



PHASE I GEO-ENVIRONMENTAL SITE ASSESSMENT

Land at Ashton Old Road,
Manchester,
M11 2NJ

Prepared for:

Mr Faisal Mahmood

Report Ref: 22-1146-PI
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EXECUTIVE SUMMARY

Site Address	Land off Ashton Old Road, Manchester, M11 2NJ.	
Grid Reference	E387959, N397408.	
Site Area	c.0.11 Ha.	
Current Site Use	The subject site forms a roughly rectangular shaped parcel of vacant unoccupied land, located adjacent to Ashton Old Road, Openshaw in Eastern Manchester. The site is largely level though noted to include an elevated bund feature in the northern site area.	
Proposed Development	ERGO understand that Mr Mahmood intends to construct 3no. commercial units with peripheral landscaping within the northern site area with associated hardstanding and access in the central and southern site area.	
Environmental Setting	<i>Drift Geology</i>	Glacial Till (Sands, Gravels, Clays) - BGS borehole logs indicate Clay to depths of c.18mbgl.
	<i>Bedrock Geology</i>	Chester Pebble Beds Formation - Sandstone
	<i>Hydrogeology</i>	Undifferentiated aquifer (Drift) overlying Principal Aquifer (Solid).
	<i>Hydrology</i>	There are no surface water features within influencing distance of the site.
	<i>Flood Risk</i>	The site is classed as Flood Risk Zone 1.
	<i>Compressible Ground and Subsidence Hazards</i>	No significant hazards identified in data searches.
Site History	Historical mapping indicates that the site comprised agricultural land prior the development of terraced housing between c.1892-1981. The site was subsequently cleared and remains undeveloped to date. The wider area has been subject utilised for various industrial use with engineering works and a foundry with associated tanks and travelling cranes in close proximity to the site boundary.	
Utility Locations	A formal GPR survey has not been completed; however, statutory service plans recorded buried utilities within influencing distance of the site.	
Landfill Sites & Ground Gases	No landfills are recorded within the vicinity of the site, however BGS mapping indicates the presence of Made Ground (Undivided) within close proximity to the southern and eastern site boundaries.	
Invasive Plant Species	No invasive plant species were identified during the site walkover.	
Radon	Unaffected – No special precaution required.	
Coal Mining	A low risk from historic mining activities has been identified at the site.	

Geotechnical Risk

Based on the desk study information, the following geotechnical assessment has been made:

- Given that the site has been developed previously, depending upon the extent of demolition/below ground turnover, it is possible that there may be Made Ground fill deposits and foundation obstructions encountered.
- Investigation will be required in order to assess the underlying Made Ground and natural deposits and undertake in-situ geotechnical testing to determine the likely foundation solution;

EXECUTIVE SUMMARY

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The site is located within an area at Moderate risk from UXO, appropriate consideration and assessment of the risks is recommended to be undertaken as part of any proposed intrusive investigation and groundworks package.

Contaminated Land Risk Assessment

Human Health

Given that the site has been developed previously and the surrounding historic and current industrial land use, Made Ground is likely present on the site and considered a potential source of heavy metal, TPH, VOC and PAH compound contamination within the subsurface. Whilst unidentified to date, ACM may also be present within onsite Made Ground deposits associated with previous historic site development.

Based on the available information and given the proposed development comprises predominately hardstanding impermeable surfaces, potential risks to receptors the potential risks are considered to be low.

Controlled Waters

The presence of significant potentially mobile contaminants are not anticipated; however, onsite Made Ground and adjacent historic industrial land uses may represent possible sources of mobile contamination.

Based on information available to date, the risk are considered low at this stage.

Ground Gas

Onsite and adjacent Made Ground including the recorded area of undivided Made Ground represent potentially significant sources of gas generation.

Based on the information currently available there is considered to be a moderate risk and should be confirmed by subsequent intrusive investigation works. However, it may be possible to agree to install ground gas protection measures with the Regulators in lieu of completing a ground gas risk assessment at the site.

Recommendations

A detailed Phase II intrusive Geo-Environmental Ground Investigation should be undertaken in order to confirm the findings of the initial conceptual site model and value engineer a development solution.

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Appendix I Limitations

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Appendix III Drawings

Drawing No 22-1146-001 – Site Location Plan

Drawing No 22-1146-002 – Proposed Development Plan

Appendix IV Photographs

Appendix V Historical Maps

Appendix VI Coal Authority Mining Report

1. INTRODUCTION

1.1 Background

ERGO Ltd has been commissioned by Mr F Mahmood to undertake a Phase I Geo-Environmental Site Assessment at land off Ashton Old Road, Manchester.

This report is required to determine potential contaminated land and geotechnical liabilities associated with a proposed future commercial development.

1.2 Proposed Development

ERGO understand that Mr Mahmood intends to construct 3no. commercial units with peripheral landscaping within the northern site area with associated hardstanding and access in the central and southern site area.

Drawing 22-1146-002 (Appendix III) identifies the proposed development layout. A snapshot of the proposed development is shown within figure 1.1 below.

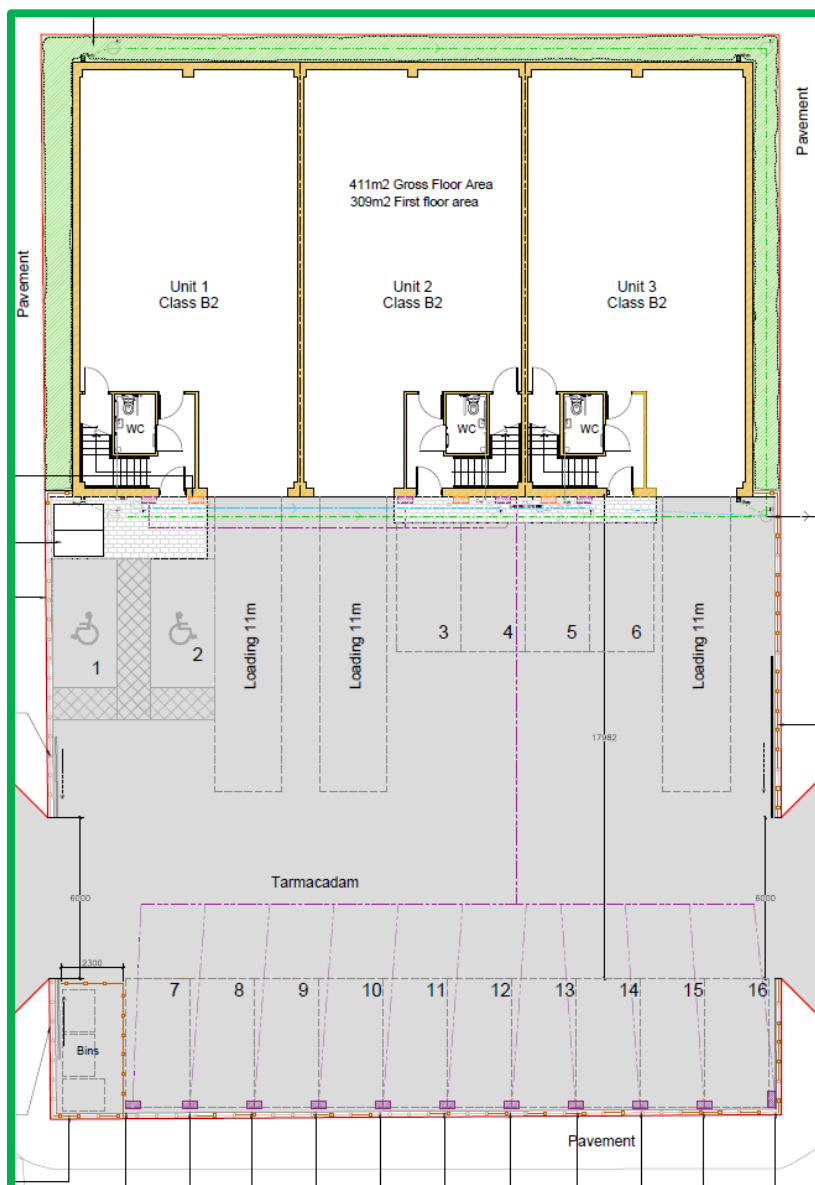


Figure 1.1 Snapshot of Proposed Development

1.3 Objectives

The objectives of the Geo-Environmental Investigation are to:

-  Review historical plans, geology, hydrogeology, site sensitivity, flood-plain issues, mining records and any local authority information available in order to complete a Desk Study in line with Environment Agency (EA) document Land Contamination Risk Management (LCRM 2019);
-  Assess the implications of any potential environmental risks, liabilities and development constraints associated with the site in relation to the future use of the site and in relation to off-site receptors;
-  Assess the desk study information and where possible, provide preliminary recommendations in relation to foundations, pavement construction and floor slabs; and,
-  Provide recommendations regarding future works required and undertake a preliminary pre-construction cost appraisal.

