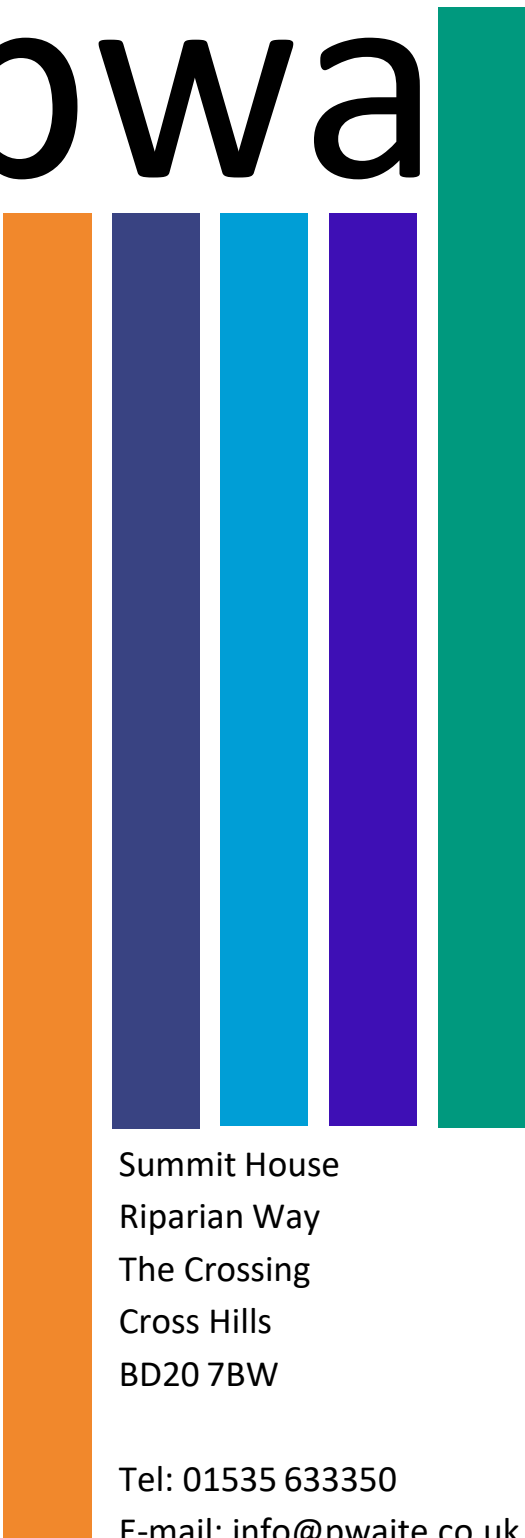




pwa

Geo-Environmental Ltd

Consulting Geo-Environmental Engineers

Phase 1 Geo-Environmental and Coal Mining Risk Assessment

Former Ashworth Frazer Site,
Higher Ainsworth Road, Radcliffe

Report Ref:
21053-PWAG-00-XX-RP-G-1000-P01

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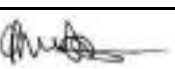
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Executive Summary

PWA Geo-Environmental Ltd (PWAG) was commissioned by M Stone Property Development & Management Ltd to undertake a Phase 1 Geo-Environmental and Coal Mining Risk Assessment for a proposed industrial development at Former Ashworth Frazer Site, Higher Ainsworth Road, Radcliffe. A summary of key geo-environmental considerations is provided below. However, other issues may exist so the report must be read in full.

Key Details	
Site:	The site is accessed from Miller Street and comprises four large industrial and commercial buildings, of which one is derelict, two are in-use, and one was being demolished when the site walkover was undertaken. Concrete paved areas lie between the buildings and a concrete yard area is currently present where the fifth unit is proposed to be built. Topography on site slopes very gently from the northern corner to the middle of the site. The rest of the site is flat and surrounding land is also flat. Palisade fencing surrounds the entire site. Beyond the fencing is residential and arable land to the north, arable land to the east and west, and industrial and residential land use to the south.
Site History:	The earliest map of 1850 shows the southeast of the site occupied by railway cutting and Black Lane Railway Station. Foundry Mill (cotton) and reservoir appears on site by 1890 and is joined by Black Lane Engineering Works by 1908. There is gradual expansion of these buildings and the railway is dismantled by the 1970s. In the 1980s a new building and tank appeared in the southwest of the site alongside Higher Ainsworth Road and covers the dismantled railway line. The remaining section of the railway cutting appears to have been infilled. Surrounding land use was mostly agricultural until development of Black Lane Mills to the south and gradual residential development.
Geology:	The anticipated downward sequence comprises made ground over glacial till over mudstone, siltstone and sandstone bedrock of the Pennine Lower Coal Measures along with several named coal seams. The site is split by a geological fault with the Windmill and Lower Yard Mines subcropping in the southwest of the site away from the proposed development area. The Five Quarters Mine and Doe Mine coal seams are indicated to subcrop beneath the northeast portion of the site. A nearby record for the former Black Lane Colliery identifies 8.23 m of glacial till.
Hydrogeology:	Glacial till is classed as a Secondary Undifferentiated Aquifer. Bedrock is classed as a Secondary A Aquifer.
Hydrology:	The site is traversed from north to south by Black Lane Brook. This is expected to be culverted.
Flooding:	The risk of surface water flooding is classified as negligible. The risk of groundwater flooding is low.
Sensitivity:	Overall, the site setting is considered low to medium sensitivity.

Geo-Environmental Findings	
Mining and Quarrying:	Review of historical OS maps did not identify quarries within 250m of the site. The whole site and much of the surrounding land is identified as a development high risk area by the Coal Authority.
Ground Gas:	The desk study has identified a ground gas risk relating to an infilled railway cutting and an infilled pond.
Radon:	The property is not within a Radon Affected Area as between 1% and 3% of properties are above the action level. No radon protection measures are required for developments undertaken in these areas.
Potential Contamination:	Potential sources of contamination have been identified on site relating to made ground and storage tanks. In addition, further assessment of ground gas risk associated with shallow coal seams is recommended.
Anticipated Foundations:	At this stage, based on available information, it is anticipated that natural glacial till could be present at shallow depth and provide sufficient bearing capacity to enable adoption of spread foundations (i.e strip, trench fill or pad). This needs to be confirmed through an intrusive geotechnical investigation. Alternative foundation solutions may be required where natural soils are found to be of inadequate strength, boulders or cobbles are present at the founding depth, shallow groundwater is found to be problematic and potentially unstable grounds associated with historic mining is present.

Contaminated Land Risk Assessment
Based on the information contained in this report, and with due regard to the commercial development, the site represents a low risk with respect to contaminated land liability issues.

Coal Mining Risk Assessment
Based on a review of geological mapping, Coal Authority information and advice that buildings on site have not been adversely affected by ground movement, we consider the risk to existing buildings to be low. This situation should be monitored to

determine if conditions change. However, potential risk associated with recorded and unrecorded shallow mine workings on new buildings cannot be ruled out entirely and further assessment would be required in order to demonstrate that this is negligible. The Coal Authority has records of four mine entries. None of these are located within the study site and the closest is approximately 30 m from the proposed infill office building. On this basis they are not considered to represent a risk to the proposed development.

Recommendations

We recommend that copies of this report are passed to the appropriate regulator for review and comment. We also recommend that intrusive investigations should be undertaken to assess existing conditions and provide information for substructure design.

To determine the risks to new structures associated with unrecorded shallow coal mining features on the new building we recommend that a series of rotary boreholes are drilled. We also recommend that gas monitoring wells are installed to evaluate gas risk associated with the onsite infilled railway cutting and former reservoir.

A management plan should be implemented to evaluate whether ground conditions change at the site and evidence of subsidence appears in existing buildings.

Subject to the findings of this assessment, further work may be required particularly with regards to unrecorded mine workings (if present) to make them safe to current Coal Authority standards.

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Project Details: Former Ashworth Frazer Site, Higher Ainsworth Road, Radcliffe

Date: February 2022



Appendices

Appendix A – Drawings

Drawing No.	Title
20.173.001A	OS Plan
20.173.002A	Existing Site Plan
20.173.005B	Proposed Site Plan

Appendix B – Environmental Data Report

Appendix C – Historic Maps

Appendix D – Coal Authority Mining Report

Appendix E – Risk Evaluation

1 FOREWORD

This report has been prepared for the sole use and reliance of M Stone Property Development & Management Ltd (the Client) and cannot be relied upon by any other parties without the express written authorisation of PWA Geo-Environmental Ltd. Any unauthorised third party relies on this report at their own risk and the authors owe them no duty of care.

The report presents observations and factual data obtained during our site walkover, along with information reviewed during the desk study and intrusive works and provides an assessment of geo-environmental issues with respect to information provided by the Client regarding the site. There may be other conditions on site not encountered during this investigation and which have not been examined. We cannot accept responsibility for any conditions not revealed by this investigation and confirmation of ground conditions between exploratory locations should be undertaken if considered necessary. Any spatial inference of ground conditions between investigation locations are for guidance only and no liability can be accepted for their accuracy.

The groundwater conditions encountered on site and recorded on exploratory records are those observed at the time of investigation. The normal rate of investigation does not enable the recording of an equilibrium water level. Furthermore, groundwater levels are subject to seasonal variation, changes in weather and changes in local drainage conditions.

The report should be read in its entirety, including all associated drawings and appendices. PWA Geo-Environmental Ltd cannot be held responsible for any misinterpretations arising from the use of extracts that are taken out of context.

The findings and opinions conveyed in this report (including review of any third party reports) are based on information obtained from the sources listed, which PWA Geo-Environmental Ltd understands are reliable. All reasonable skill, care and diligence has been applied in examining the information obtained. However, PWA Geo-Environmental Ltd accepts no responsibility for inaccuracies in the data supplied or for opinions based on any such inaccurate data.

Where the report refers to the potential presence of invasive weeds such as Japanese Knotweed, or the presence of asbestos containing materials, it should be noted that the observations are for information only and should be verified by a suitably qualified expert.

PWA Geo-Environmental Ltd reserves the right to amend their conclusions and recommendations in the light of further information that may become available.

2 INTRODUCTION

2.1 The Commission and Brief

PWA Geo-Environmental Ltd (PWAG) was commissioned by M Stone Property Development & Management Ltd to undertake a Phase 1 Geo-Environmental and Coal Mining Risk Assessment. This was required to support a planning application for the proposed development of an existing vacant industrial site including the demolition of two buildings and the erection of a new office building and associated landscaping. Existing and proposed site layout drawings are included in **Appendix A**.

Any changes to the proposed layout, site levels and/ or end use may require amendments to this report.

2.2 Geo-Environmental Assessment Methodology

Key aspects of this Phase 1 are summarised as follows:

- Review the history of the site and surrounding area from historical Ordnance Survey (OS) maps and any available anecdotal information or historical reports.
- Review information provided by the Coal Authority.
- Review current activities and current condition of the site, based on information made available by the client, regulatory data relating to the site and the results of a site walkover.
- Assess environmental setting from a review of published geological, hydrogeological, hydrological and regulatory data.
- Review online Coal Authority records.
- Assess anticipated ground conditions, including potential contaminants.
- Assess anticipated foundation issues associated with the proposed development.

- Preparation of a conceptual site model and preliminary risk assessment.
- Carry out a Coal Mining Risk Assessment.
- Recommendations for further work, if required.

This review relied on published information and information provided by the client and other parties, including anecdotal information, during the given time period. Regulatory data from public registers and historical OS maps were obtained from a Groundsure report and through consultation with the Environment Agency.

2.3 Scope of the Coal Mining Risk Assessment

This comprised a desk-based study with the following purpose:

- Present a desk-based review of available information on coal mining issues relevant to the application site.
- Use that information to identify and assess the risks to the proposed development from coal mining legacy, including the cumulative impact of such 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.

2.4 Sources of Information

The information sources used in the preparation of this report include:

- A Consultants Coal Mining Report (Ref: 51002965362001 dated 14th February 2022).
- Coal Authority Shaft Plan and Data Sheets (Ref: 51002965362001 dated 14th February 2022).
- Geological information including the British Geological Survey (BGS) 1:50,000 scale geological map (Manchester Sheet 85).
- The Coal Authority online interactive map viewer.
- BGS historic borehole records.
- CIRIA C758D. Abandoned mine workings manual. 2019.
- Coal Authority Policy for Building Over or Within the Influencing Distance of a Mine Entry, January 2012.
- Coal Authority Technical Guidance Note TGN01/2019. Findings from a large subsidence event on a residential estate.
- Local knowledge gained from working on nearby sites.

PWAG cannot accept responsibility for the reliability and authenticity of published information or reports prepared by third parties.

3 SITE PROFILE

3.1 Site Location and Details

Table 1. Site Location and Details	
Address	Former Ashworth Frazer Site, Higher Ainsworth Road, Radcliffe, Manchester M26 4AF.
National Grid Reference	SD 77673 08929
Area	Approximately 1.83 hectares.
Location	Figure 1 (from the Groundsure Report) is included as a site location plan.

Table 1. Site Location and Details

		
Ground Cover	Ground Cover	Estimated percentage
	Landscaped grass	<5 %
	Built units and hardstanding	95 %
Known Services	The position of services is not known. A full utilities survey should be undertaken.	
Current Use	Industrial warehouse.	
Proposed Use ¹	Industrial warehouse and offices.	

3.2 Site Reconnaissance

Table 2. Site Description

Summary	
The site is accessed from Miller Street and comprises four large industrial and commercial buildings, of which one is derelict, two are in-use, and one was being demolished when the site walkover was undertaken. Concrete paved areas lie between the buildings and a concrete yard area is currently present where the fifth unit is proposed to be built. Topography on site slopes very gently from the northern corner to the middle of the site. The rest of the site is flat and surrounding land is also flat. Palisade fencing surrounds the entire site. Beyond the fencing is residential and arable land to the north, arable land to the east and west, and industrial and residential land use to the south.	
Date of Inspection	02/11/2021
Access	Vehicular access is off Miller Street.
Topography	Topography on site slopes very gently from the northern corner to the middle of the site. The rest of the site is flat and surrounding land is also flat.
Description	The site is accessed from Miller Street and comprises four large industrial and commercial buildings, of which one is derelict, two are in-use, and one was being demolished when the site walkover was undertaken. Concrete paved areas lie between the buildings and a concrete yard area is currently present where the fifth unit is proposed to be built. The in-use buildings are office cum warehouse units owned and used by Faith In Nature. The derelict building is built mostly of brick and is empty. It is unclear what the demolished building once was. The derelict building and one of the in-use buildings together form a 'U' shape in the northeast part of site and surround the concrete yard area. The site is surrounded by palisade steel fencing. Although three above ground storage tanks (AGSTs) were indicated on historic Ordnance Survey maps these were not observed during the site inspection and have been removed from site.

1. Different site uses may introduce changes to pollutant linkages that are not considered in this report.

Table 2. Site Description				
	No visual or olfactory evidence of contamination was observed on site.			
Site Boundaries	North	East	South	West
	Palisade fencing.	Palisade fencing.	Palisade fencing.	Palisade fencing.
Adjacent Land Uses	Residential and arable land.	Arable land.	Industrial and residential.	Arable land.
Potential Sources of Contamination	Asbestos sheet roofing was being removed from part of the derelict building at the time of inspection. However, this (and other potential instances of asbestos) are considered to be controlled under the site asbestos register and management plan. We have also assumed that removal is being carried out by a suitably qualified contractor.			

3.3 Site Regulatory and Environmental Data

Information regarding environmental regulatory controls and pollution incidents in proximity to the site is taken from the Groundsure Enviro Insight Report presented in **Appendix B** and summarised in **Table 3**.

Table 3. Summary of Site Regulatory and Environmental Data					
Data Type	On site	0-50m	51-250m	Details	Potential to impact site?
Past Land Use					
Historical industrial land uses	23	14	15	Multiple records exist on site including cuttings, mills, engineering works, railway sidings and railway station.	Yes
Historical tanks	8	0	1	Multiple records of tanks exist on site.	Yes
Historical energy features	2	0	3	Two electricity substations are shown on historical maps.	No
Historical petrol stations	0	0	0	None listed.	No
Historical garages	0	0	11	The closest record was 142 m south.	No
Current Industrial Land Use					
Recent industrial land uses	6	10	5	Multiple records exist including tanks, works and electricity substation.	No
Current or recent petrol stations	0	0	0	None listed.	No
Electricity cables	0	0	0	None listed.	No
Gas pipelines	0	0	0	None listed.	No
Sites Determined as Contaminated Land	0	0	0	None listed.	No
Record of COMAH or NIHHS Sites	0	0	0	None listed.	No
Regulated explosive sites	0	0	0	None listed.	No
Hazardous substance storage/use	0	0	0	None listed.	No
Historical licensed industrial activity (IPC)	0	0	0	None listed.	No
Licensed Industrial Activities	0	0	0	None listed.	No
Licensed Pollutant Release	0	0	0	None listed.	No
Radioactive Substance Authorisations	0	0	0	None listed.	No
IPC = Integrated Pollution Control; IPPC = Integrated Pollution Prevention & Control; LAPPC = Local Authority Pollution Prevention & Controls; APC = Air Pollution Control; COMAH = Control of Major Accident hazards; NIHHS – Notification of Installations Handling Hazardous Materials.					

3.4 Site History

A study of historical Ordnance Survey (OS) maps has been undertaken to identify potentially significant geo-environmental constraints on or near the site. Salient points relating to the history of the site and surrounding area are detailed in **Table 4**. A full copy of the historical maps is included in **Appendix C**.

Table 4. Site History Summary		
Summary The earliest map of 1850 shows the southeast of the site occupied by railway cutting and Black Lane Railway Station. Foundry Mill (cotton) and reservoir appears on site by 1890 and is joined by Black Lane Engineering Works by 1908. There is gradual expansion of these buildings and the railway is dismantled by the 1970s. In the 1980s a new building and tank appeared in the southwest of the site alongside Higher Ainsworth Road and covers the dismantled railway line. The remaining section of the railway cutting appears to have been infilled. Surrounding land use was mostly agricultural until development of Black Lane Mills to the south and gradual residential development.		
Date	Site	Surrounding Land
1850	The site is shown as agricultural land with a railway line and cutting occupying a strip of land running along the southeast boundary. In the southern corner of the site is a small rectangular structure forming Black Lane Railway Station. A stream flows across the site and passes through a culvert beneath the railway line.	Other than a railway line and a road to the south west site boundary the setting is predominantly agricultural. Three 'Coal Pits' are shown within a 500 m radius and Cockey Moor Colliery is shown 500m to the north. The closest coal pit is approximately 200 m west of the site.
1890-1891	The central part of the site is developed with Foundry Mill (cotton), a chimney and an accompanying reservoir. Parts of the stream are assumed to be culverted.	The coal pits and colliery are no longer indicated. South of the railway line is Black Lane Mills (cotton) and associated reservoir. There has been residential development along the road to the southwest. Mill Street forms part of the norther boundary.
1908-1910	An engineering works and chimney are present east of Foundry Mill.	No significant change.
1927-1930	Foundry Mill has expanded and is now connected with Black Lane Engineering Works. More of the stream is presumably culverted beneath Foundry Mill.	Additional residential development has occurred along the road.
1937-1938	Foundry Mill is now identified as Foundry Engineering Works.	Further residential development in the area.
1956-1957	The station is now identified as Radcliffe Black Lane Station with a single building and platforms shown. An electricity substation and tank are shown at Black Lane Engineering Works. The reservoir appears to be absent.	Black Lane Mills is now Black Lane Works (Rubber Footwear). Continued residential development in the area.
1966-1969	Foundry Engineering Works is now identified as a warehouse. Black Lane Engineering Works. Has expanded. The southern portion of the site is crossed by an overhead electricity line.	Black Lane Works is reduced in size and identified as Constellation Works.
1970-1977	The warehouse has expanded over the former reservoir and a tank is present in the north. The railway line is identified as dismantled.	Immediate surrounding land has become an industrial estate with industrial growth extending approximately 400 m south west of site.
1987-1988	Further expansion of the warehouse. A new building and tank has appeared in the southwest of the site alongside Higher Ainsworth Road and covers the dismantled railway line. The remaining section of the railway cutting appears to have been infilled.	Continued residential growth.
1991-1993	No significant change.	No significant change.
2001-2010	No significant change.	No significant change.
2022	No significant change.	No significant change.

3.5 Planning

Bury Council planning portal identified three applications relating to the site. One appeared relevant to the current development including demolition of two industrial units and development of one infill unit.

4 ENVIRONMENTAL SETTING

4.1 Geology

Online British Geological Survey (BGS) published geological data, the Geo Insight report presented in **Appendix B**, the BGS 1:50,000 Series Sheet and BGS Lancashire Sheet 87SE (six inches to one mile) shows the following geological sequence.

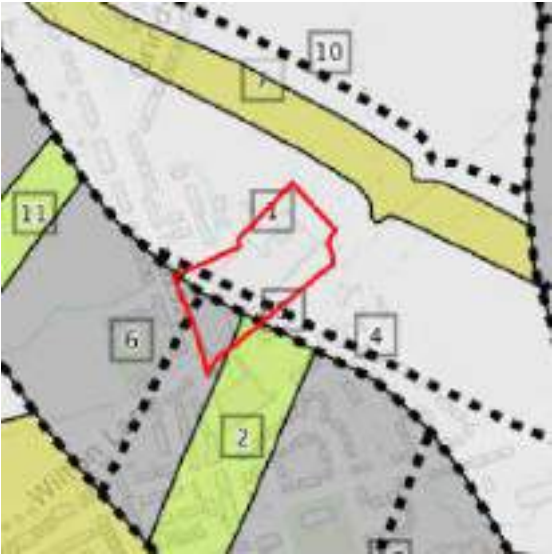
Table 5. Mapped Geology	
Summary The anticipated downward sequence comprises made ground over glacial till over mudstone, siltstone and sandstone bedrock of the Pennine Lower Coal Measures along with several named coal seams. The site is split by a geological fault with the Windmill and Lower Yard Mines subcropping in the southwest of the site away from the proposed development area. The Five Quarters Mine and Doe Mine coal seams are indicated to subcrop beneath the northeast portion of the site. A nearby record for the former Black Lane Colliery identifies 8.23 m of glacial till.	
Item	Description
Topsoil	Not shown on mapping but expected to be present.
Made Ground	The former railway cutting (running along the southeast boundary of the site) is mapped as infilled ground.
Superficial	Superficial deposits comprise glacial till (diamicton) across much of the site and neighbouring land. Till is absent from a narrow northwest southeast trending strip and the infilled railway cutting. The six inch map identifies the abandoned mine shaft for Black Lane Colliery approximately 15m southeast of the site (discussed in Section 7 and identified as 377408-004). This records the thickness of superficial strata (logged as boulder clay) to be 8.23 m.
Bedrock	Bedrock comprises undifferentiated mudstone, siltstone and sandstone of the Pennine Lower Coal Measures Formation (PLCM) with named coal seams identified. However, this pattern is complicated by differences in mapped geology between the 1:10,000 and 1:50,000 maps. The geology is further complicated by a northwest southeast trending fault conjectured to run beneath the southwestern portion of the site. As the coal seam in this block (considered to be [1] & [6] Windmill and Lower Yard Mines) is conjectured to be underneath existing buildings where no development is proposed this is not considered further. Bedrock geology 1:10,000  Bedrock geology 1:50,000  Northeast of the fault the geological sequence from old to young strata comprises: [13] & [10] Hell Hole Mine [2], [9], [1] & [7] Undifferentiated PLCM and sandstone [5] Five Quarters Mine (shown on 1:10,000 sheet only) [6] & [4] Doe Mine [7] & [5] Fault

Table 5. Mapped Geology

	These strata are indicated to dip at 8° to the southwest. Therefore, the Hell Hole Mine that is conjectured to subcrop 126 m to the northeast is expected to be at a depth of 17.7 m. Online records indicate this seam varied between 0.76 m and 1.22 m thick. The Coal Authority Consultants Report (discussed in Section 7) indicates that the site is underlain by workings in the Wigan Four Feet at a depth of 19 m: this depth corresponds to the Hell Hole Mine. This opinion is complicated by notes on the six inch map for the former Black Lane Colliery mine shaft. This records rockhead at 8.23 m and the first recorded coal seam it encounters is the Hell Hole Mine at a depth of 38.41 m. The vertical succession on the geological map records the separation between the Five Quarters Mine and Hell Hole Mine to vary between 24 m and 27.6 m. On this basis one would have expected the Five Quarters Mine to have been encountered in the shaft. Online records and the geological map provides no indication of seam thickness for the Doe and Five Quarters, although named seams were typically considered to be workable.
Ground Stability Hazards	The Groundsure report includes assessment of ground stability hazards associated with shrinking clays, running sands, compressible deposits, collapsible deposits, landslides and ground dissolution. These are either categorized negligible or very low hazard rating.
BGS Borehole Records	There is one BGS borehole record available, and this is located 8 m southeast of the site. This is identified as SD70NE20 for Black Lane Colliery Cockey Moor No. 1 Pit. There was no geological section with this record.

4.2 Mining and Quarrying

The Coal Authority Interactive Map viewer and historical OS maps were reviewed to determine potential constraints associated with former mining activities. This is discussed in Section 7.

Based on a review of historical OS maps, no quarries were identified within a 500 m radius of the site. However, there was evidence of other ground workings including a reservoir and railway cutting present on site.

4.3 Radon

The property is not within a Radon Affected Area as between 1% and 3% of properties are above the action level. No radon protection measures are required for developments undertaken in these areas.

The requirement for radon protection measures for any proposed development should be confirmed with local building control.

4.4 Hydrogeology

The following hydrogeological assessment is based upon data from the Groundsure report.

Table 6. Hydrogeology

Summary		
Glacial till is classed as a Secondary Undifferentiated Aquifer. Bedrock is classed as a Secondary A Aquifer.		
	Superficial Geology	Bedrock Geology
Aquifer status	Secondary undifferentiated.	Secondary A Aquifer.
Abstractions within 500m	None.	None.
Source Protection Zone (within 500 m)	None.	None.
Anticipated groundwater flow	Not expected in glacial till.	Not known but likely to follow regional dip of strata to southwest.
Permeability	Glacial till is expected to have a very low permeability.	Secondary A aquifer has permeable layers capable of supporting water supplies at a local scale.
Rainwater infiltration - potential for soakaways	Unlikely in glacial till.	Likely to be low due to presence of glacial till. However, if bedrock is present at shallow depth, it may be possible.
Groundwater vulnerability	Low – thickness of superficial deposits is expected to be <3 m.	Medium – well connected fractures form the flow mechanism.

4.5 Hydrology

The following hydrological assessment is based upon data from the Groundsure report and the EA Catchment Data Explorer.

Table 7. Hydrology	
Summary	
The site is traversed from north to south by Black Lane Brook. This is expected to be culverted.	
Item (within 250 m radius)	Comments
Nearest surface waterbody	The closest surface water feature is Black Lane Brook that traverses the site from north to south.
Pollution Incidents	None within a 250 m radius.
Surface water abstractions	None within a 250 m radius.
Discharge consents	The closest record is for a sewer storm overflow that discharges to Black Lane Brook 242 m southeast of site.
Pollutant release (red list)	None within a 250 m radius.
Latest ecological quality	Not classified.
Latest chemical quality	Not classified.
Surface water sensitivity	Low given urban/ industrial catchment.

4.6 Flood Risk

The site is not identified as at Risk of Flooding from Rivers and the Sea (RoFRaS).

No River and Coastal Flood Zones have been identified on site.

Surface water: The highest risk of surface water flooding on site for a return period of 1 in 30 years is between 0.3 m and 1.0 m.

Groundwater: The highest risk of groundwater flooding on site is low.

No further consideration of flood risk is undertaken in this report. However, a site-specific Flood Risk Assessment may be required for the redevelopment of this site and specialist flood risk advice should be sought with regards to drainage and flooding.

4.7 Landfill and Ground Gas Risk

The following information regarding landfills and other waste sites is taken from the Groundsure Report.

Table 8. Summary of Landfill and Other Waste Sites				
Summary				
The desk study has identified a ground gas risk relating to an infilled railway cutting and an infilled pond.				
Data Type	0-250 m	251-500 m	Details	Potential for Impact on-site?
Historical landfill (BGS records)	0	0	None encountered.	No
Historical landfill (LA/ mapping records)	0	0	None encountered.	No
Historical Landfill (EA/NRW records)	3	0	These records relate to the infilling of the onsite railway cutting between 1979 and 1994. Waste types included inert and industrial. Two of the licenses were surrendered in the 1990s.	Yes
Historical waste sites	0	1	This record was located 356 m to the south. Type of site described as 'landfill works'. This related to the import of inert material to form a level site for development and was dated 2013.	No
Waste Exemptions	0	11	The closest waste exemption is listed 361 m south of the site and described as 'use of waste in construction'.	No
Geological Conditions	Two named coal seams are conjectured to subcrop beneath the site and could represent a source of ground gas. However, the geological map identifies 8.23 m of glacial till over rockhead at a nearby			

Table 8. Summary of Landfill and Other Waste Sites

	abandoned mine shaft. Therefore, given the depth of glacial till we do not envisage ground gas emanating from coal seams to represent a concern to the development.
Historical records	A reservoir was present on site between 1890 and 1937. This was built over in the 1970s.
EA = Environment Agency; NRW = Natural Resources Wales; BGS = British Geological Survey; DoE = Department of the Environment.	

4.8 Unexploded Ordnance

A Zetica Unexploded Bomb Risk Map indicates the site to be in an area of low risk. In such cases Zetica advises that 'there is no greater probability of encountering UXO than anywhere else in the UK' and 'works can proceed with no special precautions'.

4.9 Environmentally Sensitive Sites

The following records of designated environmentally sensitive sites have been identified within 500 m of the site:

- The site is located within Green Belt.
- The site is located within a Site of Special Scientific Interest (SSSI) Impact Risk Zone. The proposed development does not appear to require consultation.

4.10 Summary of Environmental Sensitivity

The environmental sensitivity of the site has been established based on the following reasons.

Table 9. Sensitivity of Environmental Receptors and Mitigating Aspects

Summary			
Overall, the site setting is considered low to medium sensitivity.			
Receptor Type	Receptor(s)	Sensitivity	Reason
Groundwater – superficial strata	Undifferentiated aquifer	Low	Superficial deposits comprise glacial till that is expected to be low permeability.
Groundwater - bedrock	Secondary A Aquifer	Medium	Although glacial till is expected to protect underlying bedrock aquifer this is indicated to be absent in places.
Surface water	Black Lane Brook.	Low	The stream appears to pass beneath the site in a culvert.
Site setting	Local environment	Medium	Surrounding land is mixed residential, agricultural and industrial.
Proposed Industrial units	Future site users	Low	The site is proposed to be remain as industrial use.
These factors are further mitigated by:			
• The absence of groundwater source protection zone within 500 m. • Industrial land use to the south as well as long history of industrial land use on site.			

5 PREVIOUS REPORTS

Two previous reports were made available for the study site. This included:

- FCI Commercial environmental report dated 19 October 2020. This identified potential risks associated with an infilled railway cutting associated with potentially contaminated ground, surface instability and ground gas.
- Mining Searches UK produced a Regulated Coal Mining Search dated 19 October 2020. This identified potential risks associated with underground coal mining, mine entries and coal crop.

6 CONTAMINATION RISK ASSESSMENT

6.1 Ground Model

Ground conditions are anticipated to comprise buildings along with concrete and asphalt hardstand over an unknown depth of made ground. Along the southeast of the site is an infilled railway cutting and centrally located is a former

reservoir that has been built over; made ground at these locations is expected to be deeper. Underlying natural geology is expected to comprise glacial till over undifferentiated Coal Measures strata. The presence of shallow coal seams are shown on geological mapping and mine entries are recorded on neighbouring land.

Perched groundwater is anticipated to be present in made ground and glacial till, and regional groundwater is expected to be present in the Secondary A Aquifer.

6.2 Preliminary Conceptual Site Model

Based on the desk study information, a preliminary conceptual site model (CSM) has been developed. This section summarises the understanding of surface and sub-surface features, potential contaminant sources, receptors that could be affected (such as human health and controlled waters) and pathways linking the two.

Table 10. Source, Pathway and Receptors		
Potential Sources of Contamination	Potential Transport Pathways and Pollutant Linkages	Potential Receptors
On-site sources Potential sources of contamination identified include: - Made ground; - Above ground tanks (presumed historic/removed as they were not observed during the site inspection); and - Ground gases associated with infilled railway cutting and former reservoir. Contaminants could include heavy metals, polycyclic aromatic hydrocarbons, total petroleum hydrocarbons and asbestos. Off-site sources Not considered applicable. Whilst potential sources of contamination have been identified to the south associated with industrial land use, these are not considered further as they are separated from the site by an infilled railway cutting.	- Direct contact, ingestion or inhalation of soil bound contaminant. - Leaching of contaminants into groundwater followed by migration of groundwater to the wider environment or surface water. - Inhalation of hazardous ground gases (asphyxiation). - Accumulation of hazardous ground gases in confined spaces (explosion).	Controlled waters Underlying Secondary Aquifer.
		Human Health - Current site users. - Future site users. - Construction workers during redevelopment works.
		Construction Materials - Buried concrete in ground (foundations and building materials). - Underground services.

6.3 Qualitative Risk Assessment

A qualitative risk assessment is undertaken of potential pollutant linkages following the guidance presented in **Appendix E**, and is based on consideration of both:

- The likelihood of an event (probability – considers both the presence of the hazard and receptor and the integrity of the pathway); and
- The severity of the potential consequence (considers both the potential severity of the hazard and the sensitivity of the receptor).

Potential risks related to these plausible linkages are based on redevelopment of the site with a proposed commercial end use assuming no mitigation is implemented. These are summarised in Table 11.

Table 11. Preliminary Environmental Risk Assessment					
Source	Pathways to Receptor	Receptors	Associated Hazard [Potential severity]	Likelihood / Potential Mitigation	Potential Risk
Made ground	Direct contact, ingestion or inhalation of soil bound contaminant.	Current site users.	Effect on human health [Medium]	Unlikely: Made ground is currently sealed beneath the hardcover of the development or landscaped areas.	Low
		Future site users. Construction workers.		Low likelihood: Any made ground, if present, will either be removed from site or isolated beneath hard cover of the development. Any risk can be mitigated by appropriate site management.	Moderate/low
	Direct contact	Buried concrete.	Degradation [Mild]	Low likelihood: Any potential risks can be mitigated by using appropriate construction materials.	Low

Table 11. Preliminary Environmental Risk Assessment

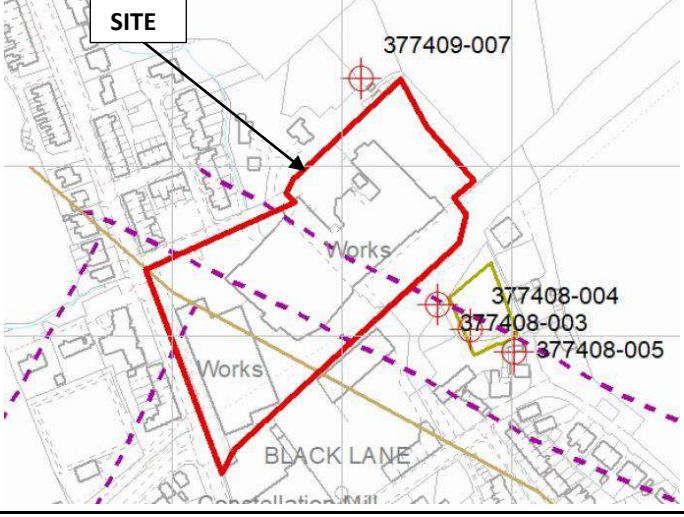
Source	Pathways to Receptor	Receptors	Associated Hazard [Potential severity]	Likelihood / Potential Mitigation	Potential Risk
	Leaching into groundwater followed by lateral migration into surface water	Underlying Secondary Aquifer.	Pollution of controlled waters [Low]	Low likelihood: Groundwater is considered medium vulnerability to site derived contamination. The site is not within a ground source protection zone.	Low
Historic above ground tank	Leaching into groundwater followed by lateral migration into surface water	Underlying Secondary Aquifer.	Pollution of controlled waters [Low]	Low likelihood: Tanks were not observed during site inspection and no visual or olfactory evidence of contamination observed. Potential for localised contamination in vicinity of tanks below existing hardstanding.	Low
	Direct contact, ingestion or inhalation of soil bound contaminant.	Current site users	Effect on human health [Low]		Low
	Direct contact	Water pipes	Degradation [Mild]	Low likelihood: Any potential risks are likely to be localised and can be mitigated by avoiding areas of contamination (if present) or using appropriate construction materials.	Low
Ground gases.	Inhalation of hazardous ground gases (asphyxiation). Accumulation of hazardous ground gases in confined spaces (explosion).	Future site users.	Asphyxiation/ explosion [Medium] Asphyxiation/ explosion [Medium]	Low likelihood: The former reservoir was built over in the 1970s. The railway cutting was landfilled by the late 1980s and the licenses surrendered by the 1990s. Given that the buildings have been in occupation since this date with no adverse issues noted it would seem that this is not a significant source of ground gas. Where new offices are proposed we recommend that gas protection measures (to at least CS2 standard) should be incorporated or further evaluation carried out.	Moderate/ low
		Construction workers.		Low likelihood: Access to confined spaces must be prevented unless undertaken in accordance with a standard operating procedure.	Moderate/ low

7 IDENTIFICATION AND ASSESSMENT OF SITE SPECIFIC COAL MINING

The table below summarises potential issues identified by the Coal Authority Interactive Map viewer:

Table 12. Coal Authority Interactive Map Information

Information	Site Affected	Comment
Coal Mining Reporting Area	Yes	A report is presented in Appendix D .
Mine Entry	No	No known mine entries are present on site. Four mine entries are shown in the surrounding area.

Table 12. Coal Authority Interactive Map Information		
Information	Site Affected	Comment
		
Development High Risk Area	Yes	The whole site and much of the surrounding land is identified as a development high risk area.
Past Shallow Coal Mine Workings	Yes	Past shallow coal mine workings are shown on and within the vicinity of the site.
Probable Shallow Coal Mine Workings	Yes	Probable shallow coal mine workings are shown across the site in a band trending in a northwest to southeast direction.
Coal Outcrops	Yes	Coal outcrops are shown across the site. These are identified as dashed lines on the above extract.

The table below summarises the potential risks identified by the Coal Authority Coal Mining Report, and Shaft Plan and Data Sheets presented in **Appendix D**.

Table 13. Coal Mining Risk Assessment		
Summary The Coal Authority mining report indicates that the property is within an area where coal is at or close to the surface and has been worked in the past. The Wigan Four Feet is reportedly located 19 m beneath the site with an extraction thickness of 1.0 m. The mining report also identified records of known mine entries although none of these are located on site and are unlikely to affect the proposed development.		
Issue	Site Affected	Risk Assessment
Past underground coal mining (recorded at shallow depths).	Yes	The site is underlain by recorded workings: - Wigan Four Feet located at 19 m depth with an extraction thickness of 1.0 m and last worked in 1900. - Cannel located at 141 m depth with an extraction thickness of 1.5 m and last worked in 1908. - Cannel located at 165 m depth with an extraction thickness of 1.5 m and last worked in 1908. All three seams are considered to be at sufficient depth to not adversely affect the development. Furthermore, many of the buildings have been present on site for a significant period of time and we were not advised of any settlement issues.
Probable unrecorded shallow workings.	Yes	The property is in an area where the Coal Authority believe there is coal at or close to the surface that may have been worked in the past (i.e. less than 30 m deep).
Mine entries (shafts and adits).	No	There are no records of known mine entries on site within the mining report. However, four mine entries are shown close to site.

Table 13. Coal Mining Risk Assessment		
		The closest (377409-007) is within approximately 10 m of the northern site boundary but is >30 m from the nearest building. None of the mine entries are not considered to represent a risk to the site.
Outcrops	Yes	The Bulldog, Doe and Park are all recorded as workable seams and all subcrop within the site.
Coal mining geology (fissures).	Yes	The site is traversed in a northwest southeast direction by a fault. No fissures or breaklines are recorded.
Coal mining subsidence	No	The Coal Authority has not received a damage notice or claim for the subject property or any property within 50 m of the enquiry boundary since 1994.
Mine gas	No	None recorded within 500 m of the boundary of the property.
Remediated sites.	No	None recorded within 50 m of the enquiry boundary.
Surface mining (opencast workings)	No	None recorded within 500 m of the enquiry boundary.
Site investigation	No	A site investigation is recorded 20 m to the southeast.

