with the Coal Authority Consultants Coal Mining Report.

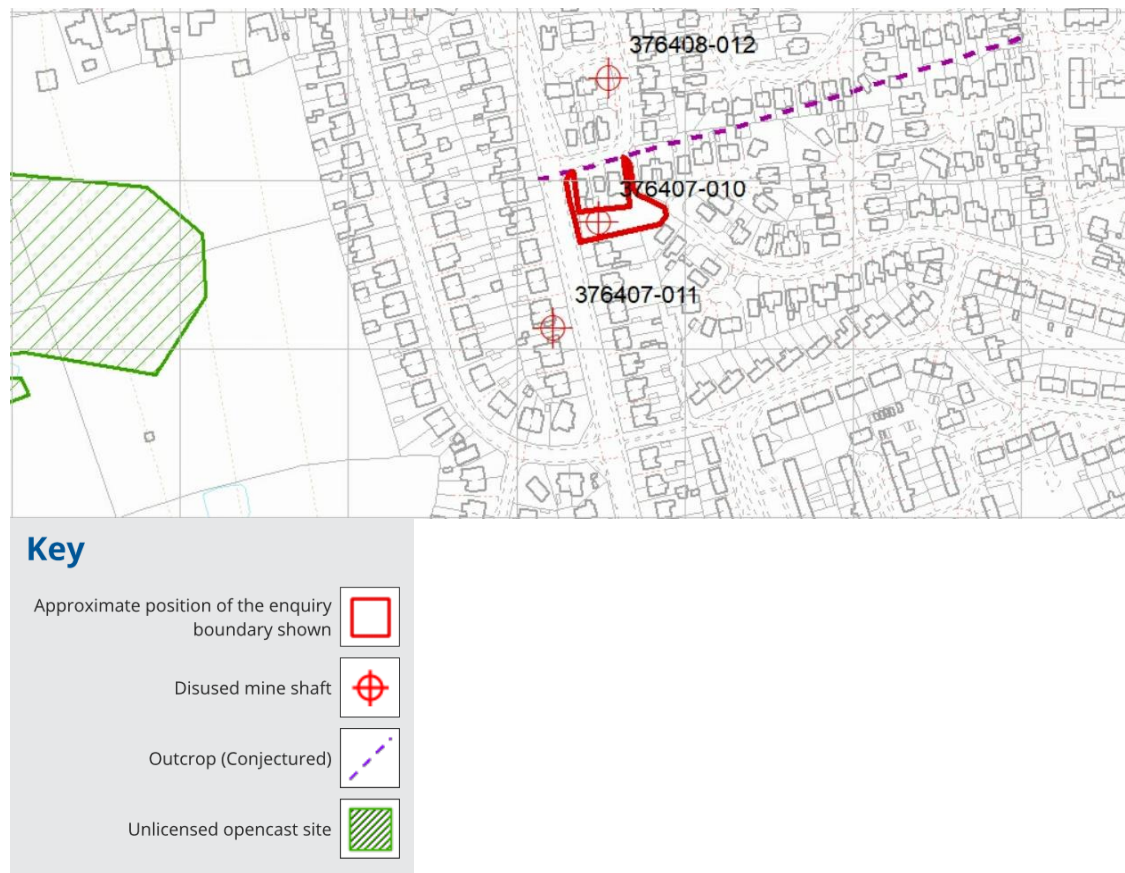


Plate 2-6: Extract from Coal Authority Consultants Coal Mining Report – Summary of Findings. showing outcrops.

2.4 Coal Authority Interactive Mapping

Plate 2-7 shows the development high risk areas.

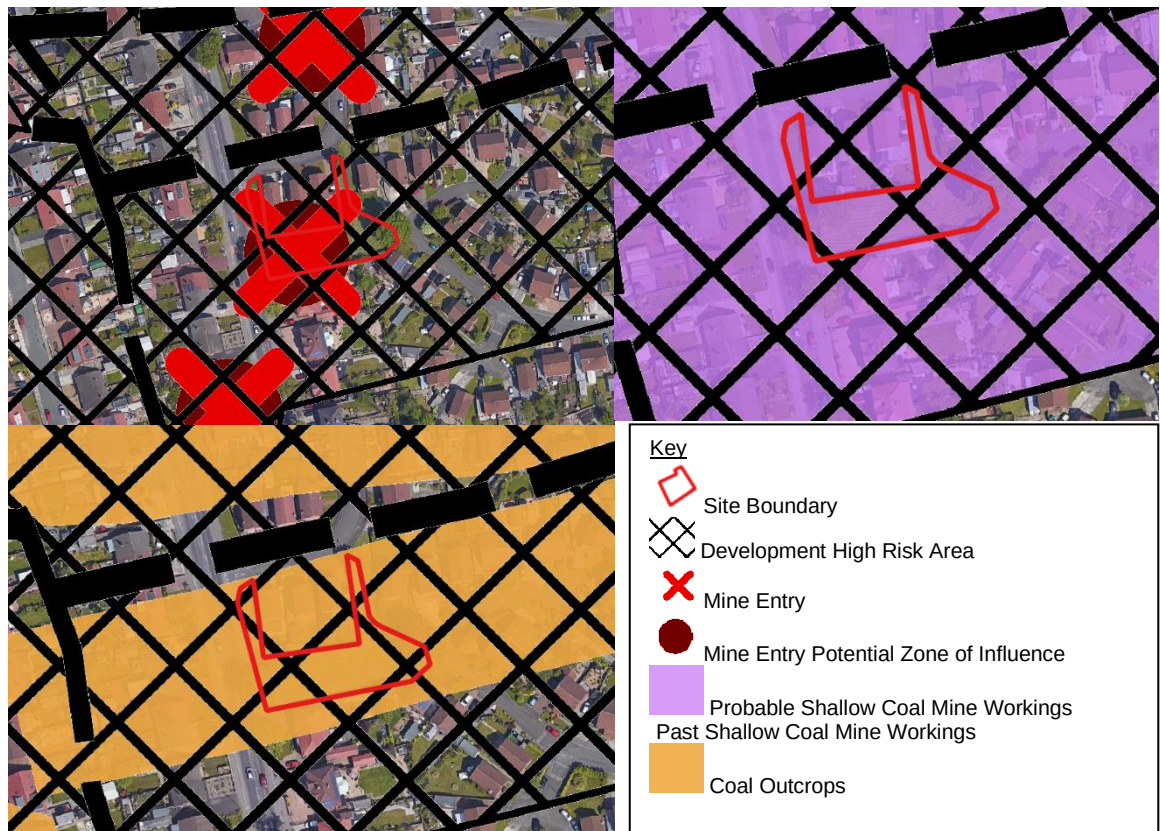


Plate 2-7: Development High Risk Area

The site is within a Development High Risk Area, with the following features identified:

- 1no. Mine Entry with Mine Entry Potential Zones of Influence – centre of site.
- Probable Shallow Coal Mine Workings relating to coal outcrops – whole site.