1.4 Limitations

The limitations of this report are presented in Appendix I.

1.5 Sources of Information

Background information was sought from the following sources:

-  Groundsure Search;
-  Historical mapping dated 1848 to 2022. A selection of historical maps are reproduced in Appendix V;
-  Online planning records held by Manchester City Council;
-  Coal Authority;
-  Mageic Map
-  Radon: Guidance on protective measures for new buildings (BRE Document BR 211, 2007); and,
-  British Geological Survey Map.

1.6 Confidentiality

ERGO has prepared this report solely for the use of the Client and those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from ERGO; a charge may be levied against such approval.

2. SITE SETTING

2.1 Site Details

Site Address	Land off Ashton Old Road, Manchester, M11 2NJ.
National Grid Reference	E387959, N397408.
Site Area	0.11 Ha.

All acronyms used within this report are defined in the Glossary presented in Appendix II.

A site location map is presented in Appendix III as Drawing 22-1146-001.

2.2 Current Site Use

ERGO has undertaken a site walkover of the entire site and a description of the key findings is summarised in Table 2.1.

Table 2.1 Site Description

Occupancy/use	The subject site is a roughly rectangular shaped parcel of vacant unoccupied land, located adjacent to Ashton Old Road, Openshaw in eastern Manchester. The southern site area appears to be in use for informal dining.	
Structures	No structures are present on site.	
Access	Access can be gained via the peripheral roads, the site is open and has no restrictions.	
Slope	The site is relatively flat though a c.1-2m raised bunded area is noted in the northern site area.	
Retaining structures	No retaining structures were noted to be present on site.	
Surface Cover (%)	Buildings:	0%
	Hardstand:	0%
	Soft cover:	100%
Vegetation/ Ecology	The site was noted to comprise short maintained grassland with evidence of sporadic semi-mature trees within the eastern site area. No evidence of invasive species was recorded within influencing distance of the site.	
Hazardous Material Storage	No Above Ground Storage Tanks (AST) or Underground Storage Tanks (UST) were observed during the site walkover.	
Asbestos Containing Material (ACM)	No evidence of ACM was noted across the site during the site walkover.	
Polychlorinated Biphenyls (PCBs)	There is no equipment identified which may contain PCBs within the site boundary.	
Waste Storage	Potentially hazardous waste streams are unlikely to be generated at the site and none were observed during the preliminary site inspection. Sporadic fly tipped wastes were noted in the north-western and southern site area.	
Utilities	A formal utility survey has not been completed, however a review of statutory service records indicate the presence of several buried services adjacent to the site boundaries. Additionally, an electricity cable is recorded within the eastern site area, running from the centre of the site to the eastern boundary.	

2.3 Surrounding Area

The surrounding area land uses are summarised in Table 2.2.

Table 2.2 ***Surrounding Land Uses***

DIRECTION	LAND USE
North	Ashton Old Road with Industrial units beyond.
East	Industrial units.
South	Industrial units.
West	Hardstanding car parking area with vacant undeveloped land beyond.

3. SITE HISTORY

3.1 On-Site Historical Development

A review of historical mapping pertinent to the site is summarised in Table 3.1 below. Selected historical maps are reproduced within Appendix V.

Table 3.1 Site Historical Development

MAP EDITION	HISTORICAL LAND USE	HISTORICAL MAP EXCERPT
Pre 1848- Pre 1892	The site appears to be undeveloped farmland with a road running along the northern boundary.	
Pre 1892- Pre 1967	The site is shown to be occupied by 3no. terraced streets comprising c.20no. properties with associated yards and access streets.	
Pre 1967- Pre 1981	1no. property in the north west of the site has been demolished. The remainder of the site remains unchanged.	
Pre 1981- Present	The terraced properties are no longer recorded onsite. The site remains unchanged to date.	

3.2 Off-Site Historical Development

A review of potentially contaminative uses identified on historical Ordnance Survey maps within a 250m radius of the site is summarised below in Table 3.2.

Table 3.2 Surrounding Potentially Contaminative Land Uses.

SURROUNDING FEATURE	DISTANCE	DATES	DIRECTION
Sir Joseph Whitworth Engineering Works ...then disused ...then Crossley New Foundry inc. tanks and travelling cranes ...then works and warehouse ...then depot and warehouse ...then warehouse ...no longer mapped	50m	Pre 1893- Pre 1933 Pre 1933- Pre 1949 Pre 1949- Pre 1967 Pre 1967- Pre 1980 Pre 1980- Pre 1981 Pre 1981- Pre 1991 Pre 1991- Pre 2010	S & E
Travelling Crane ...no longer mapped	90m	Pre 1893- Pre 1933	S
Clay Pit ...no longer mapped	110m	Pre 1893- Pre 1908	SE
Brick Kilns ...no longer mapped	120m	Pre 1893- Pre 1908	E
Carriage Repair Works ...Wagon repairing shed ...no longer mapped	190m	Pre 1908- Pre 1933 Pre 1933- Pre 1956	E
Painting and Cleaning Shed ...Wagon repairing shed ...no longer mapped	226m	Pre 1908- Pre 1933 Pre 1933- Pre 1956	SE
Travelling Crane ...no longer mapped	120m	Pre 1922- Pre 1933	E
North Street Engineering Works ...no longer mapped	200m	Pre 1922- Pre 1981	N
Electrical Engineering Works inc. sub station ...no longer mapped	200m	Pre 1938- Pre 1956	E
Works ...no longer mapped	140m	Pre 1968- Pre 2003	N
Clothing Factory ...no longer mapped	210m	Pre 1968- Pre 1981	NE
Unspecified tanks ...no longer mapped	217m	Pre 1923- Pre 1933	S
Unspecified Pit ...no longer mapped	216m	Pre 1890- Pre 1893	S
Unspecified Pit ...no longer mapped	211m	Pre 1890- Pre 1893	NW
Unspecified Depot ...no longer mapped	205m	Pre 1991- Pre 2003	E
Railway building ...no longer mapped	202m	Pre 1956- Pre 1978	S
Railway Sidings ...no longer mapped	201m	Pre 1985- Pre 1991	S
Railway Sidings ...no longer mapped	199m	Pre 1915- Pre 1934	NW
Brick Works ...no longer mapped	188m	Pre 1892- Pre 1908	N

3.3 Planning History

ERGO has undertaken a detailed search of online planning records held by Manchester City Council which has identified the following pertinent information for the site:

-  Planning application 128112/FO/2020 for the subject site is noted to have been approved in January 2022 which included a Phase I Desk Study report completed by Chevin Geoenviron which determined the following:
 - The site is noted to be approx. 4.2km east of Manchester City Centre and is 0.12Ha in size. The site is rectangular in shape comprising open grass covered area with old tree stumps and bushes noted to the north and west. The site is noted to be relatively flat with a mound along the northern boundary.
 - The site is noted to have been occupied by terraced housing from the late 1800's to c. 1977. The surrounding area is noted to be utilised by many industrial practices including factories, warehouses, brick kilns, depots, garages and various 'works'.
 - The Chevin report identified several potential contaminant sources;
 - Extensive Made Ground mapped to the east
 - Underlying Made Ground
 - Potential asbestos
 - Ground Gas risk from Made Ground, potentially infilled cellars, infilled clay pits
 - General industrial land use

4. ENVIRONMENTAL SETTING

4.1 Geology and Hydrogeology

The British Geological Survey (BGS) map for the site, (1:50,000, Solid & Drift edition) and online records indicates the site is underlain by the geological sequence presented in Table 4.1, this information is corroborated by records from BGS boreholes in the vicinity summarised in Table 4.2.