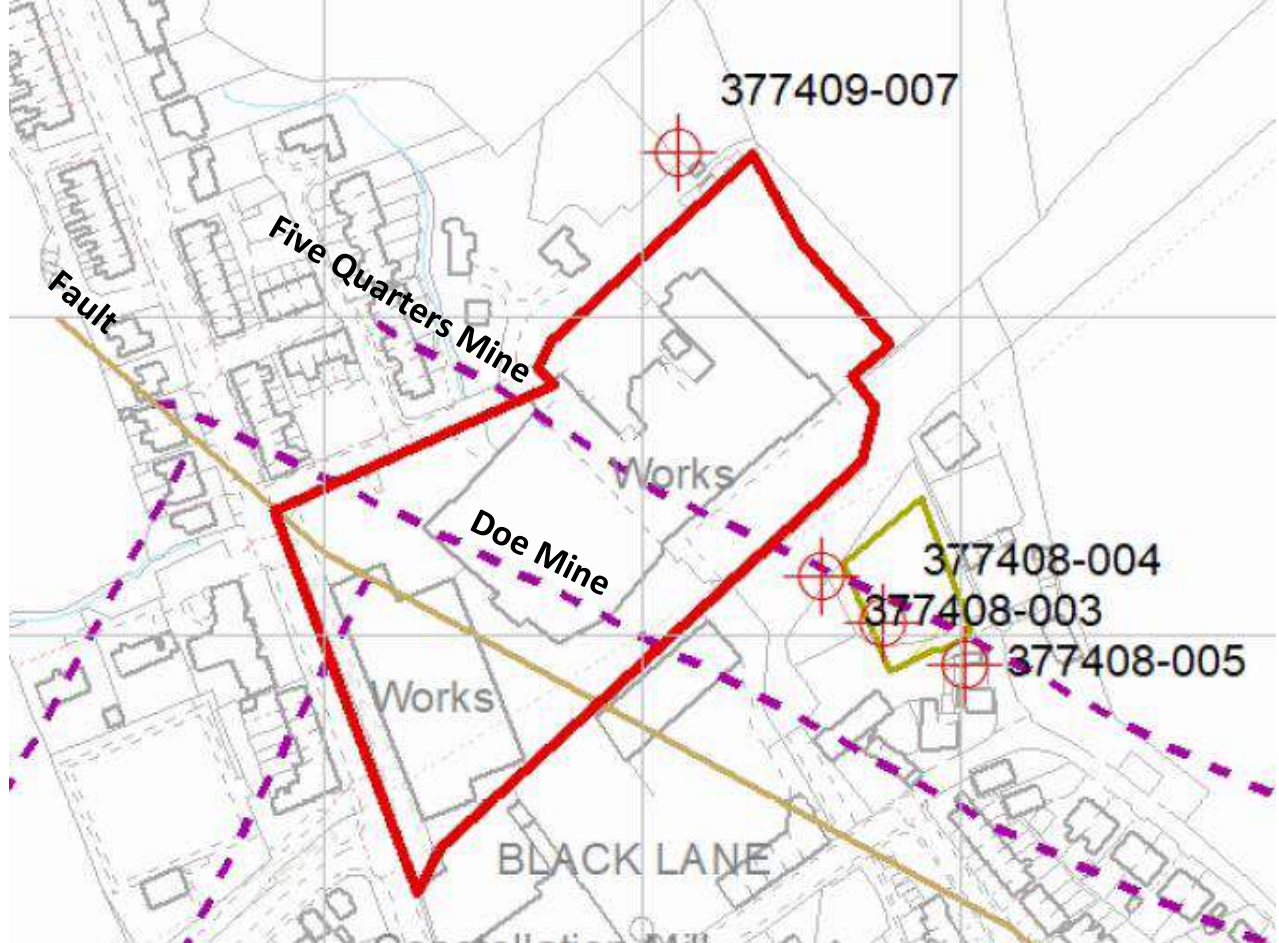
8 MITIGATION STRATEGY PROPOSED

8.1 Probable Unrecorded Shallow Workings

As a rule of thumb for crown hole collapse, ten times the seam thickness of competent rock cover is assumed to provide adequate protection for new developments from workings in underground coal. This is based on guidance given in CIRIA Special Publication 32, reprinted 2002. However, the Coal Authority recently released Technical Guidance Note TGN01/2019 describing findings from a large subsidence event on a residential estate. In this note they advised that 'other subsidence mechanisms can occur, such as pillar failure, for which the 10 times rock cover rule of thumb is not an appropriate guide'. Furthermore, CIRIA updated their guidance on building over abandoned mineworkings in September 2019 in Abandoned mine workings manual C758D. In this document they state that "The actual geological, site locale and development circumstances will influence the selection of a site-specific cover ratio, as will the proposed end use. Past performance for the locality can also be a guide, principally meaning either the notoriety or good reputation of the workings regarding surface impacts."

The development is potentially affected by two coal seams (Five Quarters and Doe Mine) on site and one coal seams to the north (Hell Hole Mine/ Wigan Four Feet) and the associated risk is discussed in **Table 14**. Coal seams to the southwest of the fault are not considered relevant as no development is proposed in this area.

Table 14 Potential Risk from Unrecorded Shallow Workings



Strata Name	Maximum Thickness	Comment	Potential Risk
Five Quarters Mine	Not recorded	This seam is indicated to be present beneath the site but subcropping approximately 10 m southeast of the infill development. As this dips to the southeast, it is not expected to adversely affect the development. However, the position of coal seam subcrop is indicative. The geological map identifies that Black Lane Colliery encountered the Hell Hole Mine but made no mention of the Five Quarters Mine. On this basis, this coal seam is more likely to be further to the southeast of the development. According to the vertical succession on the geological map, the Five Quarters Mine is separated from the next underlying seam (Hell Hole Mine) by approximately 20 m of undifferentiated Coal Measures.	No
Doe Mine	Not recorded	This seam is indicated to be present beneath the site but subcropping approximately 50 m southeast of the infill development. As this dips to the southeast, it is not expected to adversely affect the development. According to the vertical succession on the geological map, the Doe Mine is separated from the Five Quarters Mine by approximately 10 m of undifferentiated Coal Measures.	No
Hell Hole Mine (presumed to be the Wigan Four Feet)	1.22 m	The Hell Hole Mine is conjectured to subcrop 126 m to the northeast and is not shown on the Coal Authority map excerpt. This strata is indicated to dip at 8° to the southwest. Therefore, the Hell Hole Mine is expected to be at a depth of 17.7 m beneath the site. This figure correlates with the Coal Authority Mining Report indicating a depth of 19 m to the Wigan Four Feet seam. The Coal Authority states an extraction thickness of 1.0 m. Online records indicate this seam varied between 0.76 m and 1.22 m thick.	Yes

Coal Authority records indicate the Wigan Four Feet has been worked beneath the site at a depth of 19 m and therefore a risk to the proposed development has been identified. However, mapping records indicate that the buildings currently on site have been there since the 1930s and we have not been advised of any subsidence issues. On this basis it would appear that sufficient ground/rock cover is present to prevent ground instability and on this basis no further work is recommended for existing structures. We would however recommend that the site owner plans for regular inspections of the buildings by a suitably qualified structural engineer to determine if this situation changes.

However, given conflicting geological information on coal seam names and positions, as well as uncertainty over seam thickness and depth of cover, a potential risk from unrecorded workings cannot be ruled out. Therefore, to reduce the risk to the proposed new office infill structure, we recommend that further assessment is undertaken to determine if there is any evidence of underground mine workings. This should include drilling a series of boreholes across site to investigate depth to rockhead, thickness of competent rock cover, and for the presence of mine workings. Where mine workings are encountered, stabilisation in the form of grouting may be required unless possible to demonstrate otherwise. This would require surveying of the subsurface workings using remote techniques.

8.2 Mine Entries

Based on the data reviewed there is not considered to be a potential risk arising from mine entries due to the distance from site. The closest (377409-007) is within approximately 10 m of the northern site boundary but is >30 m from the nearest building. The next closest mine entry located approximately 15 m southeast of the site (377408-004). In May 2017 the shaft (377408-004) was found filled and capped at rockhead with an 8.8 m diameter, 0.6 m thick cap of reinforced concrete. Furthermore, investigation of the mine entries would not be possible as they are all located on private land to which the site has no access.

Given the extensive history of mine workings in this area, the prospect of encountering unrecorded mine entries (including bell pits and crop workings) cannot be ruled out. During preparatory works for the proposed new building, we recommend that made ground is removed to expose undisturbed natural ground. This should be inspected for evidence of signs of worked ground that could be indicative of infilled mine entries, bell pits or surface workings. If there is any evidence, advice regarding treatment / foundation precautions should be sought immediately from a suitably qualified engineer.

All works concerning shallow coal mining should be undertaken under an approved/current Coal Authority permit to disturb or enter coal seams, coal mine workings or coal mine entries.

9 CONCLUSIONS AND RECOMMENDATIONS

This Phase 1 Geo-Environmental and Coal Mining Risk Assessment has been performed for the proposed development described in Section 2.1. The proposed site plan is presented in **Appendix A**. For the purpose of this report, we have assumed that proposed levels will not be significantly different to those existing, other than a cut into the northern slope. If any of our assumptions are incorrect then the conclusions in this report may require reassessment.

Geotechnical Conclusions	The main issues considered in this report are based upon a review of environmental data, historical maps and geological data. This report provides a brief assessment of geo-environmental issues and implications associated with the proposed development: • Underlying ground conditions are likely to comprise a variable depth of made ground overlying glacial till. Bedrock comprises mudstone, siltstone, and sandstone at unknown depths. • There is a risk to the proposed development from unrecorded shallow mine workings. Further work should be undertaken to evaluate the associated risk. • Former mine entries identified by the Coal Authority are not considered to represent a risk to the proposed development. • Given the presence of glacial till, it is considered unlikely that soakaways would be suitable for the disposal of surface water unless permeable bedrock is present at shallow depth. • Based on available information, it is anticipated that natural glacial till could be present at shallow depth and provide sufficient bearing capacity to enable adoption of spread foundations (i.e strip, trench fill or pad). Alternative foundation solutions may be required where natural soils are found to be of inadequate strength, boulders or cobbles are present at the founding depth, shallow groundwater is found to be problematic and potentially unstable grounds associated with historic mining is present. At this stage, no site specific geotechnical ground investigation data is available and therefore it is only possible to estimate ground conditions.
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	- Foundation solutions will be dependent on a number of parameters including finished levels, loadings, bearing capacity of the natural strata, depth to bedrock, groundwater levels, proximity of trees, slope stability etc. - Before firm foundation, floor slab and pavement design recommendations can be provided an intrusive geotechnical investigation should be undertaken.
Coal Mining Risk Assessment	Based on a review of geological mapping, Coal Authority information and advice that buildings on site have not been adversely affected by ground movement, we consider the risk to the site to be low. Potential subsidence issues to existing buildings could be managed by implementing a monitoring programme. For new buildings where ground loadings will be different the risk is greater and further assessment is recommended. This should include a series of rotary boreholes across site to investigate the depth to rockhead, thickness of competent rock cover, and for the presence of unrecorded mine workings. The Coal Authority has records of four mine entries. None of these are located within the study site and the closest is approximately 30 m from the proposed infill office building. On this basis they are not considered to represent a risk to the proposed development.
Environmental Conclusions	Based on a review of existing reports, desk study data and observations during the site inspection, the preliminary environmental risk assessment has identified: - Evidence for significant contamination from historical and current land use has not be encountered at the site. However, given the industrial development, former reservoir and infilled railway cutting, made ground is expected. Localised contamination could be associated with the above ground storage tanks. - The site is not within a radon affected area and protective measures are not required. - Due to the presence of an infilled railway cutting and former reservoir, a ground gas risk has been identified. For new buildings on site we recommend that either gas protection measures (to at least CS2 standards) are installed or a gas monitoring programme is implemented.
Contaminated Land Risk Assessment	Based on the information contained in this report, and with due regard to the commercial development, the site represents a low risk with respect to contaminated land liability issues.
Preliminary Remediation Recommendations	At this preliminary stage, and based upon research to date, we have assumed that remediation measures relating to contaminated soil will not be required. If low concentrations of contamination are present, then this would be sealed beneath the hardcover of the development or clean cover system in landscaped areas.
Unexpected Findings Protocol	If unexpected potentially contaminated materials (such as those with an unusual colour, odour or containing drums, chemicals or asbestos, etc) are encountered at any time during redevelopment then work should stop and a suitably qualified environmental consultant should be contacted to advise on the appropriate course of action.
Other Considerations	Where it is necessary to remove material from site, this should be assessed for waste disposal, treatment or recycling requirements. Alternatively, subject to further evaluation, natural soils could be suitable for reuse on other developments where an approved materials management plan is in place.
Recommendations for further work	To facilitate the proposed development a geo-environmental investigation should be undertaken to assess existing conditions and provide information for substructure design. To determine the risks associated with unrecorded shallow coal mining features on the new building we recommend that a series of rotary boreholes are drilled. We also recommend that gas monitoring wells are installed to evaluate gas risk associated with the onsite infilled railway cutting and reservoir. A management plan should be implemented to evaluate whether ground conditions change at the site and evidence of subsidence appears in existing buildings. Subject to the findings of this assessment, further work may be required particularly with regards to unrecorded mine workings (if present) to make them safe to current Coal Authority standards.

10 REGULATORY APPROVALS

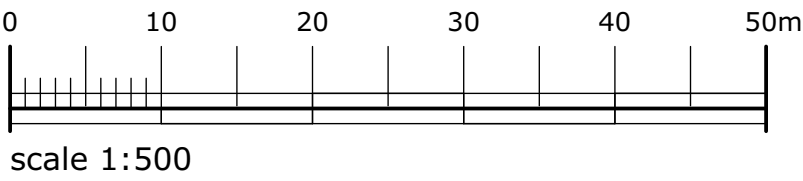
The conclusions and recommendations presented in this report are considered reasonable based on the information that was available. However, these are not guaranteed to gain approval from regulatory authorities. Therefore, we recommend that copies of this report are passed to the appropriate regulator for review and comment before undertaking any additional work.

Appendix A

Drawings



existing site plan 1:500



campbelldriverpartnership
architects

client: M stone property and development

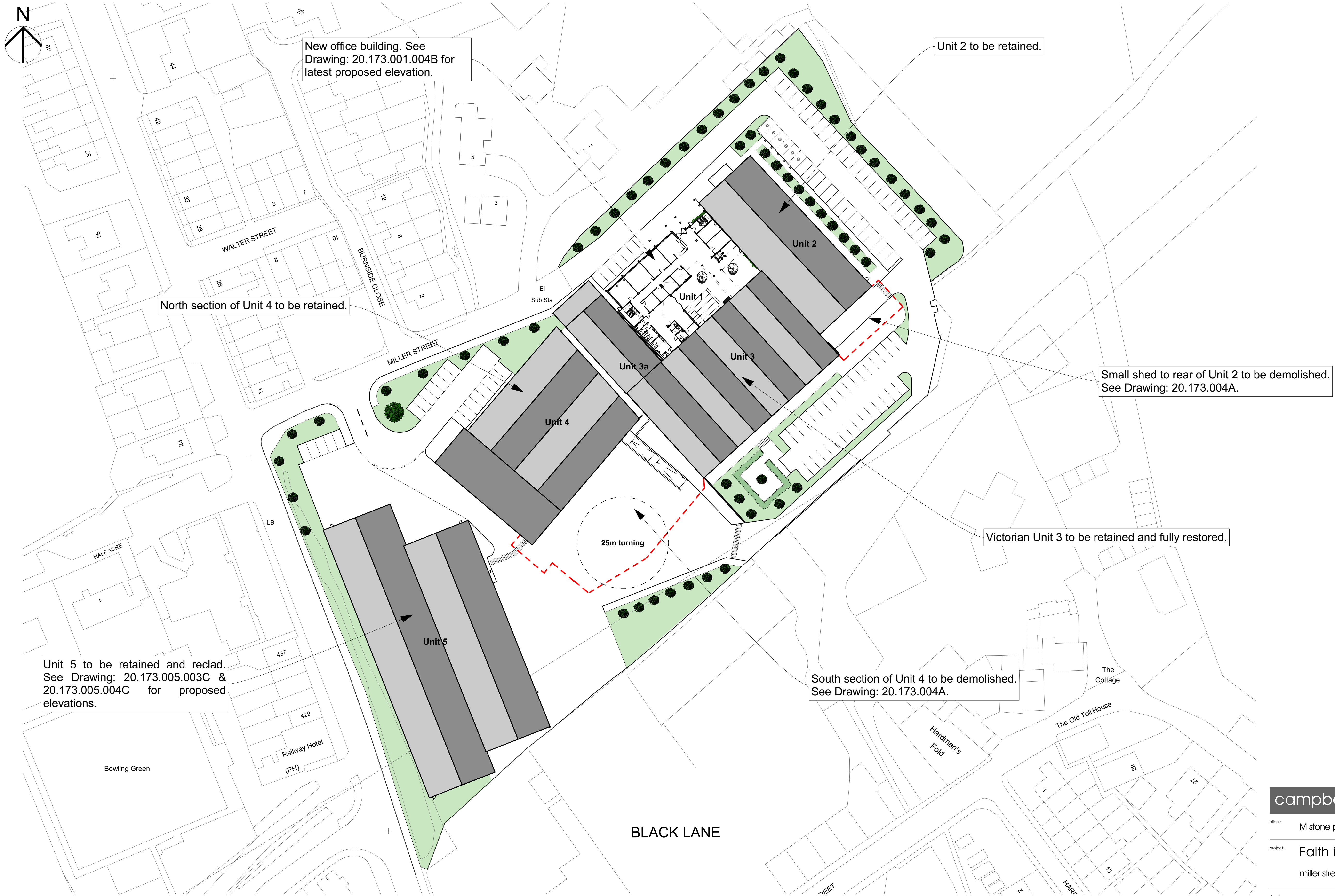
project: Faith in Nature

millar street, higher ainsworth, radcliffe

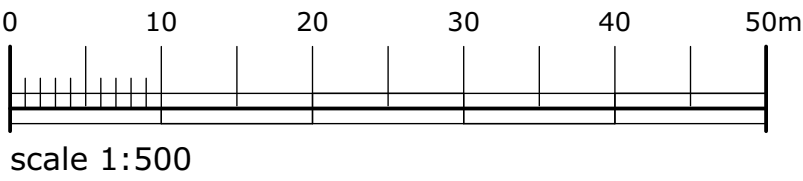
sheet: existing site plan

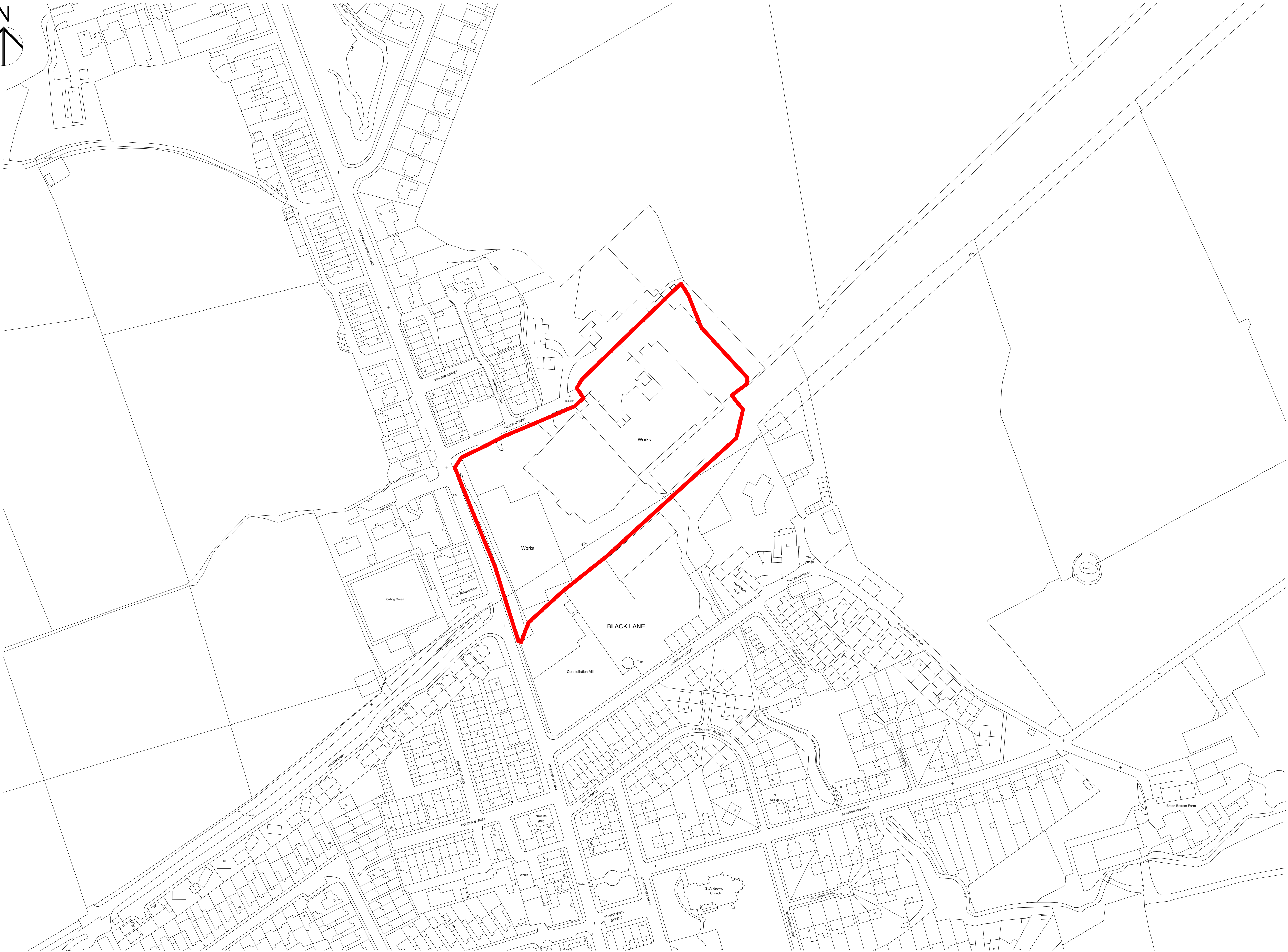
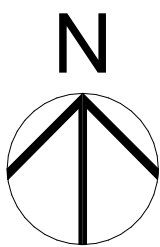
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scale: 1:500 @ A1
date: 26.01.21
drawn: SR
capricorn park
blackwater road
blackburn bb1 5qr
t: 01254 297700
e: design@cdpartners.co.uk

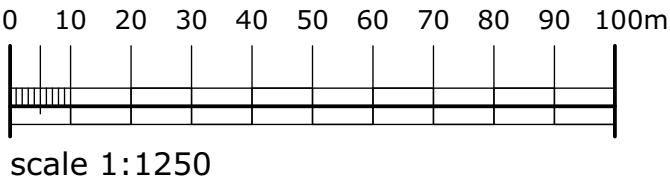


proposed site plan 1:500





os location plan 1:1250



campbelldriverpartnership
architects

client: M stone property and development

project: Faith in Nature

miller street, higher ainsworth, radcliffe

sheet: OS Plan

job no:	20.173	dwg no:	001	A
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scale: 1:1250 @ A1
date: 26.01.21
drawn: SR
capricorn park
blackwater road
blackburn bb1 5qr
t: 01254 297700
e: design@cdpartners.co.uk

Report No: 21053-PWAG-00-XX-RP-G-1000-P01

Project Details: Former Ashworth Frazer Site, Higher Ainsworth Road, Radcliffe

Date: February 2022



Appendix B

Environmental Data Report

25, JAMES STREET NORTH, RADCLIFFE, M26 1LN

Order Details

Date: 12/01/2022
Your ref: 21053-G-02
Our Ref: GS-8441824
Client: PWA Geo-Environmental Ltd

Site Details

Location: 377673 408929
Area: 1.83 ha
Authority: [Bury Metropolitan Borough Council](#)



Summary of findings

p. 2

Aerial image

p. 8

OS MasterMap site plan

p.12

groundsure.com/insightuserguide

Contact us with any questions at:

info@groundsure.com

08444 159 000

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
<u>13</u>	<u>1.1</u>	<u>Historical industrial land uses</u>	23	14	15	36	-
<u>17</u>	<u>1.2</u>	<u>Historical tanks</u>	8	0	1	3	-
<u>18</u>	<u>1.3</u>	<u>Historical energy features</u>	2	0	3	5	-
18	1.4	Historical petrol stations	0	0	0	0	-
<u>19</u>	<u>1.5</u>	<u>Historical garages</u>	0	0	11	0	-
19	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped	On site	0-50m	50-250m	250-500m	500-2000m
<u>20</u>	<u>2.1</u>	<u>Historical industrial land uses</u>	31	23	19	56	-
<u>25</u>	<u>2.2</u>	<u>Historical tanks</u>	25	0	4	9	-
<u>27</u>	<u>2.3</u>	<u>Historical energy features</u>	8	0	8	13	-
28	2.4	Historical petrol stations	0	0	0	0	-
<u>28</u>	<u>2.5</u>	<u>Historical garages</u>	0	0	14	0	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
30	3.1	Active or recent landfill	0	0	0	0	-
30	3.2	Historical landfill (BGS records)	0	0	0	0	-
31	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
<u>31</u>	<u>3.4</u>	<u>Historical landfill (EA/NRW records)</u>	0	3	0	1	-
<u>32</u>	<u>3.5</u>	<u>Historical waste sites</u>	0	0	0	1	-
32	3.6	Licensed waste sites	0	0	0	0	-
<u>32</u>	<u>3.7</u>	<u>Waste exemptions</u>	0	0	0	11	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
<u>34</u>	<u>4.1</u>	<u>Recent industrial land uses</u>	6	10	5	-	-
36	4.2	Current or recent petrol stations	0	0	0	0	-
36	4.3	Electricity cables	0	0	0	0	-
36	4.4	Gas pipelines	0	0	0	0	-
36	4.5	Sites determined as Contaminated Land	0	0	0	0	-



37	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
37	4.7	Regulated explosive sites	0	0	0	0	-
37	4.8	Hazardous substance storage/usage	0	0	0	0	-
37	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
37	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
38	4.11	Licensed pollutant release (Part A(2)/B)	0	0	0	0	-
38	4.12	Radioactive Substance Authorisations	0	0	0	0	-
38	4.13	<u>Licensed Discharges to controlled waters</u>	0	0	3	0	-
39	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
39	4.15	Pollutant release to public sewer	0	0	0	0	-
39	4.16	List 1 Dangerous Substances	0	0	0	0	-
39	4.17	List 2 Dangerous Substances	0	0	0	0	-
40	4.18	Pollution Incidents (EA/NRW)	0	0	0	0	-
40	4.19	Pollution inventory substances	0	0	0	0	-
40	4.20	Pollution inventory waste transfers	0	0	0	0	-
40	4.21	Pollution inventory radioactive waste	0	0	0	0	-
Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
41	5.1	<u>Superficial aquifer</u>	Identified (within 500m)				
42	5.2	<u>Bedrock aquifer</u>	Identified (within 500m)				
43	5.3	<u>Groundwater vulnerability</u>	Identified (within 50m)				
44	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
45	5.5	Groundwater vulnerability- local information	None (within 0m)				
46	5.6	<u>Groundwater abstractions</u>	0	0	0	0	4
48	5.7	<u>Surface water abstractions</u>	0	0	0	0	17
52	5.8	Potable abstractions	0	0	0	0	0
52	5.9	Source Protection Zones	0	0	0	0	-
52	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-
Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
53	6.1	<u>Water Network (OS MasterMap)</u>	1	3	6	-	-



54	<u>6.2</u>	<u>Surface water features</u>	0	2	2	-	-
55	<u>6.3</u>	<u>WFD Surface water body catchments</u>	1	-	-	-	-
55	<u>6.4</u>	<u>WFD Surface water bodies</u>	0	0	0	-	-
55	<u>6.5</u>	<u>WFD Groundwater bodies</u>	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
57	7.1	Risk of flooding from rivers and the sea	None (within 50m)				
57	7.2	Historical Flood Events	0	0	0	-	-
57	7.3	Flood Defences	0	0	0	-	-
58	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
58	7.5	Flood Storage Areas	0	0	0	-	-
59	7.6	Flood Zone 2	None (within 50m)				
59	7.7	Flood Zone 3	None (within 50m)				
Page	Section	Surface water flooding					
60	<u>8.1</u>	<u>Surface water flooding</u>	1 in 30 year, Greater than 1.0m (within 50m)				
Page	Section	Groundwater flooding					
62	<u>9.1</u>	<u>Groundwater flooding</u>	Low (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
63	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
64	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
64	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
64	10.4	Special Protection Areas (SPA)	0	0	0	0	0
64	10.5	National Nature Reserves (NNR)	0	0	0	0	0
65	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
65	10.7	Designated Ancient Woodland	0	0	0	0	0
65	10.8	Biosphere Reserves	0	0	0	0	0
65	10.9	Forest Parks	0	0	0	0	0
66	10.10	Marine Conservation Zones	0	0	0	0	0
66	<u>10.11</u>	<u>Green Belt</u>	1	0	0	0	5
66	10.12	Proposed Ramsar sites	0	0	0	0	0



66	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
67	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
67	10.15	Nitrate Sensitive Areas	0	0	0	0	0
67	10.16	Nitrate Vulnerable Zones	0	0	0	0	0
68	<u>10.17</u>	<u>SSSI Impact Risk Zones</u>	1	-	-	-	-
69	10.18	SSSI Units	0	0	0	0	0
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
70	11.1	World Heritage Sites	0	0	0	-	-
71	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
71	11.3	National Parks	0	0	0	-	-
71	<u>11.4</u>	<u>Listed Buildings</u>	0	0	1	-	-
72	11.5	Conservation Areas	0	0	0	-	-
72	11.6	Scheduled Ancient Monuments	0	0	0	-	-
72	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
73	<u>12.1</u>	<u>Agricultural Land Classification</u>	Grade 4 (within 250m)				
74	12.2	Open Access Land	0	0	0	-	-
74	12.3	Tree Felling Licences	0	0	0	-	-
74	12.4	Environmental Stewardship Schemes	0	0	0	-	-
75	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
76	13.1	Priority Habitat Inventory	0	0	0	-	-
76	<u>13.2</u>	<u>Habitat Networks</u>	0	0	2	-	-
77	<u>13.3</u>	<u>Open Mosaic Habitat</u>	1	0	0	-	-
77	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	Geology 1:10,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
78	<u>14.1</u>	<u>10k Availability</u>	Identified (within 500m)				
79	<u>14.2</u>	<u>Artificial and made ground (10k)</u>	1	0	1	1	-
80	<u>14.3</u>	<u>Superficial geology (10k)</u>	1	0	0	0	-

81	14.4	Landslip (10k)	0	0	0	0	-
82	14.5	<u>Bedrock geology (10k)</u>	3	1	11	9	-
84	14.6	<u>Bedrock faults and other linear features (10k)</u>	4	2	6	8	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
86	15.1	<u>50k Availability</u>	Identified (within 500m)				
87	15.2	<u>Artificial and made ground (50k)</u>	1	0	0	0	-
88	15.3	Artificial ground permeability (50k)	0	0	-	-	-
89	15.4	<u>Superficial geology (50k)</u>	1	0	0	0	-
90	15.5	<u>Superficial permeability (50k)</u>	Identified (within 50m)				
90	15.6	Landslip (50k)	0	0	0	0	-
90	15.7	Landslip permeability (50k)	None (within 50m)				
91	15.8	<u>Bedrock geology (50k)</u>	3	1	9	9	-
93	15.9	<u>Bedrock permeability (50k)</u>	Identified (within 50m)				
93	15.10	<u>Bedrock faults and other linear features (50k)</u>	3	0	6	9	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
95	16.1	<u>BGS Boreholes</u>	0	1	0	-	-
Page	Section	Natural ground subsidence					
96	17.1	<u>Shrink swell clays</u>	Very low (within 50m)				
98	17.2	<u>Running sands</u>	Very low (within 50m)				
100	17.3	<u>Compressible deposits</u>	Negligible (within 50m)				
101	17.4	<u>Collapsible deposits</u>	Very low (within 50m)				
102	17.5	<u>Landslides</u>	Very low (within 50m)				
103	17.6	<u>Ground dissolution of soluble rocks</u>	Negligible (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
105	18.1	Natural cavities	0	0	0	0	-
106	18.2	BritPits	0	0	0	0	-
106	18.3	<u>Surface ground workings</u>	8	20	21	-	-
108	18.4	<u>Underground workings</u>	0	0	0	0	4
108	18.5	Historical Mineral Planning Areas	0	0	0	0	-



109	18.6	Non-coal mining	0	0	0	0	0
109	18.7	Mining cavities	0	0	0	0	0
<u>109</u>	<u>18.8</u>	<u>JPB mining areas</u>	Identified (within 0m)				
<u>109</u>	<u>18.9</u>	<u>Coal mining</u>	Identified (within 0m)				
110	18.10	Brine areas	None (within 0m)				
110	18.11	Gypsum areas	None (within 0m)				
110	18.12	Tin mining	None (within 0m)				
110	18.13	Clay mining	None (within 0m)				
Page	Section	Radon					
<u>111</u>	<u>19.1</u>	<u>Radon</u>	Between 1% and 3% (within 0m)				
Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
<u>113</u>	<u>20.1</u>	<u>BGS Estimated Background Soil Chemistry</u>	9	2	-	-	-
114	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
114	20.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-
Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
115	21.1	Underground railways (London)	0	0	0	-	-
115	21.2	Underground railways (Non-London)	0	0	0	-	-
116	21.3	Railway tunnels	0	0	0	-	-
<u>116</u>	<u>21.4</u>	<u>Historical railway and tunnel features</u>	12	4	0	-	-
117	21.5	Royal Mail tunnels	0	0	0	-	-
<u>117</u>	<u>21.6</u>	<u>Historical railways</u>	1	0	0	-	-
117	21.7	Railways	0	0	0	-	-
117	21.8	Crossrail 1	0	0	0	0	-
118	21.9	Crossrail 2	0	0	0	0	-
118	21.10	HS2	0	0	0	0	-



Recent aerial photograph



Capture Date: 23/05/2019

Site Area: 1.83ha



Recent site history - 2015 aerial photograph



Capture Date: 11/06/2015

Site Area: 1.83ha



Recent site history - 2011 aerial photograph



Capture Date: 02/05/2011

Site Area: 1.83ha



Recent site history - 2000 aerial photograph



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Capture Date: 04/09/2000

Site Area: 1.83ha



OS MasterMap site plan



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Site Area: 1.83ha



1 Past land use



- Site Outline
- Search buffers in metres (m)
- Historical industrial land uses
- Historical tanks
- Historical energy features
- Historical garages

1.1 Historical industrial land uses

Records within 500m

88

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

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

ID	Location	Land use	Dates present	Group ID
1	On site	Cuttings	1890	701945



ID	Location	Land use	Dates present	Group ID
A	On site	Unspecified Mill	1927 - 1938	700600
A	On site	Engineering Works	1908 - 1938	700542
A	On site	Unspecified Mills	1890	701955
A	On site	Unspecified Works	1977	719429
A	On site	Unspecified Works	1965 - 1977	722674
A	On site	Unspecified Works	1988 - 1991	727991
A	On site	Unspecified Mill	1955	735453
A	On site	Cuttings	1927	742214
A	On site	Unspecified Mill	1890 - 1908	743513
A	On site	Unspecified Works	1965	744213
A	On site	Engineering Works	1908	753432
A	On site	Railway Sidings	1908 - 1927	762232
A	On site	Cuttings	1955	763065
A	On site	Railway Sidings	1965	777266
A	On site	Engineering Works	1955	782849
B	On site	Railway Station	1927	700621
B	On site	Railway Station	1851	710849
B	On site	Railway Station	1938 - 1955	733946
B	On site	Railway Sidings	1955	769452
B	On site	Railway Station	1890	788001
B	On site	Railway Station	1908	788046
C	On site	Cuttings	1851	760694
A	1m SE	Unspecified Mill	1988 - 1991	730030
A	1m SE	Unspecified Mills	1955	785296
2	1m SE	Cuttings	1965 - 1977	727106
A	2m SE	Unspecified Mills	1908 - 1938	769871
3	6m E	Railway Building	1955	670240
D	9m W	Cuttings	1965 - 1991	763815



ID	Location	Land use	Dates present	Group ID
D	19m W	Cuttings	1890	721609
E	21m W	Unspecified Ground Workings	1965	648163
B	26m W	Railway Building	1955	670242
F	31m W	Cuttings	1851	723581
E	32m W	Unspecified Heap	1927 - 1938	785715
A	36m SE	Chimney	1977	684358
G	42m SW	Cuttings	1927	714133
G	42m SW	Cuttings	1908	752992
4	120m E	Unspecified Old Shaft	1890	651876
5	144m NE	Cuttings	1908 - 1927	754167
C	144m NE	Cuttings	1938 - 1955	759960
I	144m NW	Unspecified Heap	1955	650897
6	174m S	Cuttings	1890	789598
J	174m NE	Refuse Heap	1890	678001
J	176m NE	Cuttings	1955	705525
I	195m NW	Coal Pit	1851	654386
J	204m NE	Railway Building	1955	670239
L	207m NW	Unspecified Pit	1965	782003
L	208m NW	Unspecified Pit	1977 - 1991	727948
7	213m W	Coal Pit	1851	654385
M	229m NW	Refuse Heap	1908	678014
8	229m SE	Cuttings	1890	642635
M	230m NW	Unspecified Heap	1965	650896
C	270m NE	Unspecified Heap	1890	650895
N	292m SW	Cuttings	1938	762622
N	292m SW	Cuttings	1927	766129
O	294m SE	Unspecified Works	1955 - 1965	764146
9	294m SW	Cuttings	1908	708033



ID	Location	Land use	Dates present	Group ID
O	298m SE	Unspecified Works	1908 - 1938	718384
O	308m SE	Unspecified Tank	1955	700462
O	312m SE	Unspecified Tank	1927 - 1938	751706
O	312m SE	Unspecified Works	1890	715905
F	318m SW	Cuttings	1955	774556
P	319m N	Refuse Heaps	1908	653454
P	319m N	Refuse Heap	1890	678015
P	323m N	Unspecified Heap	1927	739152
P	325m N	Unspecified Heap	1938 - 1955	761529
P	327m N	Unspecified Heap	1955 - 1965	716990
10	327m SW	Cuttings	1890	727985
11	334m NE	Unspecified Pit	1965	691004
13	347m S	Cuttings	1955 - 1991	741457
P	349m N	Coal Pit	1851	654384
14	356m S	Cuttings	1890	714917
O	368m SE	Chimney	1965	684357
P	372m N	Refuse Heap	1890	678002
Q	372m SW	Railway Sidings	1955	641646
N	375m SW	Cuttings	1991	729905
Q	375m SW	Cuttings	1955 - 1988	738904
P	376m N	Unspecified Heap	1927	717794
P	376m N	Unspecified Heaps	1965	679642
P	379m N	Unspecified Heap	1938 - 1955	722408
P	422m N	Colliery	1851	645281
S	426m SE	Unspecified Pit	1890 - 1908	713897
P	426m N	Unspecified Ground Workings	1851	648155
Q	431m SW	Cuttings	1991	759971
15	439m S	Cuttings	1927 - 1965	753838



ID	Location	Land use	Dates present	Group ID
S	443m S	Cuttings	1977 - 1988	751519
16	479m W	Gas Valve Compound	1988 - 1991	721158
17	496m N	Coal Pit	1851	654378

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m

12

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

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

ID	Location	Land use	Dates present	Group ID
A	On site	Unspecified Tank	1993	98482
A	On site	Tanks	1993	91156
A	On site	Unspecified Tank	1984 - 1988	91788
A	On site	Unspecified Tank	1984 - 1988	92982
A	On site	Unspecified Tank	1956	97747
A	On site	Unspecified Tank	1984 - 1988	100041
A	On site	Unspecified Tank	1993	100453
A	On site	Unspecified Tank	1973 - 1988	101197
A	61m SE	Unspecified Tank	1987 - 1993	90359
O	324m SE	Unspecified Tank	1956	96156
O	325m SE	Unspecified Tank	1910 - 1937	93428
12	343m SE	Unspecified Tank	1987 - 1993	90100

This data is sourced from Ordnance Survey / Groundsure.