The following additional information is available on the mine shafts within influencing distance of the site (assumes distances are in metres):

Ref: 376749-010

Treated: true
Assumed shaft diameter: 2.5
Shaft Depth: 23
Departure: 10

Ref: 376407-011

Treated: True
Actual shaft diameter: 2.1
Shaft depth: 69
Name: Lancs
Departure: 5

Ref: 376408-012

Treated: False
Actual shaft diameter: 2.5
Departure: 0

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.

The list includes the Lower Florida (also known as the White, Foxholes), which is anticipated at shallow depth below the site. In addition, Trencherbone seam (also known as the Wigan Six Feet or Oldham Great), is recorded as worked beneath site.. The onsite mine shaft may also act as a preferential pathway for gas generated by these two seams therefore they are considered to pose a risk to the site.

In addition, if roof coal is left, this could also pose a risk.

2.6 Historical BGS Logs

No nearby historical boreholes of significance are available.

2.7 Historical Mapping

The following historical features have been identified associated with coal mining:

- A coal pit is shown on site on 1850 mapping only.
- Another coal pit is shown to the southwest of site between 1850-1955 mapping. It is annotated as 'Old Shaft' from 1893 mapping.

3 Mine Shaft Assessment

1no. mine entry is located within the site boundary and 2no. mine entries are located within 100m of the site boundary. Shaft Reference 376407-011 is not considered to pose a significant risk due to the distance of the shaft from site (over 50m).

The Coal Authority interactive map indicates that the onsite shaft has been treated. No treatment details are known. The consultant's report indicates that the shaft was searched for but not located in 1979. It is therefore assumed that collapse of the shafts could occur particularly when ground is disturbed, and loadings are increased (i.e. as part of earthworks and construction work).

Potential collapse is influenced by the ground and can be dependent on the strength and thickness of superficial deposits, bedrock properties, connected mine entries and hydrogeology.

The exterior zone of collapse is illustrated in Plate 3-1 (extract from C758⁵):

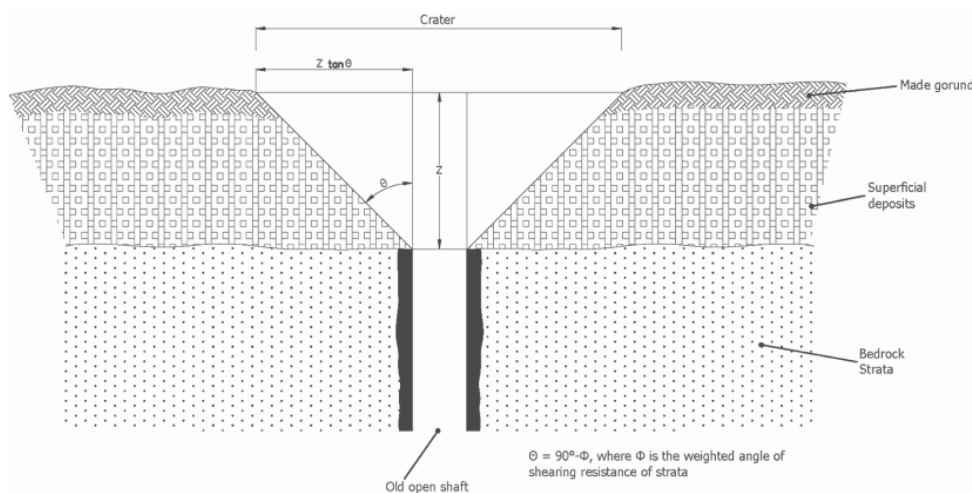


Plate 3-1: Extract from C758 showing exterior zone of collapse.

A calculation should be undertaken using the depth to bedrock on site and the weighted angle of shearing resistance of the strata above the bedrock to determine the potential zone of collapse from the edge of each mine shaft. As no boreholes are available within influencing distance of the site, the depth to bedrock is unknown at this stage.

The zones of influence can be calculated once additional information on the ground conditions, depths to rockhead, the mine shafts and topography are known. At this stage the offsite shaft reference 376407-012 is considered to pose a low risk to the development given that it is located approximately 50m from site, but this risk will need to be confirmed on completion of intrusive investigation.

The onsite mine shaft is considered to pose a high risk to the proposed development.

⁵ CIRIA (2019). "Abandoned Mine Workings Manual". CIRIA C758

4 Coal Mining Risk Assessment

Table 4-1 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)	X	No recorded shallow underground workings below the site. The shallowest workings recorded are at 148m depth (Trencherbone seam), these are not considered to pose a risk of ground instability at the site surface. No further assessment required.
Underground coal mining (probable at shallow depths)	✓	Probable underground shallow workings recorded by the Coal Authority, likely within the White (Lower Florida, Foxholes between 2.50-4.00metres below rockhead) and Pemberton Two Feet seams (16.20-26.30metres below rockhead). Further coal seams may also be present. 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)	✓	See Section 3. A risk has been identified associated with onsite shaft 376749-010. The low risk associated with the offsite mine shaft 376749-011. Investigation work recommended and a watching brief during groundworks.
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. In addition, the Lower Florida seam (expected at shallow depth below the site) and Trencherbone seam (workings recorded at 148m depth below site) has the potential to spontaneously combust when being entered, worked or disturbed. The onsite mine shaft likely to act as preferential pathway for 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 4-1: Potential Coal Mining Risks.

Notes:

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

5 Conclusions and Recommendations

Summary

Based upon the available information, LKC have identified potential shallow coal mining risks which are summarised in Table 5-1.

Coal Mining Issue	Potential Risk
Underground coal mining (recorded at shallow depths)	X
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 5-1: Summary of coal mining potential risks.

Site Investigation Recommendations

Considering the available information and guidance given in CIRIA C758⁶, 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 5-2.

Coal Mining Issue	Investigation Work
Underground coal mining (recorded at shallow depths)	N/A
Underground coal mining (probable 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. Watching brief during groundworks to check for any signs of mining related ground instability (see below).
Mine entries (shafts / adits)	Intrusive investigation to confirm depth to bedrock to allow potential zone of influence to be calculated to confirm risk from offsite shaft. Trenching / probing to locate onsite mine shaft ref. 376749-010. Follow on drilling to confirm the depth and treatment of the shaft.
Coal mining geology (fissures)	N/A
Record of past mine gas emissions	Gas monitoring and detailed gas risk assessment in line with CIRIA 655 ⁷ and CL:AIRE Coal Mine Gas Emissions guidance ⁸ .
Recorded coal mining surface hazard	N/A
Surface mining (opencast workings)	N/A

Table 5-2: 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.

⁶ CIRIA (2019). "Abandoned Mine Workings Manual". CIRIA C758

⁷ CIRIA (2007). "Assessing Risks Posed by Hazardous Ground Gases to Buildings". CIRIA C665.

⁸ CL:AIRE (2020). "Good Practice for Risk Assessment for Coal Mine Gas Emissions".