Table 4.1 Summary of Underlying Geology

GEOLOGICAL UNIT	CLASSIFICATION	DESCRIPTION	AQUIFER CLASSIFICATION
Drift	Glacial Till	Sands, Clay and Gravels	Secondary Undifferentiated
Solid	Chester Pebble Beds	Sandstone	Principal

The GroundSure report also notes the presence of Made Ground (Undivided) within the vicinity of the eastern site boundary.

Table 4.2 Summary of BGS Borehole Records

LOCATION	DEPTH	MADE GROUND	DRIFT	SOLID
49m W	15m	0.00-0.90mbgl. Ash Fill	0.90-15.0mbgl.+ Stiff to very stiff clay	Not encountered
72m E	11.50m	0.00-0.90mbgl. Ash Fill	0.90-7.30m+ Clay	Not encountered
109m SE	76.0m	-	0.00-18.20mbgl. Clay	18.20-76.20mbgl.+ Sandstone

The Groundsure Report indicates that the site is not located within a Groundwater Source Protection Zone. There are 23no. records of groundwater abstractions noted within 1km of the site, 6no. are noted to be active for non-potable usage. The nearest active record is 509m south of the site and registered to Cemex.

Based upon area topography and surface water features, shallow groundwater if present is likely to flow westwards following topographic gradients towards Corn Brook to the southwest.

4.2 Geotechnical Data

Geotechnical Data presented within a commercially available environmental database is summarised within Table 4.3.

Table 4.3 Summary of Geotechnical Data

HAZARD	DESIGNATION
Shrink-Swell Clay	Very Low Risk.
Landslides	Very Low Risk.
Ground Dissolution	Negligible Hazard.
Compressible Ground	Negligible Hazard.
Collapsible Deposits	Very Low Risk.
Running Sand	Very Low Risk.

4.3 Coal Mining

The Groundsure Report states the site is in an area which may be affected by coal mining.

A Coal Authority Mining Report was obtained (Ref: 51002988291001) dated 13th April 2022.

The Coal Authority operates a risk based approach to the assessment of potential instability issues associated with future development of land located within the pre-defined Coal Authority Consultation Areas. This risk based approach sub-divides the potential risk into 'Low & High' Risk Categories.

The Risk Categories can be defined as:

Low Risk Sites - Deemed to be land where coal mining has taken place, however it was at such depth not to pose a risk to new development and it therefore contains no known recorded risks and as such no further assessment is required.

For Low Risk Sites, the Coal Authority categorically state:

*"If your proposed development is within the Development Low Risk Area **there is no need for you to submit any coal mining information with your planning application** and The Coal Authority will not be consulted by the LPA. The LPA will include our Standing Advice as an informative note within the decision notice".*

High Risk Sites are deemed to be landholdings located within an area known to contain legacy risks that include:

-  Mine entries (shaft or Adit);
-  Shallow Coal Workings (recorded and probable);
-  Workable coal seam outcrops;
-  Mine gas sites and areas;
-  Recorded coal mining related hazards;
-  Geological features (fissures and break lines); and,
-  Former surface mining sites (sometimes using historic opencast extraction methods).

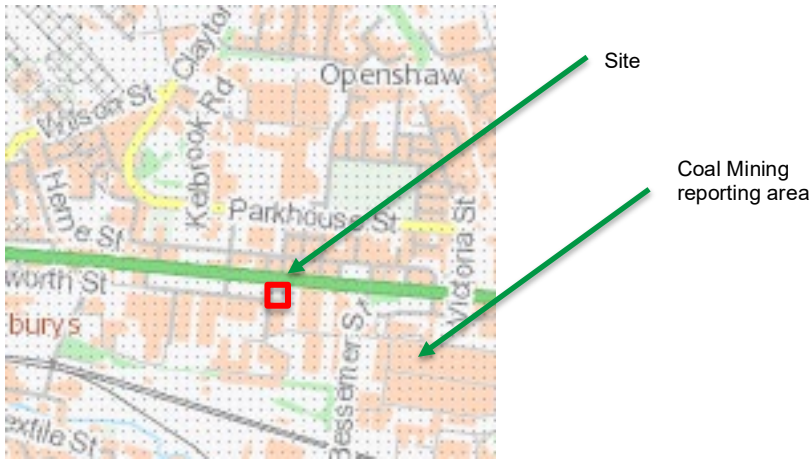
4.3.1 Coal Mining Information

Prior to the enactment of the Coal Mines Regulation Act (1872) which came into force on the 1st January 1883, there was no statutory requirement to record the extent of abandoned mine workings and as such the Coal Authority has no knowledge of extensive workings throughout the UK Coal Fields where shallow workings are present at a depth which could result in a subsidence event in the future (through successive cavitation) associated with failure of support mechanism.

To determine if a site may have unrecorded or recorded coal mine workings requires a consideration of a wide range of information and ERGO has completed a review of relevant information in relation to potential coal mining activities. Table 4.4 provides a summary of pertinent coal mining information.

Table 4.4 Coal Mining Information

SOURCES OF INFORMATION	SUMMARY
Coal Authority Mining Report	The Coal Authority Mining Report (Ref: 51002988291001) dated April 2022 has been obtained for the subject site by ERGO. This report confirmed: ▪ The property is within a surface area that is affected by past recorded underground mining within 2No. seams between 563-986mbgl, last worked in 1940; ▪ The shallowest coal seam with recorded workings (Parker) recorded at 563mbgl with a recorded thickness of 0.80m; ▪ The site is not in an area of probable unrecorded shallow workings; ▪ There are no known coal mine entries within 100 metres of the site boundary;

SOURCES OF INFORMATION	SUMMARY
Coal Authority Mining Report (Continued)	- The site is not in an area where the Coal Authority believe there is coal at or close to the surface which may have been worked in the past; - There is no record of mine gas emission requiring action by the Coal Authority within the boundary of the property; - The Authority is not aware of any evidence of damage arising due to geological faults or other lines of weakness that have been affected by coal mining; and, - The property is not within the boundary of an opencast site from which coal has been removed by opencast methods.
Coal Authority Interactive Map	The Coal Authority Interactive Map records the following: - The site is located within in a Coal Mining Reporting Area;  - The site is not located within a development high risk area; and - No mine entries or outcropping coal seams are recorded onsite or within the vicinity of the site.
British Geological Survey Mapping	The 1:10,000 geological mapping for the area notes Made ground is present to the east and south of the site with a significant area of infilled ground c.500m north of the site. An unnamed inferred normal fault is indicated c. 475m west of the site dipping to the east.  No evidence of mining features are noted onsite or within the vicinity of the site.
Review of Coal Authority Archive	No Coal Authority archives / Mine Abandonment Plans are made available.
Historical Site Investigations	No historical site investigations were made available.

4.3.2 Coal Mining Risk Assessment

This Risk Assessment comprises a desk-based review of all available information on the coal mining issues which are relevant to the application site deemed to be located within a 'Low Risk' area. This includes:

-  Interpretation of information to identify and assess the risks to the proposed development from coal mining legacy, including the cumulative impact of issues;
-  Setting 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; and,
-  Demonstrating 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.