1.3 Historical energy features

Records within 500m

10

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

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

ID	Location	Land use	Dates present	Group ID
A	On site	Electricity Substation	1984 - 1993	49034
A	On site	Electricity Substation	1956	59178
K	182m SE	Electricity Substation	1967 - 1988	48804
K	185m SE	Electricity Substation	1993	47968
K	196m SE	Electricity Substation	1969 - 1973	57346
P	364m N	Electricity Substation	1987	45675
R	377m S	Electricity Substation	1987	45680
R	381m S	Electricity Substation	1973 - 1994	47808
T	450m S	Electricity Substation	1994	54469
T	451m S	Electricity Substation	1982 - 1992	57329

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m

0

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

This data is sourced from Ordnance Survey / Groundsure.



1.5 Historical garages

Records within 500m

11

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

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

ID	Location	Land use	Dates present	Group ID
H	142m S	Garage	1967	16108
H	142m S	Garage	1956	16917
H	143m S	Garage	1973 - 1984	17340
H	143m S	Garage	1969	14842
H	145m S	Garage	1956	16182
H	166m S	Garage	1984	15433
H	166m S	Garage	1967 - 1973	19117
H	172m S	Garage	1967	15215
H	173m S	Garage	1973	16727
H	173m S	Garage	1984	16287
H	173m S	Garage	1969	16149

This data is sourced from Ordnance Survey / Groundsure.

1.6 Historical military land

Records within 500m

0

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

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



2 Past land use - un-grouped



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- Site Outline
- Search buffers in metres (m)
- Historical industrial land uses
- Historical tanks
- Historical energy features
- Historical garages

2.1 Historical industrial land uses

Records within 500m

129

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

Features are displayed on the Past land use - un-grouped map on **page 20**

ID	Location	Land Use	Date	Group ID
1	On site	Cuttings	1890	701945
A	On site	Railway Station	1938	733946
A	On site	Railway Station	1927	700621

ID	Location	Land Use	Date	Group ID
A	On site	Railway Station	1908	788046
A	On site	Railway Station	1890	788001
A	On site	Railway Station	1955	733946
A	On site	Railway Sidings	1955	769452
A	On site	Railway Station	1851	710849
B	On site	Unspecified Mill	1938	700600
B	On site	Railway Sidings	1927	762232
B	On site	Unspecified Mill	1927	700600
B	On site	Unspecified Mill	1908	743513
B	On site	Engineering Works	1908	753432
B	On site	Railway Sidings	1908	762232
B	On site	Unspecified Mill	1890	743513
B	On site	Unspecified Mills	1890	701955
B	On site	Unspecified Works	1991	727991
B	On site	Unspecified Works	1977	722674
B	On site	Unspecified Works	1977	719429
B	On site	Railway Sidings	1965	777266
B	On site	Unspecified Works	1965	722674
B	On site	Unspecified Works	1965	744213
B	On site	Unspecified Works	1988	727991
B	On site	Engineering Works	1955	782849
B	On site	Unspecified Mill	1955	735453
B	On site	Cuttings	1955	763065
B	On site	Engineering Works	1938	700542
B	On site	Engineering Works	1927	700542
B	On site	Engineering Works	1908	700542
B	On site	Cuttings	1927	742214
C	On site	Cuttings	1851	760694



ID	Location	Land Use	Date	Group ID
B	1m SE	Unspecified Mill	1991	730030
B	1m SE	Unspecified Mill	1988	730030
B	1m SE	Unspecified Mills	1955	785296
D	1m SE	Cuttings	1977	727106
D	1m SE	Cuttings	1965	727106
B	2m SE	Unspecified Mills	1938	769871
B	2m SE	Unspecified Mills	1927	769871
B	2m SE	Unspecified Mills	1927	769871
B	2m SE	Unspecified Mills	1908	769871
2	6m E	Railway Building	1955	670240
E	9m W	Cuttings	1991	763815
E	9m W	Cuttings	1988	763815
E	19m W	Cuttings	1890	721609
F	21m W	Unspecified Ground Workings	1965	648163
A	26m W	Railway Building	1955	670242
G	31m W	Cuttings	1851	723581
F	32m W	Unspecified Heap	1938	785715
F	32m W	Unspecified Heap	1927	785715
E	36m SW	Cuttings	1977	763815
E	36m SW	Cuttings	1965	763815
B	36m SE	Chimney	1977	684358
H	42m SW	Cuttings	1927	714133
H	42m SW	Cuttings	1908	752992
3	120m E	Unspecified Old Shaft	1890	651876
C	144m NE	Cuttings	1938	759960
J	144m NE	Cuttings	1927	754167
J	144m NE	Cuttings	1908	754167
K	144m NW	Unspecified Heap	1955	650897



ID	Location	Land Use	Date	Group ID
4	174m S	Cuttings	1890	789598
L	174m NE	Refuse Heap	1890	678001
L	176m NE	Cuttings	1955	705525
K	195m NW	Coal Pit	1851	654386
L	204m NE	Railway Building	1955	670239
N	207m NW	Unspecified Pit	1965	782003
N	208m NW	Unspecified Pit	1991	727948
N	208m NW	Unspecified Pit	1977	727948
N	208m NW	Unspecified Pit	1988	727948
C	212m NE	Cuttings	1955	759960
5	213m W	Coal Pit	1851	654385
O	229m NW	Refuse Heap	1908	678014
6	229m SE	Cuttings	1890	642635
O	230m NW	Unspecified Heap	1965	650896
C	270m NE	Unspecified Heap	1890	650895
P	292m SW	Cuttings	1938	762622
P	292m SW	Cuttings	1927	766129
Q	294m SE	Unspecified Works	1965	764146
Q	294m SE	Unspecified Works	1955	764146
7	294m SW	Cuttings	1908	708033
Q	298m SE	Unspecified Works	1938	718384
Q	298m SE	Unspecified Works	1927	718384
Q	298m SE	Unspecified Works	1908	718384
Q	308m SE	Unspecified Tank	1955	700462
Q	312m SE	Unspecified Tank	1938	751706
Q	312m SE	Unspecified Works	1890	715905
Q	315m SE	Unspecified Tank	1927	751706
G	318m SW	Cuttings	1955	774556



ID	Location	Land Use	Date	Group ID
R	319m N	Refuse Heaps	1908	653454
R	319m N	Refuse Heap	1890	678015
R	323m N	Unspecified Heap	1927	739152
R	325m N	Unspecified Heap	1938	761529
R	327m N	Unspecified Heap	1965	716990
8	327m SW	Cuttings	1890	727985
R	330m N	Unspecified Heap	1955	716990
9	334m NE	Unspecified Pit	1965	691004
R	336m N	Unspecified Heap	1955	761529
T	347m S	Cuttings	1991	741457
T	347m S	Cuttings	1977	741457
T	347m S	Cuttings	1965	741457
T	347m S	Cuttings	1988	741457
T	347m S	Cuttings	1955	741457
R	349m N	Coal Pit	1851	654384
10	356m S	Cuttings	1890	714917
Q	368m SE	Chimney	1965	684357
R	372m N	Refuse Heap	1890	678002
U	372m SW	Railway Sidings	1955	641646
P	375m SW	Cuttings	1991	729905
U	375m SW	Cuttings	1977	738904
U	375m SW	Cuttings	1965	738904
U	375m SW	Cuttings	1988	738904
R	376m N	Unspecified Heap	1927	717794
U	376m SW	Cuttings	1955	738904
R	376m N	Unspecified Heaps	1965	679642
R	379m N	Unspecified Heap	1938	722408
R	384m N	Unspecified Heap	1955	722408



ID	Location	Land Use	Date	Group ID
R	422m N	Colliery	1851	645281
W	426m SE	Unspecified Pit	1890	713897
R	426m N	Unspecified Ground Workings	1851	648155
U	431m SW	Cuttings	1991	759971
X	439m S	Cuttings	1965	753838
X	439m S	Cuttings	1955	753838
W	443m S	Cuttings	1977	751519
W	443m S	Cuttings	1988	751519
X	479m S	Cuttings	1938	753838
X	479m S	Cuttings	1927	753838
Z	479m W	Gas Valve Compound	1991	721158
Z	479m W	Gas Valve Compound	1988	721158
W	481m SE	Unspecified Pit	1908	713897
11	496m N	Coal Pit	1851	654378

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m

38

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

Features are displayed on the Past land use - un-grouped map on **page 20**

ID	Location	Land Use	Date	Group ID
B	On site	Tanks	1993	91156
B	On site	Unspecified Tank	1993	98482
B	On site	Unspecified Tank	1993	100453
B	On site	Unspecified Tank	1973	101197
B	On site	Unspecified Tank	1956	97747
B	On site	Unspecified Tank	1956	97747



ID	Location	Land Use	Date	Group ID
B	On site	Unspecified Tank	1984	91788
B	On site	Unspecified Tank	1984	101197
B	On site	Unspecified Tank	1984	92982
B	On site	Unspecified Tank	1984	100041
B	On site	Unspecified Tank	1987	92982
B	On site	Unspecified Tank	1987	101197
B	On site	Unspecified Tank	1987	91788
B	On site	Unspecified Tank	1987	100041
B	On site	Unspecified Tank	1987	92982
B	On site	Unspecified Tank	1987	101197
B	On site	Unspecified Tank	1987	91788
B	On site	Unspecified Tank	1987	100041
B	On site	Unspecified Tank	1988	92982
B	On site	Unspecified Tank	1988	101197
B	On site	Unspecified Tank	1988	91788
B	On site	Unspecified Tank	1988	100041
B	On site	Tanks	1993	91156
B	On site	Unspecified Tank	1993	98482
B	On site	Unspecified Tank	1993	100453
B	61m SE	Unspecified Tank	1987	90359
B	61m SE	Unspecified Tank	1988	90359
B	62m SE	Unspecified Tank	1993	90359
B	62m SE	Unspecified Tank	1993	90359
Q	324m SE	Unspecified Tank	1956	96156
Q	324m SE	Unspecified Tank	1956	96156
Q	325m SE	Unspecified Tank	1910	93428
Q	325m SE	Unspecified Tank	1930	93428
Q	325m SE	Unspecified Tank	1937	93428



ID	Location	Land Use	Date	Group ID
S	343m SE	Unspecified Tank	1987	90100
S	343m SE	Unspecified Tank	1988	90100
S	344m SE	Unspecified Tank	1993	90100
S	344m SE	Unspecified Tank	1993	90100

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	29
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Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 20**

ID	Location	Land Use	Date	Group ID
B	On site	Electricity Substation	1993	49034
B	On site	Electricity Substation	1956	59178
B	On site	Electricity Substation	1956	59178
B	On site	Electricity Substation	1984	49034
B	On site	Electricity Substation	1987	49034
B	On site	Electricity Substation	1987	49034
B	On site	Electricity Substation	1988	49034
B	On site	Electricity Substation	1993	49034
M	182m SE	Electricity Substation	1967	48804
M	182m SE	Electricity Substation	1984	48804
M	182m SE	Electricity Substation	1987	48804
M	182m SE	Electricity Substation	1988	48804
M	185m SE	Electricity Substation	1993	47968
M	185m SE	Electricity Substation	1993	47968
M	196m SE	Electricity Substation	1973	57346
M	196m SE	Electricity Substation	1969	57346



ID	Location	Land Use	Date	Group ID
R	364m N	Electricity Substation	1987	45675
V	377m S	Electricity Substation	1987	45680
V	381m S	Electricity Substation	1994	47808
V	381m S	Electricity Substation	1982	47808
V	381m S	Electricity Substation	1987	47808
V	381m S	Electricity Substation	1987	47808
V	381m S	Electricity Substation	1992	47808
V	382m S	Electricity Substation	1973	47808
Y	450m S	Electricity Substation	1994	54469
Y	451m S	Electricity Substation	1982	57329
Y	451m S	Electricity Substation	1987	57329
Y	451m S	Electricity Substation	1987	57329
Y	451m S	Electricity Substation	1992	57329

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m

0

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

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m

14

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

Features are displayed on the Past land use - un-grouped map on **page 20**



ID	Location	Land Use	Date	Group ID
I	142m S	Garage	1967	16108
I	142m S	Garage	1956	16917
I	143m S	Garage	1973	17340
I	143m S	Garage	1984	17340
I	143m S	Garage	1969	14842
I	145m S	Garage	1956	16182
I	166m S	Garage	1984	15433
I	166m S	Garage	1967	19117
I	167m S	Garage	1973	19117
I	167m S	Garage	1969	19117
I	172m S	Garage	1967	15215
I	173m S	Garage	1973	16727
I	173m S	Garage	1984	16287
I	173m S	Garage	1969	16149

This data is sourced from Ordnance Survey / Groundsure.



3 Waste and landfill



- Site Outline
- Search buffers in metres (m)
- Historical landfill (EA/NRW)
- Historical waste sites
- Waste exemptions

3.1 Active or recent landfill

Records within 500m

0

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

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

3.2 Historical landfill (BGS records)

Records within 500m

0

Landfill sites identified on a survey carried out on behalf of the DoE in 1973. These sites may have been closed or operational at this time.

This data is sourced from the British Geological Survey.

3.3 Historical landfill (LA/mapping records)

Records within 500m

0

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

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

3.4 Historical landfill (EA/NRW records)

Records within 500m

4

Known historical (closed) landfill sites (e.g. sites where there is no PPC permit or waste management licence currently in force). This includes sites that existed before the waste licensing regime and sites that have been licensed in the past but where a licence has been revoked, ceased to exist or surrendered and a certificate of completion has been issued.

Features are displayed on the Waste and landfill map on **page 30**

ID	Location	Details		
1	1m SE	Site Address: Disused Bury-Bolton Railway line, East Of, Ainsworth Road, Radcliffe, Greater Manchester Licence Holder Address: 1 Buckingham Drive, Bury	Waste Licence: Yes Site Reference: C036, RD/LIC/163/78, RD/LIC/159/78 Waste Type: Inert, Industrial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 16/01/1979 Licence Surrender: 11/03/1996	Operator: - Licence Holder: D J Barlow First Recorded: 28/02/1979 Last Recorded: 31/12/1989
2	12m W	Site Address: Railway Cutting, Black Lane Station, Ainsworth Road, Radcliffe, Greater Manchester Licence Holder Address: 371, Ainsworth Road, Radcliffe, Manchester	Waste Licence: Yes Site Reference: RD/LIC/505/88, C067, 4200/9247, RD/LIC/553/89 Waste Type: Inert Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 29/07/1988 Licence Surrender: -	Operator: - Licence Holder: Progress Motors Limited First Recorded: 01/08/1988 Last Recorded: 31/12/1994
3	19m SE	Site Address: Rear of Constellation Mill, Ainsworth Road, Radcliffe, Bury, Greater Manchester Licence Holder Address: Church Inn, Spring Street, Bury	Waste Licence: Yes Site Reference: C051, RD/LIC/249/82 Waste Type: Inert, Industrial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 19/11/1982 Licence Surrender: 23/09/1995	Operator: - Licence Holder: J B R Fox First Recorded: 19/11/1982 Last Recorded: 31/12/1983



ID	Location	Details		
6	377m S	Site Address: Land adjacent to Ainsworth Road - Coventry Road, Ainsworth Road, Radcliffe, Bury, Greater Manchester Licence Holder Address: -	Waste Licence: - Site Reference: C074 Waste Type: - Environmental Permitting Regulations (Waste) Reference: - Licence Issue: - Licence Surrender: -	Operator: - Licence Holder: - First Recorded - Last Recorded: -

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

3.5 Historical waste sites

Records within 500m	1
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Waste site records derived from Local Authority planning records and high detail historical mapping.

Features are displayed on the Waste and landfill map on **page 30**

ID	Location	Address	Further Details	Date
4	356m S	Site Address: Land Adjacent To, Station Close, Radcliffe, Manchester, Greater Manchester, M26 4GW	Type of Site: Landfill Works Planning application reference: 56712 Description: Scheme comprises importation and re-use of inert material to create a level site to facilitate development. Data source: Historic Planning Application Data Type: Point	18/12/2013

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

3.6 Licensed waste sites

Records within 500m	0
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Active or recently closed waste sites under Environment Agency/Natural Resources Wales regulation.

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

3.7 Waste exemptions

Records within 500m	11
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Activities involving the storage, treatment, use or disposal of waste that are exempt from needing a permit. Exemptions have specific limits and conditions that must be adhered to.

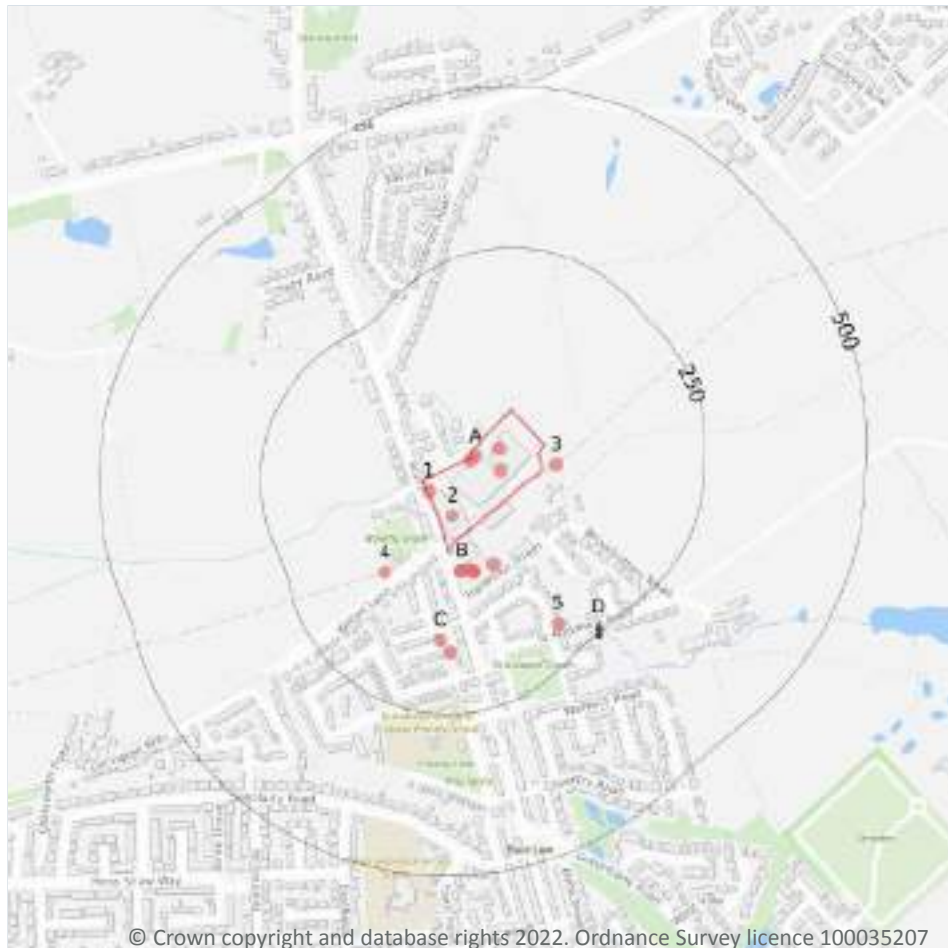
Features are displayed on the Waste and landfill map on **page 30**

ID	Location	Site	Reference	Category	Sub-Category	Description
A	361m S	41, STATION CLOSE, RADCLIFFE, MANCHESTER, M26 4GW	WEX232442	Using waste exemption	Not on a farm	Use of waste in construction
A	361m S	41, STATION CLOSE, RADCLIFFE, MANCHESTER, M26 4GW	WEX086626	Using waste exemption	Not on a farm	Use of waste in construction
5	364m S	Land Adjacent Station Ciose Manchester M26 4GW	EPR/SE5381YR /A001	Using waste exemption	Both agricultural and non-agricultural waste	Use of waste in construction
B	375m SE	Brookbottom Farm Brookbottom Road MANCHESTER M26 4HX	EPR/DE5280PE /A001	Disposing of waste exemption	Agricultural Waste Only	Burning waste in the open
B	375m SE	Brookbottom Farm Brookbottom Road MANCHESTER M26 4HX	EPR/DE5280PE /A001	Using waste exemption	Agricultural Waste Only	Spreading waste on agricultural land to confer benefit
B	375m SE	Brookbottom Farm Brookbottom Road MANCHESTER M26 4HX	EPR/DE5280PE /A001	Using waste exemption	Agricultural Waste Only	Pig and poultry ash
B	375m SE	Brookbottom Farm Brookbottom Road MANCHESTER M26 4HX	EPR/DE5280PE /A001	Using waste exemption	Agricultural Waste Only	Use of waste for a specified purpose
B	377m SE	BROOKBOTTOM FARM, BROOKBOTTOM ROAD, RADCLIFFE, MANCHESTER, M26 4HX	WEX178157	Disposing of waste exemption	On a farm	Burning waste in the open
B	377m SE	BROOKBOTTOM FARM, BROOKBOTTOM ROAD, RADCLIFFE, MANCHESTER, M26 4HX	WEX019396	Disposing of waste exemption	On a farm	Burning waste in the open
C	498m N	73, BURY & BOLTON ROAD, RADCLIFFE, MANCHESTER, M26 4JY	WEX254437	Using waste exemption	Not on a farm	Use of waste in construction
C	498m N	-	WEX113905	Using waste exemption	Not on a farm	Use of waste in construction

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



4 Current industrial land use



- Site Outline
- Search buffers in metres (m)
- Recent industrial land uses
- Licensed Discharges to controlled waters

4.1 Recent industrial land uses

Records within 250m

21

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 34**

ID	Location	Company	Address	Activity	Category
1	On site	Tank	Greater Manchester, M26	Tanks (Generic)	Industrial Features
2	On site	Works	Greater Manchester, M26	Unspecified Works Or Factories	Industrial Features
A	On site	Electricity Sub Station	Greater Manchester, M26	Electrical Features	Infrastructure and Facilities

ID	Location	Company	Address	Activity	Category
A	On site	Works	Greater Manchester, M26	Unspecified Works Or Factories	Industrial Features
A	On site	Tank	Greater Manchester, M26	Tanks (Generic)	Industrial Features
A	On site	Tank	Greater Manchester, M26	Tanks (Generic)	Industrial Features
3	23m E	Pylon	Greater Manchester, M26	Electrical Features	Infrastructure and Facilities
B	36m SE	Elton Vale Yarns Ltd	Constellation Mill, Ainsworth Road, Radcliffe, Manchester, Greater Manchester, M26 4AD	Textiles, Fabrics, Silk and Machinery	Industrial Products
B	36m SE	Global Screw Co Ltd	Unit B Constellation Mill, Ainsworth Road, Radcliffe, Manchester, Greater Manchester, M26 4AD	General Construction Supplies	Industrial Products
B	36m SE	A P S Architectural Joinery	Unit 1b Constellation Mill, Ainsworth Road, Radcliffe, Manchester, Greater Manchester, M26 4AD	Access Equipment	Industrial Products
B	42m SE	Hamer & Perks	Unit D Constellation Mill, Ainsworth Road, Radcliffe, Manchester, Greater Manchester, M26 4AD	Distribution and Haulage	Transport, Storage and Delivery
B	48m SE	Bolton Premier House Clearance Centre	Constellation Mill, Ainsworth Road, Radcliffe, Manchester, Greater Manchester, M26 4AD	Clearance and Salvage Dealers	Recycling Services
B	48m SE	L K Industrial Covers	Unit 6a Constellation Mill, Ainsworth Road, Radcliffe, Manchester, Greater Manchester, M26 4AD	Canvas Goods	Consumer Products
B	48m SE	James Upholstery	Constellation Mill, Ainsworth Road, Radcliffe, Manchester, Greater Manchester, M26 4AD	Furniture	Consumer Products
B	48m SE	J D Drapes & Curtains Ltd	Constellation Mill, Ainsworth Road, Radcliffe, Manchester, Greater Manchester, M26 4AD	Curtains and Blinds	Consumer Products
B	48m SE	Boxing Ring Canvas	Unit 6a First F, Constellation Mill, Radcliffe, Manchester, Greater Manchester, M26 4AD	Canvas Goods	Consumer Products
B	64m SE	Tank	Greater Manchester, M26	Tanks (Generic)	Industrial Features
4	102m W	Pylon	Greater Manchester, M26	Electrical Features	Infrastructure and Facilities
C	136m S	D & K Tool Precision Engineers	Cobden Street, Radcliffe, Manchester, Greater Manchester, M26 4HR	Precision Engineers	Engineering Services



ID	Location	Company	Address	Activity	Category
C	155m S	Works	Greater Manchester, M26	Unspecified Works Or Factories	Industrial Features
5	198m SE	Electricity Sub Station	Greater Manchester, M26	Electrical Features	Infrastructure and Facilities

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m **0**

Open, closed, under development and obsolete petrol stations.

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m **0**

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m **0**

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m **0**

Contaminated Land Register of sites designated under Part 2a of the Environmental Protection Act 1990.

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

Records within 500m**0**

Control of Major Accident Hazards (COMAH) sites. This data includes upper and lower tier sites, and includes a historical archive of COMAH sites and Notification of Installations Handling Hazardous Substances (NIHHS) records.

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m**0**

Sites registered and licensed by the Health and Safety Executive under the Manufacture and Storage of Explosives Regulations 2005 (MSER). The last update to this data was in April 2011.

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m**0**

Consents granted for a site to hold certain quantities of hazardous substances at or above defined limits in accordance with the Planning (Hazardous Substances) Regulations 2015.

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m**0**

Integrated Pollution Control (IPC) records of substance releases to air, land and water. This data represents a historical archive as the IPC regime has been superseded.

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

4.10 Licensed industrial activities (Part A(1))

Records within 500m**0**

Records of Part A(1) installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

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

4.11 Licensed pollutant release (Part A(2)/B)

Records within 500m

0

Records of Part A(2) and Part B installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m

0

Records of the storage, use, accumulation and disposal of radioactive substances regulated under the Radioactive Substances Act 1993.

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

4.13 Licensed Discharges to controlled waters

Records within 500m

3

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

Features are displayed on the Current industrial land use map on **page 34**

ID	Location	Address	Details	
D	242m SE	ST ANDREWS RD BROOKS AV CSO 09001, JUNC ST ANDREWS RD BROOKS AV, ., RADCLIFFE, MANCHESTER, M26 4HU	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01BRY0025 Permit Version: 1 Receiving Water: BLACK LANE BROOK	Status: CONSENT REVOKED OR REVISED - NEW CONSENT ISSUED (37(1)) Issue date: 01/01/1995 Effective Date: 01/01/1995 Revocation Date: 30/05/2006
D	250m SE	ST ANDREWS RD BROOKS AV CSO 09001, JUNC ST ANDREWS RD BROOKS AV, ., RADCLIFFE, MANCHESTER, M26 4HU	Effluent Type: SEWAGE DISCHARGES - STW STORM OVERFLOW/STORM TANK - WATER COMPANY Permit Number: 016993585 Permit Version: 1 Receiving Water: BLACK LANE BROOK	Status: VARIED BY APPLICATION - (WRA 91 SCHED 10 - AS AMENDED BY ENV ACT 1995) Issue date: 31/05/2006 Effective Date: 31/05/2006 Revocation Date: 31/03/2018

ID	Location	Address	Details	
D	250m SE	ST ANDREWS RD BROOKS AV CSO 09001, JUNC ST ANDREWS RD BROOKS AV, ., RADCLIFFE, MANCHESTER, M26 4HU	Effluent Type: SEWAGE DISCHARGES - STW STORM OVERFLOW/STORM TANK - WATER COMPANY Permit Number: 016993585 Permit Version: 2 Receiving Water: BLACK LANE BROOK	Status: VARIED UNDER EPR 2010 Issue date: 26/03/2018 Effective Date: 01/04/2018 Revocation Date: -

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

4.14 Pollutant release to surface waters (Red List)

Records within 500m

0

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

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

4.15 Pollutant release to public sewer

Records within 500m

0

Discharges of Special Category Effluents to the public sewer.

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

4.16 List 1 Dangerous Substances

Records within 500m

0

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

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

4.17 List 2 Dangerous Substances

Records within 500m

0

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

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



4.18 Pollution Incidents (EA/NRW)

Records within 500m**0**

Records of substantiated pollution incidents. Since 2006 this data has only included category 1 (major) and 2 (significant) pollution incidents.

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

4.19 Pollution inventory substances

Records within 500m**0**

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

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

4.20 Pollution inventory waste transfers

Records within 500m**0**

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

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

4.21 Pollution inventory radioactive waste

Records within 500m**0**

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

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

5 Hydrogeology - Superficial aquifer



- Site Outline
- Search buffers in metres (m)
- Principal
 - Secondary A
 - Secondary B
 - Secondary Undifferentiated
 - Unproductive
 - Unknown

5.1 Superficial aquifer

Records within 500m

1

Aquifer status of groundwater held within superficial geology.

Features are displayed on the Hydrogeology map on **page 41**

ID	Location	Designation	Description
1	On site	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type

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



Bedrock aquifer



- Site Outline
- Search buffers in metres (m)
- Principal
 - Secondary A
 - Secondary B
 - Secondary Undifferentiated
 - Unproductive

5.2 Bedrock aquifer

Records within 500m

1

Aquifer status of groundwater held within bedrock geology.

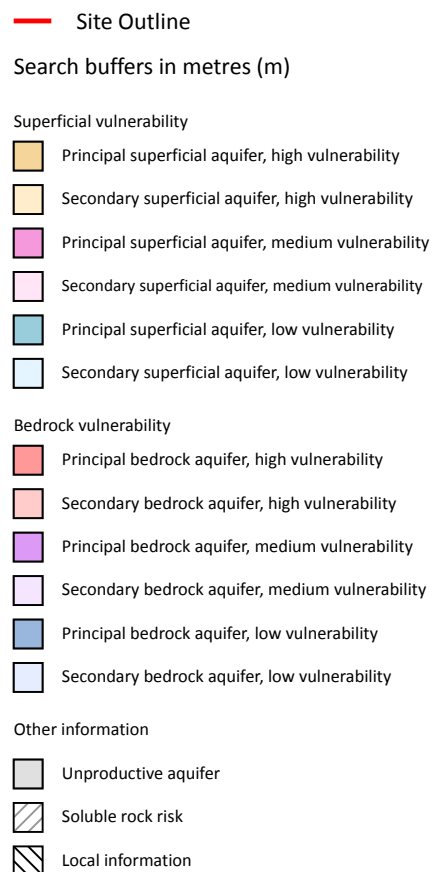
Features are displayed on the Bedrock aquifer map on **page 42**

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

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



Groundwater vulnerability



5.3 Groundwater vulnerability

Records within 50m

5

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

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

Features are displayed on the Groundwater vulnerability map on **page 43**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: >550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: <3m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
2	On site	Summary Classification: Secondary bedrock aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: >550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: <3m Patchiness value: <90% Recharge potential: Low	Vulnerability: Medium Aquifer type: Secondary Flow mechanism: Well connected fractures
3	On site	Summary Classification: Secondary bedrock aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: >550mm/year	Vulnerability: - Aquifer type: - Thickness: <3m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
4	On site	Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: >550mm/year	Vulnerability: Low Aquifer type: Secondary Thickness: <3m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
5	35m NW	Summary Classification: Secondary bedrock aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: >550mm/year	Vulnerability: - Aquifer type: - Thickness: <3m Patchiness value: <90% Recharge potential: Low	Vulnerability: Medium Aquifer type: Secondary Flow mechanism: Well connected fractures

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

5.4 Groundwater vulnerability- soluble rock risk

Records on site

0

This dataset identifies areas where solution features that enable rapid movement of a pollutant may be present within a 1km grid square.

This data is sourced from the British Geological Survey and the Environment Agency.



5.5 Groundwater vulnerability- local information

Records on site

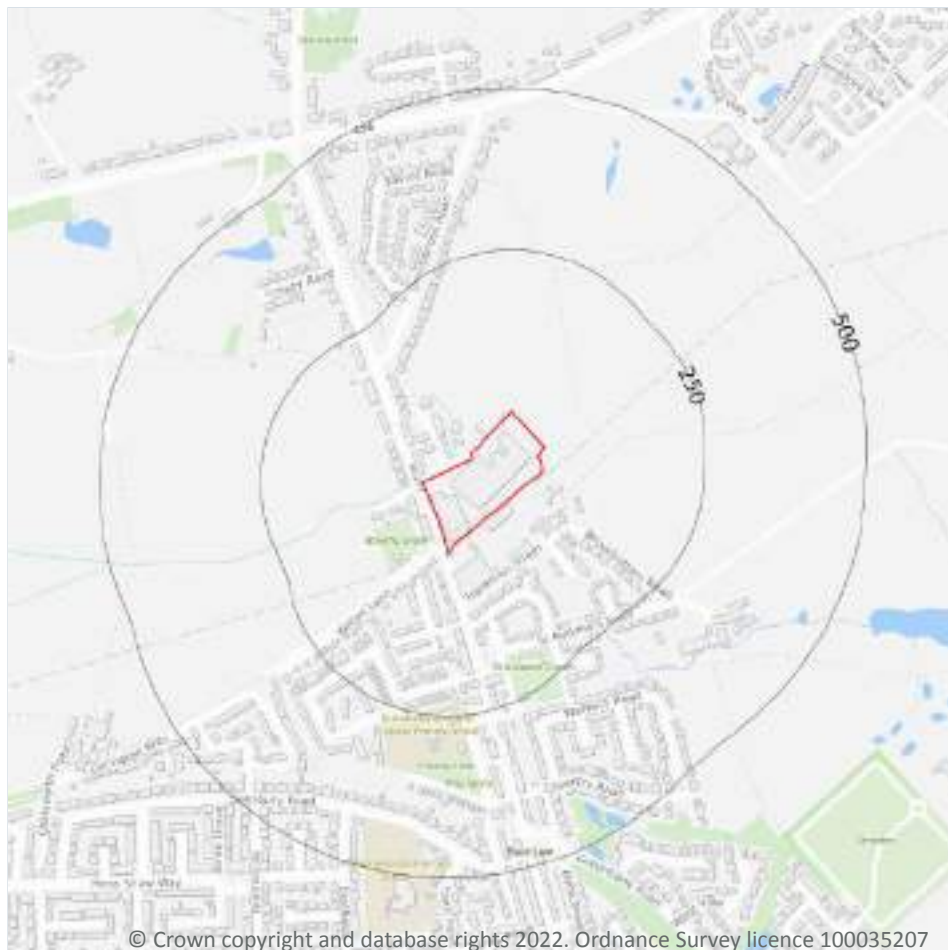
0

This dataset identifies areas where additional local information affecting vulnerability is held by the Environment Agency. Further information can be obtained by contacting the Environment Agency local Area groundwater team through the Environment Agency National Customer Call Centre on 03798 506 506 or by email on enquiries@environment-agency.gov.uk.

This data is sourced from the British Geological Survey and the Environment Agency.