Investigation work should be carried out in line with CIRIA C758⁹ and Coal Authority guidance.

A Coal Authority Permit¹⁰ is required for intrusive activities which will disturb or enter any coal seams, coal mine workings or coal mine entries (shafts and adits).

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 presence of mine entries on 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 5-3 provides possible mitigation options.

Coal Mining Issue	Mitigation Measures
Underground coal mining (recorded at shallow depths)	N/A
Underground coal mining (probable at shallow depths)	Stabilisation of the ground (i.e. grouting) and suitable foundations to be implemented.
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' ¹¹ (See Appendix C).
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

⁹ CIRIA (2019). "Abandoned Mine Workings Manual". CIRIA C758

¹⁰ <https://www.gov.uk/get-a-permit-to-deal-with-a-coal-mine-on-your-property>

¹¹ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/363064/policy-for-building-over-or-within-the-influencing.pdf

Table 5-3: Summary of potential mitigation measures.

Conclusions and Safe Development

Investigation work is required to confirm the risks associated with probable underground workings, mine entries and mine gas.

The zones of influence associated with the mine entries will need to be considered when designing the development plans. The design will need to take into account The Coal Authority's 'Policy for Building Over or Within The Influencing Distance of A Mine Entry'.

Figures



Client: Idnan Anwar				Title: Site Location & Boundary Plan			
Site: 78 Countess Lane, Radcliffe				Scale (see scale bar): 1:25,000 & 1:2,000 @ A4			
Job No.: LKC 23 1042	Drawn By: HM	Checked By: BS	Drawn: Feb 2023	Figure: 1	Revision:		

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
	WMGR	Infilled Ground	Artificial Deposit	Holocene - Holocene
	WGR	Worked Ground (Undivided)	Void	Holocene - Holocene
	LSGR	Landscaped Ground (Undivided)	Artificial Deposit	Holocene - Holocene
	DDGR	Disturbed Ground (Undivided)	Unknown/Unclassified Entry	Holocene - Holocene

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
	GFSDD	GLACIOFLUVIAL SHEET DEPOSITS, DEVENSIAN	Sand and Gravel	Devensian - Ipswichian

Bedrock and Faults

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	NR	Nob End Rock	Sandstone	Bolsovian - Bolsovian
	PMCM	Pennine Middle Coal Measures Formation	Sandstone	Bolsovian - Duckmantian
	PMCM	Pennine Middle Coal Measures Formation	Mudstone, Siltstone and Sandstone	Bolsovian - Duckmantian
	PR	Peel Hall Rock	Sandstone	Duckmantian - Duckmantian
	PLCM	Pennine Lower Coal Measures Formation	Mudstone, Siltstone and Sandstone	Langsettian - Langsettian
	TRBR	Trencherbone Rock	Sandstone	Langsettian - Langsettian
	PLCM	Pennine Lower Coal Measures Formation	Sandstone	Langsettian - Langsettian
	CAR	Cannel Rock (South Lancashire)	Sandstone	Langsettian - Langsettian
	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.

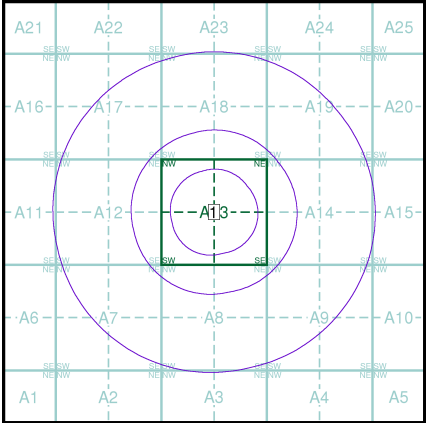
The various geological layers - artificial and landslip deposits, superficial geology and solid (bedrock) geology are displayed in separate maps, but superimposed on the final 'Combined Surface Geology' map. All map legends feature on this page.

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:	1
Map Name:	SD70NE
Map Date:	2008
Bedrock Geology:	Available
Superficial Geology:	Available
Artificial Geology:	Available
Faults:	Available
Landslip:	Available
Rock Segments:	Available

Geology 1:10,000 Maps - Slice A



Order Details

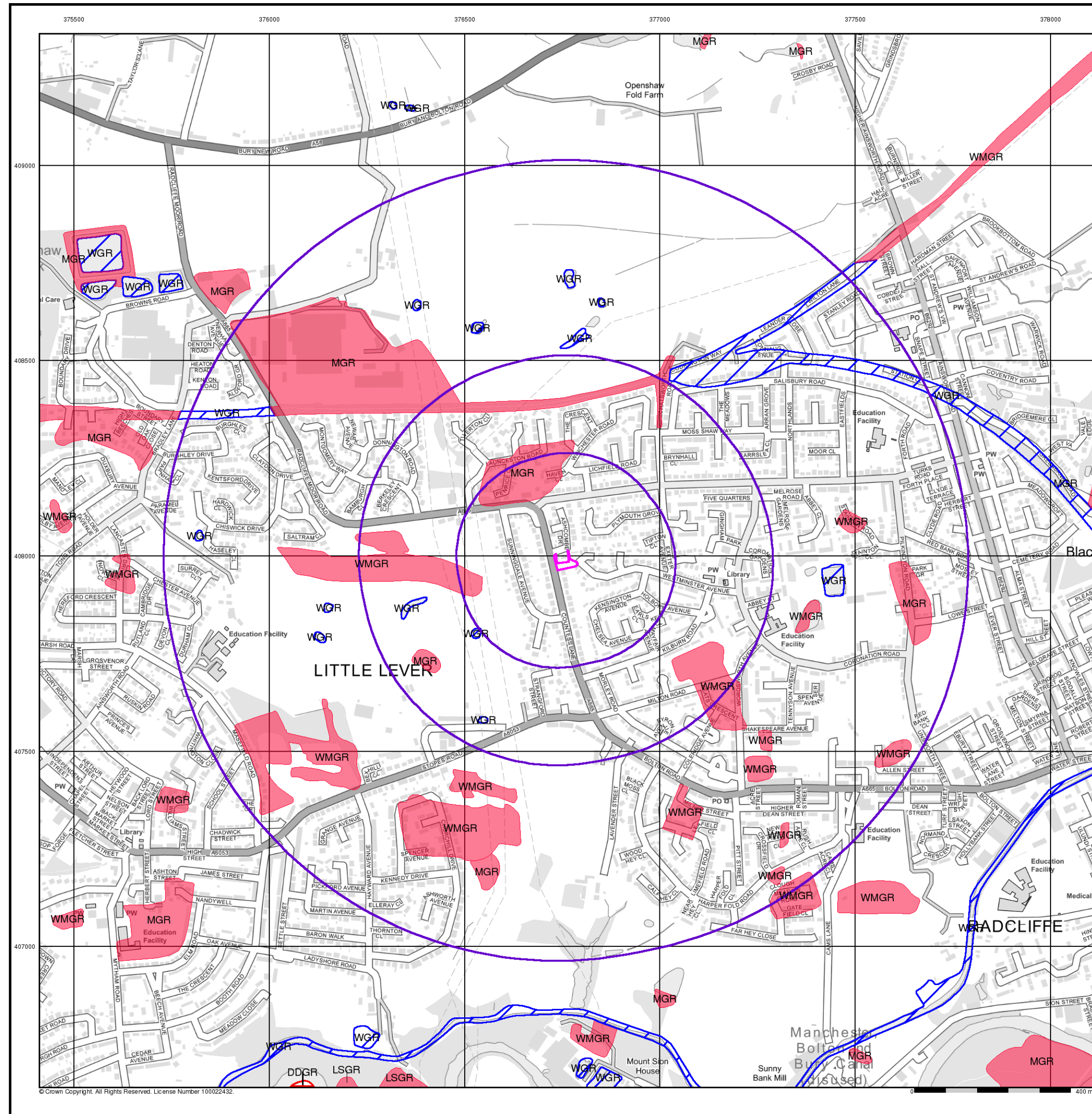
Order Number:	306516526_1_1
Customer Ref:	LKC 23 1042
National Grid Reference:	376760, 407990
Slice:	A
Site Area (Ha):	0.11
Search Buffer (m):	1000