The Coal Mining Risk Assessment is summarised in Table 4.5.

Table 4.5 Summary of Coal Mining Risk Assessment

COAL MINING RISK ASSESSMENT	YES/NO	RISK ASSESSMENT
Recorded Underground Coal Mining at Shallow Depth (<30m)	No	Low - None Recorded
Recorded Underground Coal Mining at Depth (>30m)	Yes	Low - The shallowest worked coal seam is recorded to be the Parker at a depth of 563mbgl. with a recorded thickness of 0.80m. Given the recorded depth of the workings and recorded depth to rockhead in the vicinity of the site it is considered sufficient competent rockhead is likely present which will mitigate potential risks.
Unrecorded Underground Coal Mining at Shallow Depth (<30m)	No	Low - None Recorded
Mine Entries (Shaft / Adits)	No	Low - None Recorded
Coal Mining Geology – Fractures / Fissures	No	Low - None Recorded
Recorded Gas Emissions	No	Low - None Recorded
Recorded Mining Surface Hazard	No	Low - None Recorded
Surface Mining (opencast)	No	Low - None Recorded

Based on the above, a low risk from historic mining activities has been identified at the site. No further assessment or investigation is considered to be required, this should be confirmed with the Coal Authority.

4.4 Hydrology

No surface water features are recorded within 250m of the subject site.

The site is predominantly located within a currently defined Flood Risk Zone 1; defined as land assessed as having less than 1 in 1,000 annual probability of river or sea flooding (<0.1%), and as such is considered to be unaffected by river flooding. In addition, the Groundsure Report states there is a limited potential for surface water flooding and moderate potential for groundwater flooding to occur at the site.

4.5 Radon Risk Potential

The Groundsure Report indicates the site is situated in an area where less than 1% of homes are above the Action Level and that the BGS reports that full radon protective measures are not necessary in the construction of new dwellings or extensions.

4.6 Industrial Land Uses

The site is located within an industrial area and therefore several potentially contaminative uses have been identified;

- 27m SW – Hambaker Pipelines – Industrial Products
- 58m E – Hatov - Foodstuffs
- 82m E – The Wheel Specialist – Vehicle repair and servicing
- 94m SE – A J Engineering Services - Vehicle repair and servicing
- 96m S – Electricity Sub Station
- 126m N – Manchester Meat & Poultry Ltd – Foodstuffs
- 173m W – Proprint Biz Laser – Publishers
- 179m SW – Intelligent Environmental Services Ltd – Recycling Services
- 207m N – Electricity Sub Station
- 210m E – Electricity Sub Station
- 245m E – Noble Emissions Systems – Industrial Products
- 246m E – Benson Components Ltd - Vehicle repair and servicing
- 248m NE – Unspecified Works

4.7 Sensitive Land Uses

No environmentally sensitive land uses have been identified within close proximity to the site.

4.8 Site Sensitivity Assessment

The site is assessed to be located within a **Low/ Moderate** sensitivity setting as discussed within Table 4.6.

Table 4.6 Site Sensitivity Assessment

SESITIVITY PROFILE	DISCUSSION	RATING
Groundwater Source Protection Zone or Drinking Water Safeguard Zone	The site is not located within a Groundwater Source Protection Zone or Drinking Water Safeguard Zone.	LOW
Distance to the closest groundwater abstraction point.	There are 6no. active recorded non-potable groundwater abstraction points within 1km of the site. The nearest is recorded 509m south of the site.	LOW/ MODERATE
Aquifer Classification in Superficial Drift Deposits.	Secondary Undifferentiated	LOW
Aquifer classification in Bedrock.	The underlying solid deposits are classified as a Principal Aquifer.	MODERATE
Is the site underlain by low permeability Drift to depths in excess of 10.0m?	Historical BGS boreholes records in the vicinity of the site indicate drift to be c.18.0mbgl. comprising low permeability clay	LOW
Is the site located within 50m of a surface watercourse?	There are no surface water features within 50m of the site.	LOW
Sensitive land uses within close proximity (e.g. residential, school, nursery, local nature reserves etc.)	No sensitive land uses have been identified within the vicinity of the site.	LOW
Overall Site Environmental Sensitivity		LOW/ MODERATE

4.9 Unexploded Ordnance

The regional unexploded bomb risk map from Zetica indicates that the site is in an area at moderate risk from possible Unexploded Ordnance (UXO) resulting from the Second World War. (Zetica, 2020).

4.10 Preliminary Geotechnical Assessment

Based on the desk study information, the following geotechnical assessment has been made:

-  Given that the site has been developed previously, depending upon the extent of demolition/below ground turnover, it is possible that there may be Made Ground fill deposits and foundation obstructions encountered;
-  Investigation will be required in order to assess the underlying Made Ground and natural deposits and undertake in-situ geotechnical testing to determine the likely foundation solution; and,
-  The site is located within an area at Moderate risk from UXO, appropriate consideration and assessment of the risks is recommended to be undertaken as part of any proposed intrusive investigation and groundworks package.

5. CONSULTATIONS

5.1 Landfill Sites and Waste Treatment Sites

No historic or active landfill site are recorded within 250m of the site. However, there are 4no. Licensed Waste Sites within 250m of the subject site:

-  58m NW - ELV Facility
-  129m SE - Special Waste Transfer Station
-  179m SW - Special Waste Transfer Station
-  185m W - Household, Commercial and Industrial Waste Transfer Station

5.2 Regulatory Database

The information summarised in Table 5.1 (overleaf) has been obtained from a commercially available environmental database. The summary table only includes records from within 250m of the subject site and not otherwise detailed in the report.

Table 5.1 *Summary of Environmental Data*

RECORD	ENTRIES WITHIN 250m	DETAILS
Contaminated Land Register Entries and Notices	0	None Identified (N/A).
Authorised industrial processes (IPC/IPPC/LAPPC).	0	N/A
Fuel Stations Entries	0	N/A
Licensed radioactive substances	0	N/A
Enforcements, prohibitions or prosecutions	0	N/A
Discharge Consents	1	230m E – Historic permit for Coating Processes registered to Benson Components Ltd.
Pollution Incidents	0	N/A
Consents issued under the Planning (Hazardous Substances) Act 1990	0	N/A
Control of Major Accident Hazard (COMAH) sites	0	N/A

6. INITIAL CONCEPTUAL SITE MODEL

6.1 Initial CSM

In accordance with Environment Agency, LCRM (2019) and BSI 10175 (Code of Practice for Investigation of Potentially Contaminated Land), ERGO Ltd has developed an initial CSM to identify potential contamination sources, migration pathways and receptors within the study area. This is summarised within Table 6.1.

Table 6.1 Initial Conceptual Site Model

SOURCE	PATHWAY	RECEPTOR
Human Health		
Heavy metals / Semi Volatile Organic Compounds (SVOC) associated with onsite Made Ground and adjacent current and historical industrial land use	Dermal Contact and Ingestion Consumption of Home-grown Produce	Construction Workers Commercial End Users
Discussion: Given that the site has been developed previously and the surrounding historic and current industrial land use, Made Ground is likely present on the site and considered a potential source of heavy metal and PAH compound contamination within the subsurface. If present, heavy metals and PAHs may pose a short-term risk to construction workers who may come into contact with impacted soils during earthworks. However, this risk can be mitigated through the use of appropriate Personal Protective Equipment (PPE) and the provision of adequate welfare facilities. Future commercial users may come into contact with impacted soils within any landscaped areas though it should be noted that the development comprises predominately hardstanding impermeable surfaces reducing potential risks to receptors. If impacted soils are identified within limited areas of landscaping then localised remediation or an appropriate cover system, designed in accordance with BRE465 (<i>Cover Systems for Land Regeneration</i>), will mitigate the risk. Based on the available information and given the proposed development, the potential risk from heavy metal and non-volatile PAH / hydrocarbon impact is considered to be low. However, this should be confirmed as part of any subsequent intrusive investigation.		
Volatile compounds associated with onsite Made Ground and adjacent current and historical industrial land	Volatilisation / Accumulation, Vapour Inhalation	Construction Workers, Commercial End Users
Discussion: Potential Made Ground deposits associated with historic onsite development and adjacent industrial land uses including the presence of nearby tanks, represent potential sources of volatile TPH and PAH compounds and VOCs which may pose a risk to human health receptors if they come into contact with impacted soils. The use of appropriate PPE/Respiratory Protective Equipment (RPE) will ensure construction workers are at no unacceptable level of risk. Future commercial end users may come into contact with impacted soil in landscaped areas and/ or via indoor inhalation of vapours if present. If present, and a potential risk is determined, localised remediation or the provision of a chemical resistant membrane within any proposed units impacted would provide mitigation. The risk is considered to be low at this stage. However, it is recommended that chemical sampling is undertaken to confirm this assessment.		