Abstractions and Source Protection Zones



- Site Outline
- Search buffers in metres (m)
- Source Protection Zone 1
Inner catchment
- Source Protection Zone 2
Outer catchment
- Source Protection Zone 3
Total catchment
- Source Protection Zone 4
Zone of Special Interest
- Source Protection Zone 1c
Inner catchment - confined aquifer
- Source Protection Zone 2c
Outer catchment - confined aquifer
- Source Protection Zone 3c
Total catchment - confined aquifer
- Drinking water abstraction licences
Point features
- Drinking water abstraction licences
Polygon features
- Drinking water abstraction licences
Linear features
- Groundwater abstraction licence (point)
- Groundwater abstraction licence (area)
- Groundwater abstraction licence (linear)
- Surface Water Abstractions (point)
- Surface Water Abstractions (area)
- Surface Water Abstractions (linear)

5.6 Groundwater abstractions

Records within 2000m

4

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

Features are displayed on the Abstractions and Source Protection Zones map on **page 46**

ID	Location	Details	
-	1819m SW	Status: Historical Licence No: 2569004051 Details: Dust suppression Direct Source: Ground Water - North West Region Point: "BOREHOLE AT STOPES RD, LITTLE LEVER, BOLTON" Data Type: Point Name: TARMAC TOPBLOCK LTD Easting: 376330 Northing: 407550	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 29/04/1996 Expiry Date: - Issue No: 100 Version Start Date: 06/04/1998 Version End Date: -
-	1819m SW	Status: Historical Licence No: 2569004051 Details: General use relating to Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: "BOREHOLE AT STOPES RD, LITTLE LEVER, BOLTON" Data Type: Point Name: TARMAC TOPBLOCK LTD Easting: 376330 Northing: 407550	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 29/04/1996 Expiry Date: - Issue No: 100 Version Start Date: 06/04/1998 Version End Date: -
-	1819m SW	Status: Historical Licence No: 2569004051 Details: Dust Suppression Direct Source: Ground Water - North West Region Point: BOREHOLE AT STOPES RD, LITTLE LEVER, BOLTON Data Type: Point Name: Tarmac Building Products Limited Easting: 376330 Northing: 407550	Annual Volume (m ³): 30000 Max Daily Volume (m ³): 168 Original Application No: - Original Start Date: 29/04/1996 Expiry Date: - Issue No: 104 Version Start Date: 01/11/2016 Version End Date: -
-	1819m SW	Status: Historical Licence No: 2569004051 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT STOPES RD, LITTLE LEVER, BOLTON Data Type: Point Name: Tarmac Building Products Limited Easting: 376330 Northing: 407550	Annual Volume (m ³): 30000 Max Daily Volume (m ³): 168 Original Application No: - Original Start Date: 29/04/1996 Expiry Date: - Issue No: 104 Version Start Date: 01/11/2016 Version End Date: -

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



5.7 Surface water abstractions

Records within 2000m

17

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

Features are displayed on the Abstractions and Source Protection Zones map on **page 46**

ID	Location	Details	
-	864m E	Status: Historical Licence No: 2569004019 Details: Boiler Feed Direct Source: "Surface, Non-Tidal - North West Region" Point: "WITHINS RESERVOIR, FED BY & O/FLOW TO UNNAMED TRIB OF R IRW" Data Type: Point Name: ST REGIS PAPER COMPANY U K LTD Easting: 378600 Northing: 408700	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 20/01/1966 Expiry Date: - Issue No: 102 Version Start Date: 05/05/2001 Version End Date: -
-	864m E	Status: Historical Licence No: 2569004019 Details: Process water Direct Source: "Surface, Non-Tidal - North West Region" Point: "WITHINS RESERVOIR, FED BY & O/FLOW TO UNNAMED TRIB OF R IRW" Data Type: Point Name: ST REGIS PAPER COMPANY U K LTD Easting: 378600 Northing: 408700	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 20/01/1966 Expiry Date: - Issue No: 102 Version Start Date: 05/05/2001 Version End Date: -
-	864m E	Status: Historical Licence No: 2569004019 Details: Boiler Feed Direct Source: Surface, Non-Tidal - North West Region Point: WITHINS RESERVOIR, FED BY & O/FLOW TO UNNAMED TRIB OF R IRW Data Type: Point Name: ST REGIS PAPER COMPANY U K LTD Easting: 378600 Northing: 408700	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 20/01/1966 Expiry Date: - Issue No: 102 Version Start Date: 05/05/2001 Version End Date: -



ID	Location	Details	
-	864m E	Status: Historical Licence No: 2569004019 Details: Process water Direct Source: Surface, Non-Tidal - North West Region Point: WITHINS RESERVOIR, FED BY & O/FLOW TO UNNAMED TRIB OF R IRW Data Type: Point Name: ST REGIS PAPER COMPANY U K LTD Easting: 378600 Northing: 408700	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 20/01/1966 Expiry Date: - Issue No: 102 Version Start Date: 05/05/2001 Version End Date: -
-	864m E	Status: Historical Licence No: 2569004019 Details: Boiler Feed Direct Source: Surface, Non-Tidal - North West Region Point: WITHINS RESERVOR FED BY UNNAMED TRIBUTARY OF RIVER IRWELL Data Type: Point Name: ST REGIS PAPER COMPANY U K LTD Easting: 378600 Northing: 408700	Annual Volume (m ³): 270000 Max Daily Volume (m ³): 8728.32 Original Application No: - Original Start Date: 20/01/1966 Expiry Date: - Issue No: 102 Version Start Date: 05/05/2001 Version End Date: -
-	864m E	Status: Historical Licence No: 2569004019 Details: Process water Direct Source: Surface, Non-Tidal - North West Region Point: WITHINS RESERVOR FED BY UNNAMED TRIBUTARY OF RIVER IRWELL Data Type: Point Name: ST REGIS PAPER COMPANY U K LTD Easting: 378600 Northing: 408700	Annual Volume (m ³): 270000 Max Daily Volume (m ³): 8728.32 Original Application No: - Original Start Date: 20/01/1966 Expiry Date: - Issue No: 102 Version Start Date: 05/05/2001 Version End Date: -
-	1435m E	Status: Historical Licence No: 2569004054 Details: Process water Direct Source: "Surface, Non-Tidal - North West Region" Point: "THE MANCHESTER, BOLTON AND BURY CANAL AT BANK TOP, BURY" Data Type: Point Name: BRITISH WATERWAYS Easting: 379200 Northing: 408790	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 01/04/1969 Expiry Date: - Issue No: 100 Version Start Date: 04/12/1998 Version End Date: -



ID	Location	Details	
-	1435m E	Status: Historical Licence No: 2569004054 Details: Process water Direct Source: Surface, Non-Tidal - North West Region Point: THE MANCHESTER, BOLTON AND BURY CANAL AT BANK TOP, BURY Data Type: Point Name: BRITISH WATERWAYS BOARD Easting: 379200 Northing: 408790	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 01/04/1969 Expiry Date: - Issue No: 100 Version Start Date: 04/12/1998 Version End Date: -
-	1543m SE	Status: Historical Licence No: 2569004004 Details: Process water Direct Source: Surface, Non-Tidal - North West Region Point: RESERVOIR FED BY SURFACE DRAINAGE ATRADCLIFFE Data Type: Point Name: ST REGIS PAPER COMPANY U K LTD Easting: 378800 Northing: 407800	Annual Volume (m ³): 40004.8 Max Daily Volume (m ³): 109.104 Original Application No: - Original Start Date: 28/01/1966 Expiry Date: - Issue No: 101 Version Start Date: 05/05/2001 Version End Date: -
-	1627m E	Status: Historical Licence No: 2569001158 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: "Surface, Non-Tidal - North West Region" Point: "R IRWELL AT RADCLIFFE, MANCHESTER" Data Type: Point Name: ST REGIS PAPER COMPANY U K LTD Easting: 379400 Northing: 409100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 29/03/1966 Expiry Date: - Issue No: 101 Version Start Date: 05/05/2001 Version End Date: -
-	1627m E	Status: Historical Licence No: 2569001158 Details: Process water Direct Source: "Surface, Non-Tidal - North West Region" Point: "R IRWELL AT RADCLIFFE, MANCHESTER" Data Type: Point Name: ST REGIS PAPER COMPANY U K LTD Easting: 379400 Northing: 409100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 29/03/1966 Expiry Date: - Issue No: 101 Version Start Date: 05/05/2001 Version End Date: -

ID	Location	Details	
-	1627m E	Status: Historical Licence No: 2569001158 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Surface, Non-Tidal - North West Region Point: R IRWELL AT RADCLIFFE, MANCHESTER Data Type: Point Name: ST REGIS PAPER COMPANY U K LTD Easting: 379400 Northing: 409100	Annual Volume (m ³): 3636800 Max Daily Volume (m ³): 14183.52 Original Application No: - Original Start Date: 29/03/1966 Expiry Date: - Issue No: 101 Version Start Date: 05/05/2001 Version End Date: -
-	1627m E	Status: Historical Licence No: 2569001158 Details: Process water Direct Source: Surface, Non-Tidal - North West Region Point: R IRWELL AT RADCLIFFE, MANCHESTER Data Type: Point Name: ST REGIS PAPER COMPANY U K LTD Easting: 379400 Northing: 409100	Annual Volume (m ³): 3636800 Max Daily Volume (m ³): 14183.52 Original Application No: - Original Start Date: 29/03/1966 Expiry Date: - Issue No: 101 Version Start Date: 05/05/2001 Version End Date: -
-	1831m E	Status: Active Licence No: NW/069/0001/004 Details: Hydroelectric Power Generation Direct Source: Surface, Non-Tidal - North West Region Point: RIVER IRWELL AT BEALEY'S WEIR Data Type: Point Name: Resolution Hydro Limited Easting: 379607 Northing: 409015	Annual Volume (m ³): 80,000,000 Max Daily Volume (m ³): 259,200 Original Application No: - Original Start Date: 20/12/2010 Expiry Date: 31/03/2027 Issue No: 1 Version Start Date: 01/04/2019 Version End Date: -
-	1867m N	Status: Historical Licence No: 2569001160 Details: Process water Direct Source: Surface, Non-Tidal - North West Region Point: RESERVOIRS FED BY ELTON BRK AT BURY Data Type: Point Name: THE ELTON COP DYEING CO LTD Easting: 377500 Northing: 410900	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 10/03/1966 Expiry Date: - Issue No: 100 Version Start Date: 25/02/1975 Version End Date: -
-	1881m NE	Status: Historical Licence No: 2569001056 Details: Dust suppression Direct Source: "Surface, Non-Tidal - North West Region" Point: "THE RIVER IRWELL AT HINDS LANE, BURY" Data Type: Point Name: J B SKIPS & SERVICES LTD Easting: 379450 Northing: 409850	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 18/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 01/04/1997 Version End Date: -



ID	Location	Details	
-	1881m NE	Status: Historical Licence No: 2569001056 Details: Dust suppression Direct Source: Surface, Non-Tidal - North West Region Point: THE RIVER IRWELL AT HINDS LANE, BURY Data Type: Point Name: J B SKIPS & SERVICES LTD Easting: 379450 Northing: 409850	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 18/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 01/04/1997 Version End Date: -

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

5.8 Potable abstractions

Records within 2000m	0
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Licensed potable water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

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

5.9 Source Protection Zones

Records within 500m	0
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Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination.

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

5.10 Source Protection Zones (confined aquifer)

Records within 500m	0
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Source Protection Zones in the confined aquifer define the sensitivity around a deep groundwater abstraction to contamination. A confined aquifer would normally be protected from contamination by overlying geology and is only considered a sensitive resource if deep excavation/drilling is taking place.

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

6 Hydrology



- Site Outline
- Search buffers in metres (m)
- Water Network (OS MasterMap)
- Surface water features (wider than 5m)
- Surface water features (narrower than 5m)
- ⋯ WFD River, canal and surface water transfer water bodies
- WFD Lake water bodies
- WFD Transitional and coastal water bodies
- WFD Surface water body catchments boundaries
- WFD Groundwater body boundaries

6.1 Water Network (OS MasterMap)

Records within 250m

10

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

Features are displayed on the Hydrology map on **page 53**

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



ID	Location	Type of water feature	Ground level	Permanence	Name
4	5m NW	Inland river not influenced by normal tidal action.	Not provided	Watercourse contains water year round (in normal circumstances)	-
A	10m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
B	29m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
5	117m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
6	131m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
7	144m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
8	219m SE	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
C	221m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
D	248m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m

4

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

Features are displayed on the Hydrology map on **page 53**

This data is sourced from the Ordnance Survey.



6.3 WFD Surface water body catchments

Records on site

1

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

Features are displayed on the Hydrology map on **page 53**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
3	On site	River	Irwell (Roch to Croal)	GB112069060840	Croal Irwell	Irwell

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

6.4 WFD Surface water bodies

Records identified

1

Surface water bodies under the Directive may be rivers, lakes, estuary or coastal. To achieve the purpose of the Directive, environmental objectives have been set and are reported on for each water body. The progress towards delivery of the objectives is then reported on by the relevant competent authorities at the end of each six-year cycle. The river water body directly associated with the catchment listed in the previous section is detailed below, along with any lake, canal, coastal or artificial water body within 250m of the site. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each water body listed.

Features are displayed on the Hydrology map on **page 53**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
-	2035m S	River	Irwell (Roch to Croal)	GB112069060840	Moderate	Fail	Moderate	2019

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

6.5 WFD Groundwater bodies

Records on site

1

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

Features are displayed on the Hydrology map on **page 53**



ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
2	On site	Northern Manchester Carboniferous Aquifers	<u>GB41202G101800</u>	Poor	Poor	Good	2019

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



7 River and coastal flooding

7.1 Risk of flooding from rivers and the sea

Records within 50m**0**

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

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

7.2 Historical Flood Events

Records within 250m**0**

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

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

7.3 Flood Defences

Records within 250m**0**

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

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

7.4 Areas Benefiting from Flood Defences

Records within 250m

0

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

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

7.5 Flood Storage Areas

Records within 250m

0

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

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



River and coastal flooding - Flood Zones

7.6 Flood Zone 2

Records within 50m

0

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

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

7.7 Flood Zone 3

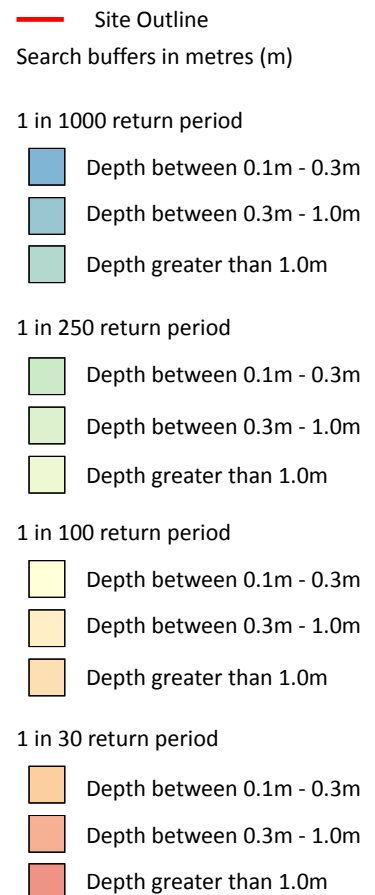
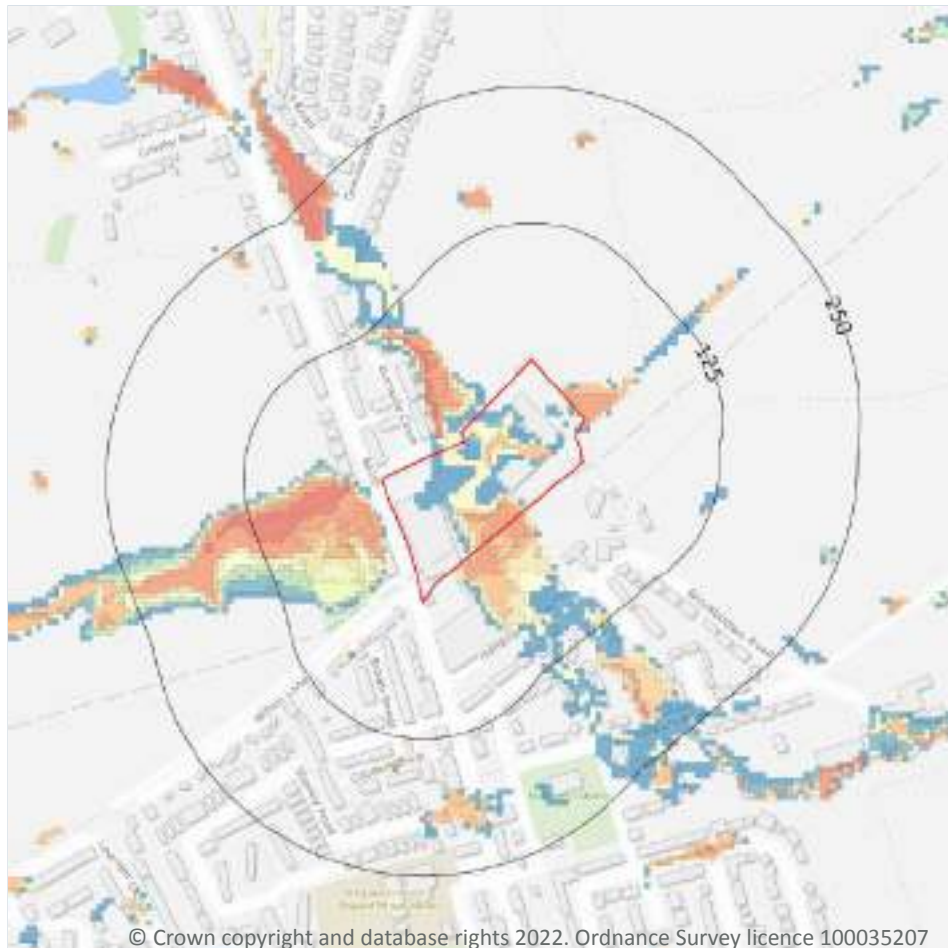
Records within 50m

0

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

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

8 Surface water flooding



8.1 Surface water flooding

Highest risk on site

1 in 30 year, 0.3m - 1.0m

Highest risk within 50m

1 in 30 year, Greater than 1.0m

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

Features are displayed on the Surface water flooding map on **page 60**

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

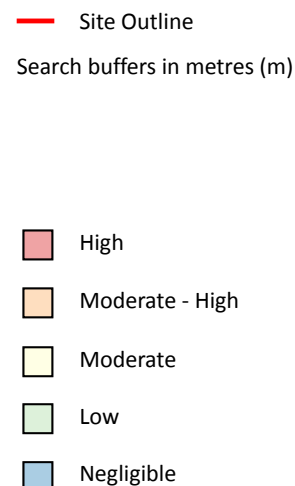
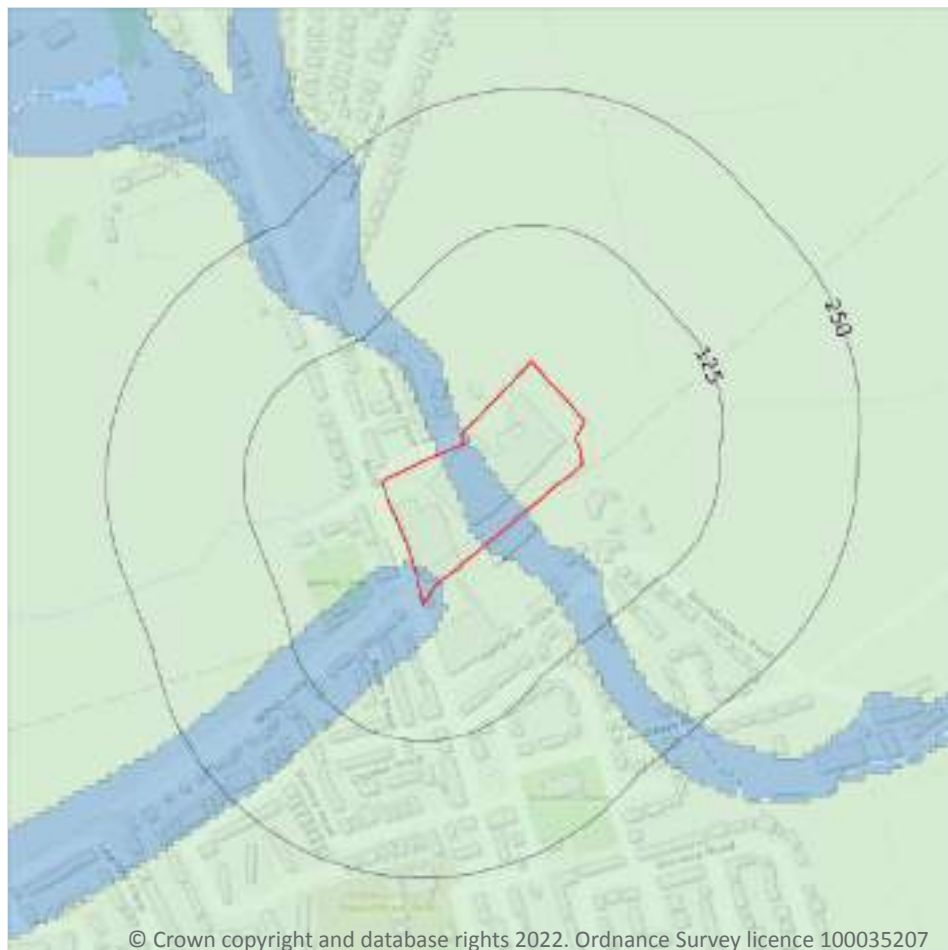
The table below shows the maximum flood depths for a range of return periods for the site.

Return period	Maximum modelled depth
1 in 1000 year	Greater than 1.0m
1 in 250 year	Between 0.3m and 1.0m
1 in 100 year	Between 0.3m and 1.0m
1 in 30 year	Between 0.3m and 1.0m

This data is sourced from Ambiantal Risk Analytics.



9 Groundwater flooding



9.1 Groundwater flooding

Highest risk on site

Low

Highest risk within 50m

Low

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

Features are displayed on the Groundwater flooding map on **page 62**

This data is sourced from Ambiantal Risk Analytics.

10 Environmental designations



- Site Outline
- Search buffers in metres (m)
- ▨ Green Belt

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m

0

Sites providing statutory protection for the best examples of UK flora, fauna, or geological or physiographical features. Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs were re-notified under the Wildlife and Countryside Act 1981. Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000 (in England and Wales) and (in Scotland) by the Nature Conservation (Scotland) Act 2004 and the Wildlife and Natural Environment (Scotland) Act 2010.

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

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m**0**

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. They cover all aspects of wetland conservation and wise use, recognizing wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities. These sites cover a broad definition of wetland; marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, and even some marine areas.

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

10.3 Special Areas of Conservation (SAC)

Records within 2000m**0**

Areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive.

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

10.4 Special Protection Areas (SPA)

Records within 2000m**0**

Sites classified by the UK Government under the EC Birds Directive, SPAs are areas of the most important habitat for rare (listed on Annex I to the Directive) and migratory birds within the European Union.

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

10.5 National Nature Reserves (NNR)

Records within 2000m**0**

Sites containing examples of some of the most important natural and semi-natural terrestrial and coastal ecosystems in Great Britain. They are managed to conserve their habitats, provide special opportunities for scientific study or to provide public recreation compatible with natural heritage interests.

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

10.6 Local Nature Reserves (LNR)

Records within 2000m**0**

Sites managed for nature conservation, and to provide opportunities for research and education, or simply enjoying and having contact with nature. They are declared by local authorities under the National Parks and Access to the Countryside Act 1949 after consultation with the relevant statutory nature conservation agency.

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

10.7 Designated Ancient Woodland

Records within 2000m**0**

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

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

10.8 Biosphere Reserves

Records within 2000m**0**

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

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

10.9 Forest Parks

Records within 2000m**0**

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

This data is sourced from the Forestry Commission.



10.10 Marine Conservation Zones

Records within 2000m

0

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

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

10.11 Green Belt

Records within 2000m

6

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

Features are displayed on the Environmental designations map on **page 63**

ID	Location	Name	Local Authority name
1	On site	Merseyside and Greater Manchester	Bury
2	672m NE	Merseyside and Greater Manchester	Bury
3	795m NE	Merseyside and Greater Manchester	Bury
4	1301m SW	Merseyside and Greater Manchester	Bury
5	1648m SW	Merseyside and Greater Manchester	Bolton
-	1753m N	Merseyside and Greater Manchester	Bury

This data is sourced from the Ministry of Housing, Communities and Local Government.

10.12 Proposed Ramsar sites

Records within 2000m

0

Ramsar sites are areas listed as a Wetland of International Importance under the Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention) 1971. The sites here supplied have a status of 'Proposed' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m

0

Special Areas of Conservation are areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive. Those sites supplied here are those with a status of 'Possible'



having been identified for potential adoption under the framework.

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

10.14 Potential Special Protection Areas (pSPA)

Records within 2000m

0

Special Protection Areas (SPAs) are areas designated (or 'classified') under the European Union Wild Birds Directive for the protection of nationally and internationally important populations of wild birds. Those sites supplied here are those with a status of 'Potential' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m

0

Areas where nitrate concentrations in drinking water sources exceeded or was at risk of exceeding the limit of 50 mg/l set by the 1980 EC Drinking Water Directive. Voluntary agricultural measures as a means of reducing the levels of nitrate were introduced by DEFRA as MAFF, with payments being made to farmers who complied. The scheme was started as a pilot in 1990 in ten areas, later implemented within 32 areas. The scheme was closed to further new entrants in 1998, although existing agreements continued for their full term. All Nitrate Sensitive Areas fell within the areas designated as Nitrate Vulnerable Zones (NVZs) in 1996 under the EC Nitrate Directive (91/676/EEC).

This data is sourced from Natural England.

10.16 Nitrate Vulnerable Zones

Records within 2000m

0

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

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

SSSI Impact Zones and Units



- Site Outline
- Search buffers in metres (m)
- SSSI Impact Risk Zones
- SSSI Units
- Not recorded
- Favourable
- Unfavourable - Recovering
- Unfavourable - No change
- Unfavourable - Declining
- Partially destroyed
- Destroyed

10.17 SSSI Impact Risk Zones

Records on site

1

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

Features are displayed on the SSSI Impact Zones and Units map on **page 68**

ID	Location	Type of developments requiring consultation
1	On site	Infrastructure - Airports, helipads and other aviation proposals. Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, review of minerals permissions (romp), extensions, variations to conditions etc. oil & gas exploration/extraction. Air pollution - Livestock & poultry units with floorspace > 500m², slurry lagoons & digestate stores > 750m², manure stores > 3500t.

This data is sourced from Natural England.

10.18 SSSI Units

Records within 2000m

0

Divisions of SSSIs used to record management and condition details. Units are the smallest areas for which Natural England gives a condition assessment, however, the size of units varies greatly depending on the types of management and the conservation interest.

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



11 Visual and cultural designations



- Site Outline
- Search buffers in metres (m)
- Listed buildings
- Conservation areas
- Conservation areas - no data
- National Parks
- Areas of Outstanding Natural Beauty
- Registered parks and gardens
- Scheduled Monuments
- World Heritage Sites

11.1 World Heritage Sites

Records within 250m

0

Sites designated for their globally important cultural or natural interest requiring appropriate management and protection measures. World Heritage Sites are designated to meet the UK's commitments under the World Heritage Convention.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.2 Area of Outstanding Natural Beauty

Records within 250m

0

Areas of Outstanding Natural Beauty (AONB) are conservation areas, chosen because they represent 18% of the finest countryside. Each AONB has been designated for special attention because of the quality of their flora, fauna, historical and cultural associations, and/or scenic views. The National Parks and Access to the Countryside Act of 1949 created AONBs and the Countryside and Rights of Way Act, 2000 added further regulation and protection. There are likely to be restrictions to some developments within these areas.

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

11.3 National Parks

Records within 250m

0

In England and Wales, the purpose of National Parks is to conserve and enhance landscapes within the countryside whilst promoting public enjoyment of them and having regard for the social and economic well-being of those living within them. In Scotland National Parks have the additional purpose of promoting the sustainable use of the natural resources of the area and the sustainable social and economic development of its communities. The National Parks and Access to the Countryside Act 1949 established the National Park designation in England and Wales, and The National Parks (Scotland) Act 2000 in Scotland.

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

11.4 Listed Buildings

Records within 250m

1

Buildings listed for their special architectural or historical interest. Building control in the form of 'listed building consent' is required in order to make any changes to that building which might affect its special interest. Listed buildings are graded to indicate their relative importance, however building controls apply to all buildings equally, irrespective of their grade, and apply to the interior and exterior of the building in its entirety, together with any curtilage structures.

Features are displayed on the Visual and cultural designations map on **page 70**

ID	Location	Name	Grade	Reference Number	Listed date
1	209m SE	Church Of Saint Andrew, Radcliffe, Bury, M26	II	1067218	29/01/1985

This data is sourced from Historic England, Cadw and Historic Environment Scotland.



11.5 Conservation Areas

Records within 250m**0**

Local planning authorities are obliged to designate as conservation areas any parts of their own area that are of special architectural or historic interest, the character and appearance of which it is desirable to preserve or enhance. Designation of a conservation area gives broader protection than the listing of individual buildings. All the features within the area, listed or otherwise, are recognised as part of its character. Conservation area designation is the means of recognising the importance of all factors and of ensuring that planning decisions address the quality of the landscape in its broadest sense.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.6 Scheduled Ancient Monuments

Records within 250m**0**

A scheduled monument is an historic building or site that is included in the Schedule of Monuments kept by the Secretary of State for Digital, Culture, Media and Sport. The regime is set out in the Ancient Monuments and Archaeological Areas Act 1979. The Schedule of Monuments has c.20,000 entries and includes sites such as Roman remains, burial mounds, castles, bridges, earthworks, the remains of deserted villages and industrial sites. Monuments are not graded, but all are, by definition, considered to be of national importance.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

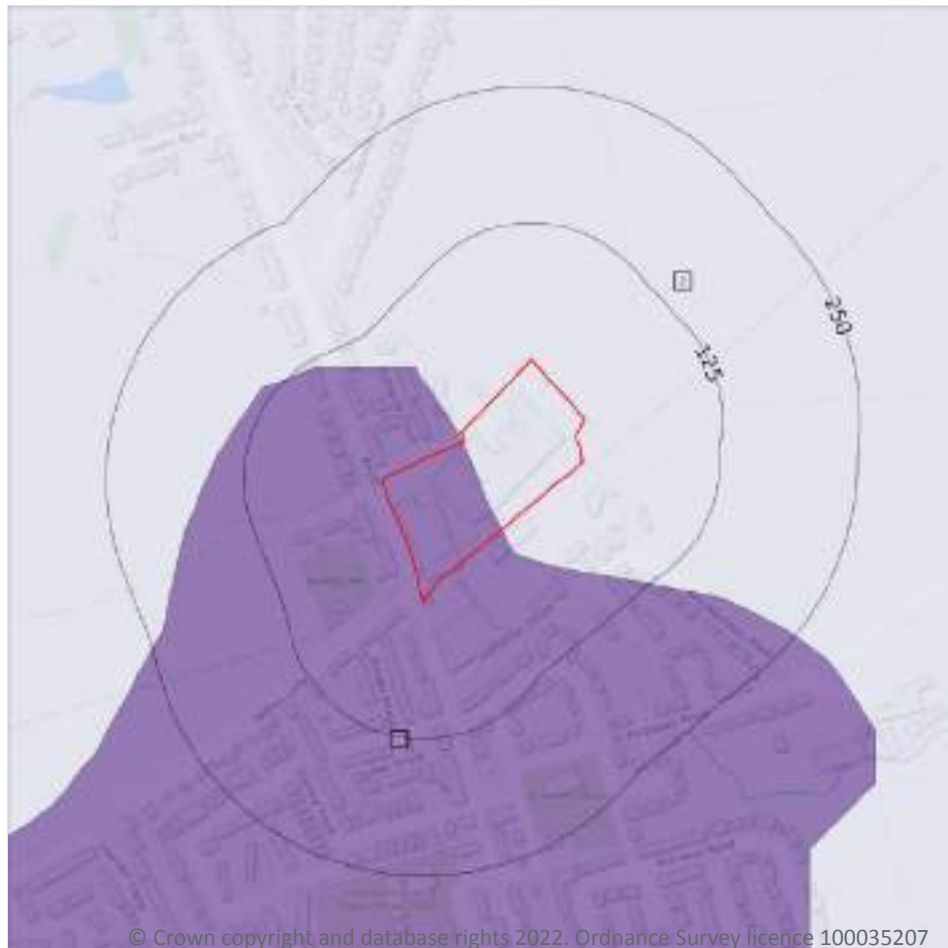
11.7 Registered Parks and Gardens

Records within 250m**0**

Parks and gardens assessed to be of particular interest and of special historic interest. The emphasis being on 'designed' landscapes, rather than on planting or botanical importance. Registration is a 'material consideration' in the planning process, meaning that planning authorities must consider the impact of any proposed development on the special character of the landscape.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

12 Agricultural designations



- Site Outline
- Search buffers in metres (m)
- Grade 1 - excellent quality
- Grade 2 - very good quality
- Grade 3 - good to moderate quality
- Grade 3a - good quality
- Grade 3b - moderate quality
- Grade 4 - poor quality
- Grade 5 - very poor quality
- Non-agricultural land
- Urban land
- Exclusion land
- Tree felling licences
- Open Access land

12.1 Agricultural Land Classification

Records within 250m

2

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

Features are displayed on the Agricultural designations map on **page 73**

ID	Location	Classification	Description
1	On site	Urban	-

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

This data is sourced from Natural England.

12.2 Open Access Land

Records within 250m	0
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The Countryside and Rights of Way Act 2000 (CROW Act) gives a public right of access to land without having to use paths. Access land includes mountains, moors, heaths and downs that are privately owned. It also includes common land registered with the local council and some land around the England Coast Path. Generally permitted activities on access land are walking, running, watching wildlife and climbing.

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

12.3 Tree Felling Licences

Records within 250m	0
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Felling Licence Application (FLA) areas approved by Forestry Commission England. Anyone wishing to fell trees must ensure that a licence or permission under a grant scheme has been issued by the Forestry Commission before any felling is carried out or that one of the exceptions apply.

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m	0
---------------------	---

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

This data is sourced from Natural England.

12.5 Countryside Stewardship Schemes

Records within 250m

0

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

This data is sourced from Natural England.



13 Habitat designations



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- Site Outline
- Search buffers in metres (m)
- Priority Habitat Inventory
- Open Mosaic Habitat
- Limestone Pavement Orders
- Habitat Networks
- Primary Habitat
- Restorable Habitat
- Associated Habitats
- Habitat Restoration-Creation
- Network Enhancement Zone 1
- Network Enhancement Zone 2

13.1 Priority Habitat Inventory

Records within 250m

0

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

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m

2

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

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



ID	Location	Type	Habitat
2	109m SE	Network Enhancement Zone 2	Not specified
3	171m SW	Network Enhancement Zone 1	Not specified

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m

1

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

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

ID	Location	Site reference	Identification confidence	Primary source	Secondary source	Tertiary source
1	On site	HLD_refs: EAHLD1583 7	Low	Environment Agency Historic Landfill Sites	UK Perspectives Aerial Photography	-

This data is sourced from Natural England.

13.4 Limestone Pavement Orders

Records within 250m

0

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

This data is sourced from Natural England.



14 Geology 1:10,000 scale - Availability



- Site Outline
- Search buffers in metres (m)
- Full coverage
 - Partial coverage
 - No coverage

14.1 10k Availability

Records within 500m

1

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

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 78**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	Full	Full	Full	Full	SD70NE

This data is sourced from the British Geological Survey.



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



- Site Outline
- Search buffers in metres (m)
- Reclaimed ground
 - Made ground
 - Worked ground
 - Infilled ground
 - Disturbed ground
 - Landscaped ground

14.2 Artificial and made ground (10k)

Records within 500m

3

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

Features are displayed on the Geology 1:10,000 scale - Artificial and made ground map on **page 79**

ID	Location	LEX Code	Description	Rock description
1	On site	WMGR-ARTDP	Infilled Ground	Artificial Deposit
2	100m SW	WGR-VOID	Worked Ground (Undivided)	Void
3	404m NW	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Superficial



- Site Outline
- Search buffers in metres (m)
- Landslip (10k)
- Superficial geology (10k)
Please see table for more details.

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14.3 Superficial geology (10k)

Records within 500m

1

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

Features are displayed on the Geology 1:10,000 scale - Superficial map on **page 80**

ID	Location	LEX Code	Description	Rock description
1	On site	TILLD-DMTN	Till, Devensian - Diamicton	Diamicton

This data is sourced from the British Geological Survey.



14.4 Landslip (10k)

Records within 500m

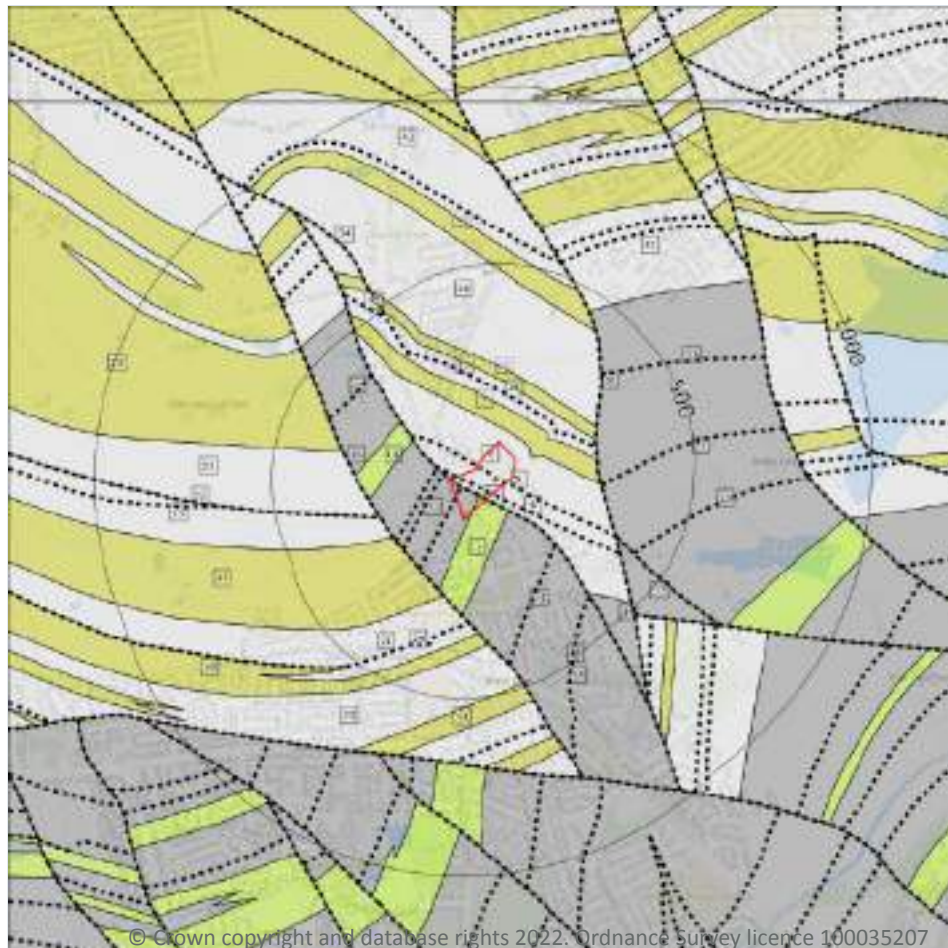
0

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

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Bedrock



— Site Outline

Search buffers in metres (m)

.... Bedrock faults and other linear features (10k)

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

14.5 Bedrock geology (10k)

Records within 500m

24

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

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 82**

ID	Location	LEX Code	Description	Rock age
1	On site	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovia Sub-age - Duckmantian Sub-age
2	On site	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age

ID	Location	LEX Code	Description	Rock age
3	On site	PMCM-SDST	Pennine Middle Coal Measures Formation - Sandstone	Bolsovia Sub-age - Duckmantian Sub-age
9	38m NE	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
11	64m SE	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovia Sub-age - Duckmantian Sub-age
12	94m NE	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
14	152m NW	PMCM-SDST	Pennine Middle Coal Measures Formation - Sandstone	Bolsovia Sub-age - Duckmantian Sub-age
15	152m NE	TRBR-SDST	Trencherbone Rock - Sandstone	Langsettian Sub-age
17	183m SW	CAR-SDST	Cannel Rock (south Lancashire) - Sandstone	Langsettian Sub-age
18	186m NE	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
19	204m W	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
20	212m NW	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovia Sub-age - Duckmantian Sub-age
21	219m S	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
23	222m W	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
25	226m E	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovia Sub-age - Duckmantian Sub-age
29	310m W	CAR-SDST	Cannel Rock (south Lancashire) - Sandstone	Langsettian Sub-age
30	319m S	TRBR-SDST	Trencherbone Rock - Sandstone	Langsettian Sub-age
32	331m SE	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovia Sub-age - Duckmantian Sub-age
35	356m S	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
37	390m SE	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovia Sub-age - Duckmantian Sub-age
40	407m NE	PLCM-SDST	Pennine Lower Coal Measures Formation - Sandstone	Langsettian Sub-age
41	447m NE	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age



ID	Location	LEX Code	Description	Rock age
43	481m NE	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
44	487m S	TRBR-SDST	Trencherbone Rock - Sandstone	Langsettian Sub-age

This data is sourced from the British Geological Survey.

14.6 Bedrock faults and other linear features (10k)

Records within 500m

20

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

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 82**

ID	Location	Category	Description
4	On site	ROCK	Coal seam, inferred
5	On site	ROCK	Coal seam, inferred
6	On site	ROCK	Coal seam, inferred
7	On site	FAULT	Normal fault, inferred; crossmarks on downthrow side
8	26m NW	ROCK	Coal seam, inferred
10	49m NW	ROCK	Coal seam, inferred
13	126m NE	ROCK	Coal seam, inferred
16	183m SW	FAULT	Normal fault, inferred; crossmarks on downthrow side
22	222m W	FAULT	Normal fault, inferred; crossmarks on downthrow side
24	222m SE	ROCK	Coal seam, inferred
26	226m E	FAULT	Normal fault, inferred; crossmarks on downthrow side
27	243m E	ROCK	Coal seam, inferred
28	290m S	ROCK	Coal seam, inferred
31	331m SE	FAULT	Normal fault, inferred; crossmarks on downthrow side
33	339m NE	ROCK	Coal seam, inferred
34	352m NW	FAULT	Normal fault, inferred; crossmarks on downthrow side
36	360m NW	ROCK	Coal seam, inferred



ID	Location	Category	Description
38	396m SE	ROCK	Coal seam, inferred
39	398m SE	ROCK	Coal seam, inferred
42	472m NW	ROCK	Coal seam, inferred

This data is sourced from the British Geological Survey.



An aerial photograph of a residential neighborhood. Two concentric circles are drawn on the map, with the inner circle labeled '250' and the outer circle labeled '500'. A red rectangle is drawn in the center of the circles, enclosing a small black square. The map shows streets, houses, green spaces, and a large body of water on the right side. The text '© Crown copyright and database rights 2022. Ordnance Survey licence 100035207' is visible at the bottom.

☐ Geological map tile

Records within 500m	1
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Features are displayed on the Geology 1:50,000 scale - Availability map on **page 86**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	No coverage	Full	Full	No coverage	EW085_manchester_v4

This data is sourced from the British Geological Survey.

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



- Site Outline
- Search buffers in metres (m)
- Made ground
 - Worked ground
 - Infilled ground
 - Disturbed ground
 - Landscaped ground

15.2 Artificial and made ground (50k)

Records within 500m

1

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

Features are displayed on the Geology 1:50,000 scale - Artificial and made ground map on **page 87**

ID	Location	LEX Code	Description	Rock description
1	On site	WGR-VOID	WORKED GROUND (UNDIVIDED)	VOID

This data is sourced from the British Geological Survey.

15.3 Artificial ground permeability (50k)

Records within 50m

0

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

This data is sourced from the British Geological Survey.



Geology 1:50,000 scale - Superficial



— Site Outline

Search buffers in metres (m)

▣ Landslip (50k)

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

15.4 Superficial geology (50k)

Records within 500m

1

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

Features are displayed on the Geology 1:50,000 scale - Superficial map on **page 89**

ID	Location	LEX Code	Description	Rock description
1	On site	TILLD-DMTN	TILL, DEVANSIAN	DIAMICTON

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m**1**

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

Location	Flow type	Maximum permeability	Minimum permeability
On site	Mixed	High	Low

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m**0**

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

This data is sourced from the British Geological Survey.

15.7 Landslip permeability (50k)

Records within 50m**0**

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

This data is sourced from the British Geological Survey.