Site Details

78, Countess Lane, Radcliffe, Manchester, M26 3NH



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



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Artificial Ground and Landslip

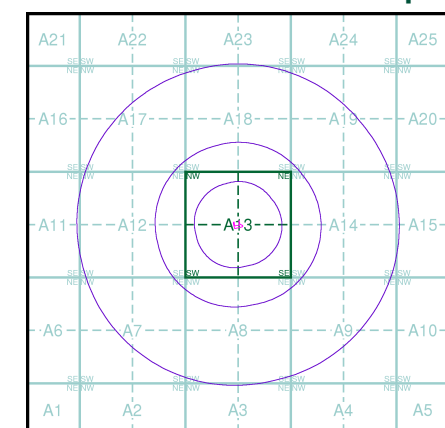
Artificial ground is a term used by BGS for those areas where the ground surface has been significantly modified by human activity. Information about previously developed ground is especially important, as it is often associated with potentially contaminated material, unpredictable engineering conditions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

Artificial Ground and Landslip Map - Slice A



Order Details

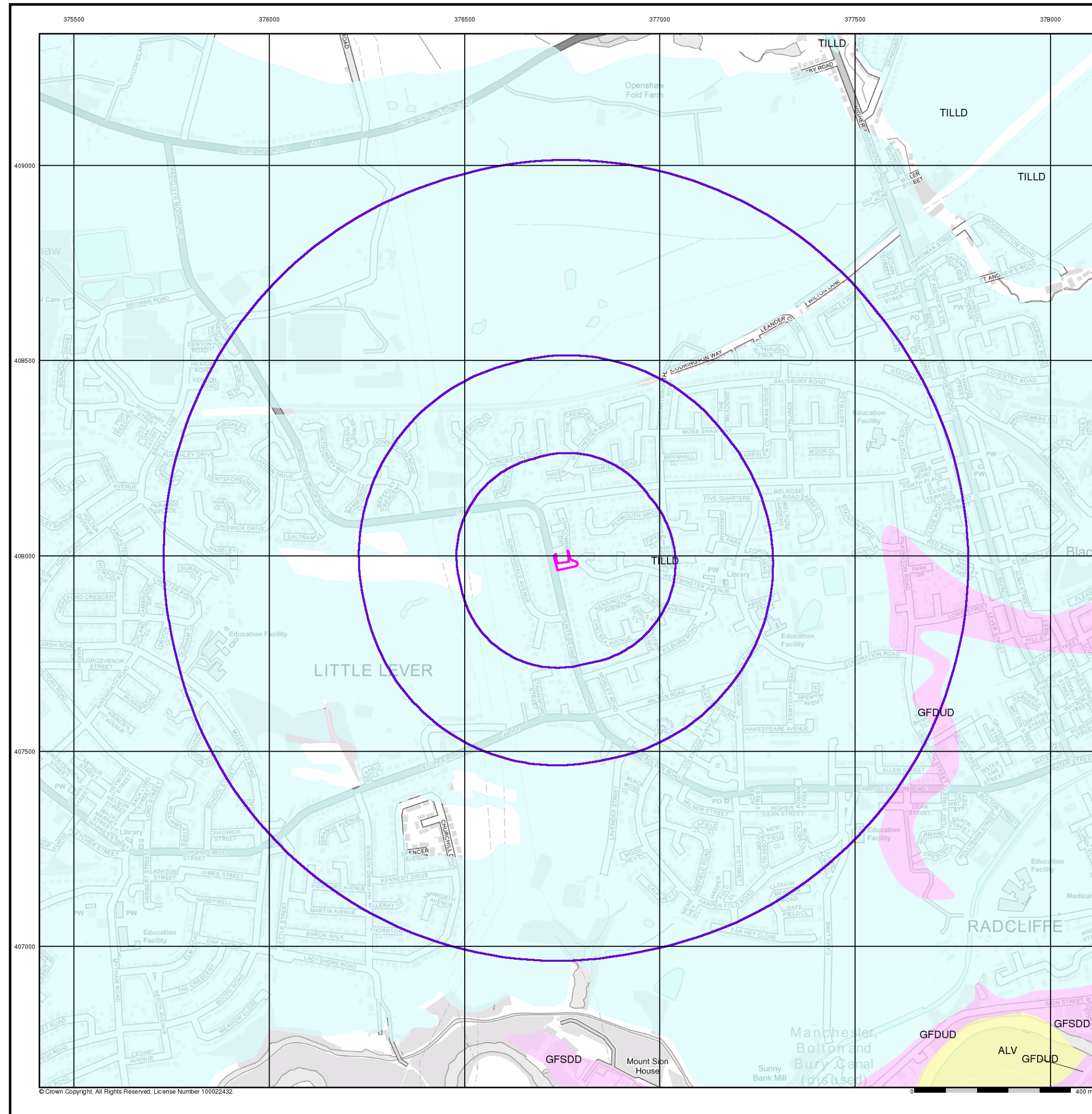
Order Number: 306516526_1_1
Customer Ref: LKC 23 1042
National Grid Reference: 376760, 407990
Slice: A
Site Area (Ha): 0.11
Search Buffer (m): 1000

Site Details

78, Countess Lane, Radcliffe, Manchester, M26 3NH



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



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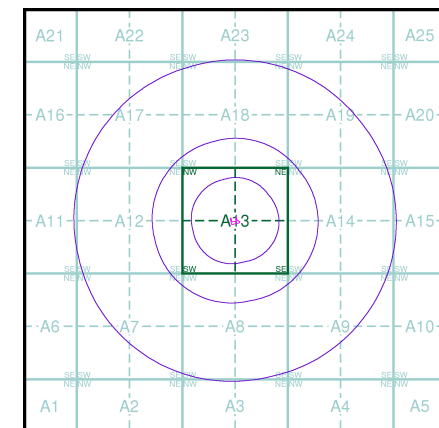
Superficial Geology