Asbestos Containing Materials (ACM) within Made Ground from demolition arisings	Fibre / Dust Inhalation	Construction Workers Commercial End Users Third Party Property
Discussion: No evidence of ACM was identified during the site walkover. However, ACM may be present within onsite Made Ground deposits associated with previous development and demolition works. Disturbance of ACM may give rise to dust generation, posing a risk to commercial end users, construction workers, and adjacent site users. ACM poses a risk through fibre and dust inhalation and if present may pose a risk to construction workers during any future earthworks and to adjacent third-party property should dust be generated during those works. If present, these risks can be mitigated through the development of a detailed enabling works strategy following guidance and protocol specified within the Control of Asbestos Regulations (2012) and industry best practice as detailed in CIRIA733 (Asbestos in Soil and Made Ground: A guide to understanding risk) and wearing suitable PPE to reduce to potential risk of dust inhalation. At present risks are considered to be low, however it is recommended that this is confirmed as part of any subsequent intrusive investigation.		
Hazardous Ground Gases		
Methane and Carbon Dioxide associated with onsite Made Ground and adjacent historic industrial land use and Made Ground	Inhalation Accumulation	Construction Workers Commercial End Users
Discussion: Made Ground deposits underlying the site, adjacent historic industrial land uses and recorded Made Ground deposits to the south and east of the site represent potentially significant sources of gas generation. Methane and Carbon Dioxide gases represent hazards from both explosions and asphyxiation respectively and present a significant hazard to any intrusive site works. Ground gas can also migrate through permeable strata, foundation structures and/or service ducting and accumulate within confined spaces where they may pose a risk to residential end users. Based on the information currently available there is considered to be a moderate risk. This will likely require confirmation through a series of monitoring well installations. However, it may be possible to agree to install ground gas protection measures with the Regulators in lieu of completing a ground gas risk assessment at the site.		
Controlled Waters		
Mobile compounds with onsite and adjacent Made Ground deposits from historical and current industrial land use	Vertical Migration	Principal Aquifer
Discussion: The presence of significant potentially mobile contaminants are not anticipated; however, the adjacent historic industrial land use as a factory with associated tanks and previous development onsite may represent possible sources of mobile contamination. Potential risks to surface waters are considered negligible in the absence of identifiable receptors within influencing distance of the site. The underlying Secondary (Undifferentiated) and Principal aquifer strata underlying the site are considered potential receptors; however, the presence of significant thicknesses of likely low permeability drift deposits reducing infiltration reduce the sensitivity. Additionally, no potable abstraction is recorded within the vicinity of the site. The risk is considered low at this stage and should be confirmed during any subsequent intrusive investigation.		

Buildings and Infrastructure

pH & Sulphate concentrations within onsite Made Ground and natural drift deposits.

Corrosion of Concrete

Foundations / Concrete

Discussion:

Materials with elevated pH and sulphate concentration can result in aggressive ground conditions which can corrode or buried concrete unless appropriately designed.

Assessment should be undertaken to confirm the levels of pH and sulphate within the shallow soils and thus determine the concrete classification.

7. CONCLUSIONS AND RECOMMENDATIONS

Site Summary

The subject site forms a roughly rectangular shaped parcel of vacant unoccupied land, located adjacent to Ashton Old Road, Openshaw in Eastern Manchester. The site is largely level though noted to include an elevated bund feature in the northern site area.

The site has historically been occupied by terraced housing until c. 1892-1981 and has remained vacant to the present day. The wider area has been subject utilised for various industrial purposes with engineering works and a foundry with associated tanks and travelling cranes in close proximity to the site boundary.

Contamination Issues

Human Health	Given that the site has been developed previously and the surrounding historic and current industrial land use, Made Ground is likely present on the site and considered a potential source of heavy metal, TPH, VOC and PAH compound contamination within the subsurface. Whilst unidentified to date, ACM may also be present within onsite Made Ground deposits associated with previous historic site development. Based on the available information and given the proposed development comprises predominately hardstanding impermeable surfaces, potential risks to receptors the potential risks are considered to be low.
Controlled Waters	The presence of significant potentially mobile contaminants are not anticipated; however, onsite Made Ground and adjacent historic industrial land uses may represent possible sources of mobile contamination. Based on information available to date, the risk are considered low at this stage.
Ground Gas	Onsite and adjacent Made Ground including the recorded area of undivided Made Ground represent potentially significant sources of gas generation. Based on the information currently available there is considered to be a moderate risk and should be confirmed by subsequent intrusive investigation works. However, it may be possible to agree to install ground gas protection measures with the Regulators in lieu of completing a ground gas risk assessment at the site.

Geotechnical Issues

Based on the desk study information, the following geotechnical assessment has been made:

-  Given that the site has been developed previously, depending upon the extent of demolition/below ground turnover, it is possible that there may be Made Ground fill deposits and foundation obstructions encountered;
-  Investigation will be required in order to assess the underlying Made Ground and natural deposits and undertake in-situ geotechnical testing to determine the likely foundation solution;
-  The site is located within an area at Moderate risk from UXO, appropriate consideration and assessment of the risks is recommended to be undertaken as part of any proposed intrusive investigation or groundworks package.

Recommendations

A detailed Phase II intrusive Geo-Environmental Ground Investigation should be undertaken in order to confirm the findings of the initial conceptual site model and value engineer a development solution.

END OF REPORT

APPENDIX I LIMITATIONS



1. This report and its findings should be considered in relation to the terms of reference and objectives agreed between ERGO and the Client as indicated in Section 1.2.
2. For the work, reliance has been placed on publicly available data obtained from the sources identified. The information is not necessarily exhaustive and further information relevant to the site may be available from other sources. When using the information it has been assumed it is correct. No attempt has been made to verify the information.
3. This report has been produced in accordance with current UK policy and legislative requirements for land and groundwater contamination which are enforced by the local authority and the Environment Agency. Liabilities associated with land contamination are complex and requires advice from legal professionals.
4. During the site walkover reasonable effort has been made to obtain an overview of the site conditions. However, during the site walkover no attempt has been made to enter areas of the site that are unsafe or present a risk to health and safety, are locked, barricaded, overgrown, or the location of the area has not been made known or accessible.
5. Access considerations, the presence of services and the activities being carried out on the site limited the locations where sampling locations could be installed and the techniques that could be used.
6. Site sensitivity assessments have been made based on available information at the time of writing and are ultimately for the decision of the regulatory authorities.
7. Where mention has been made to the identification of Japanese Knotweed and other invasive plant species and asbestos or asbestos-containing materials this is for indicative purposes only and do not constitute or replace full and proper surveys.
8. The executive summary, conclusions and recommendations sections of the report provide an overview and guidance only and should not be specifically relied upon without considering the context of the report in full.
9. ERGO cannot be held responsible for any use of the report or its contents for any purpose other than that for which it was prepared. The copyright in this report and other plans and documents prepared by ERGO is owned by them and no such plans or documents may be reproduced, published or adapted without written consent. Complete copies of this may, however, be made and distributed by the client as is expected in dealing with matters related to its commission. Should the client pass copies of the report to other parties for information, the whole report should be copied, but no professional liability or warranties shall be extended to other parties by ERGO in this connection without their explicit written agreement there to by ERGO.
10. New information, revised practices or changes in legislation may necessitate the re-interpretation of the report, in whole or in part.