Geology 1:50,000 scale - Bedrock



— Site Outline

Search buffers in metres (m)

.... Bedrock faults and other linear features (50k)

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

15.8 Bedrock geology (50k)

Records within 500m

22

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

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 91**

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

ID	Location	LEX Code	Description	Rock age
6	On site	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
7	38m NE	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
8	64m SE	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
9	94m NE	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
11	151m NW	PMCM-SDST	PENNINE MIDDLE COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
12	183m SW	CAR-SDST	CANNEL ROCK (SOUTH LANCASHIRE) - SANDSTONE	WESTPHALIAN
14	204m W	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
15	212m NW	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
16	219m S	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
19	222m W	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
21	226m E	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
24	310m W	CAR-SDST	CANNEL ROCK (SOUTH LANCASHIRE) - SANDSTONE	WESTPHALIAN
25	319m S	TRBR-SDST	TRENCHBONE ROCK - SANDSTONE	WESTPHALIAN
27	330m SE	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
30	356m S	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
32	390m SE	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
35	407m NE	PLCM-SDST	PENNINE LOWER COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
37	447m NE	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
39	481m NE	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
40	486m S	TRBR-SDST	TRENCHBONE ROCK - SANDSTONE	WESTPHALIAN



This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m

4

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

Location	Flow type	Maximum permeability	Minimum permeability
On site	Fracture	Moderate	Low
On site	Fracture	High	Moderate
On site	Fracture	Moderate	Low
38m N	Fracture	High	Moderate

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m

18

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

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 91**

ID	Location	Category	Description
3	On site	ROCK	Coal seam, inferred
4	On site	ROCK	Coal seam, inferred
5	On site	FAULT	Fault, inferred
10	126m NE	ROCK	Coal seam, inferred
13	183m SW	FAULT	Fault, inferred
17	222m SE	ROCK	Coal seam, inferred
18	222m W	FAULT	Fault, inferred
20	226m E	FAULT	Fault, inferred
22	242m E	ROCK	Coal seam, inferred
23	290m S	ROCK	Coal seam, inferred



ID	Location	Category	Description
26	330m SE	FAULT	Fault, inferred
28	339m NE	ROCK	Coal seam, inferred
29	352m NW	FAULT	Fault, inferred
31	360m NW	ROCK	Coal seam, inferred
33	396m SE	ROCK	Coal seam, inferred
34	399m SE	ROCK	Coal seam, inferred
36	447m NE	FOSSIL_HORIZON	Marine band
38	472m NW	ROCK	Coal seam, inferred

This data is sourced from the British Geological Survey.



16 Boreholes



— Site Outline
Search buffers in metres (m)

- Confidential
- 0 - 10m
- 10 - 30m
- 30m+
- Unknown

16.1 BGS Boreholes

Records within 250m

1

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

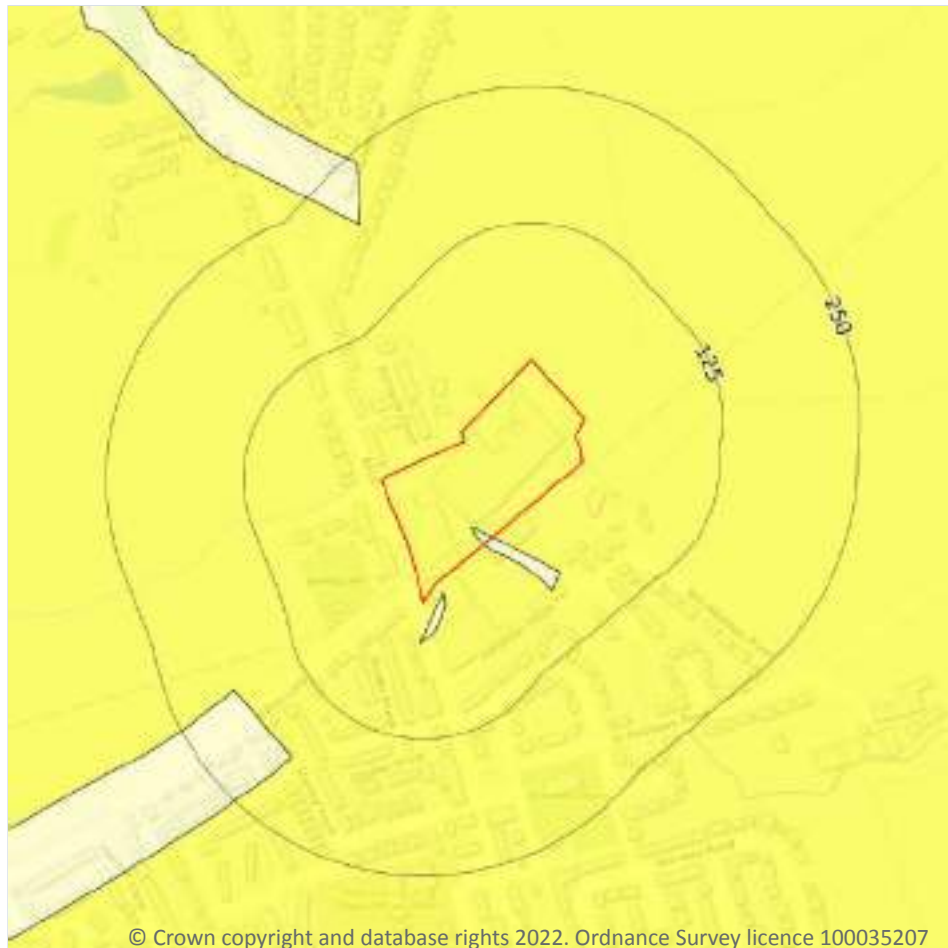
Features are displayed on the Boreholes map on **page 95**

ID	Location	Grid reference	Name	Length	Confidential	Web link
1	8m SE	377746 408920	COCKEY MOOR 1 PIT BLACK LANE COLLIERY	186.23	N	18397

This data is sourced from the British Geological Survey.



17 Natural ground subsidence - Shrink swell clays



- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☐ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

17.1 Shrink swell clays

Records within 50m

3

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

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 96**

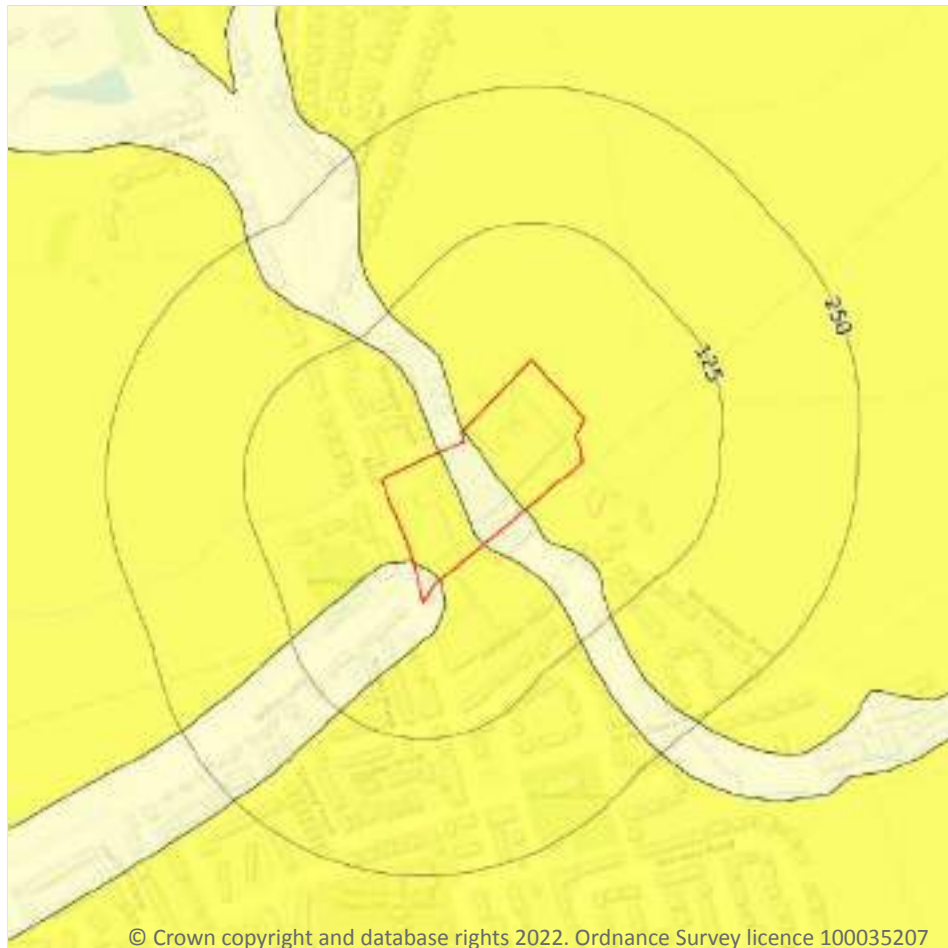
Location	Hazard rating	Details
On site	Negligible	Ground conditions predominantly non-plastic.
On site	Very low	Ground conditions predominantly low plasticity.
10m SE	Negligible	Ground conditions predominantly non-plastic.



This data is sourced from the British Geological Survey.



Natural ground subsidence - Running sands



- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☐ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

17.2 Running sands

Records within 50m

2

The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

Features are displayed on the Natural ground subsidence - Running sands map on **page 98**

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

Location	Hazard rating	Details
On site	Very low	Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Compressible deposits



- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☒ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

17.3 Compressible deposits

Records within 50m

1

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

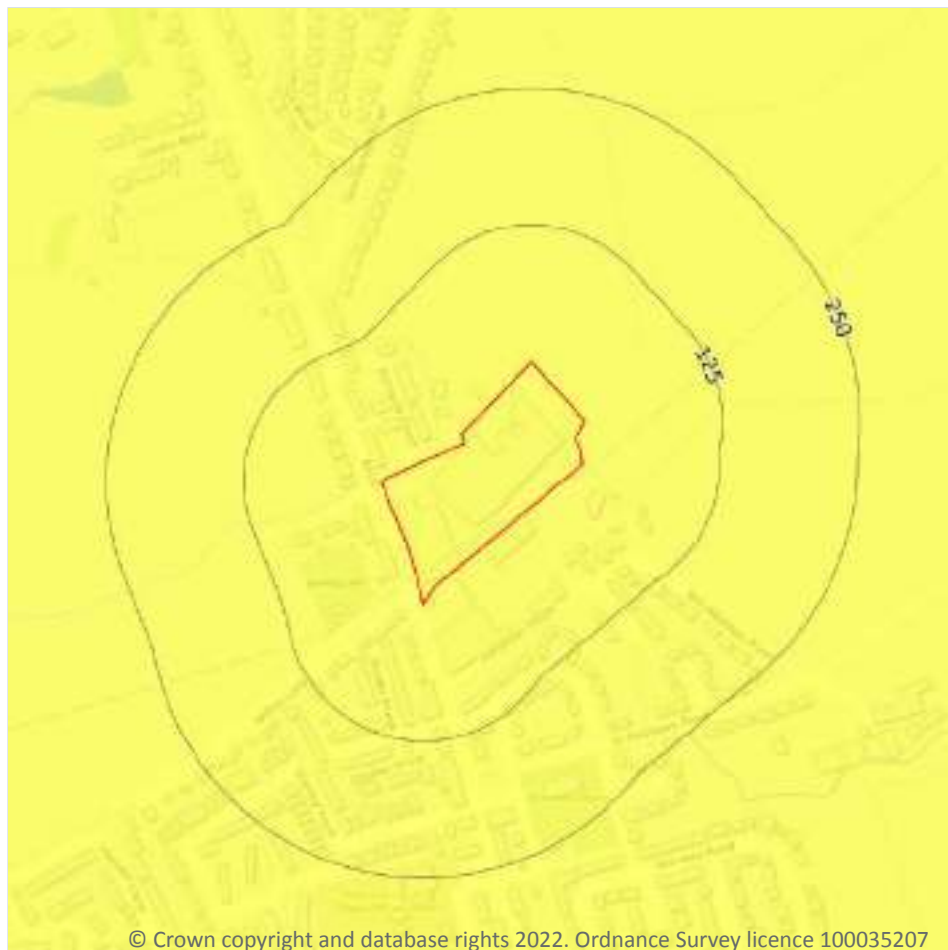
Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 100**

Location	Hazard rating	Details
On site	Negligible	Compressible strata are not thought to occur.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Collapsible deposits



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- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☒ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

17.4 Collapsible deposits

Records within 50m

1

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

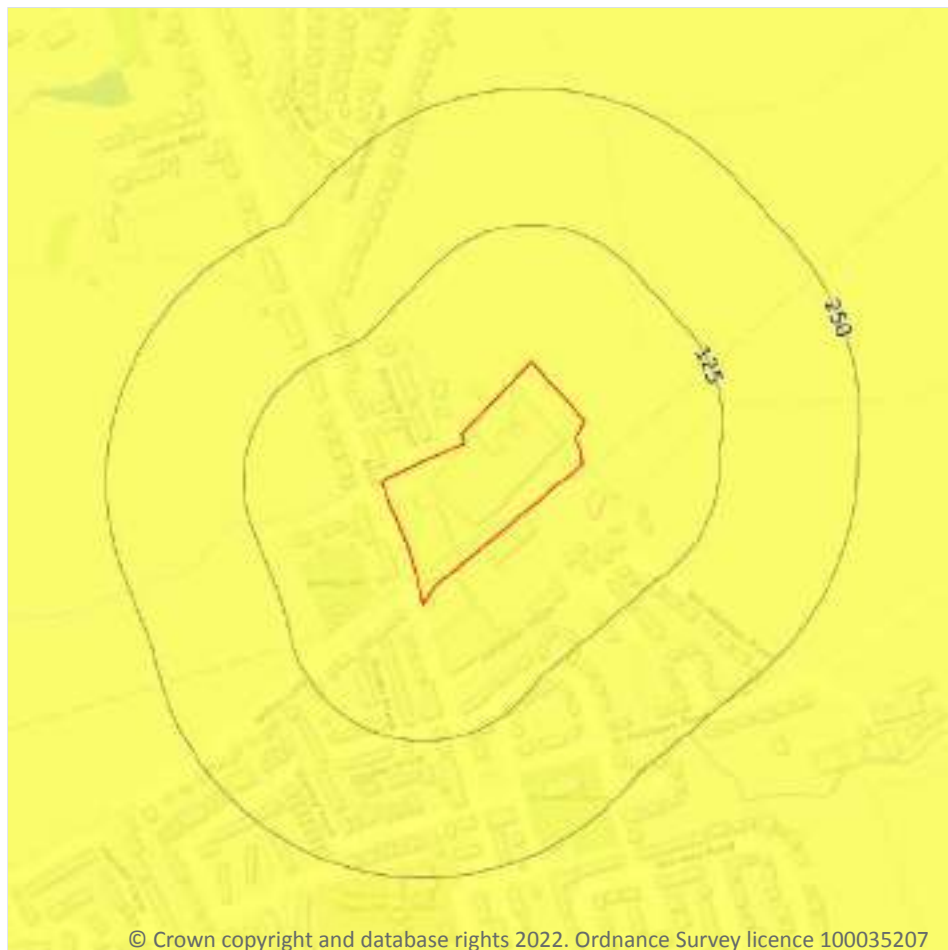
Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 101**

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

This data is sourced from the British Geological Survey.



Natural ground subsidence - Landslides



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- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☒ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

17.5 Landslides

Records within 50m

1

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

Features are displayed on the Natural ground subsidence - Landslides map on **page 102**

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

This data is sourced from the British Geological Survey.



Natural ground subsidence - Ground dissolution of soluble rocks



- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☐ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

17.6 Ground dissolution of soluble rocks

Records within 50m

1

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

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 103**

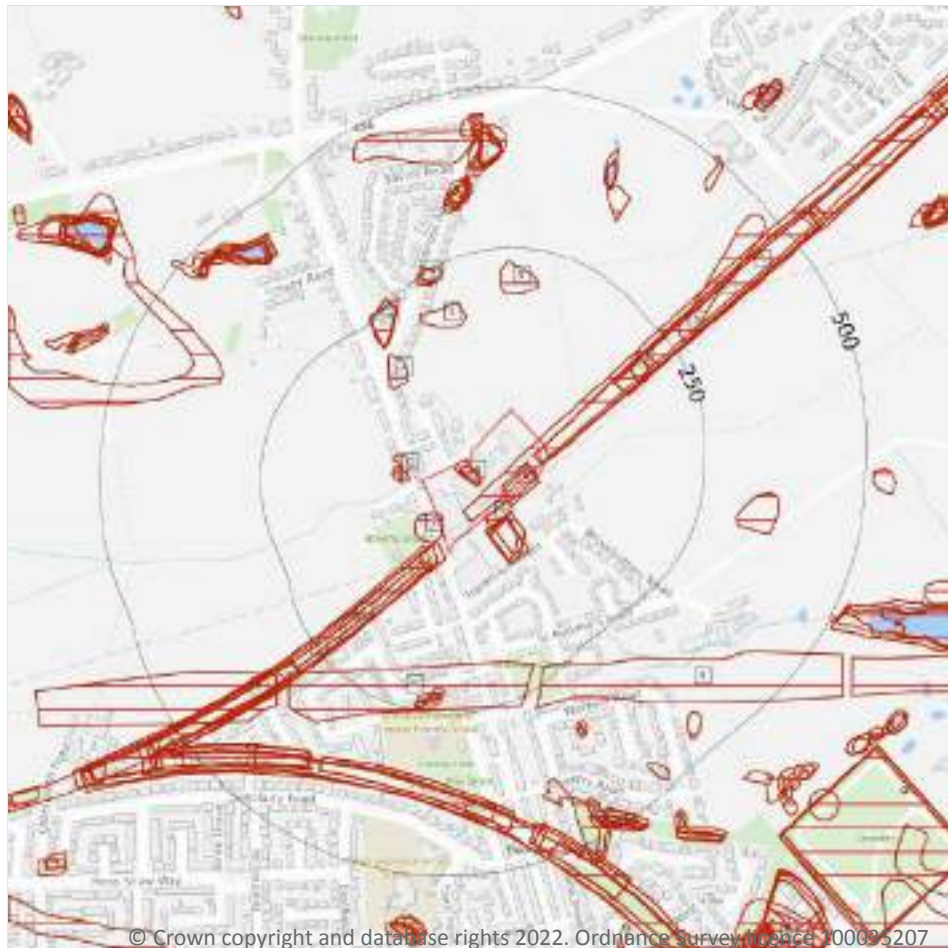
Location	Hazard rating	Details
On site	Negligible	Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.



This data is sourced from the British Geological Survey.



18 Mining, ground workings and natural cavities



- Site Outline
- Search buffers in metres (m)
- ▢ Natural cavities (Area)
- Natural cavities (Point)
- BritPits
- ▢ Surface ground workings
- ▢ Underground workings
- ▢ Historical Mineral Planning Areas
- Mining Cavities
- Non Coal Mining
- ▢ Sporadic underground mining of restricted extent possible
- ▢ Localised small scale underground mining possible
- ▢ Small scale mining possible
- ▢ Underground mining known or likely within or in close proximity
- ▢ Underground mining known within or in very close proximity

18.1 Natural cavities

Records within 500m

0

Industry recognised national database of natural cavities. Sinkholes and caves are formed by the dissolution of soluble rock, such as chalk and limestone, gulls and fissures by cambering. Ground instability can result from movement of loose material contained within these cavities, often triggered by water.

This data is sourced from Stantec UK Ltd.

18.2 BritPits

Records within 500m

0

BritPits (an abbreviation of British Pits) is a database maintained by the British Geological Survey of currently active and closed surface and underground mineral workings. Details of major mineral handling sites, such as wharfs and rail depots are also held in the database.

This data is sourced from the British Geological Survey.

18.3 Surface ground workings

Records within 250m

49

Historical land uses identified from Ordnance Survey mapping that involved ground excavation at the surface. These features may or may not have been subsequently backfilled.

Features are displayed on the Mining, ground workings and natural cavities map on **page 105**

ID	Location	Land Use	Year of mapping	Mapping scale
1	On site	Cuttings	1890	1:10560
2	On site	Pond	1890	1:10560
A	On site	Cuttings	1955	1:10560
A	On site	Cuttings	1927	1:10560
B	On site	Pond	1927	1:10560
B	On site	Pond	1908	1:10560
B	On site	Pond	1890	1:10560
C	On site	Cuttings	1851	1:10560
D	1m SE	Cuttings	1977	1:10000
D	1m SE	Cuttings	1965	1:10560
E	1m SE	Reservoirs	1955	1:10560
F	9m W	Cuttings	1991	1:10000
F	9m W	Cuttings	1988	1:10000
E	17m SE	Pond	1890	1:10560
E	18m SE	Reservoirs	1977	1:10000
E	18m SE	Ponds	1965	1:10560
F	19m W	Cuttings	1890	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
E	21m SE	Reservoirs	1938	1:10560
E	21m SE	Water Body	1908	1:10560
G	21m W	Unspecified Ground Workings	1965	1:10560
E	23m SE	Reservoirs	1927	1:10560
H	31m W	Cuttings	1851	1:10560
G	32m W	Unspecified Heap	1938	1:10560
G	32m W	Unspecified Heap	1927	1:10560
F	36m SW	Cuttings	1977	1:10000
F	36m SW	Cuttings	1965	1:10560
I	42m SW	Cuttings	1927	1:10560
I	42m SW	Cuttings	1908	1:10560
3	144m NW	Unspecified Heap	1955	1:10560
C	144m NE	Cuttings	1938	1:10560
J	144m NE	Cuttings	1927	1:10560
J	144m NE	Cuttings	1908	1:10560
4	152m NW	Pond	1890	1:10560
K	174m S	Cuttings	1890	1:10560
L	174m NE	Refuse Heap	1890	1:10560
L	176m NE	Cuttings	1955	1:10560
5	178m N	Pond	1890	1:10560
M	207m NW	Unspecified Pit	1965	1:10560
M	208m NW	Unspecified Pit	1991	1:10000
M	208m NW	Unspecified Pit	1977	1:10000
M	208m NW	Unspecified Pit	1988	1:10000
K	208m S	Pond	1955	1:10560
C	212m NE	Cuttings	1955	1:10560
K	217m S	Pond	1938	1:10560
K	217m S	Pond	1927	1:10560



ID	Location	Land Use	Year of mapping	Mapping scale
K	218m S	Pond	1908	1:10560
N	229m NW	Refuse Heap	1908	1:10560
6	229m SE	Cuttings	1890	1:10560
N	230m NW	Unspecified Heap	1965	1:10560

This data is sourced from Ordnance Survey/Groundsure.

18.4 Underground workings

Records within 1000m

4

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

Features are displayed on the Mining, ground workings and natural cavities map on **page 105**

ID	Location	Land Use	Year of mapping	Mapping scale
AJ	742m SE	Colliery	1908	1:10560
-	764m NE	Unspecified Old Shafts	1890	1:10560
-	772m NE	Unspecified Old Shafts	1908	1:10560
-	793m NE	Unspecified Old Shafts	1908	1:10560

This data is sourced from Ordnance Survey/Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m

0

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

This data is sourced from the British Geological Survey.



18.6 Non-coal mining

Records within 1000m

0

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

This data is sourced from the British Geological Survey.

18.7 Mining cavities

Records within 1000m

0

Industry recognised national database of mining cavities. Degraded mines may result in hazardous subsidence (crown holes). Climatic conditions and water escape can also trigger subsidence over mine entrances and workings.

This data is sourced from Stantec UK Ltd.

18.8 JPB mining areas

Records on site

1

Areas which could be affected by former coal and other mining. This data includes some mine plans unavailable to the Coal Authority.

Location	Details
On site	In addition to being located inside an area where The Coal Authority have information on coal mining activities, Johnson Poole & Bloomer (JPB) have information such as mining plans and maps held within their archive of mining activities that have occurred within 1km of this property which may supplement this information. Please note, the plans held by JPB may also relate to non-mining records. Further details and a quote for services (if appropriate) can be obtained by emailing this report to enquiries.gs@jpb.co.uk .

This data is sourced from Johnson Poole and Bloomer.

18.9 Coal mining

Records on site

1

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



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

This data is sourced from the Coal Authority.

18.10 Brine areas

Records on site	0
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The Cheshire Brine Compensation District indicates areas that may be affected by salt and brine extraction in Cheshire and where compensation would be available where damage from this mining has occurred. Damage from salt and brine mining can still occur outside this district, but no compensation will be available.

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

18.11 Gypsum areas

Records on site	0
-----------------	---

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.12 Tin mining

Records on site	0
-----------------	---

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

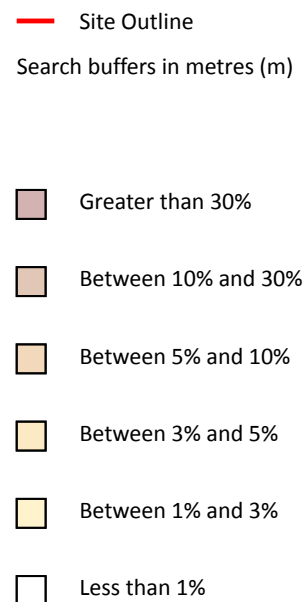
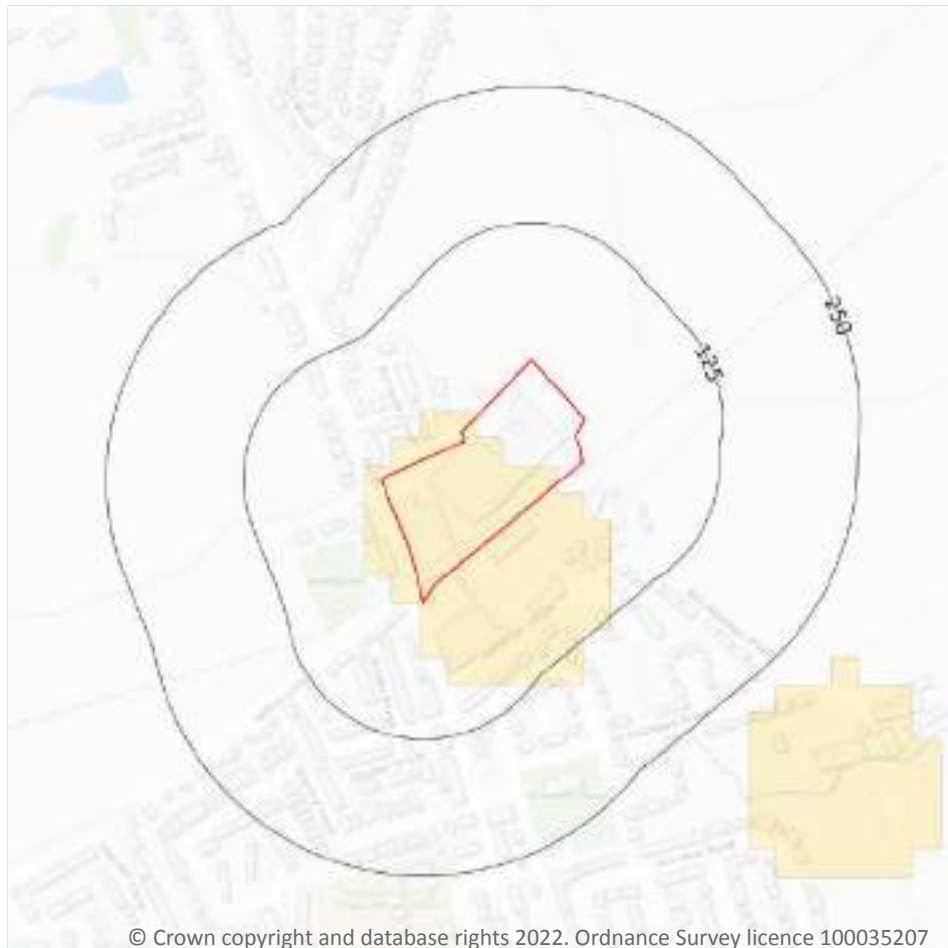
18.13 Clay mining

Records on site	0
-----------------	---

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

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

19 Radon



19.1 Radon

Records on site

2

Estimated percentage of dwellings exceeding the Radon Action Level. This data is the highest resolution radon dataset available for the UK and is produced to a 75m level of accuracy to allow for geological data accuracy and a 'residential property' buffer. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain. The data was derived from both geological assessments and long term measurements of radon in more than 479,000 households.

Features are displayed on the Radon map on **page 111**

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



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



20 Soil chemistry

20.1 BGS Estimated Background Soil Chemistry

Records within 50m

11

The estimated values provide the likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil. The values are estimated primarily from rural topsoil data collected at a sample density of approximately 1 per 2 km². In areas where rural soil samples are not available, estimation is based on stream sediment data collected from small streams at a sampling density of 1 per 2.5 km²; this is the case for most of Scotland, Wales and southern England. The stream sediment data are converted to soil-equivalent concentrations prior to the estimation.

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	15 - 25 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	40 - 60 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	200 - 300 mg/kg	120 - 240 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	200 - 300 mg/kg	120 - 240 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	25 - 35 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	40 - 60 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
35m NW	15 mg/kg	No data	200 - 300 mg/kg	120 - 240 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
35m NW	15 mg/kg	No data	200 - 300 mg/kg	120 - 240 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg

This data is sourced from the British Geological Survey.



20.2 BGS Estimated Urban Soil Chemistry

Records within 50m**0**

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km²).

This data is sourced from the British Geological Survey.

20.3 BGS Measured Urban Soil Chemistry

Records within 50m**0**

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km².

This data is sourced from the British Geological Survey.

21 Railway infrastructure and projects



- Site Outline
- Search buffers in metres (m)
- C1 Crossrail 1 Stations
- Crossrail 1 Route
- Crossrail 1 Worksites
- C2 Crossrail 2 Stations
- Crossrail 2 Route
- Crossrail 2 Worksites
- Crossrail 2 Safeguarding
- Crossrail 2 Headhouses
- Railway stations
- ... Active railways
- ... Active tunnels
- ... Abandoned railways
- Historic railways
- Historic tunnels
- Underground stations
- Underground Lines
- Royal Mail tunnels
- HS2 optimised route
- HS2 Stations
- HS2 Depots
- HS2 Surface Safeguarding
- HS2 Subsurface Safeguarding

21.1 Underground railways (London)

Records within 250m

0

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

This data is sourced from publicly available information by Groundsure.

21.2 Underground railways (Non-London)

Records within 250m

0

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

This data is sourced from publicly available information by Groundsure.

21.3 Railway tunnels

Records within 250m

0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

21.4 Historical railway and tunnel features

Records within 250m

16

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

Features are displayed on the Railway infrastructure and projects map on **page 115**

Location	Land Use	Year of mapping	Mapping scale
On site	Railway Sidings	1956	1250
On site	Railway Sidings	1956	2500
On site	Railway	1893	-
On site	Railway	1909	-
On site	Railway Sidings	1890	2500
On site	Railway Sidings	1910	2500
On site	Railway Sidings	1937	2500
On site	Railway Sidings	1930	2500
On site	Railway Sidings	1927	10560
On site	Railway Sidings	1908	10560
On site	Railway Sidings	1965	10560
On site	Railway Sidings	1955	10560
44m SW	Railway Sidings	1890	2500
44m SW	Railway Sidings	1910	2500
44m SW	Railway Sidings	1937	2500
44m SW	Railway Sidings	1930	2500

This data is sourced from Ordnance Survey/Groundsure.



21.5 Royal Mail tunnels

Records within 250m

0

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

This data is sourced from Groundsure/the Postal Museum.

21.6 Historical railways

Records within 250m

1

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

Features are displayed on the Railway infrastructure and projects map on **page 115**

Location	Description
On site	Abandoned

This data is sourced from OpenStreetMap.

21.7 Railways

Records within 250m

0

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

This data is sourced from Ordnance Survey and OpenStreetMap.

21.8 Crossrail 1

Records within 500m

0

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

This data is sourced from publicly available information by Groundsure.

21.9 Crossrail 2

Records within 500m**0**

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

This data is sourced from publicly available information by Groundsure.

21.10 HS2

Records within 500m**0**

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

This data is sourced from HS2 Ltd.



Data providers

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

Terms and conditions

Groundsure's Terms and Conditions can be accessed at this link: <https://www.groundsure.com/terms-and-conditions-jan-2020/>.



Appendix C

Historical Maps

Site Details:

25, JAMES STREET NORTH,
RADCLIFFE, M26 1LN

Client Ref: 21053-G-02
Report Ref: GS-8441823
Grid Ref: 377682, 408936

Map Name: County Series

Map date: 1890

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1890
Revised 1890
Edition N/A
Copyright N/A
Levelled N/A

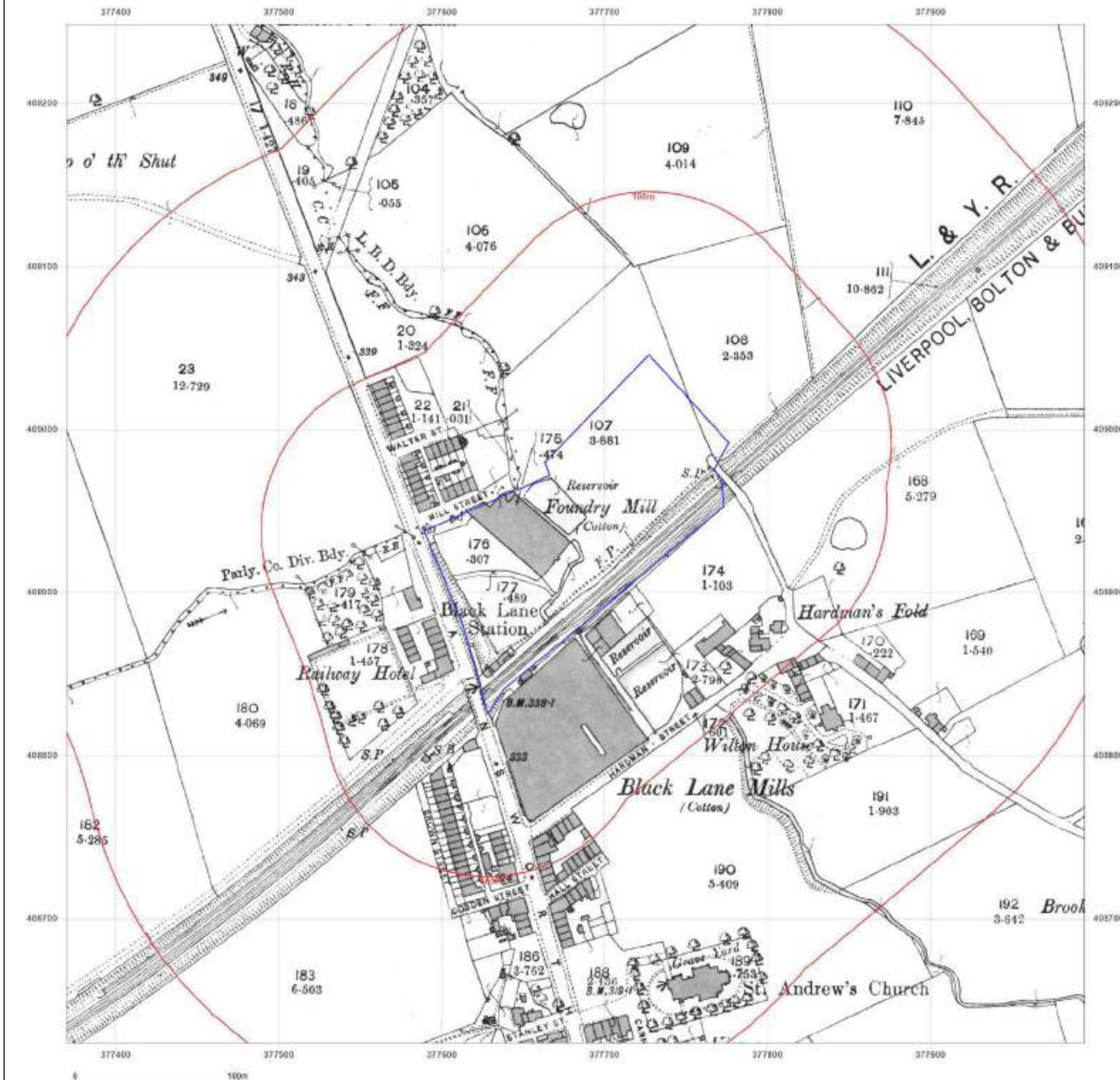


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Site Details:

25, JAMES STREET NORTH,
RADCLIFFE, M26 1LN

Client Ref: 21053-G-02
Report Ref: GS-8441823
Grid Ref: 377682, 408936

Map Name: County Series

Map date: 1910

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1910
Revised 1910
Edition N/A
Copyright N/A
Levelled N/A

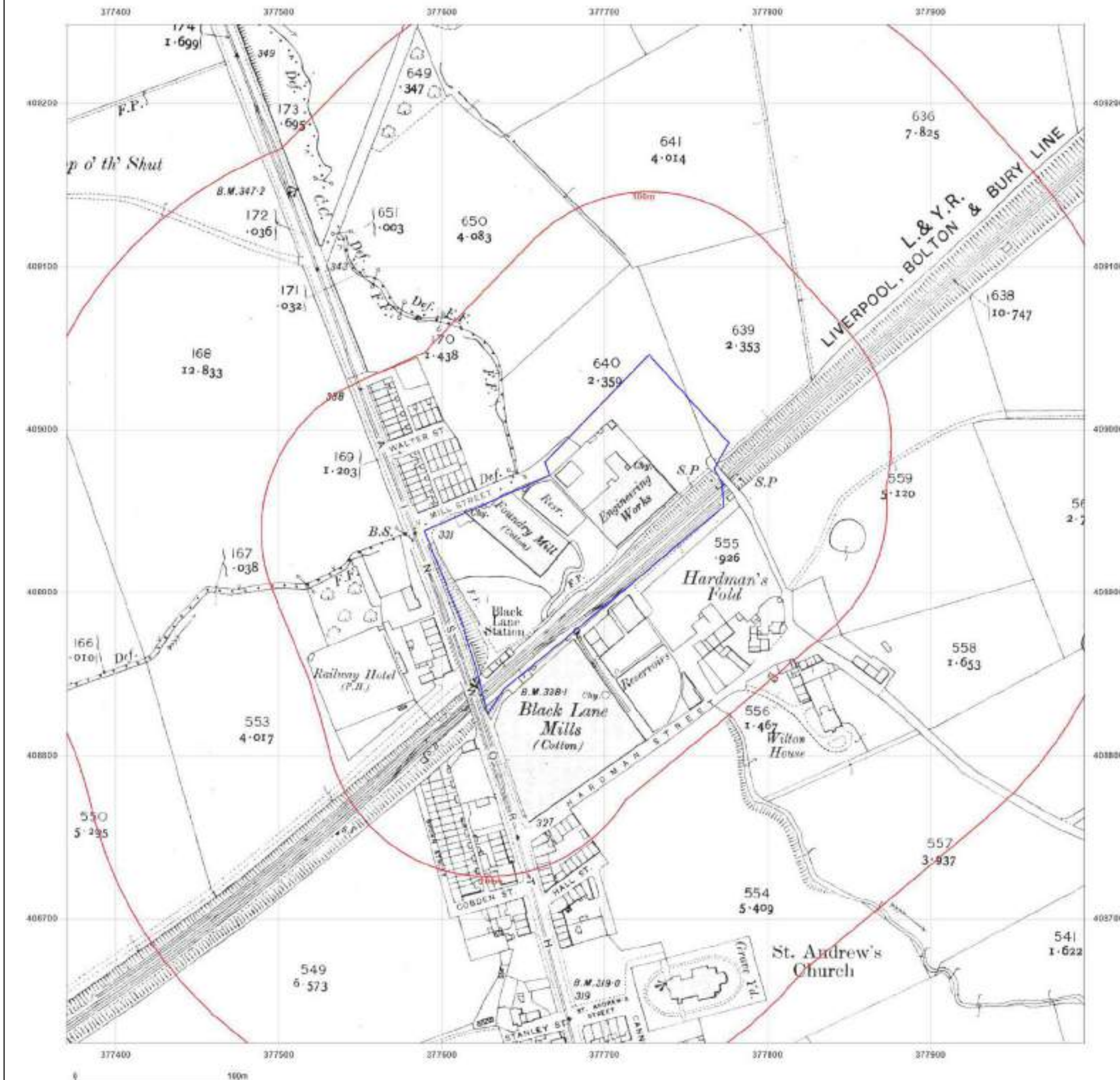


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Site Details:

25, JAMES STREET NORTH,
RADCLIFFE, M26 1LN

Client Ref: 21053-G-02
Report Ref: GS-8441823
Grid Ref: 377682, 408936

Map Name: County Series

Map date: 1930

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1930
Revised 1930
Edition N/A
Copyright N/A
Levelled N/A



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Site Details:

25, JAMES STREET NORTH,
RADCLIFFE, M26 1LN

Client Ref: 21053-G-02
Report Ref: GS-8441823
Grid Ref: 377682, 408936

Map Name: County Series

Map date: 1937

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1937
Revised 1937
Edition N/A
Copyright N/A
Levelled N/A

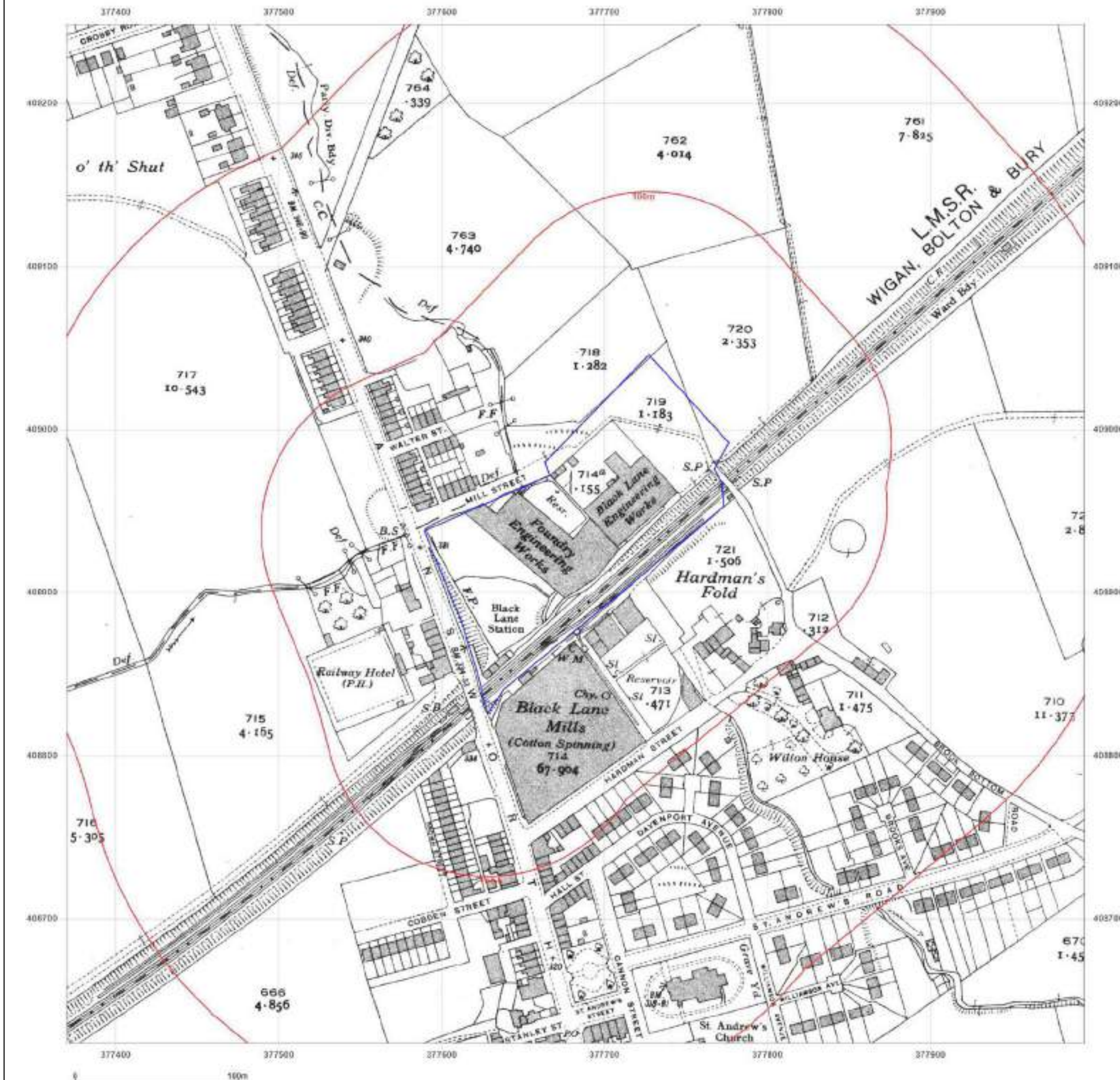


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Site Details:

25, JAMES STREET NORTH,
RADCLIFFE, M26 1LN

Client Ref: 21053-G-02
Report Ref: GS-8441823
Grid Ref: 377682, 408936

Map Name: National Grid

Map date: 1955-1956

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1955
Revised 1955
Edition N/A
Copyright N/A
Levelled 1927

Surveyed 1955
Revised 1955
Edition N/A
Copyright N/A
Levelled 1927

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

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

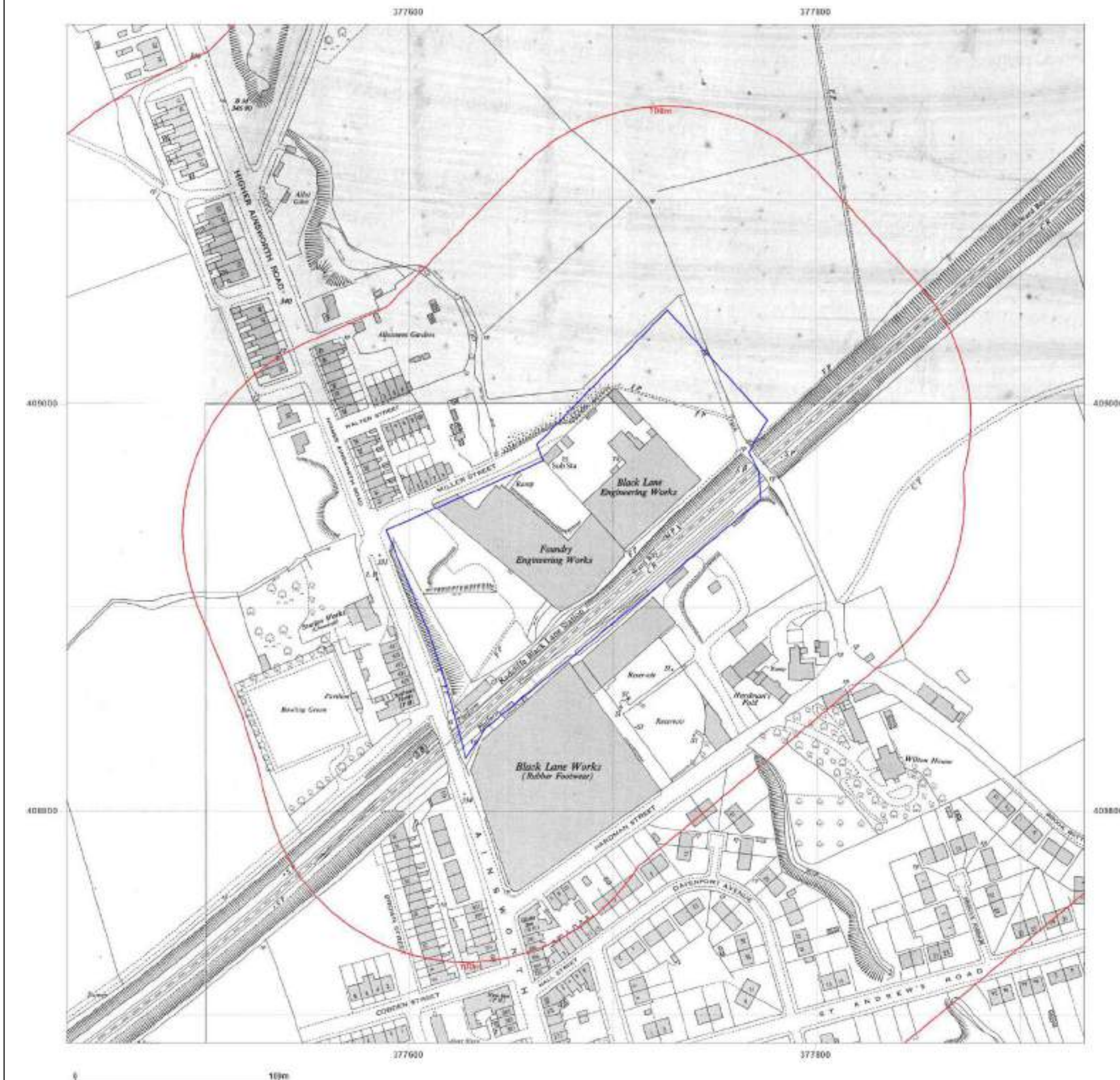


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Site Details:

25, JAMES STREET NORTH,
RADCLIFFE, M26 1LN

Client Ref: 21053-G-02
Report Ref: GS-8441823
Grid Ref: 377682, 408936

Map Name: National Grid

Map date: 1956-1957

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1956
Revised N/A
Edition N/A
Copyright 1957
Levelled 1927

Surveyed 1956
Revised N/A
Edition N/A
Copyright 1957
Levelled 1927



Surveyed 1956
Revised N/A
Edition N/A
Copyright 1956
Levelled 1927

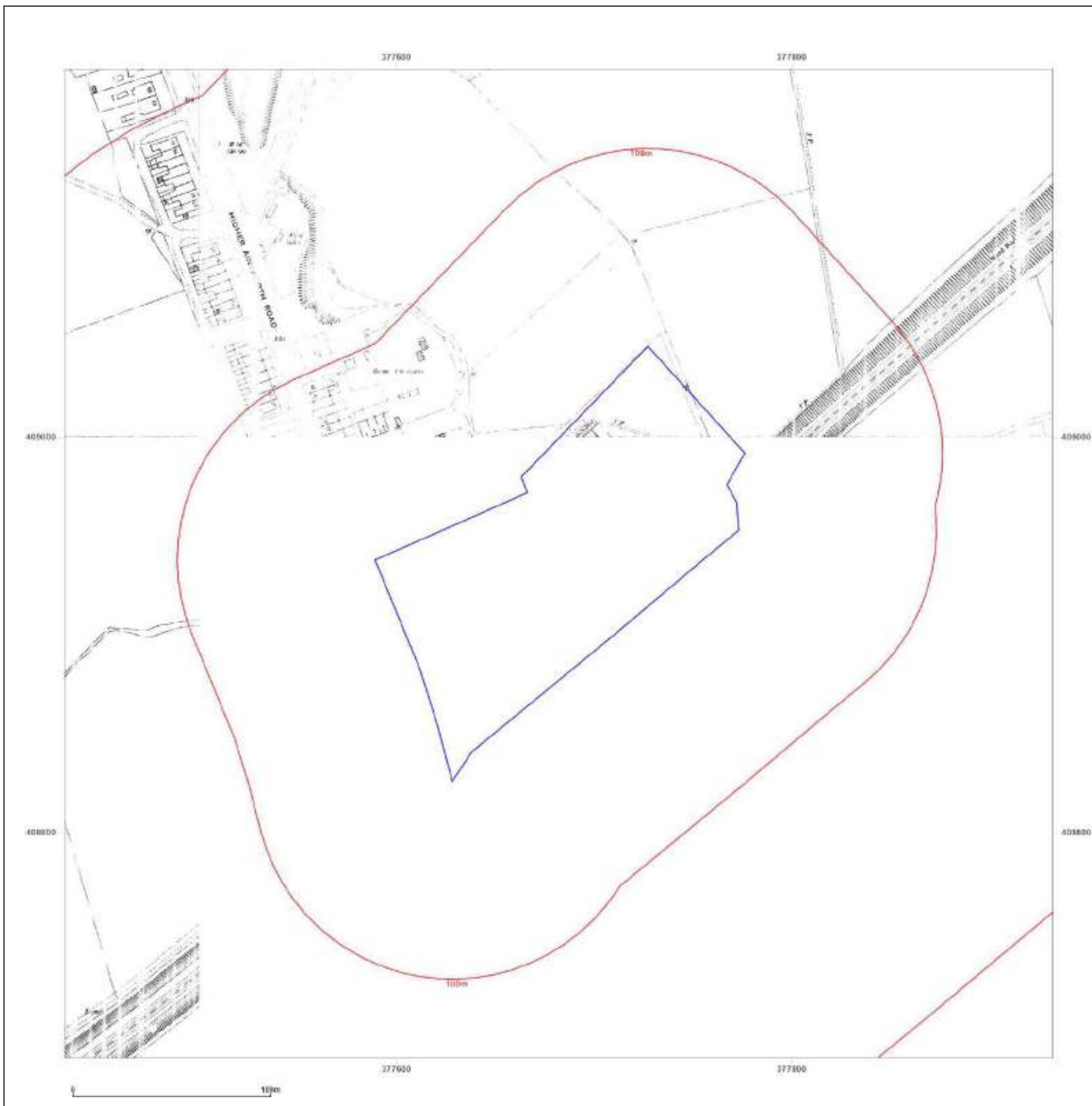


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Site Details:

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Client Ref: 21053-G-02
Report Ref: GS-8441823
Grid Ref: 377682, 408936

Map Name: National Grid

Map date: 1956-1957

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1956
Revised 1956
Edition 1957
Copyright N/A
Levelled 1927

Surveyed 1956
Revised 1956
Edition 1956
Copyright N/A
Levelled 1927

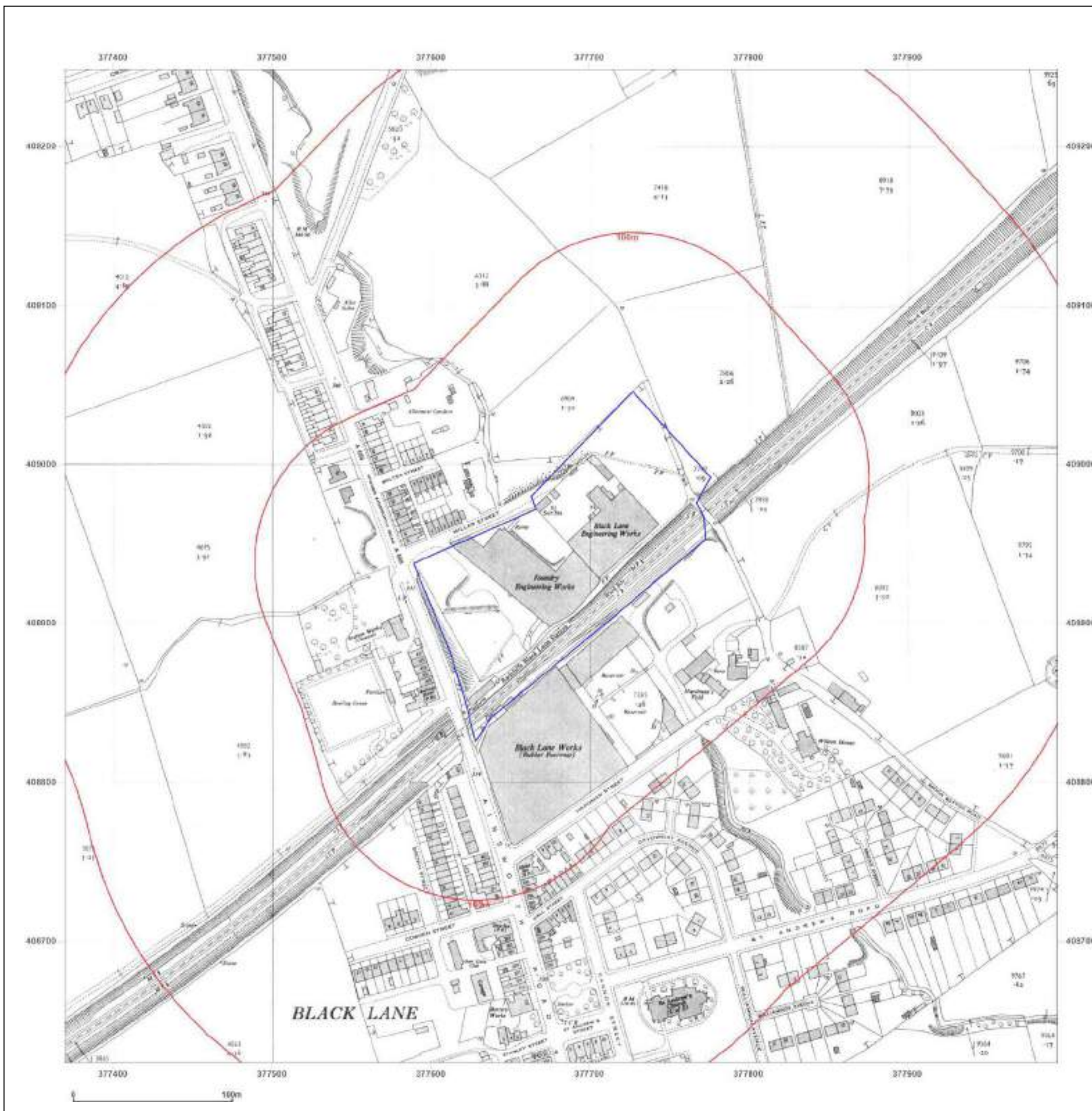


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Site Details:

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RADCLIFFE, M26 1LN

Client Ref: 21053-G-02
Report Ref: GS-8441823
Grid Ref: 377682, 408936

Map Name: National Grid

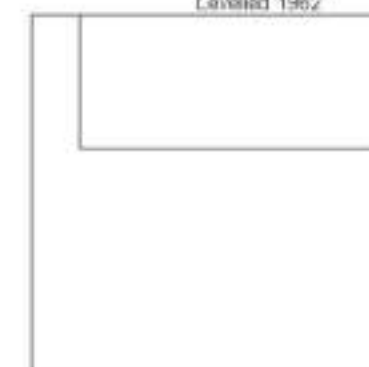
Map date: 1966

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1956
Revised 1980
Edition N/A
Copyright 1988
Levelled 1982



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Site Details:

25, JAMES STREET NORTH,
RADCLIFFE, M26 1LN

Client Ref: 21053-G-02
Report Ref: GS-8441823
Grid Ref: 377682, 408936

Map Name: National Grid

Map date: 1965-1969

Scale: 1:1,250

Printed at: 1:2,000



Surveyed N/A
Revised 1965
Edition N/A
Copyright 1966
Levelled 1962

Surveyed 1965
Revised 1968
Edition N/A
Copyright 1969
Levelled 1962

Surveyed 1965
Revised 1968
Edition N/A
Copyright 1969
Levelled 1962

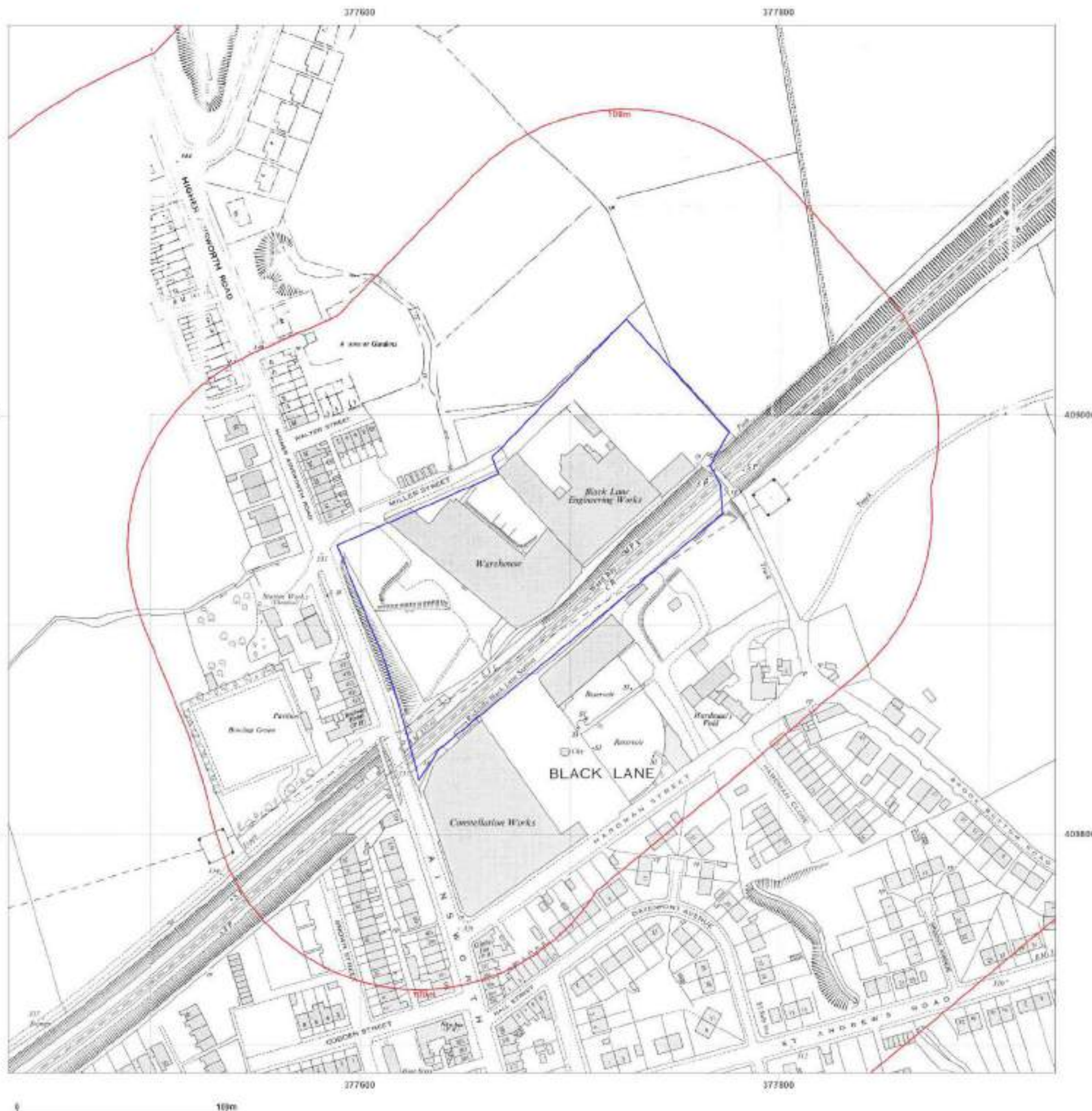


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Site Details:

25, JAMES STREET NORTH,
RADCLIFFE, M26 1LN

Client Ref: 21053-G-02
Report Ref: GS-8441823
Grid Ref: 377682, 408936

Map Name: National Grid

Map date: 1970

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1967
Revised 1967
Edition N/A
Copyright 1970
Levelled 1963

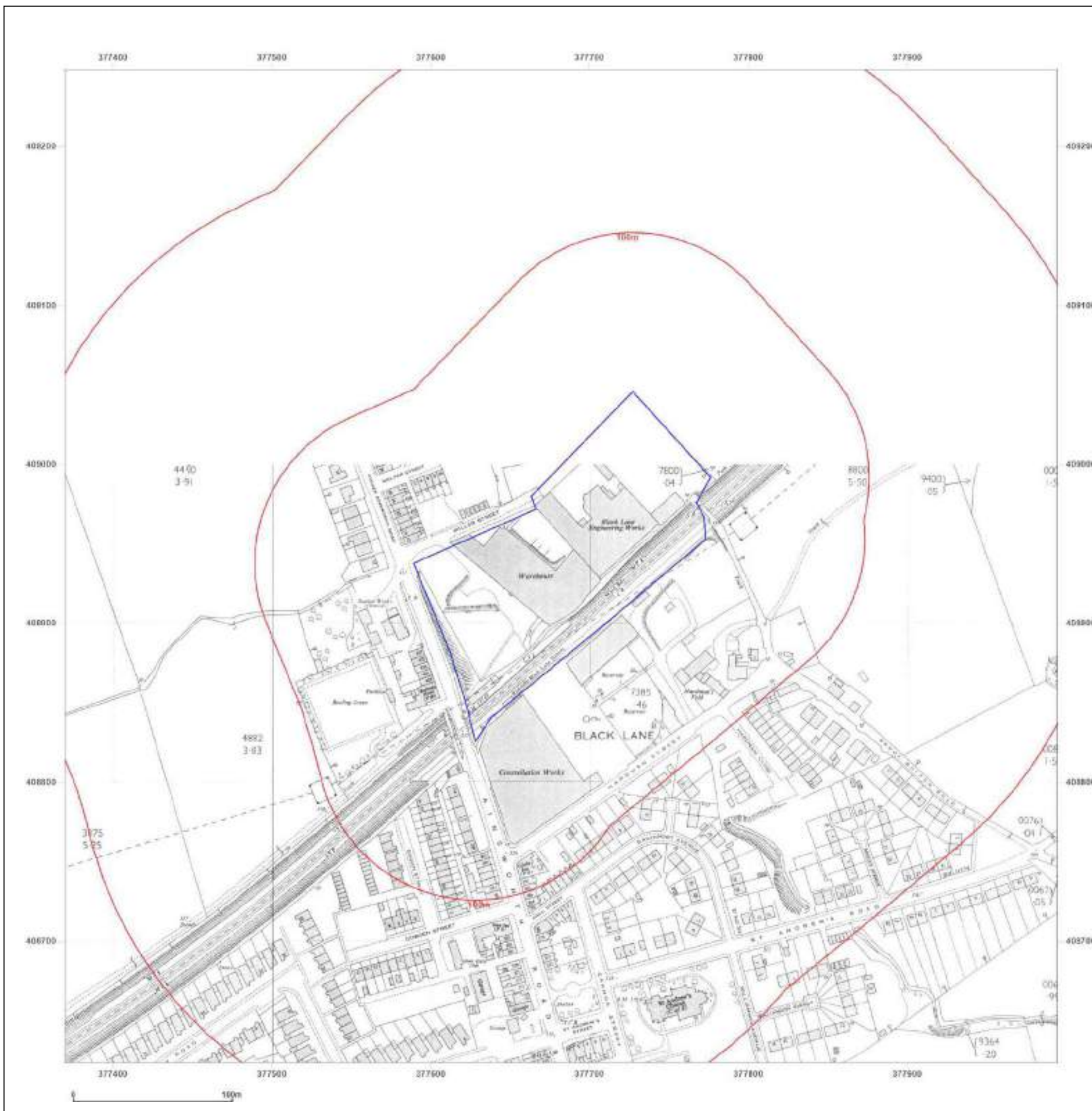


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Site Details:

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Client Ref: 21053-G-02
Report Ref: GS-8441823
Grid Ref: 377682, 408936

Map Name: National Grid

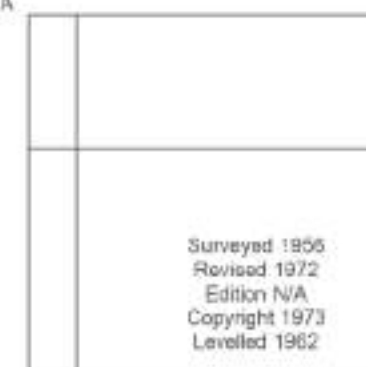
Map date: 1973-1977

Scale: 1:1,250

Printed at: 1:2,000



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

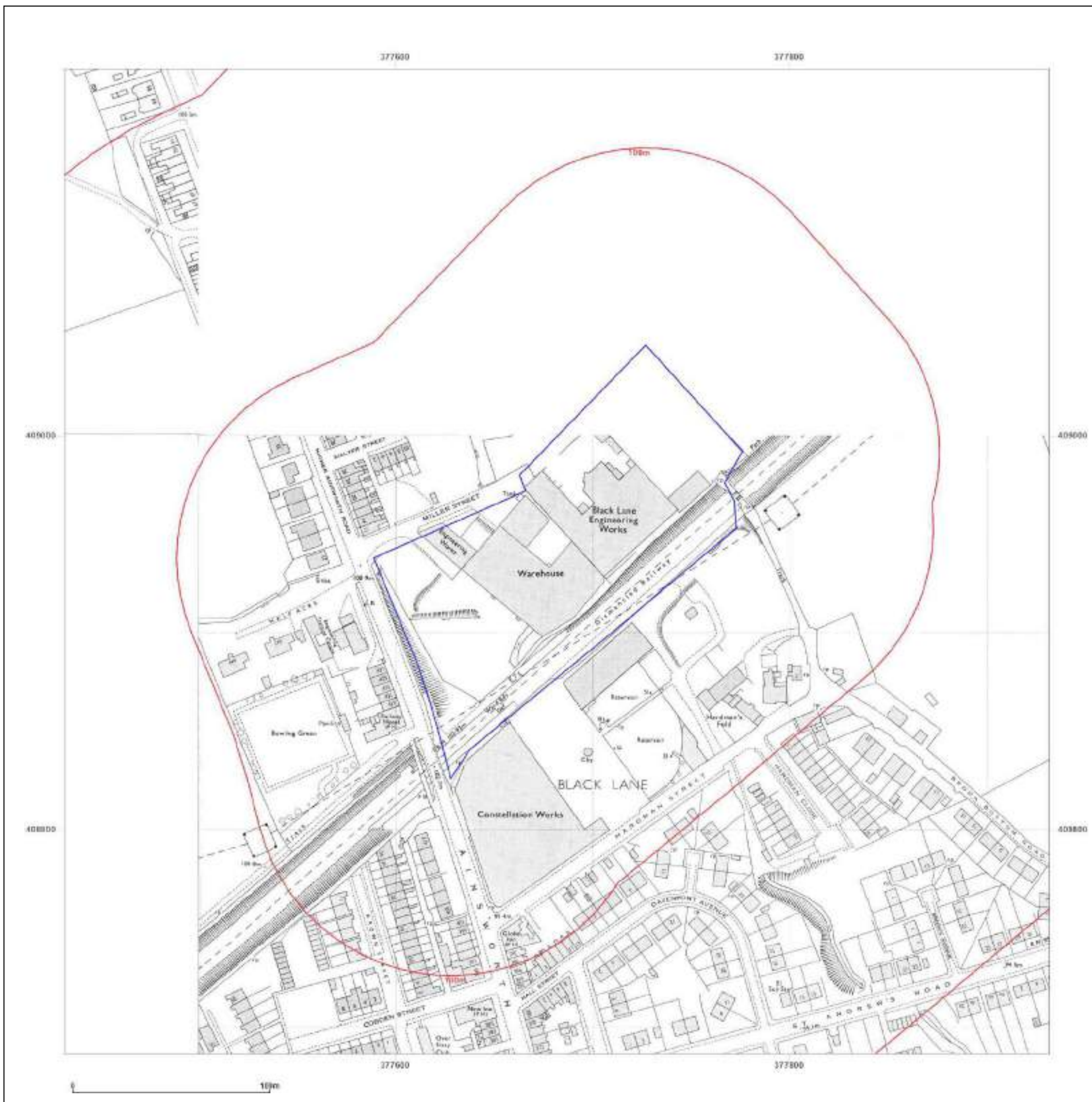


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Site Details:

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RADCLIFFE, M26 1LN

Client Ref: 21053-G-02
Report Ref: GS-8441823
Grid Ref: 377682, 408936

Map Name: National Grid

Map date: 1984-1987

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1962
Revised 1987
Edition N/A
Copyright 1987
Levelled 1962

Surveyed 1962
Revised 1987
Edition N/A
Copyright 1987
Levelled 1962

Surveyed 1962
Revised 1987
Edition N/A
Copyright 1987
Levelled 1962

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1984
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Site Details:

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Client Ref: 21053-G-02
Report Ref: GS-8441823
Grid Ref: 377682, 408936

Map Name: National Grid

Map date: 1987

Scale: 1:1,250

Printed at: 1:2,000



Surveyed N/A
Revised 1987
Edition N/A
Copyright 1987
Levelled 1962

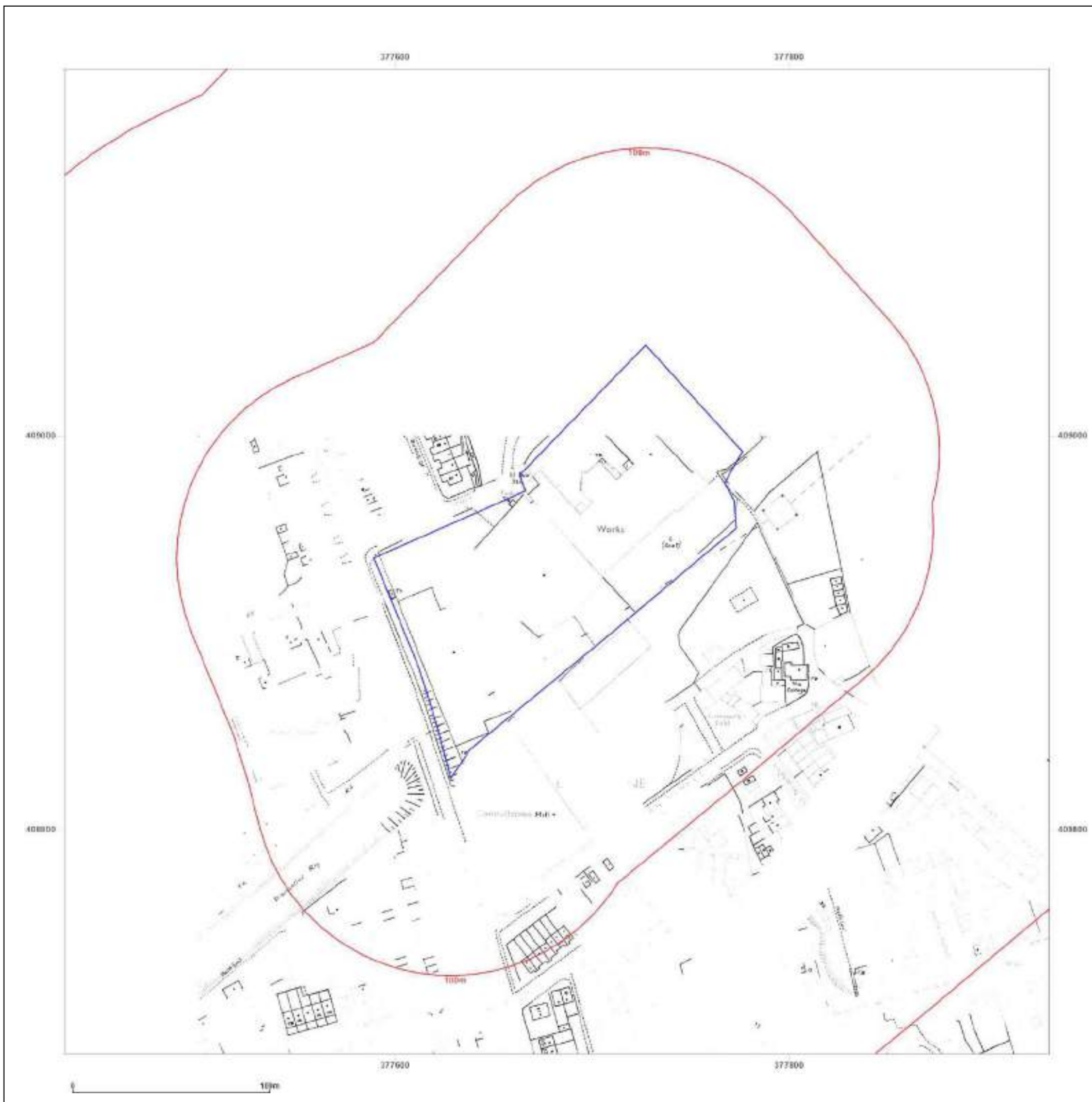


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Site Details:

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Client Ref: 21053-G-02
Report Ref: GS-8441823
Grid Ref: 377682, 408936

Map Name: National Grid

Map date: 1988

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1962
Revised 1988
Edition N/A
Copyright 1988
Levelled 1962

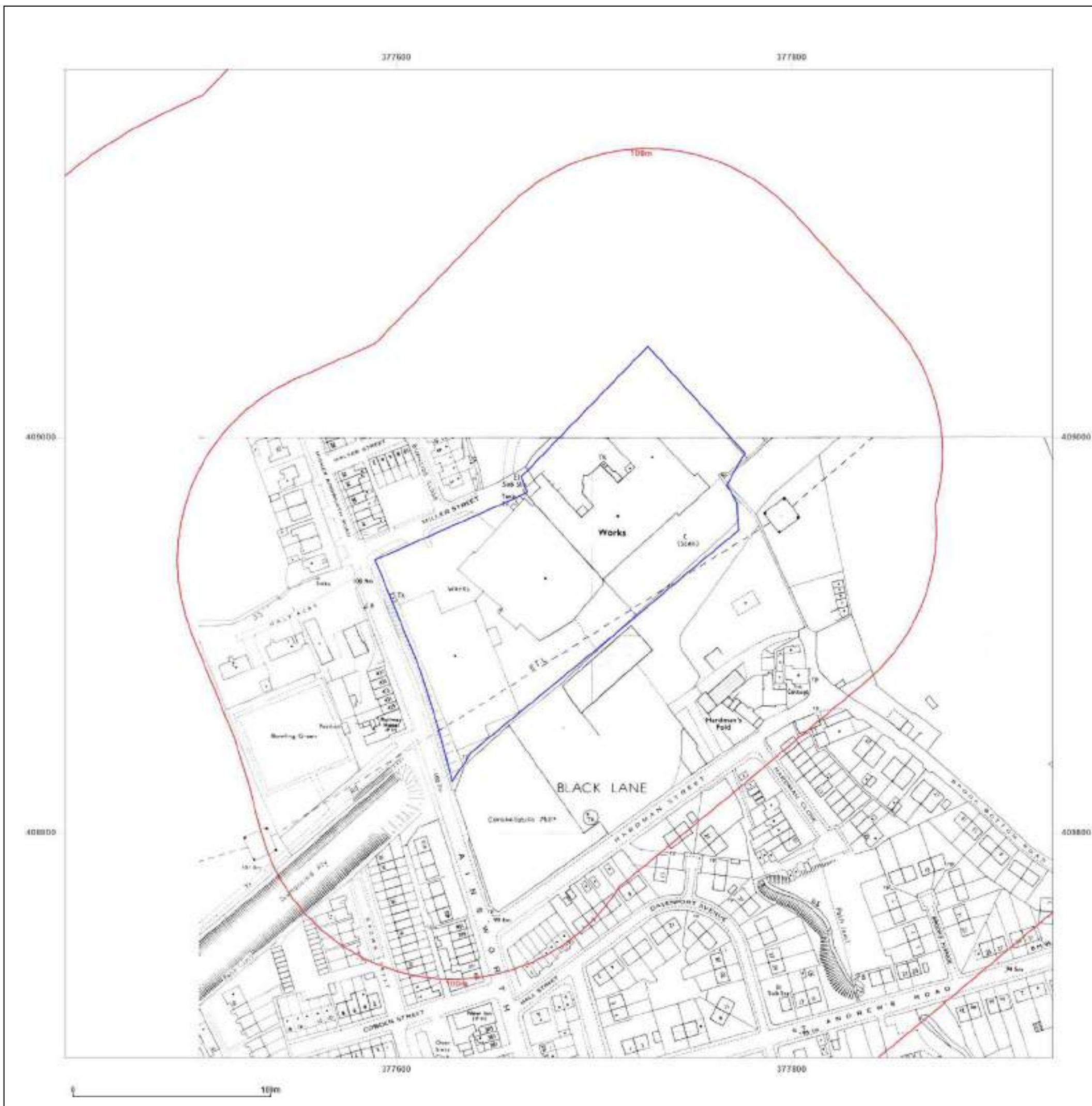


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Site Details:

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Client Ref: 21053-G-02
Report Ref: GS-8441823
Grid Ref: 377682, 408936