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

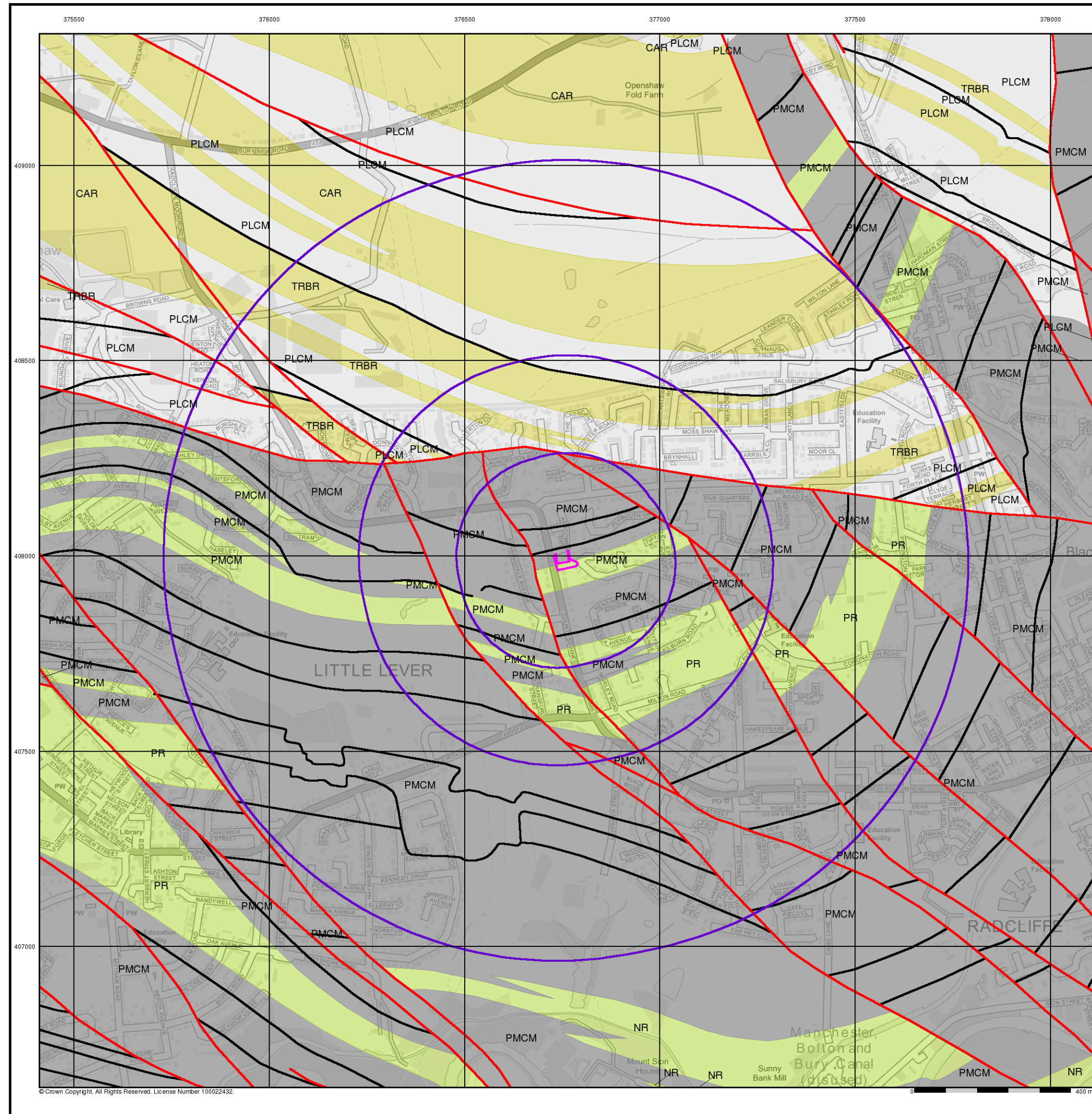


Order Details
Order Number: 306516526_1_1
Customer Ref: LKC 23 1042
National Grid Reference: 376760, 407990
Slice: A
Site Area (Ha): 0.11
Search Buffer (m): 1000

Site Details
78, Countess Lane, Radcliffe, Manchester, M26 3NH

Landmark
INFORMATION GROUP

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Bedrock and Faults

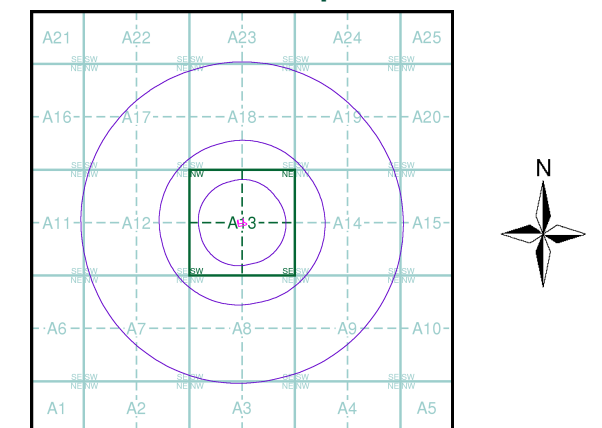
Bedrock geology is a term used for the main mass of rocks forming the Earth and are present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