APPENDIX II GLOSSARY



TERMS

AST	Above Ground Storage Tank	SGV	Soil Guideline Value
BGS	British Geological Survey	SPH	Separate Phase Hydrocarbon
BSI	British Standards Institute	TPH CWG	Total Petroleum Hydrocarbon (Criteria Working Group)
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes	SPT	Standard Penetration Test
CIEH	Chartered Institute of Environmental Health	SVOC	Semi Volatile Organic Compound
CIRIA	Construction Industry Research Association	UST	Underground Storage Tank
CLEA	Contaminated Land Exposure Assessment	VCCs	Vibro Concrete Columns
CSM	Conceptual Site Model	VOC	Volatile Organic Compound
DNAPL	Dense Non-Aqueous Phase Liquid (chlorinated solvents, PCB)	WTE	Water Table Elevation
DWS	Drinking Water Standard	m	Metres
EA	Environment Agency	km	Kilometres
EQS	Environmental Quality Standard	%	Percent
GAC	General Assessment Criteria	%v/v	Percent volume in air
GL	Ground Level	mb	Milli Bars (atmospheric pressure)
GSV	Gas Screening Value	l/hr	Litres per hour
HCV	Health Criteria Value	µg/l	Micrograms per Litre (parts per billion)
ICSM	Initial Conceptual Site Model	ppb	Parts Per Billion
LNAPL	Light Non-Aqueous Phase Liquid (petrol, diesel, kerosene)	mg/kg	Milligrams per kilogram (parts per million)
ND	Not Detected	ppm	Parts Per Million
LMRL	Lower Method Reporting Limit	mg/m³	Milligram per metre cubed
NR	Not Recorded	m bgl	Metres Below Ground Level
PAH	Polycyclic Aromatic Hydrocarbon	m bcl	Metre Below Cover Level
PCB	Poly-Chlorinated Biphenyl	mAOD	Metres Above Ordnance Datum (sea level)
PID	Photo Ionisation Detector	kN/m²	Kilo Newtons per metre squared
QA	Quality Assurance	µm	Micro metre
SGV	Soil Guideline Value		



APPENDIX III DRAWINGS



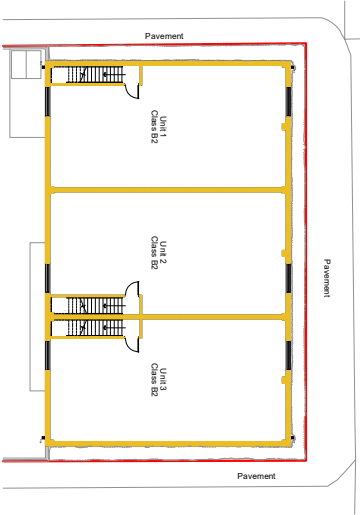


Drawing 22-1146-001
Site Location Plan



Key:

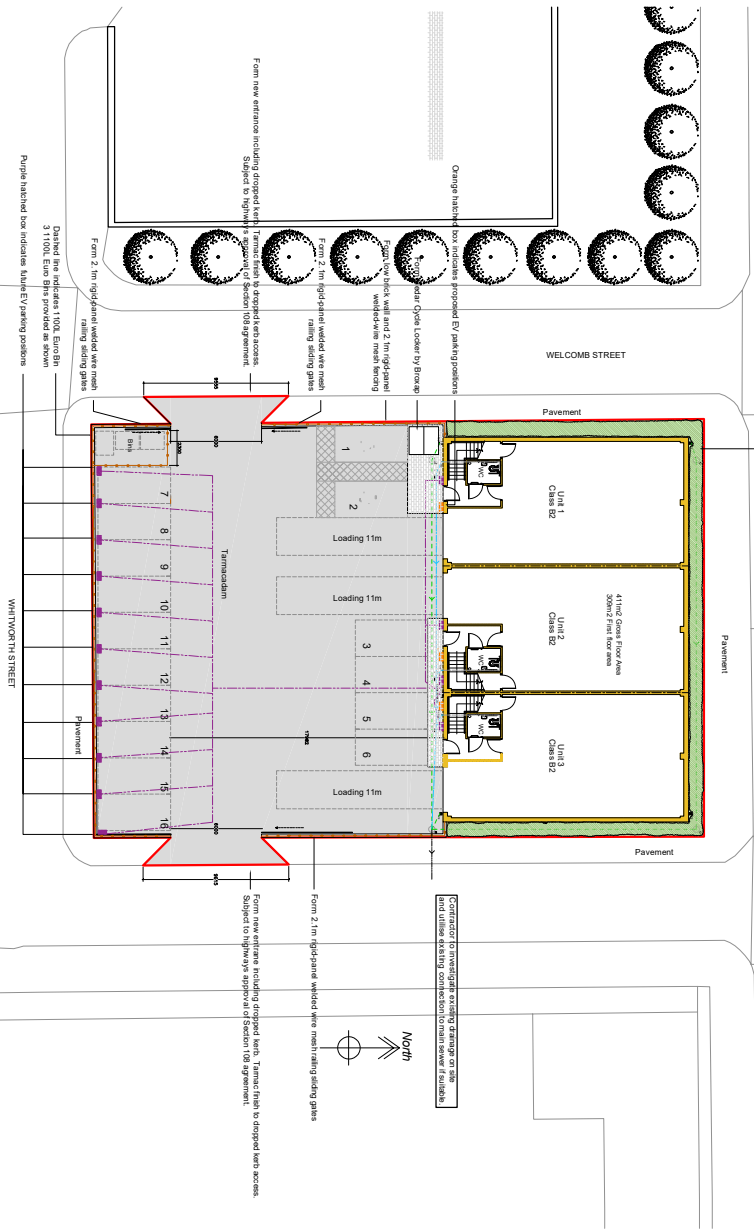
Location Symbols



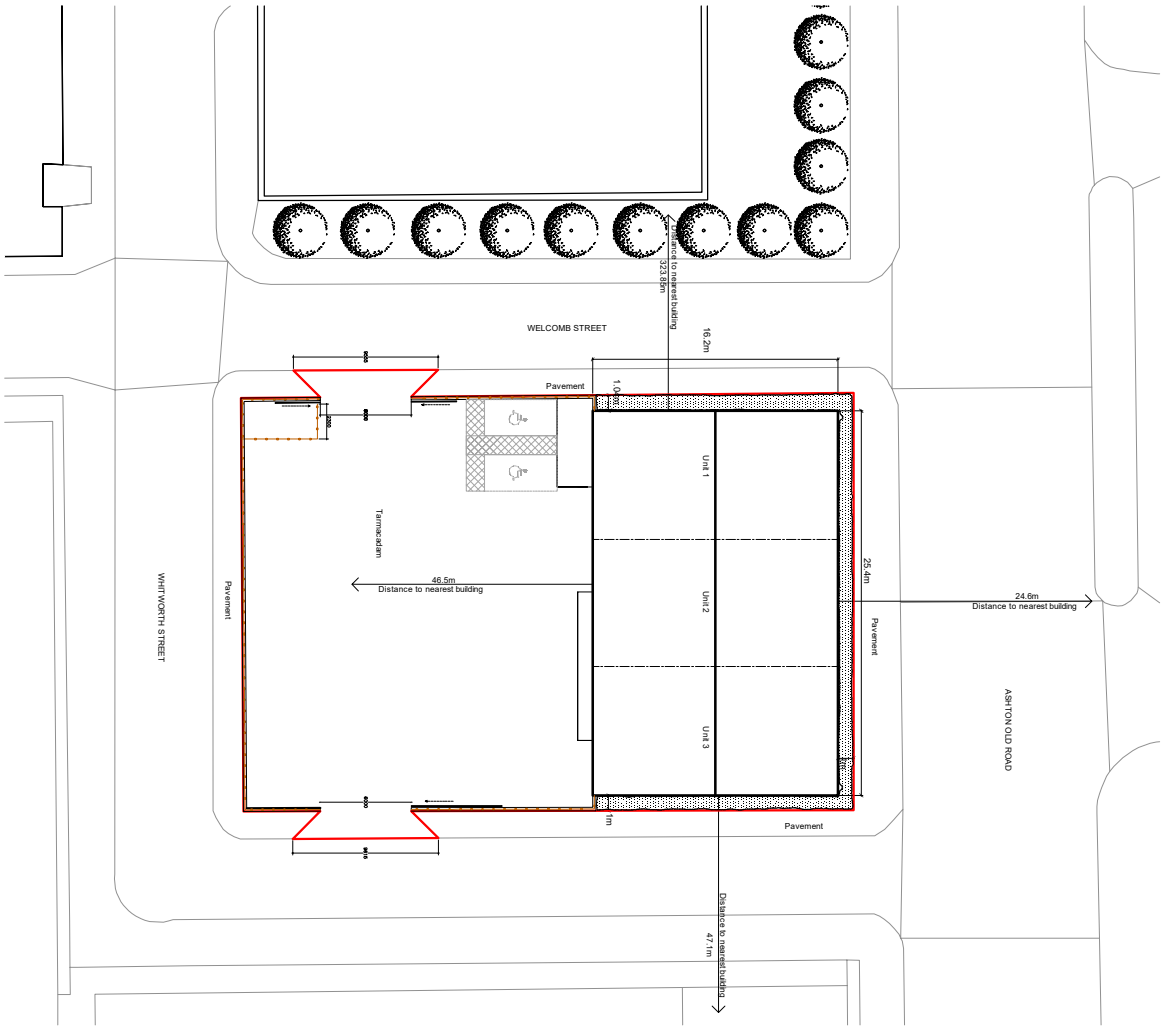
First Floor Plan Plan 1:200

NOTE: Item 303.32, Accessibility 1.1
From entrance to parking spaces

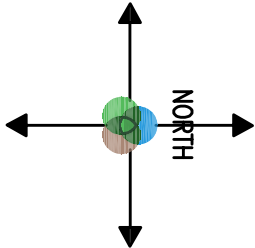
NOTE: The proposed structure does not obstruct the existing highway
Pedestrian and vehicular access onto site to be maintained



Site Plan 1:200



Block Plan 1:200

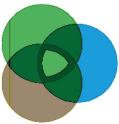


Notes:

P1	-	15.03.2022	DRAFT	RB	JN
Phase	Revision	Date	Issue	Drawn	Authorised

Client	Manjur Choudhury	Job No:	22-1146	Date:	15.03.2022
		Drawing No:	002	Scale:	NTS

Job Title:	Ashton Old Road, Manchester	Drawing Title:	Proposed Development Plan
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APPENDIX IV PHOTOGRAPHS





PLATE 1 – GENERAL OVERVIEW OF THE SITE LOOKING NORTH



PLATE 2 – GENERAL SITE OVERVIEW TO THE SOUTH





PLATE 3 – GENERAL VEGETATION ON SITE, NOTE STREET LIGHTING



PLATE 4 – EVIDENCE OF LITTERING ON SITE





PLATE 5 – EVIDENCE OF SMALL FIRE ON SITE



PLATE 6 – VIEW OF SITE LOOKING NORTH, NOTE BUND AT NORTHERN BOUNDARY



APPENDIX V HISTORICAL MAPS





Historical Map

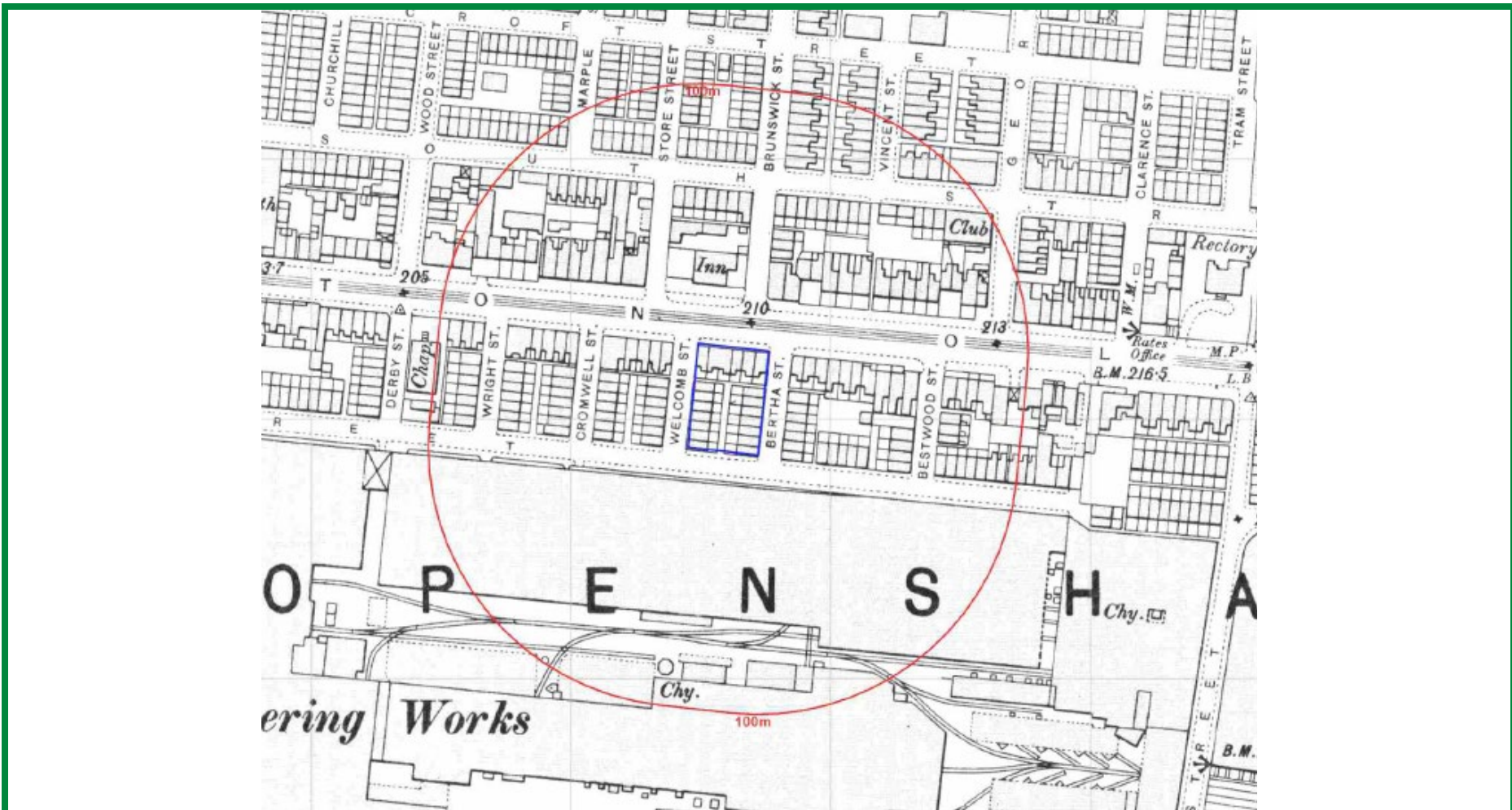
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North