Map Name: National Grid

Map date: 1992

Scale: 1:1,250

Printed at: 1:2,000



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

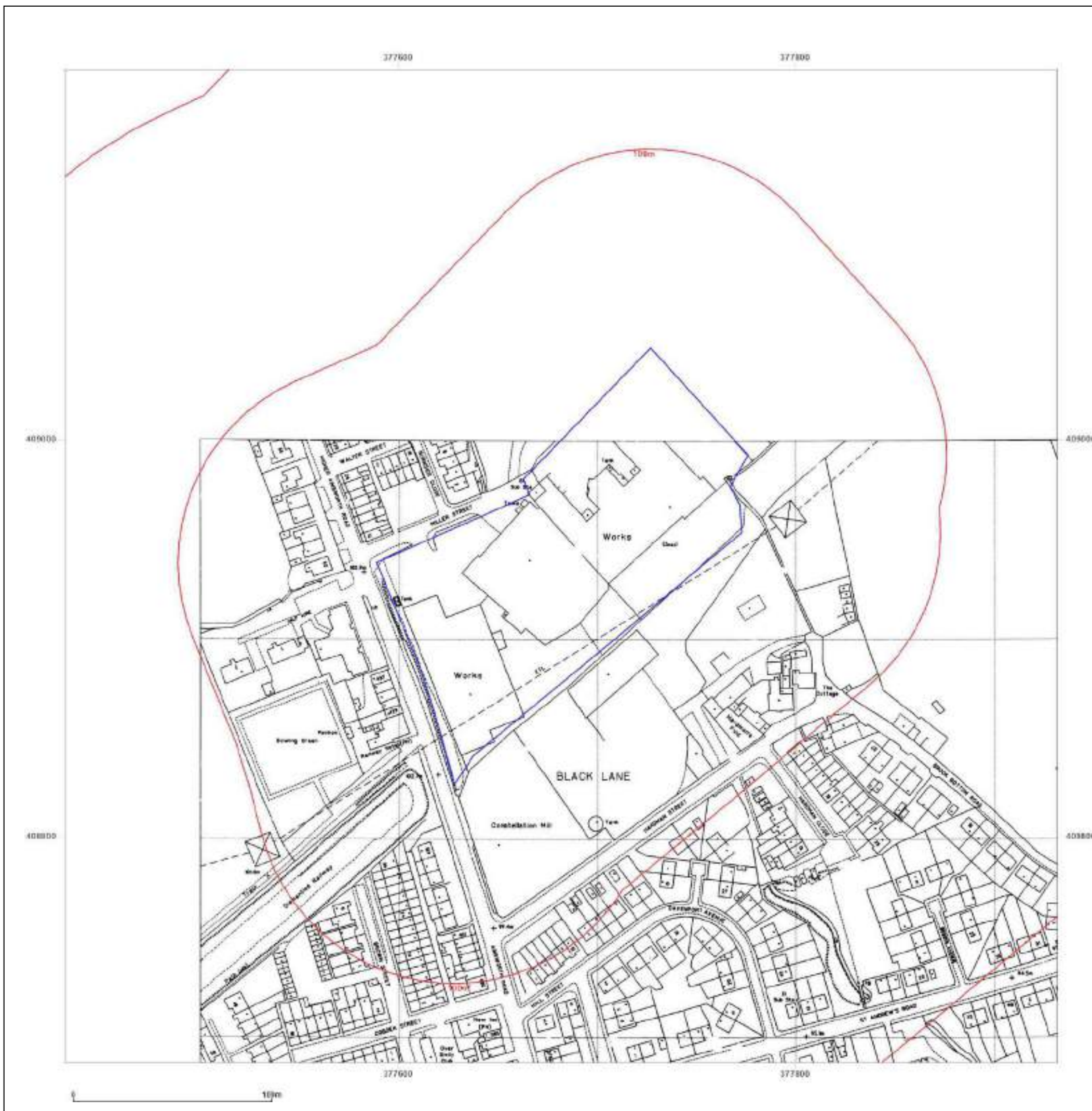


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Client Ref: 21053-G-02
Report Ref: GS-8441823
Grid Ref: 377682, 408936

Map Name: National Grid

Map date: 1987-1992

Scale: 1:1,250

Printed at: 1:2,000



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

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

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

Surveyed 1962
Revised 1987
Edition N/A
Copyright 1987
Levelled 1962



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Client Ref: 21053-G-02
Report Ref: GS-8441823
Grid Ref: 377682, 408936

Map Name: National Grid

Map date: 1993

Scale: 1:1,250

Printed at: 1:2,000



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

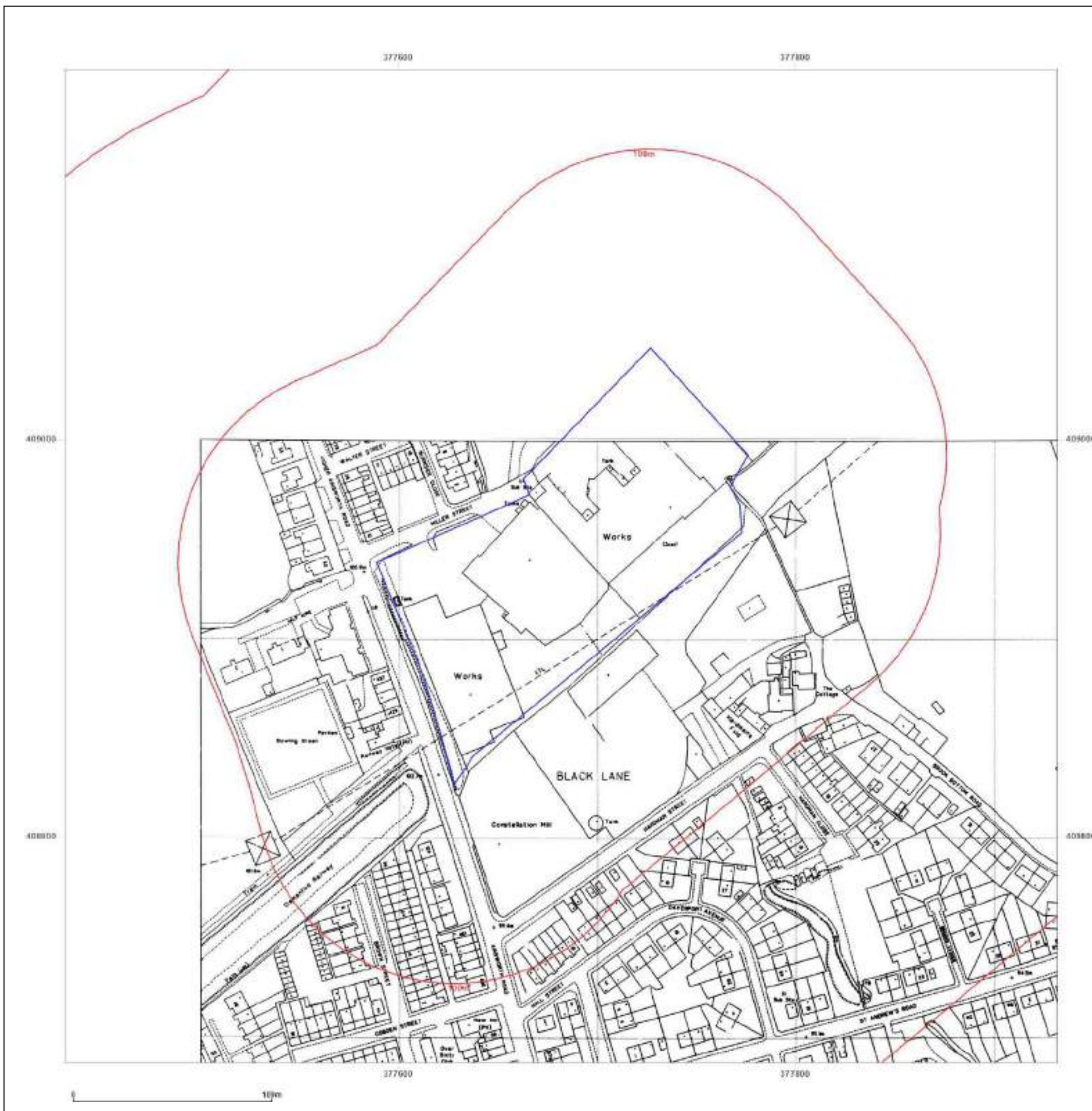


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Client Ref: 21053-G-02
Report Ref: GS-8441823
Grid Ref: 377682, 408936

Map Name: National Grid

Map date: 1993

Scale: 1:1,250

Printed at: 1:2,000



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

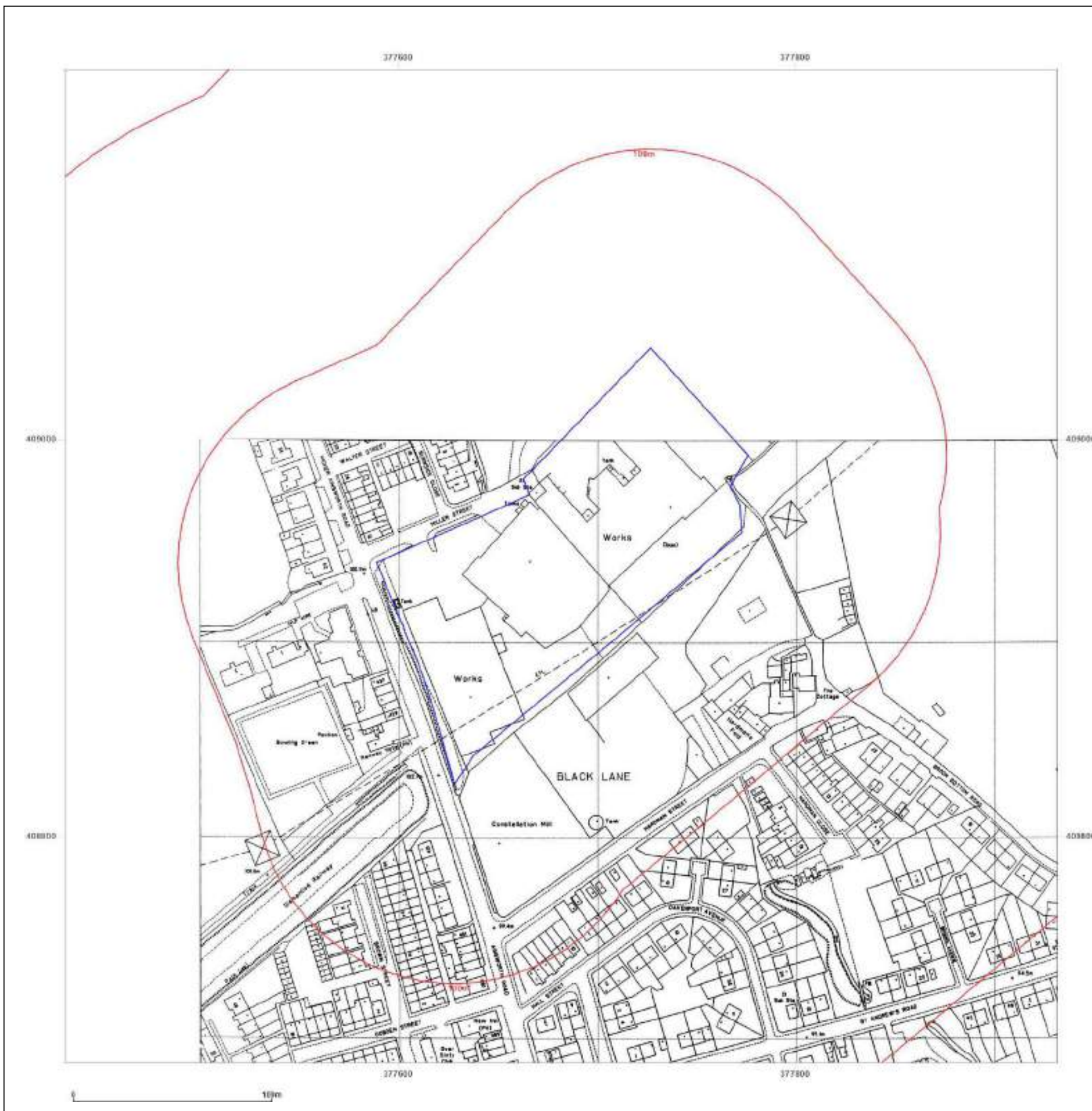


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Site Details:

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Client Ref: 21053-G-02
Report Ref: GS-8441823
Grid Ref: 377682, 408936

Map Name: LandLine

Map date: 2003

Scale: 1:1,250

Printed at: 1:1,250

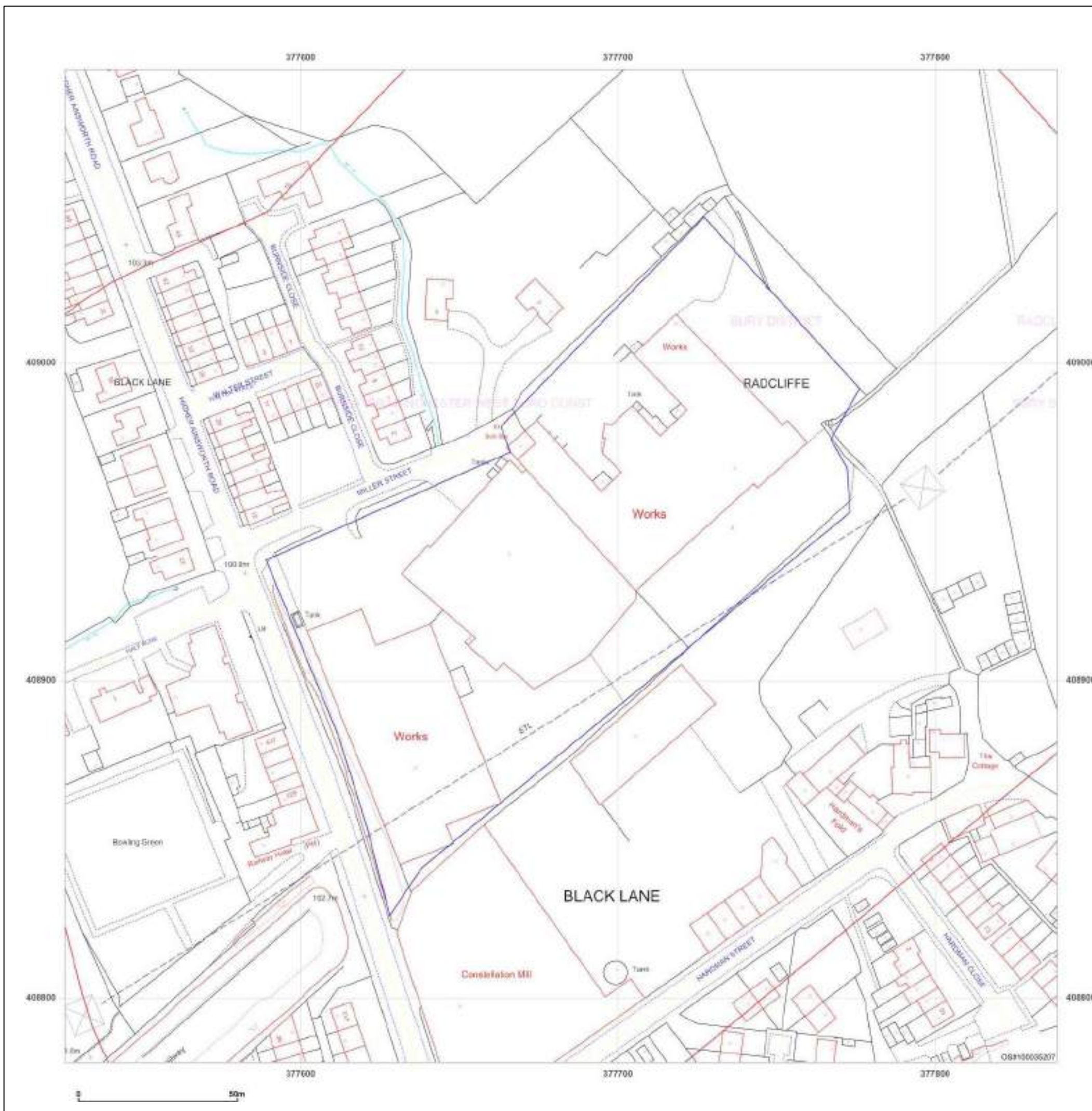


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Site Details:

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RADCLIFFE, M26 1LN

Client Ref: 21053-G-02
Report Ref: GS-8441823
Grid Ref: 377682, 408936

Map Name: County Series

Map date: 1850

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1847
Revised N/A
Edition 1850
Copyright N/A
Levelled N/A

Surveyed 1845
Revised N/A
Edition 1850
Copyright N/A
Levelled N/A

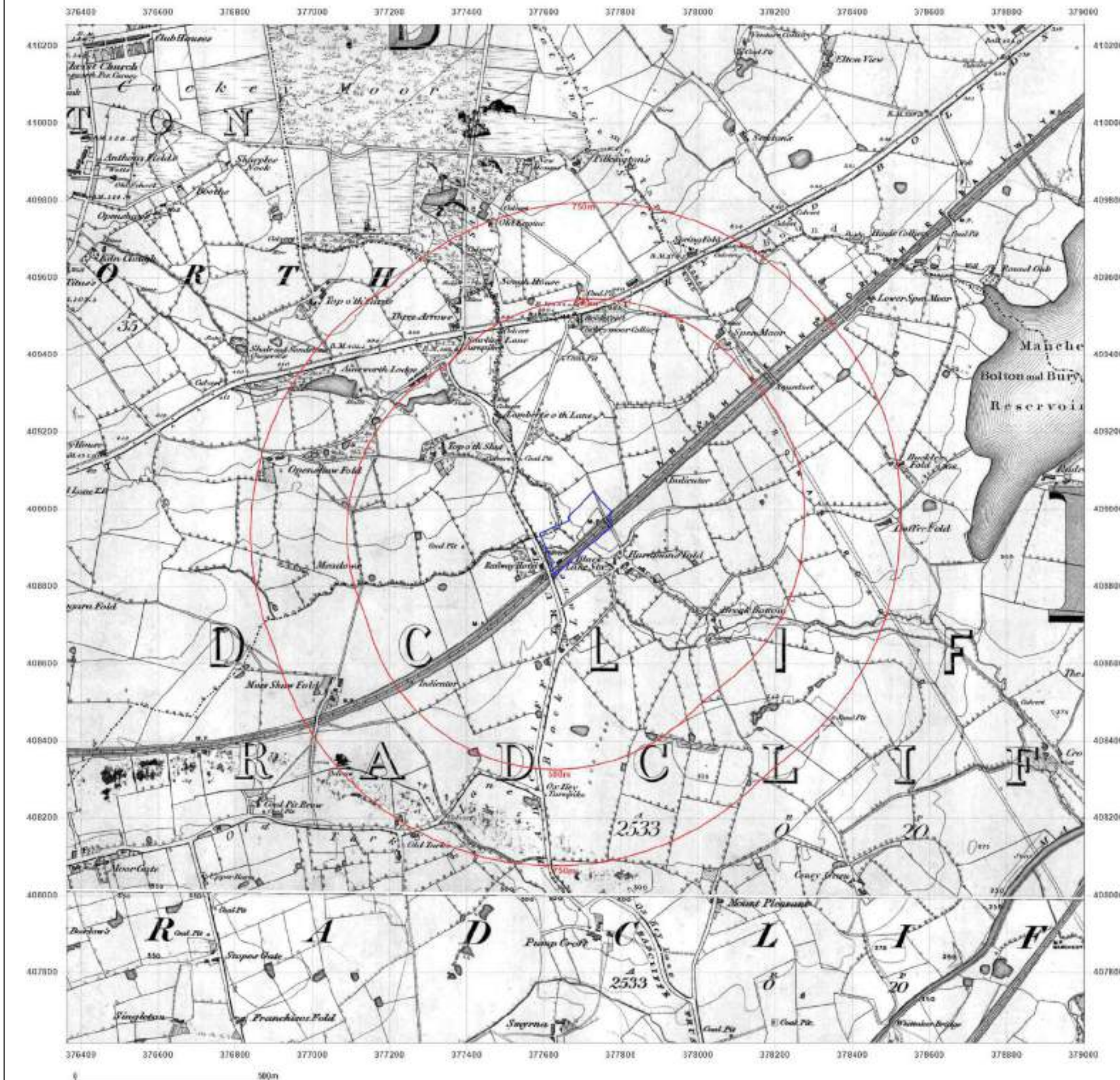


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Site Details:

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RADCLIFFE, M26 1LN

Client Ref: 21053-G-02
Report Ref: GS-8441823
Grid Ref: 377682, 408936

Map Name: County Series

Map date: 1890-1891

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1890
Revised 1890
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1891
Revised 1891
Edition N/A
Copyright N/A
Levelled N/A

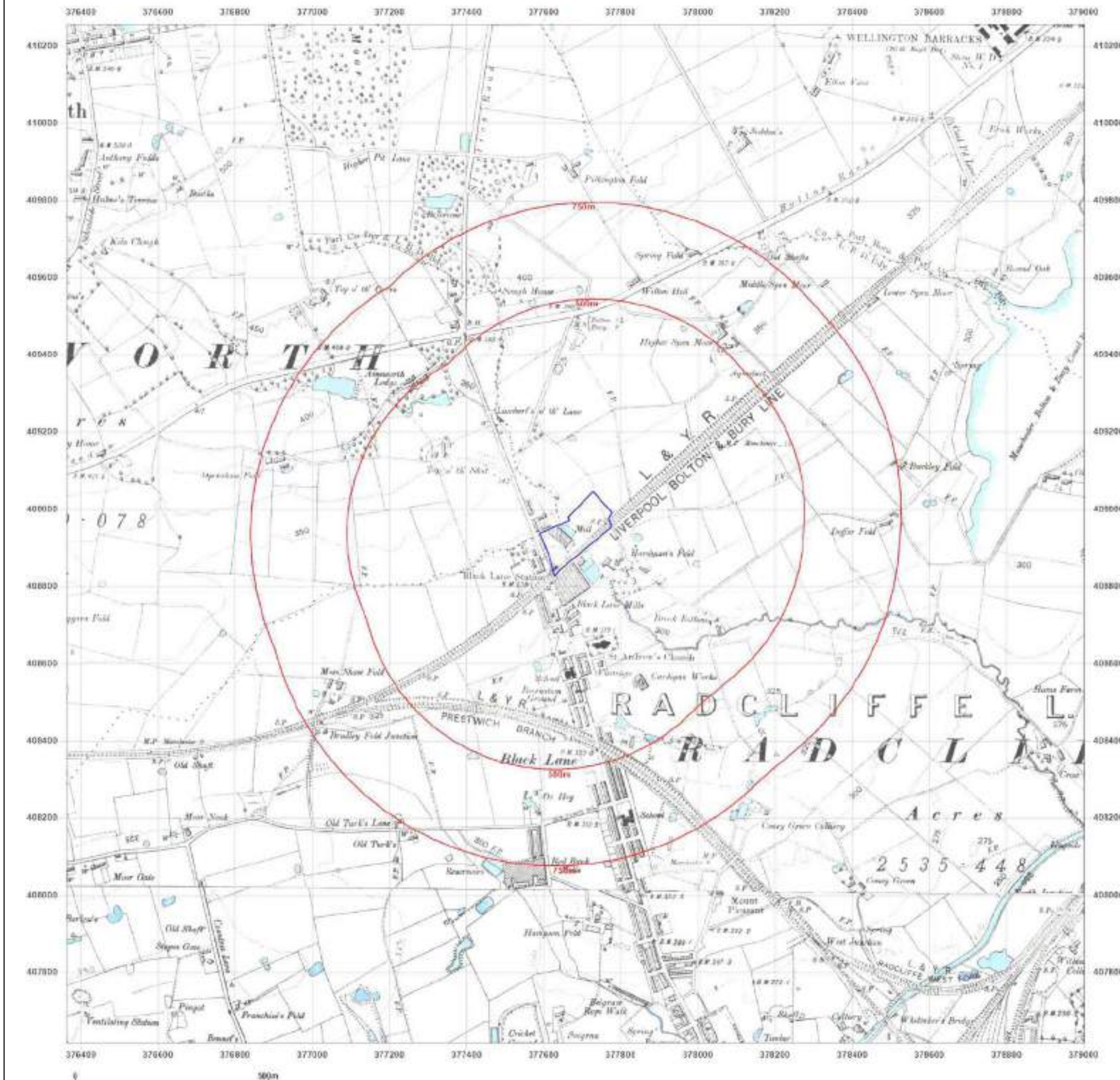


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Site Details:

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Client Ref: 21053-G-02
Report Ref: GS-8441823
Grid Ref: 377682, 408936

Map Name: County Series

Map date: 1908

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1844
Revised 1908
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1844
Revised 1908
Edition N/A
Copyright N/A
Levelled N/A

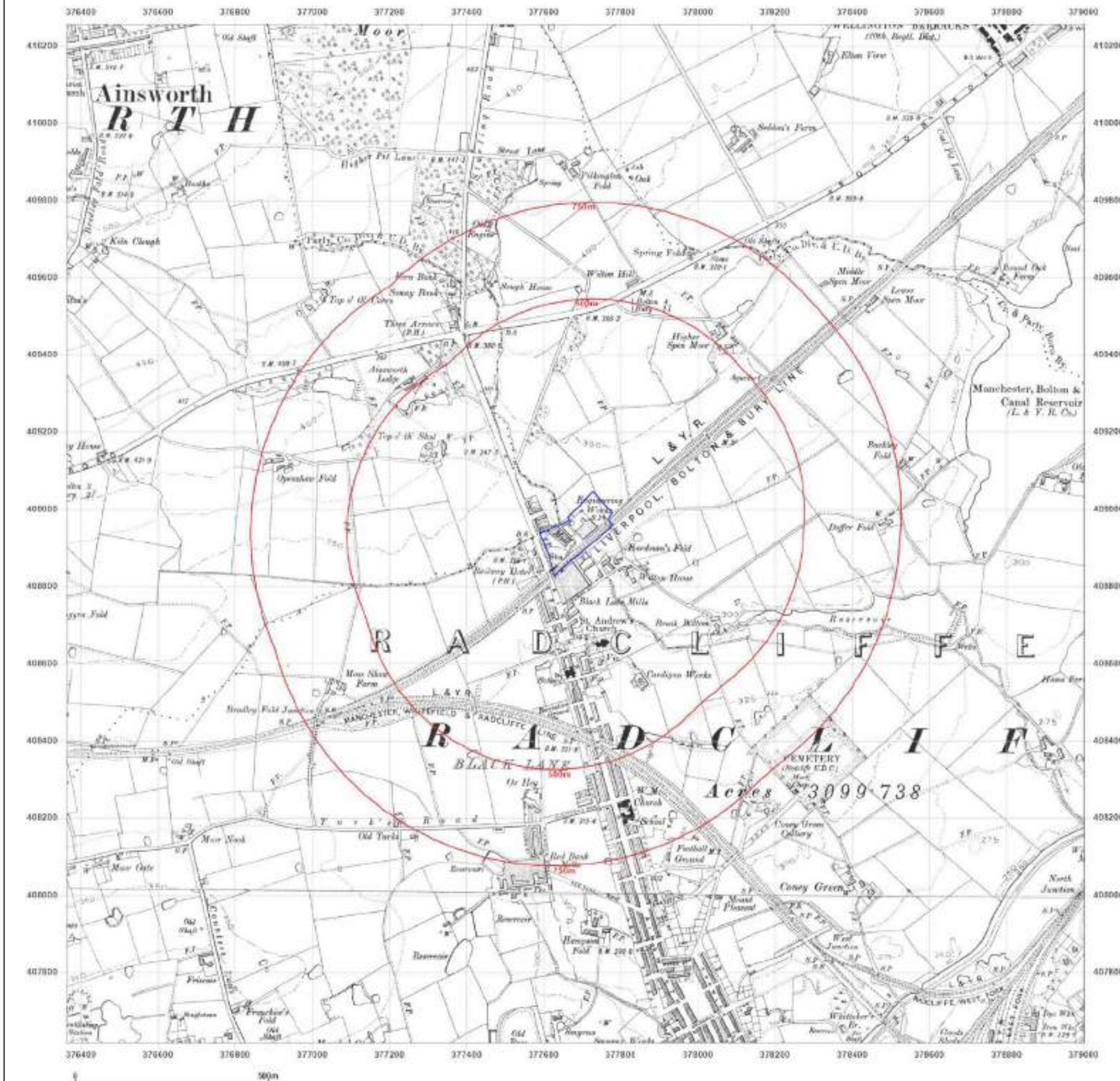


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Site Details:

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RADCLIFFE, M26 1LN

Client Ref: 21053-G-02
Report Ref: GS-8441823
Grid Ref: 377682, 408936

Map Name: County Series

Map date: 1927

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1844
Revised 1927
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1844
Revised 1927
Edition N/A
Copyright N/A
Levelled N/A

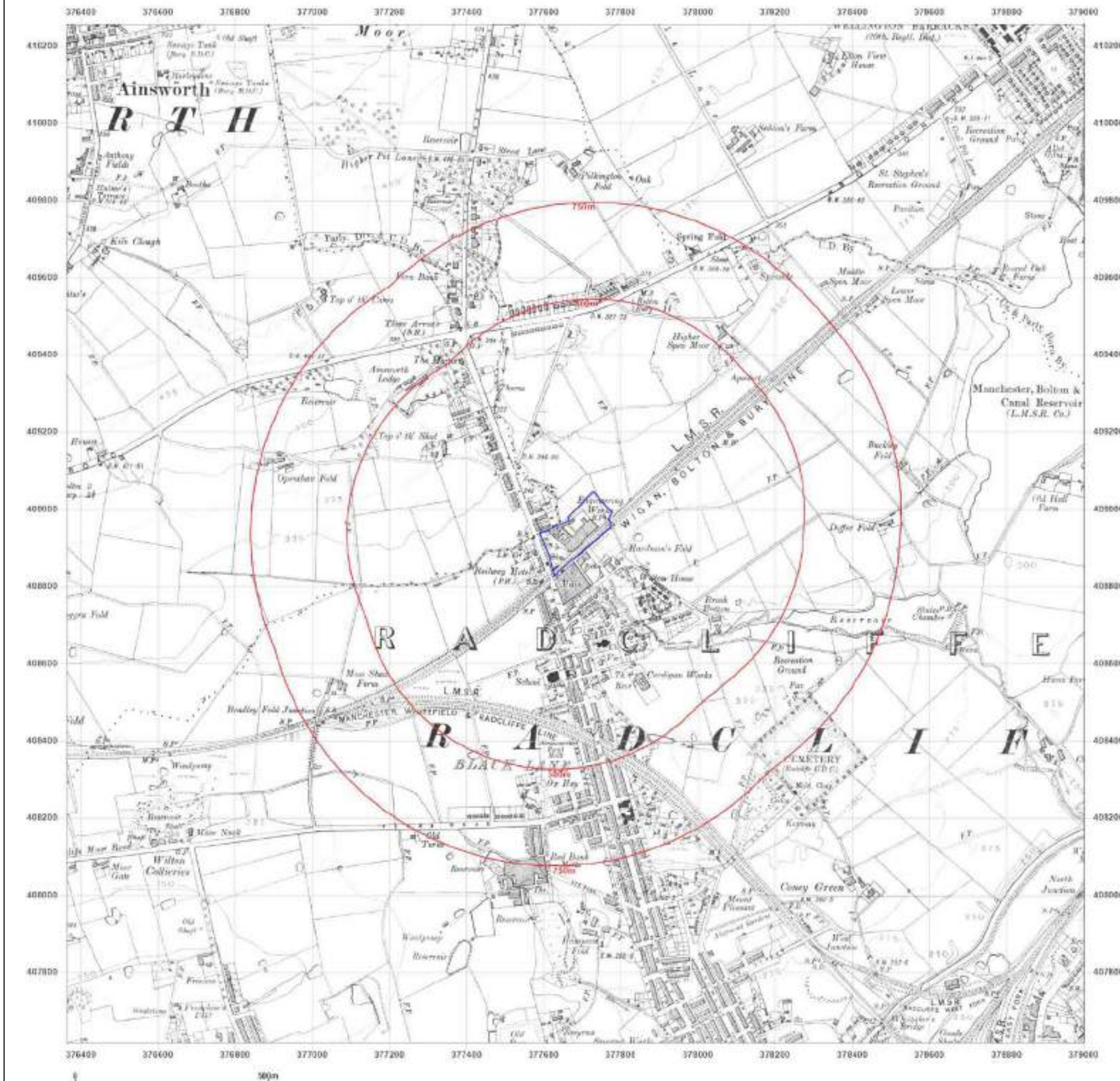


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Site Details:

25, JAMES STREET NORTH,
RADCLIFFE, M26 1LN

Client Ref: 21053-G-02
Report Ref: GS-8441823
Grid Ref: 377682, 408936

Map Name: County Series

Map date: 1938

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1844
Revised 1938
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1844
Revised 1938
Edition N/A
Copyright N/A
Levelled N/A

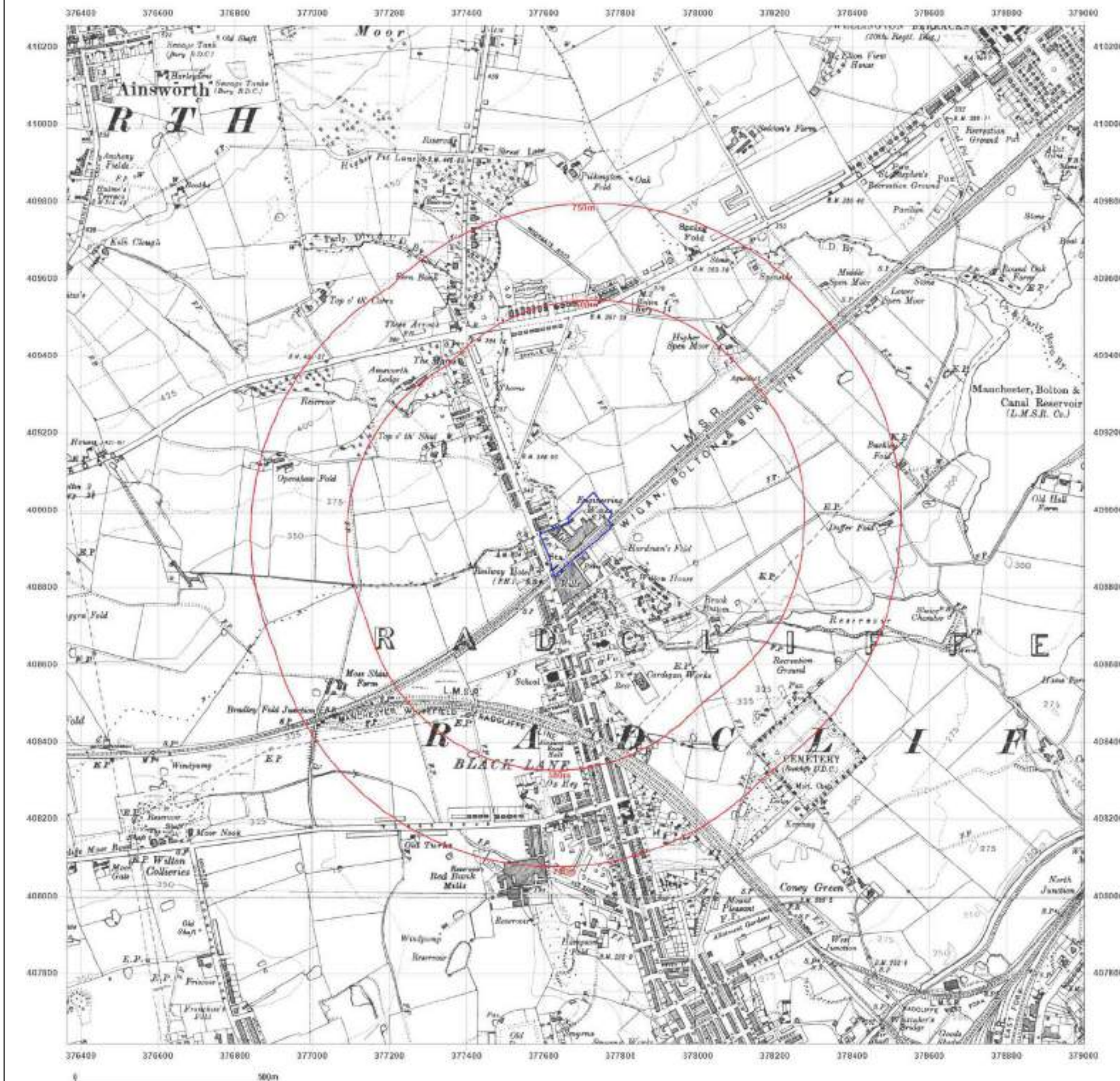


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Site Details:

25, JAMES STREET NORTH,
RADCLIFFE, M26 1LN

Client Ref: 21053-G-02
Report Ref: GS-8441823
Grid Ref: 377682, 408936

Map Name: Provisional

Map date: 1955-1956

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1949
Revised 1949
Edition N/A
Copyright 1956
Levelled N/A

Surveyed 1950
Revised 1955
Edition 1955
Copyright N/A
Levelled N/A

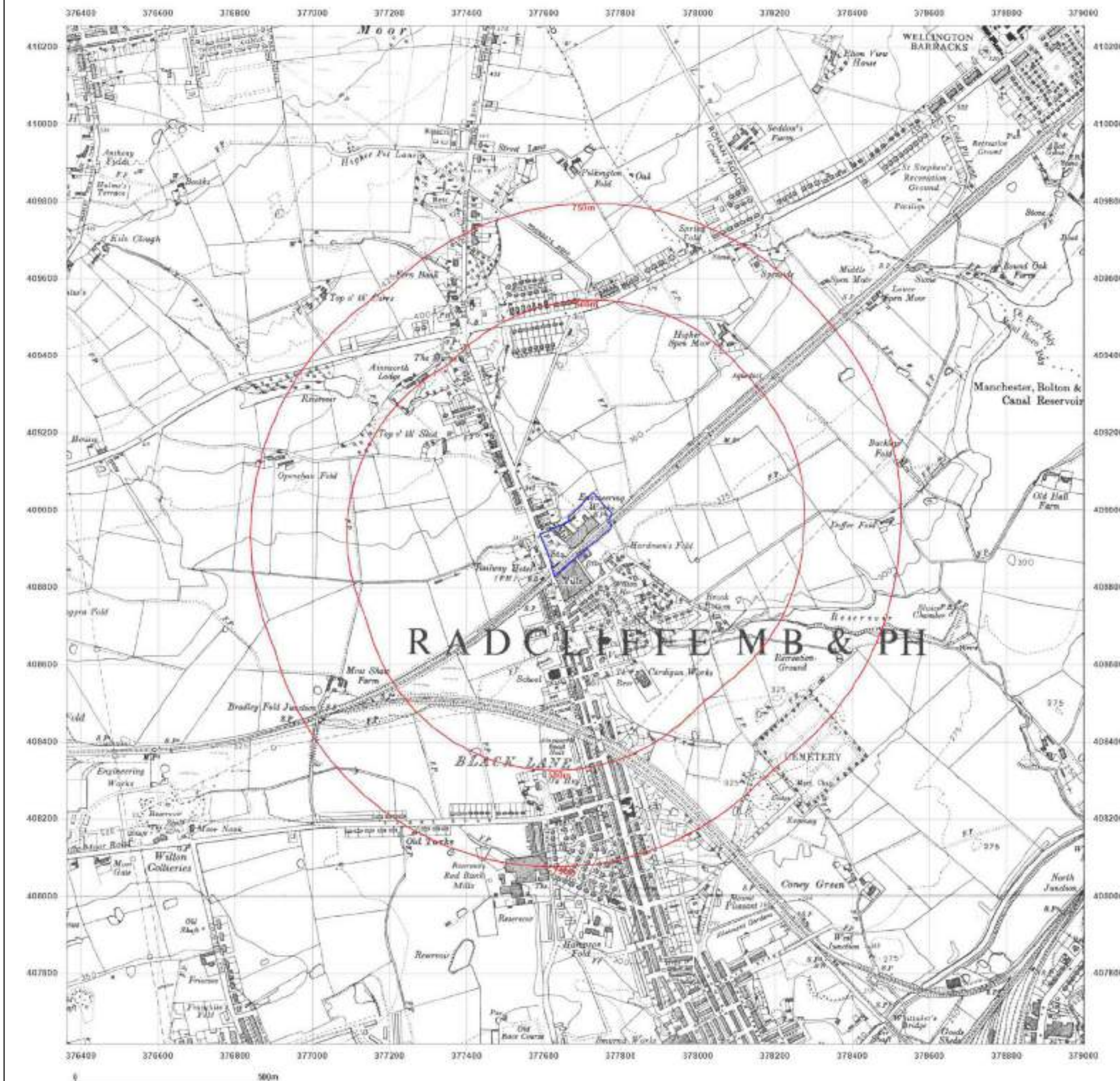


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Site Details:

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RADCLIFFE, M26 1LN

Client Ref: 21053-G-02
Report Ref: GS-8441823
Grid Ref: 377682, 408936

Map Name: Provisional

Map date: 1965-1969

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1969
Revised 1969
Edition N/A
Copyright N/A
Levelled N/A

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

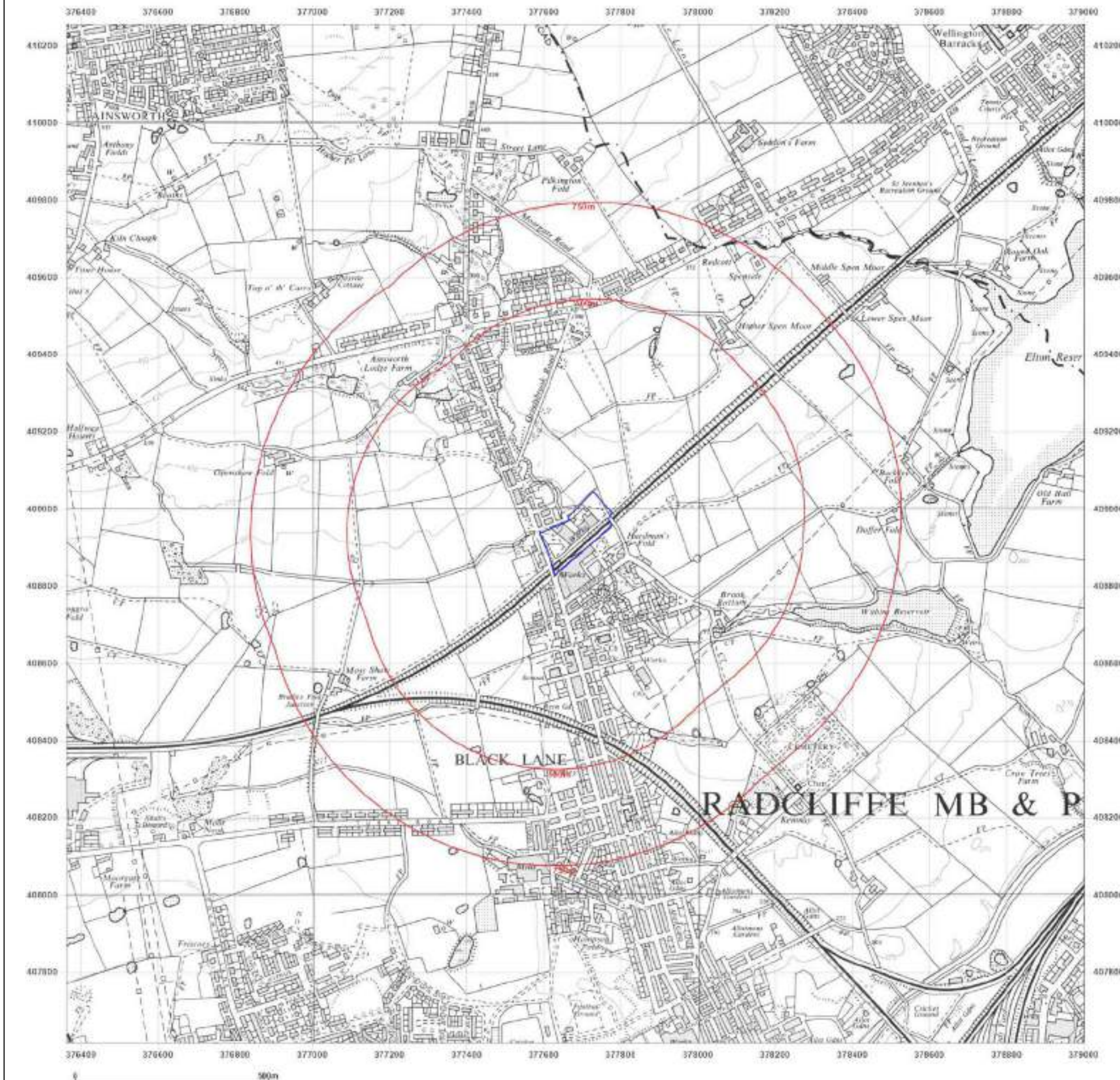


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Site Details:

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RADCLIFFE, M26 1LN

Client Ref: 21053-G-02
Report Ref: GS-8441823
Grid Ref: 377682, 408936

Map Name: National Grid

Map date: 1974-1977

Scale: 1:10,000

Printed at: 1:10,000



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

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

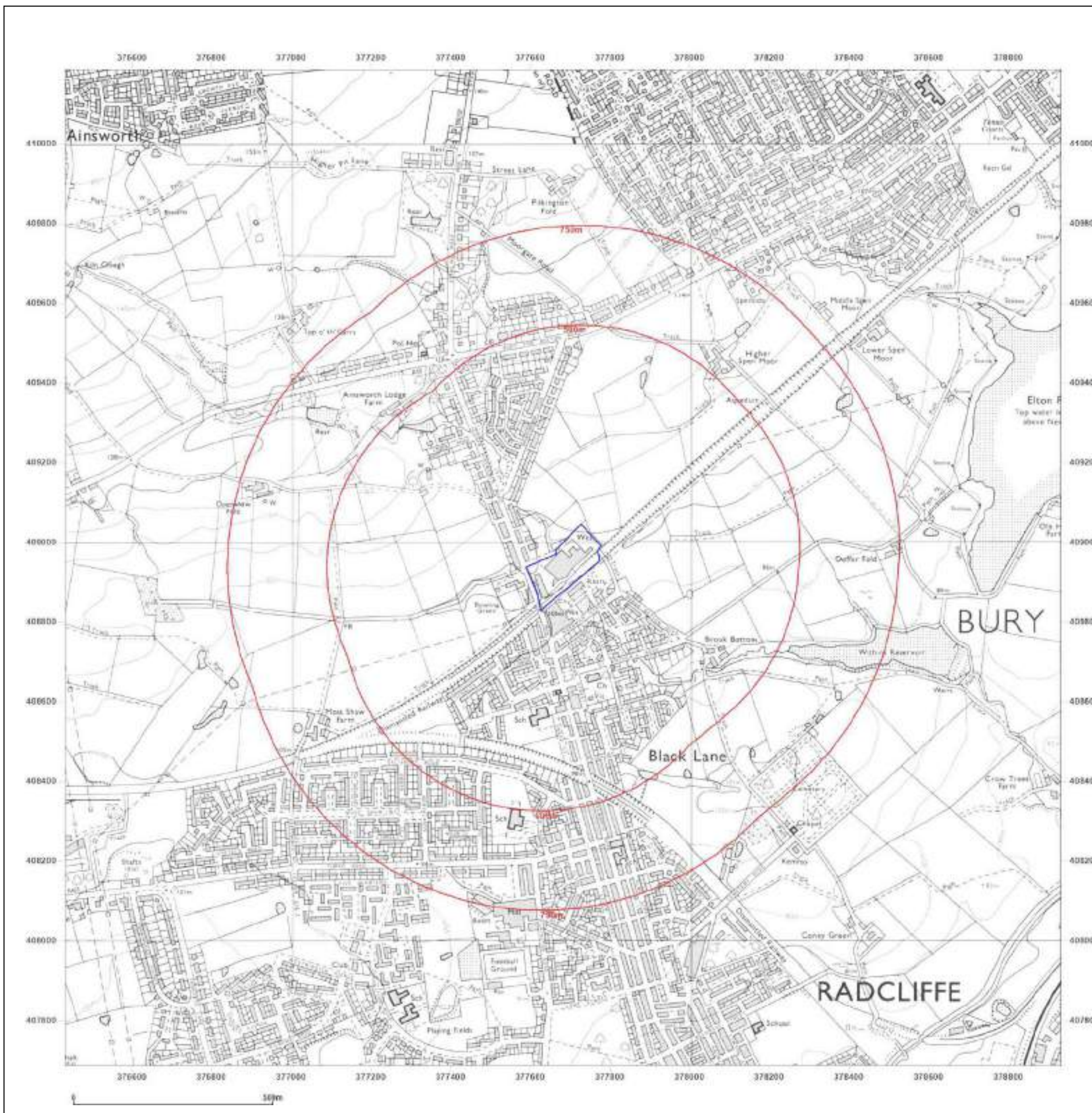


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Production date: 12 January 2022

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Site Details:

25, JAMES STREET NORTH,
RADCLIFFE, M26 1LN

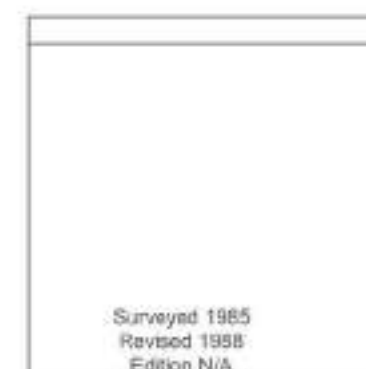
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Map Name: National Grid

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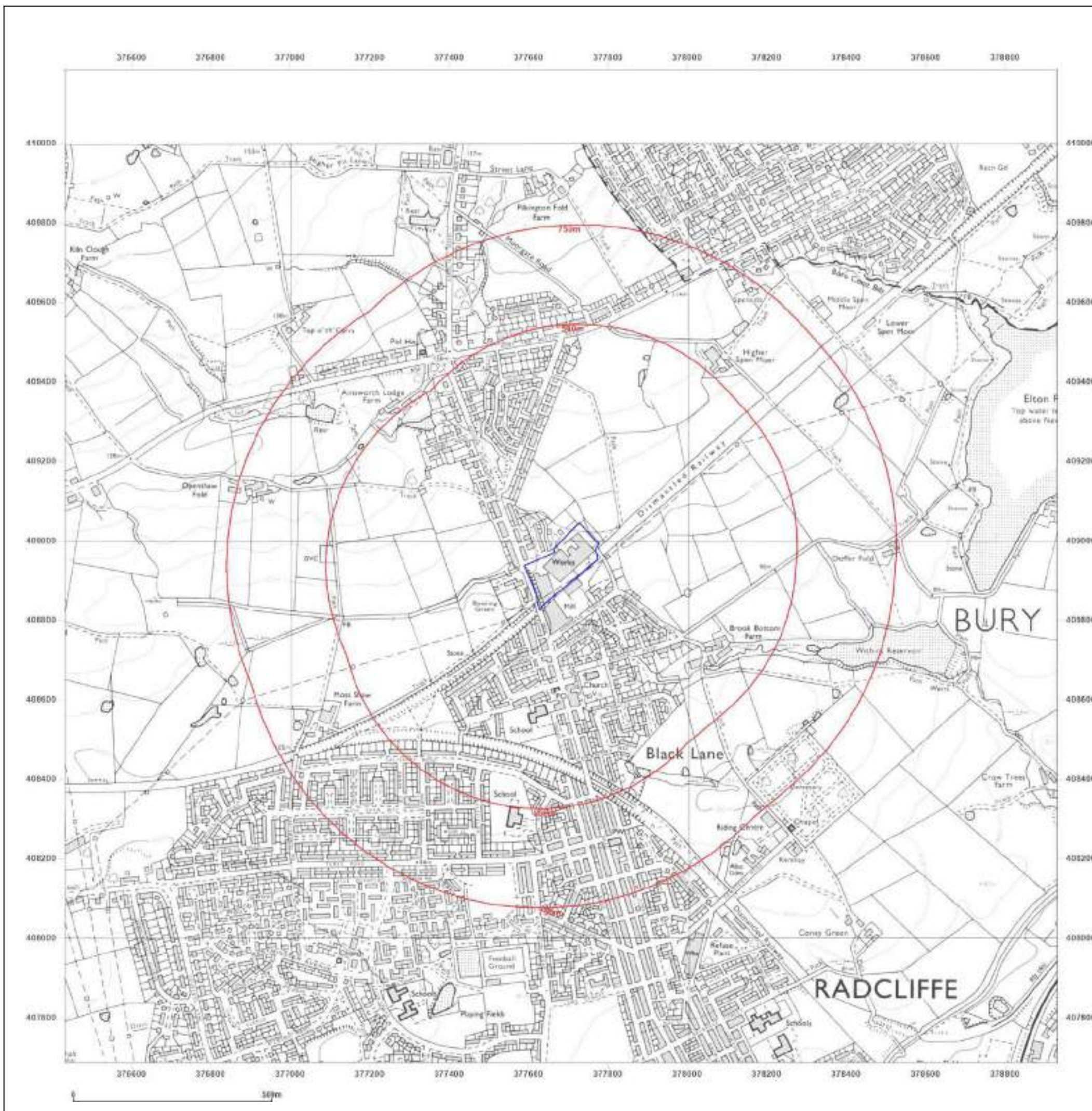


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Site Details:

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Client Ref: 21053-G-02
Report Ref: GS-8441823
Grid Ref: 377682, 408936

Map Name: National Grid

Map date: 1991

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1987
Revised 1991
Edition N/A
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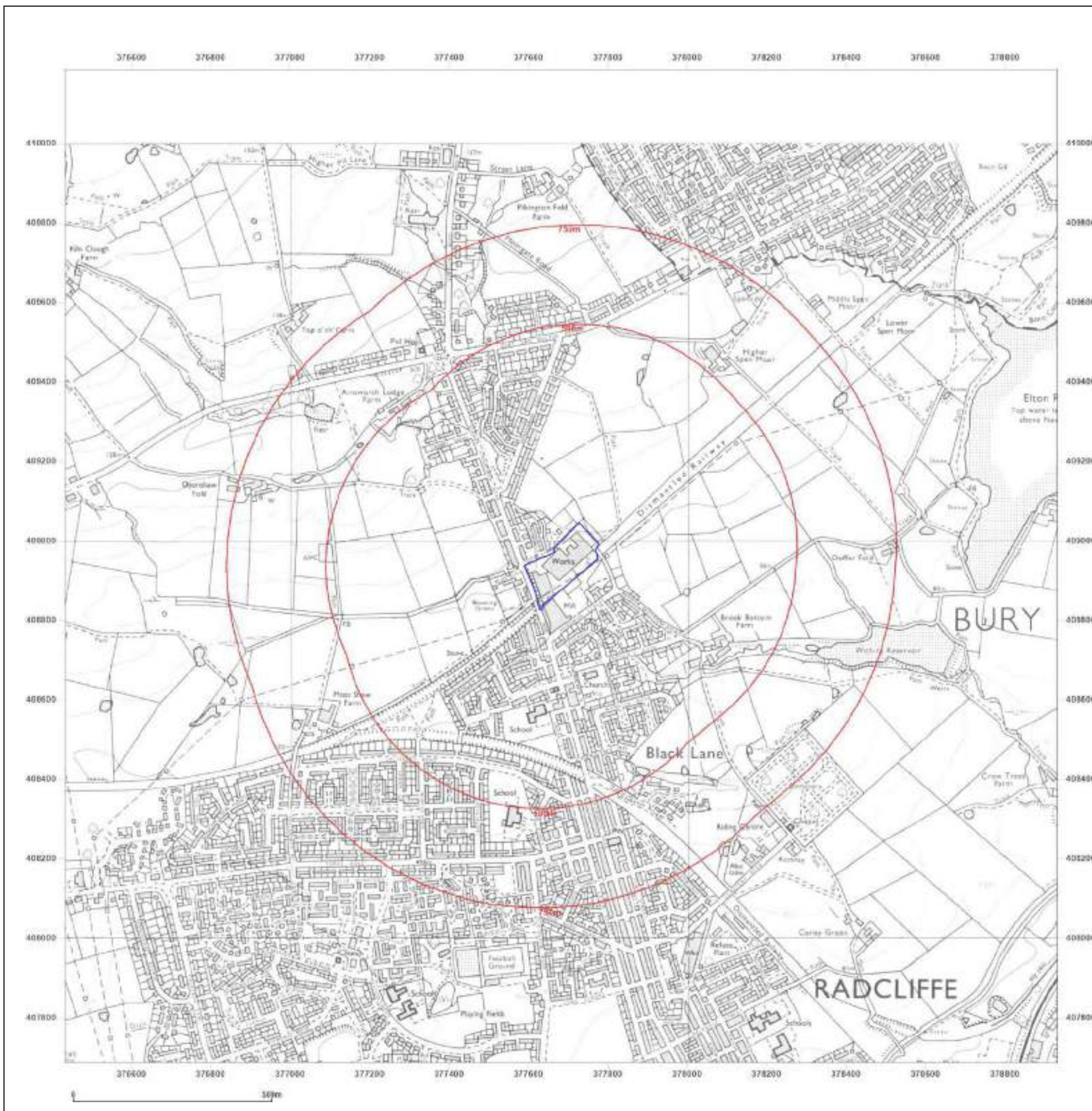


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Site Details:

25, JAMES STREET NORTH,
RADCLIFFE, M26 1LN

Client Ref: 21053-G-02
Report Ref: GS-8441823
Grid Ref: 377682, 408936

Map Name: National Grid

Map date: 2001

Scale: 1:10,000

Printed at: 1:10,000

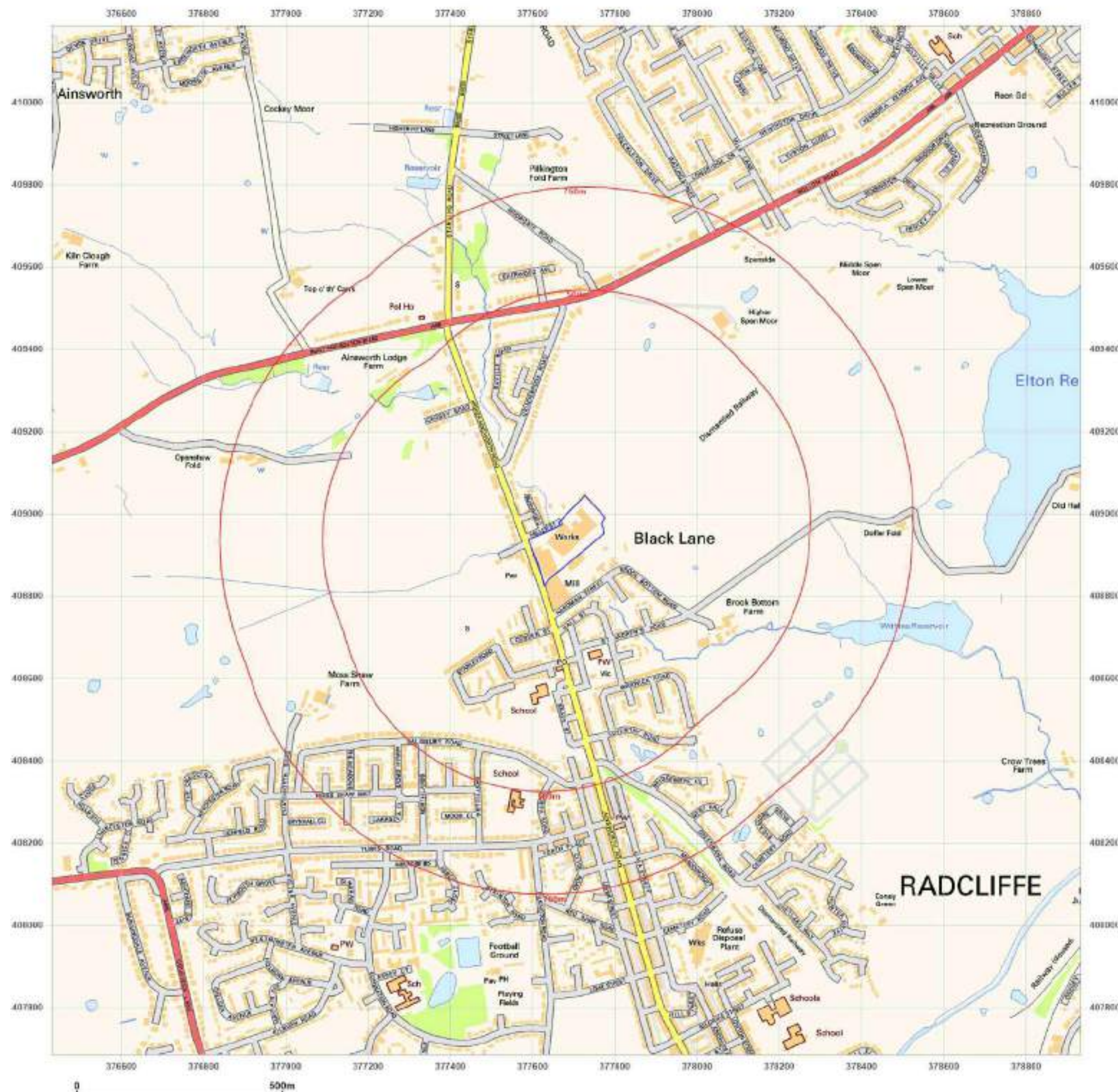


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Site Details:

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RADCLIFFE, M26 1LN

Client Ref: 21053-G-02
Report Ref: GS-8441823
Grid Ref: 377682, 408936

Map Name: National Grid

Map date: 2010

Scale: 1:10,000

Printed at: 1:10,000

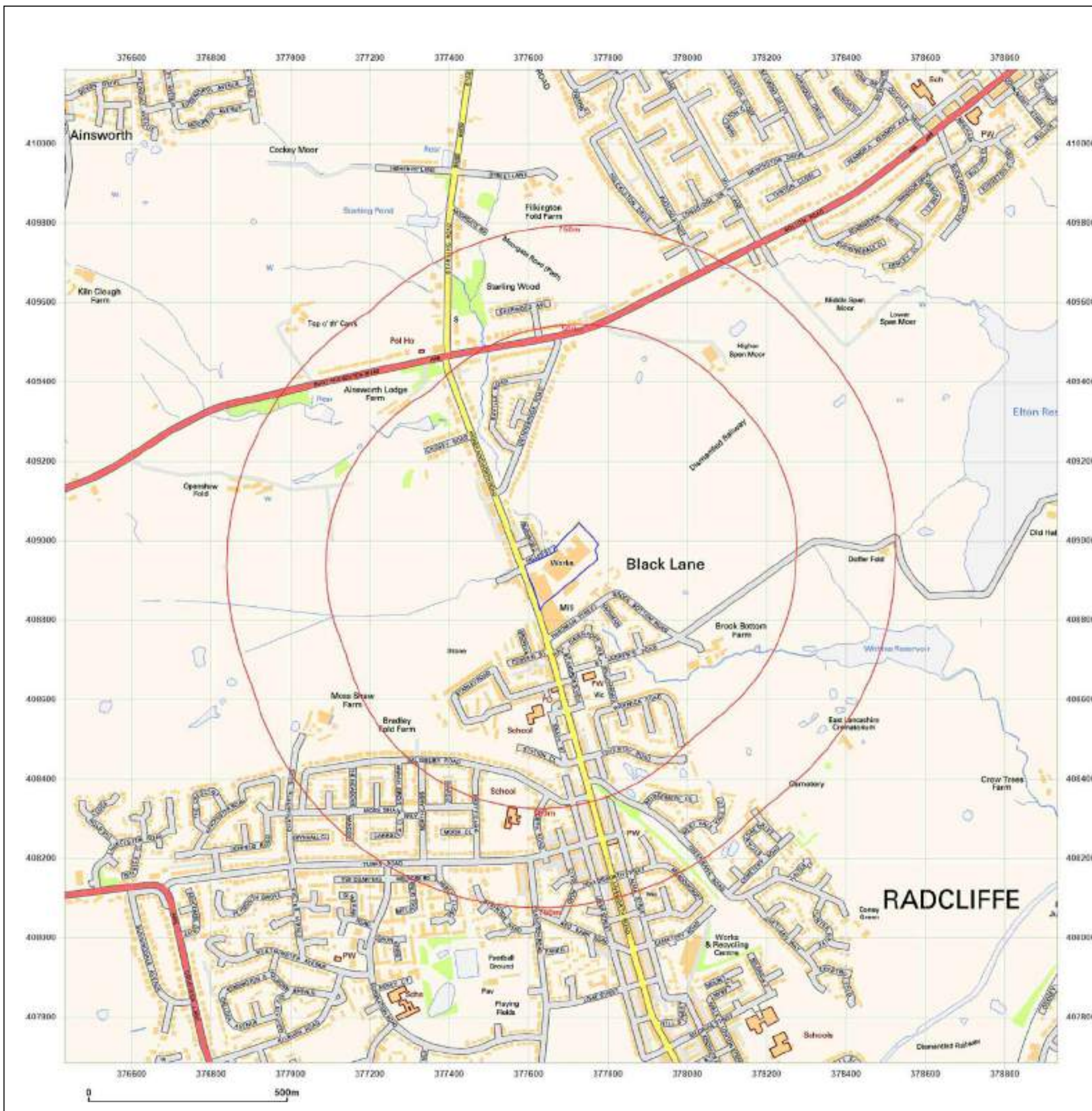


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Site Details:

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RADCLIFFE, M26 1LN

Client Ref: 21053-G-02
Report Ref: GS-8441823
Grid Ref: 377682, 408936

Map Name: National Grid

Map date: 2022

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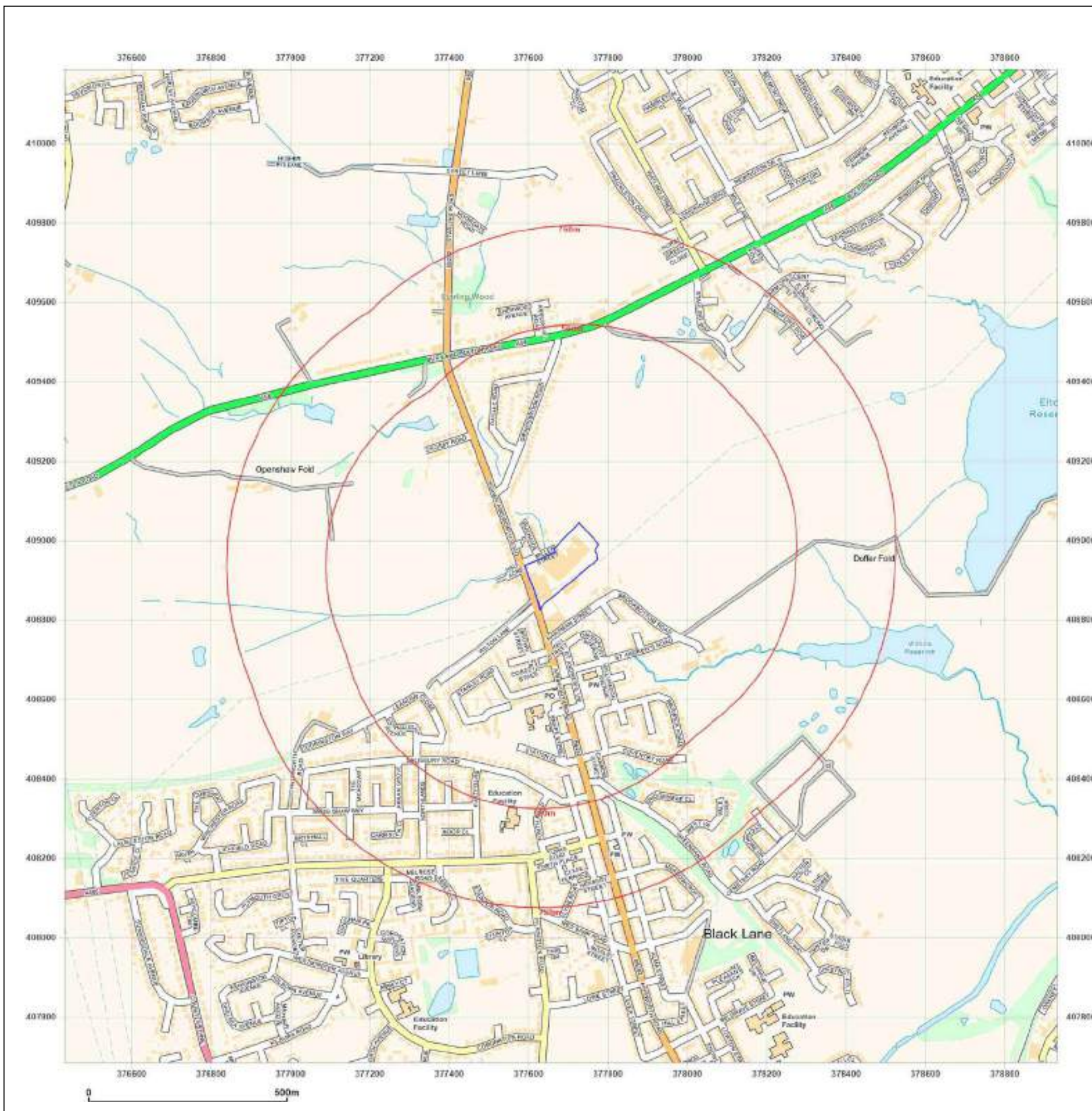


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Report No: 21053-PWAG-00-XX-RP-G-1000-P01

Project Details: Former Ashworth Frazer Site, Higher Ainsworth Road, Radcliffe

Date: February 2022



Appendix D

Coal Authority Mining Report



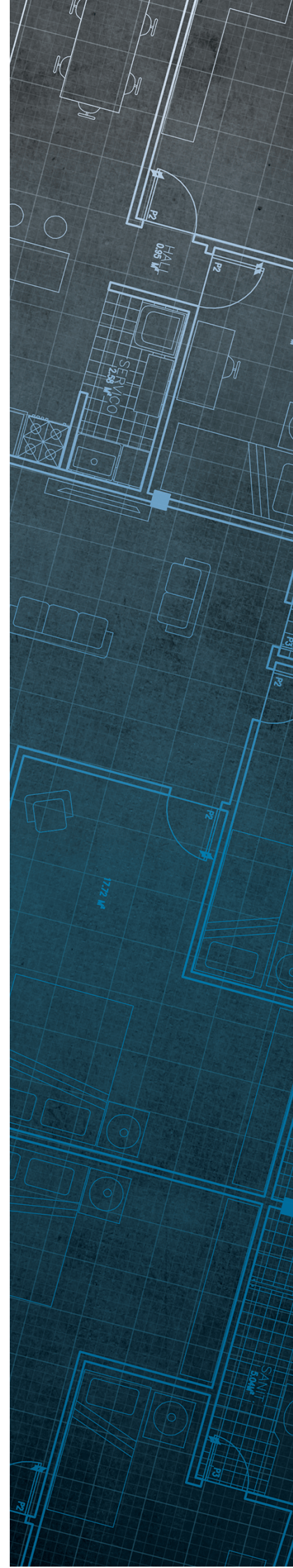
The Coal
Authority

Consultants Coal Mining Report

Faith In Nature
Miller Street
Radcliffe
Bury
M26 4AD

Date of enquiry:	14 February 2022
Date enquiry received:	14 February 2022
Issue date:	14 February 2022

Our reference:	51002965362001
Your reference:	21053.G.02



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

PAUL WAITE ASSOCIATES

Enquiry address

Faith In Nature
Miller Street
Radcliffe
Bury
M26 4AD

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 /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	WIGAN FOUR FEET	Coal	3Y8M	19	Beneath Property	8.0	South-West	100	1900
unnamed	CANNEL	Coal	3Y5Q	141	Beneath Property	8.0	South	150	1908
unnamed	CANNEL	Coal	3Y5R	165	South-East	8.0	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	377408-003	377757 408918		Coal	
Shaft	377408-004	377776 408903	May 2017 shaft found filled and capped at rockhead with 8.8m diameter, 0.6m thick cap of reinforced concrete by REFA Consulting Engineers.	Coal	
Shaft	377408-005	377802 408890		Coal	
Shaft	377409-007	377712 409051		Coal	

Abandoned mine plan catalogue numbers

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

NW1148	16820	PO0
1200	NW1150	

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
BULLDOG	Coal	Yes	Within	N/A	122
DOE	Coal	Yes	Within	N/A	115
PARK	Coal	Yes	Within	N/A	26
WHITE	Coal	Yes	32.9	North-West	27

Geological faults, fissures and breaklines

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

Fault under or close to the property 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

Distance to site investigation (m)	Direction
20.0	South-East

See Section 4 for further information.

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.

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.

Site investigations

The site is within an area of previous interest. It is close to where the Coal Authority has received information relating to past site investigations.

The site requires further investigation and may influence how you approach your risk assessment.

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

Section 5 – Data definitions

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

Past underground coal mining

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

Probable unrecorded shallow workings

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

Spine roadways at shallow depth

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

Mine entries

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

Abandoned mine plan catalogue numbers

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

Outcrops

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

Geological faults, fissures and breaklines

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

Opencast mines

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

Coal Authority managed tips

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

Site investigations

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

Remediated sites

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

Coal mining subsidence

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

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

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

Mine gas

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

Mine water treatment schemes

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

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

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

Future underground mining

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

Coal mining licensing

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

Court orders

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

Section 46 notices

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

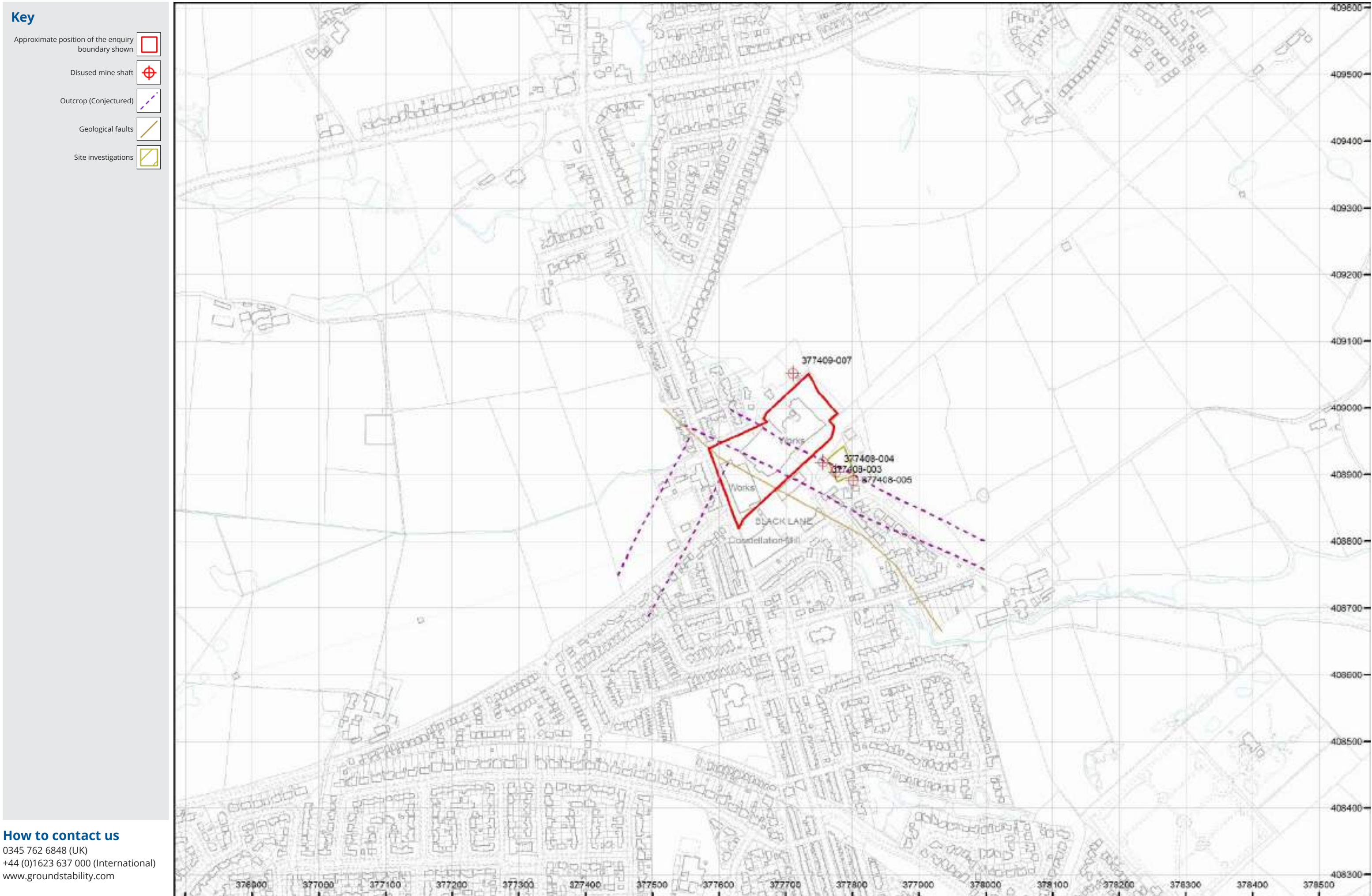
Withdrawal of support notices

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

Payment to owners of former copyhold land

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

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



How to contact us

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

Appendix E

Risk Evaluation

Risk Evaluation

To ensure consistency in our qualitative method for risk evaluation we have used the classification scheme presented CIRIA C552 Contaminated Land Risk Assessment – A Guide to Good Practice, 2001. The overall risk rating for any potential pollutant linkage is set out in **Table I** and based upon a combination of the:

- Magnitude of the potential consequence (severity) of risk occurring (defined in **Table II**); and
- Magnitude of the probability (likelihood) of the risk occurring (defined in **Table III**).

The definition of the overall risk rating and likely action required is defined in **Table IV**.

Table I: Comparison of consequence against likelihood

		Consequence (severity)			
		Severe	Medium	Mild	Minor
Probability	High likelihood	Very high risk	High risk	Moderate risk	Moderate/ low risk
	Likely	High risk	Moderate risk	Moderate/ low risk	Low risk
	Low likelihood	Moderate risk	Moderate/ low risk	Low risk	Very low risk
	Unlikely	Moderate/ low risk	Low risk	Very low risk	Very low risk

Table II: Classification of Consequence (Severity)

Class ⁿ	Definition	Examples
Severe	Short-term (acute) risk to human health likely to result in significant harm. Short term risk of pollution of sensitive water resource. Catastrophic damage to buildings/property. A short term risk to a particular ecosystem, or organism forming part of such ecosystem.	• High concentrations of cyanide on the surface of an informal recreation area. • Major spillage of contaminants into controlled water. • Explosion, causing building collapse (can also equate to a short term human health risk if buildings are occupied).
Medium	Chronic damage to human health. Pollution of sensitive water resources. A significant change in a particular ecosystem, or organism forming part of such an ecosystem.	• Concentrations of a contaminant from site exceed the generic, or site specific assessment criteria. • Leaching of contaminants from site to an aquifer. • Death of a species within a designated nature reserve.
Mild	Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services. Damage to sensitive buildings/ structures/ services or the environment.	• Pollution of non-classified groundwater. • Damage to building rendering it unsafe to occupy (e.g. foundation damage resulting in instability).
Minor	Harm, although not necessarily significant harm, which may result in a financial loss, or expenditure to resolve. Non-permanent health effects to human health (easily prevented by PPE). Easily repairable effects of damage to buildings, structures and services.	• The presence of contaminants at such concentrations that PPE is required during site works. • The loss of plants in a landscaping scheme. • Discoloration of concrete.

Table III: Classification of Likelihood (Probability)

Class ⁿ	Definition
High likelihood	There is a pollution linkage and an event that either appears very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor of harm or pollution.
Likely	There is a pollution linkage and all the elements are in the right place, which means that it is probable that an event will occur.
Low likelihood	There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over longer period such event would take place and is less likely in the shorter term.
Unlikely	There is a pollution linkage but circumstances are such that it is improbable that an event would occur even in the very long term.

Table IV: Classification of risks and likely action required

Class ⁿ	Definition
Very high risk	There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR, there is evidence that severe harm to a designated receptor is currently happening. This risk, if realized, is likely to result in a substantial liability. Urgent investigation and remediation works are likely to be required.
High risk	Harm is likely to arise to a receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation is required and remedial works may be necessary in the short term and are likely over the longer term.
Moderate risk	It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild. Investigation is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer term.
Low risk	It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realized, would at worst normally be mild.
Very low risk	There is a low possibility that harm could arise to a receptor. In the event of such harm being realized it is not likely to be severe.



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