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

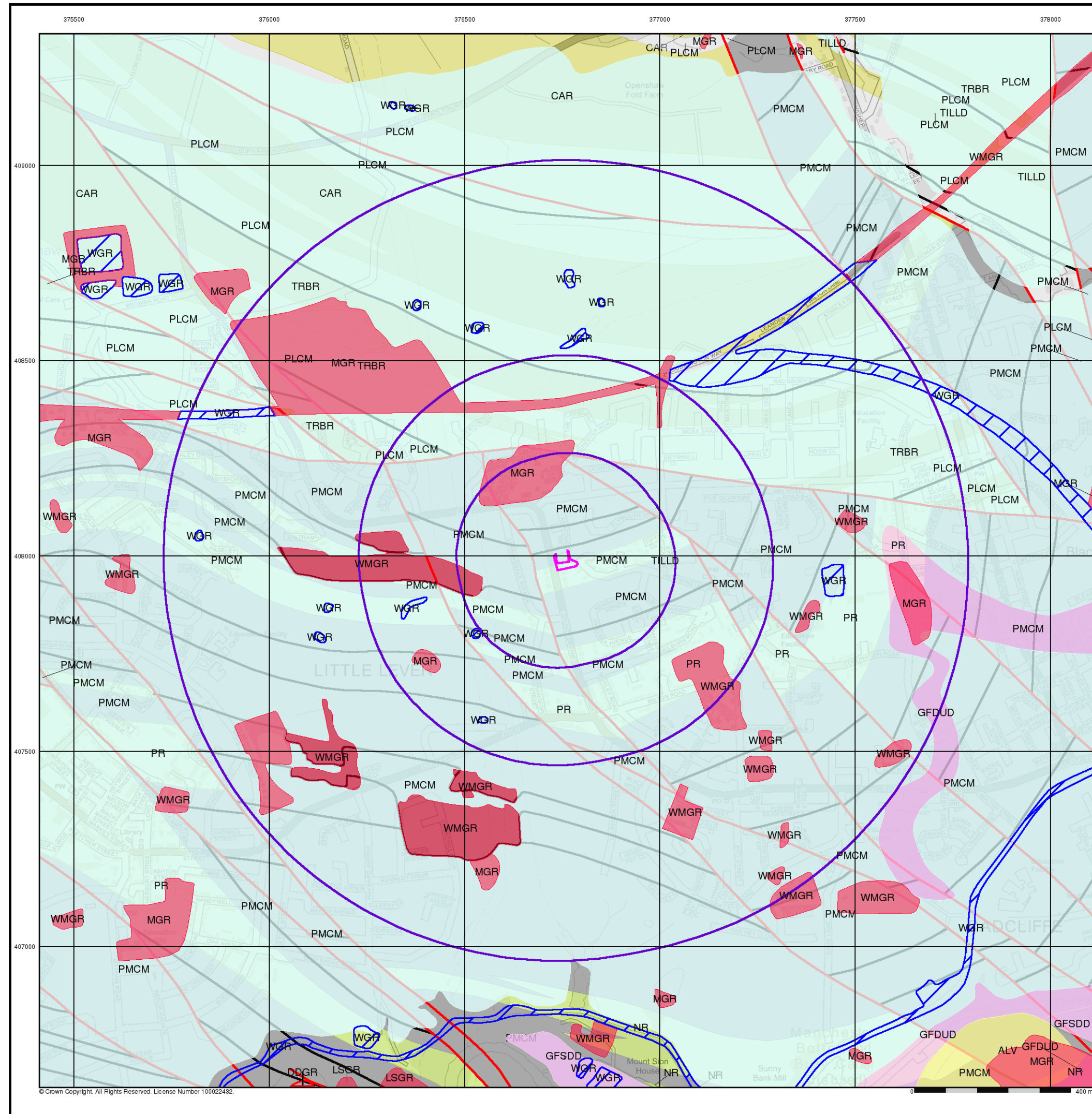
Order Number: 306516526_1_1
Customer Ref: LKC 23 1042
National Grid Reference: 376760, 407990
Slice: A
Site Area (Ha): 0.11
Search Buffer (m): 1000

Site Details

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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.

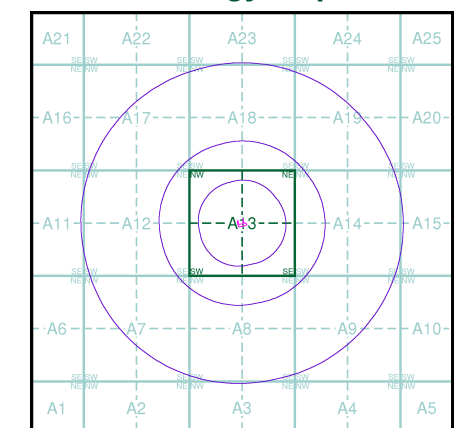
Additional Information

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

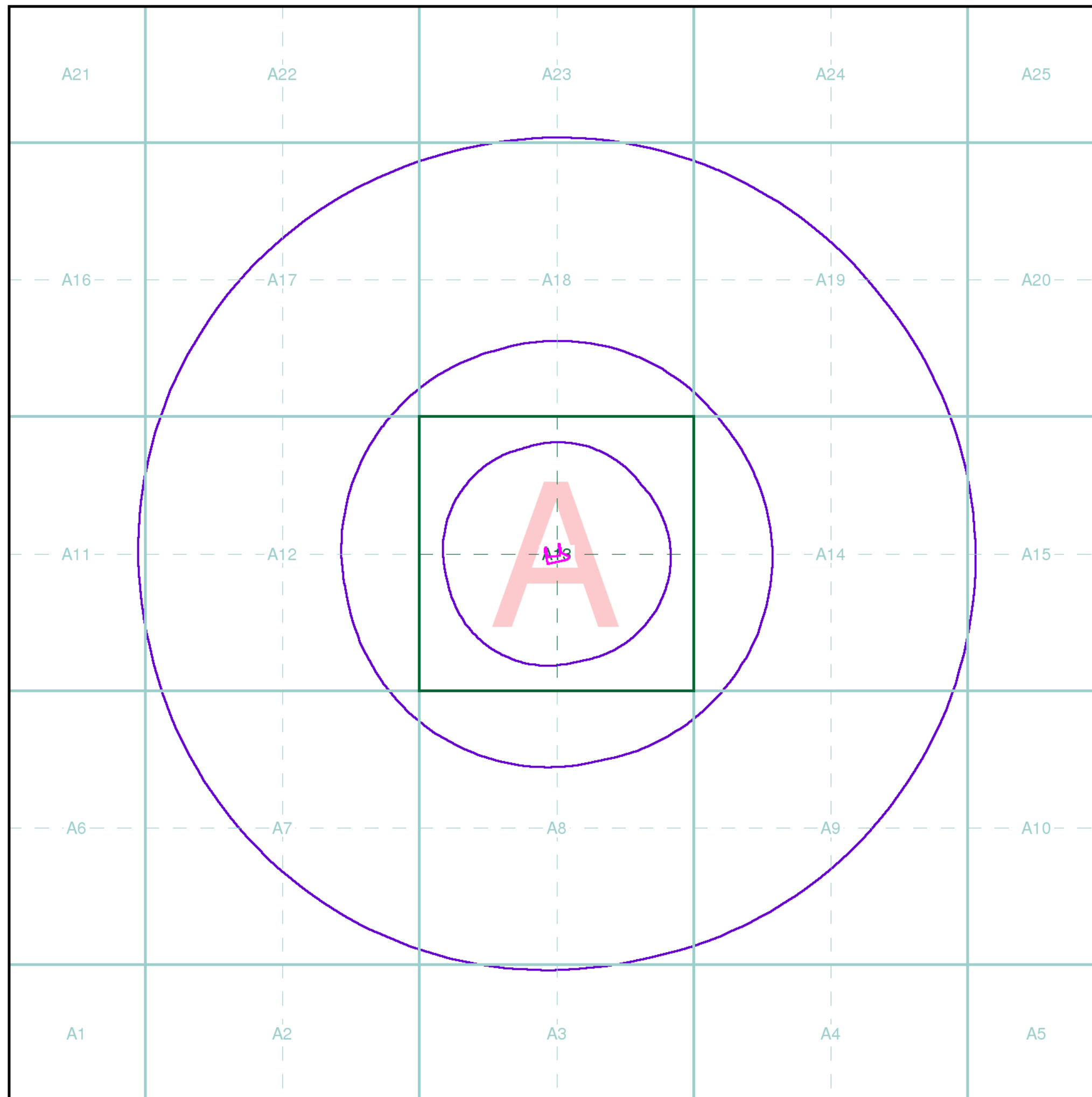
Order Number: 306516526_1_1
Customer Ref: LKC 23 1042
National Grid Reference: 376760, 407990
Slice: A
Site Area (Ha): 0.11
Search Buffer (m): 1000

Site Details

78, Countess Lane, Radcliffe, Manchester, M26 3NH



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Index Map

For ease of identification, your site and buffer have been split into Slices, Segments and Quadrants. These are illustrated on the Index Map opposite and explained further below.

Slice
Each slice represents a 1:10,000 plot area (2.7km x 2.7km) for your site and buffer. A large site and buffer may be made up of several slices (represented by a red outline), that are referenced by letters of the alphabet, starting from the bottom left corner of the slice "grid". This grid does not relate to National Grid lines but is designed to give best fit over the site and buffer.

Segment
A segment represents a 1:2,500 plot area. Segments that have plot files associated with them are shown in dark green, others in light blue. These are numbered from the bottom left hand corner within each slice.

Quadrant
A quadrant is a quarter of a segment. These are labelled as NW, NE, SW, SE and are referenced in the datasheet to allow features to be quickly located on plots. Therefore a feature that has a quadrant reference of A7NW will be in Slice A, Segment 7 and the NW Quadrant.

A selection of organisations who provide data within this report:



Envirocheck reports are compiled from 136 different sources of data.

Client Details

L Consult, LK Consult Ltd, Unit 29 Eton Business Park,
Eton Hill Road, Radcliffe, Greater Manchester, M26 2ZS

Order Details

Order Number: 306516526_1_1
Customer Ref: LKC 23 1042
National Grid Reference: 376760, 407980
Site Area (Ha): 0.11
Search Buffer (m): 1000

Site Details

78, Countess Lane, Radcliffe, Manchester, M26 3NH

Full Terms and Conditions can be found on the following link:
<http://www.landmarkinfo.co.uk/Terms/Show/515>



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Appendix B

Coal Authority Consultants Coal Mining Report

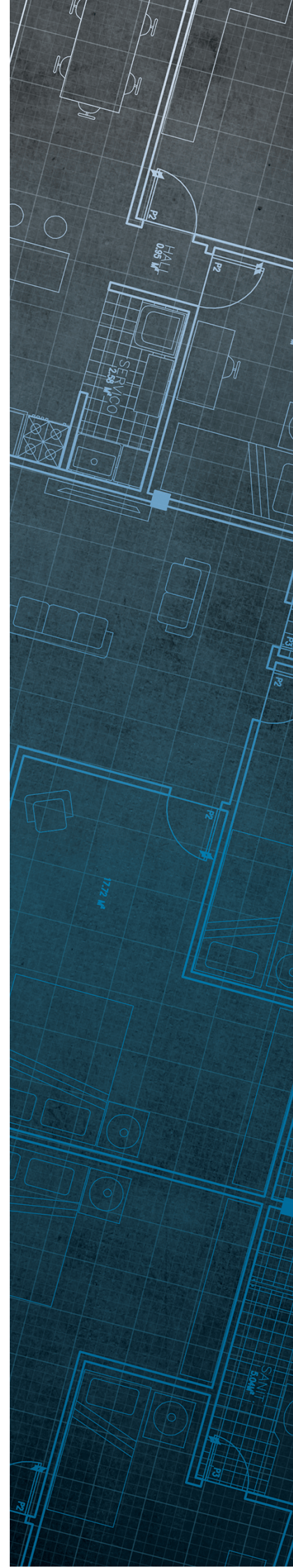


The Coal
Authority

Consultants Coal Mining Report

78 Countess Lane
Radcliffe
Bury
M26 3NH

Date of enquiry:	27 January 2023
Date enquiry received:	27 January 2023
Issue date:	27 January 2023
Our reference:	51003335781001
Your reference:	LKC 23 1042



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

78 Countess Lane
Radcliffe
Bury
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How to contact us

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

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

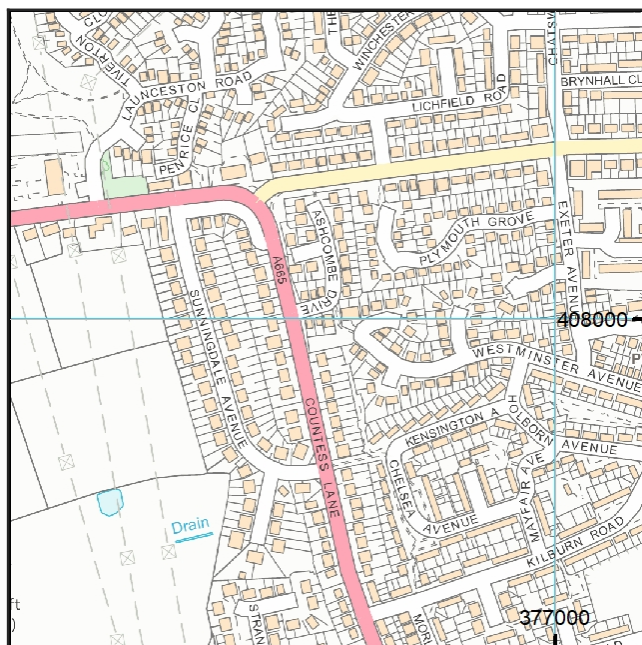
www.groundstability.com

 @coalauthority

 /company/the-coal-authority

 /thecoalauthority

 /thecoalauthority



Approximate position of property



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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	DOE	Coal	3Z3J	56	West	16.0	South-West	240	1926
unnamed	WIGAN FIVE FEET	Coal	3XBX	69	North-West	16.0	South-West	110	1908
unnamed	TRENCHERB ONE	Coal	3YWZ	148	Beneath Property	14.0	South	160	1908
unnamed	TRENCHERB ONE	Coal	3Y93	148	North	14.0	South	160	1908
unnamed	TRENCHERB ONE	Coal	3YX7	180	South-East	9.5	South	160	1908
unnamed	CANNEL	Coal	3YQR	182	Beneath Property	14.0	South	150	1908
unnamed	CANNEL	Coal	3Y5F	184	North	14.0	South	150	1908

Probable unrecorded shallow workings

Yes.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

Entry type	Reference	Grid reference	Treatment description	Mineral	Conveyancing details
Shaft	376407-010	376749 407975	This shaft was searched for in 1979 by George Wimpey @ Co but no evidence of the shaft was found	Coal	
Shaft	376407-011	376722 407912	This shaft was filled circa 1961 by Whelan the site developers to an unknown specification	Coal	
Shaft	376408-012	376755 408060	This shaft was located and capped with a 8.0m square x 0.55m thick reinforced concrete cap in 1981 to the then National Coal Board specification by Wimpey Construction UK Ltd.	Coal	

Abandoned mine plan catalogue numbers

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

5419	9822	NW998
NW983	0	16820
NW290	PO0	NW1000

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

Outcrops

Seam name	Mineral	Seam workable	Distance to outcrop (m)	Direction to outcrop	Bearing of outcrop
LOWER FLORIDA	Coal	Yes	11.8	North-East	75
LOWER FLORIDA	Coal	Yes	0.3	North	255

Geological faults, fissures and breaklines

No faults, fissures or breaklines recorded.

Opencast mines

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

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

Section 2 – Investigative or remedial activity

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

Site investigations

None recorded within 50 metres of the enquiry boundary.

Remediated sites

None recorded within 50 metres of the enquiry boundary.

Coal mining subsidence

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

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

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

Mine gas

None recorded within 500 metres of the enquiry boundary.

Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

Section 3 – Licensing and future mining activity

Future underground mining

None recorded.

Coal mining licensing

None recorded within 200 metres of the enquiry boundary.

Court orders

None recorded.

Section 46 notices

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

Withdrawal of support notices

The property is 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.

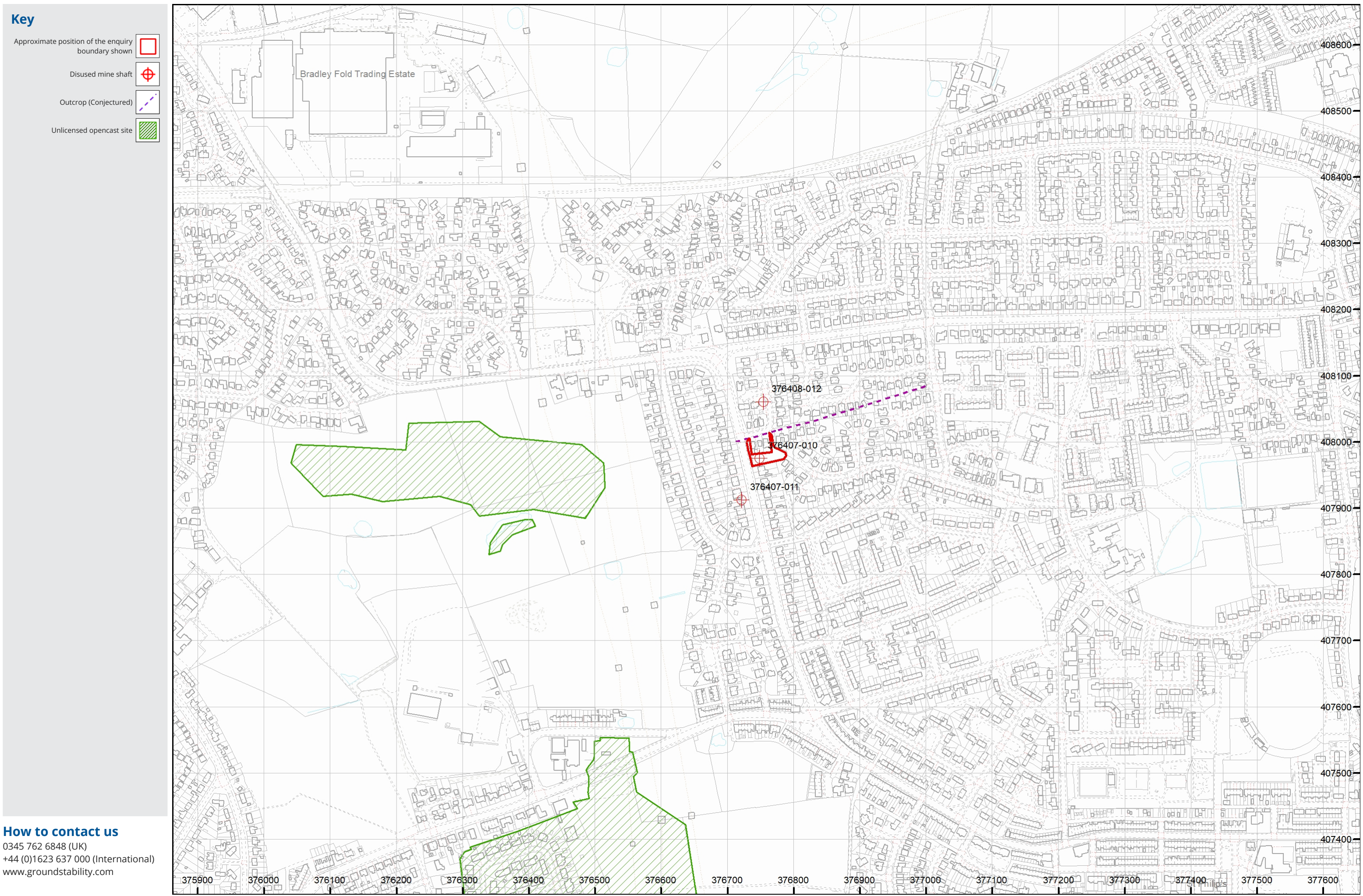
Withdrawal of support notices

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.



Appendix C

Policy For Building Over Or Within The Influencing Distance Of A Mine Entry



Policy For Building Over Or Within The Influencing Distance Of A Mine Entry

Building over or within the influencing distance of a mine entry (shaft or adit) can be dangerous and has the potential for significant risks to both the development and the occupiers if not undertaken appropriately.

The Coal Authority own the majority of the coal mine entries in Britain and has adopted the following policy position for landowners and/or developers when considering building over or within the influencing distance of a mine entry.

1. Building over or within the influencing distance of a mine entry raises significant safety and engineering risks and exposes all parties to potential financial liabilities and as a general precautionary principle, should wherever possible be avoided
2. Building over or within the influencing distance of a mine entry will only be permissible when:
 - Expertise advice allows a suitable engineering design to be developed and agreed to take account of all the relevant safety and environmental risk factors including gas and mine-water.
 - The Coal Authority will not be responsible for financial or maintenance liabilities associated with the design and implementation of the works.
 - Appropriate engineering precautions are taken to safeguard the safety of the public and any structure during and following the completion of the works.
 - Approval for the works is obtained from The Coal Authority Permissions Service which will also monitor the implementation of the works to ensure public safety.
3. The position and recorded treatment details for the mine entry will be revealed in any future coal mining report produced for prospective purchasers of the property. Consequently it is necessary for the landowner and/or developer to undertake any work precisely in accordance with the agreed scheme and provide detailed information to The Coal Authority for inclusion within its records for future reference and disclosure.
4. Where any damages result as a consequence of failing to comply with this policy the Coal Authority will seek to recover any costs incurred.

Policy Approved by: S Reed, Director of Operations, January 2012

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

Manchester (Head Office)

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