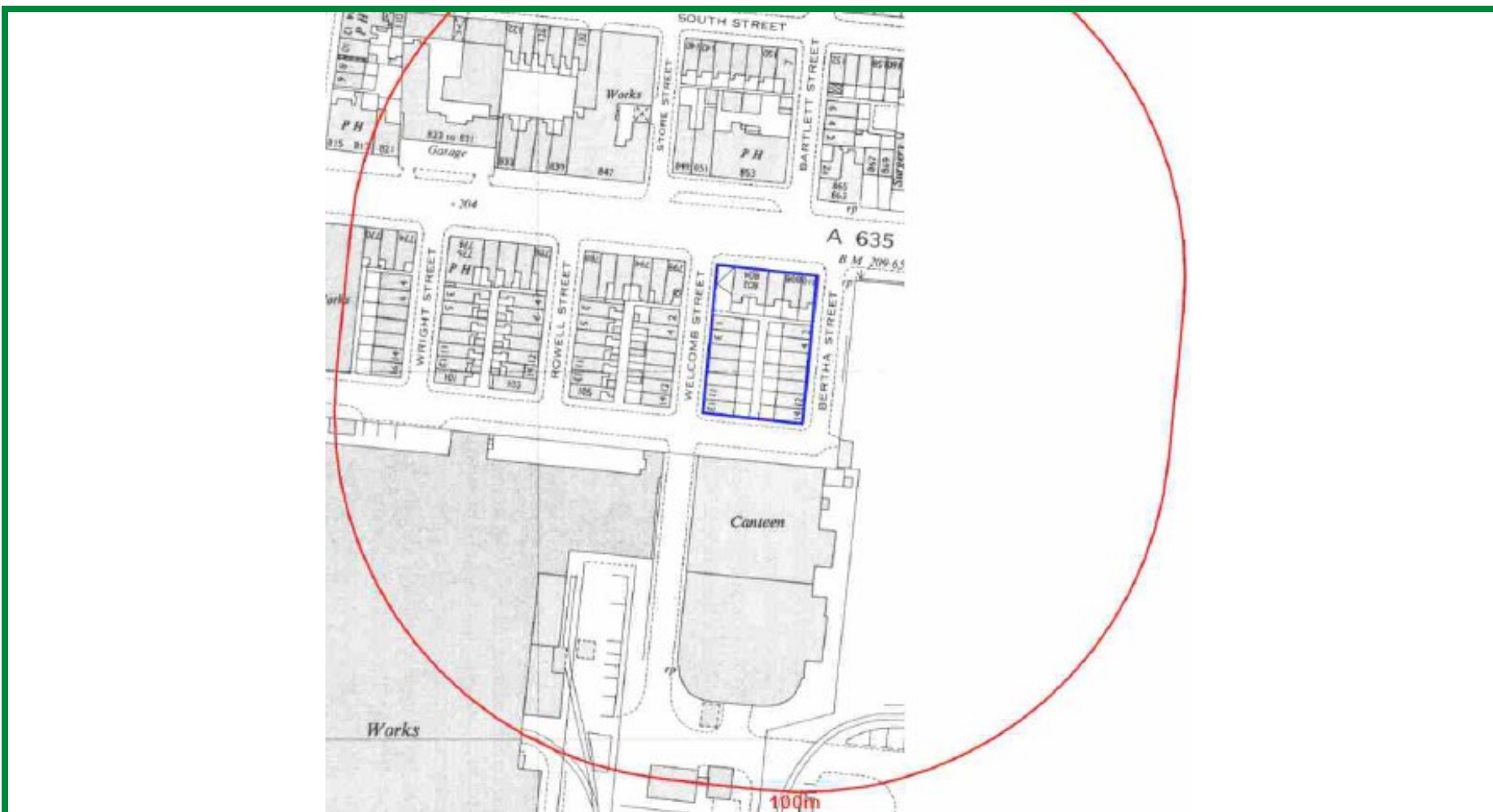


Historical Map

Dated: 1893

Original Scale: 1:2,500





Historical Map

Dated: 1967

Original Scale: 1:2,500



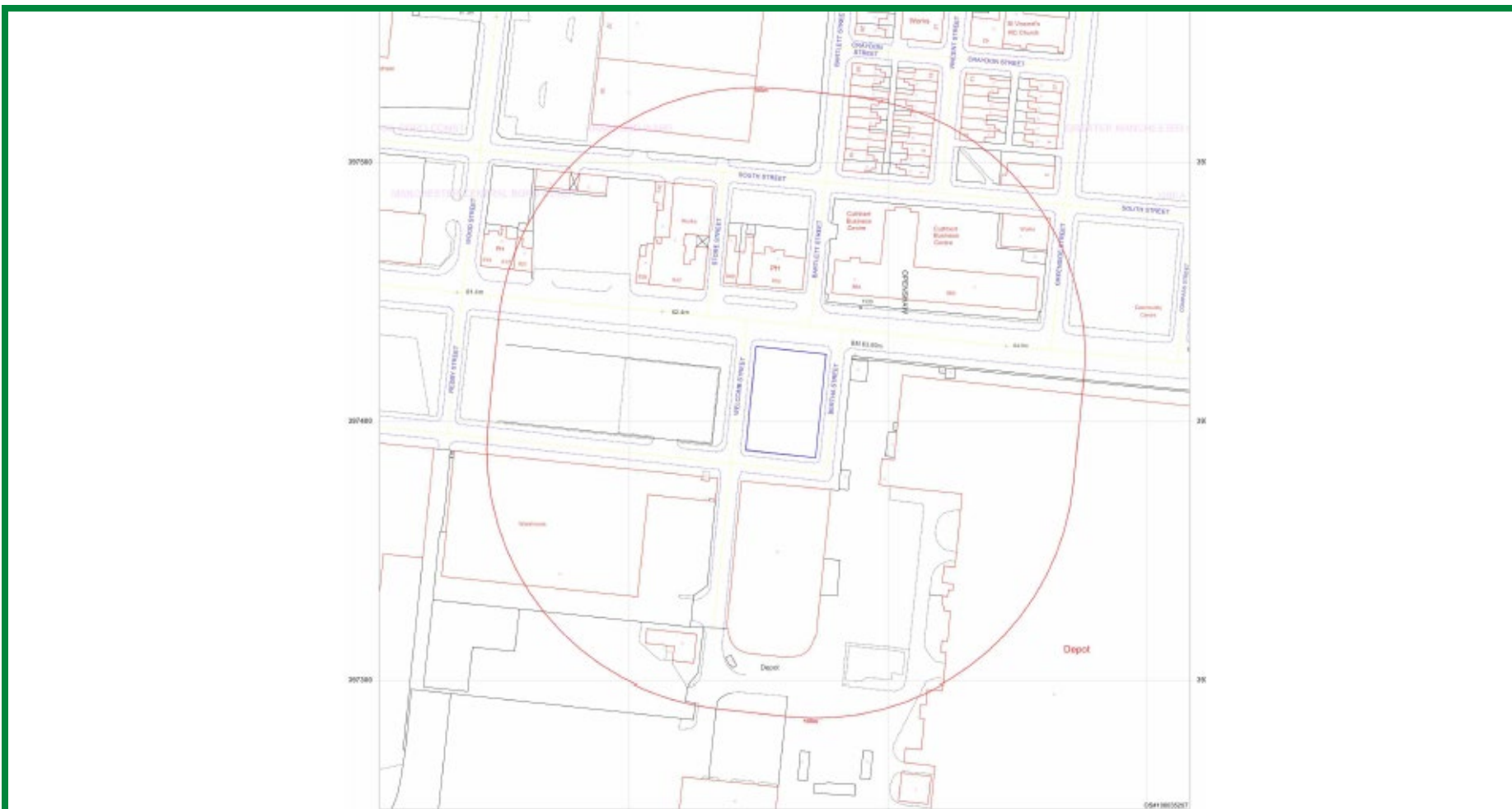


Historical Map

Dated: 1981

Original Scale: 1:2,500





Historical Map

Dated: 2003

Original Scale: 1:1,250



**APPENDIX VI
COAL AUTHORITY
MINING REPORT**





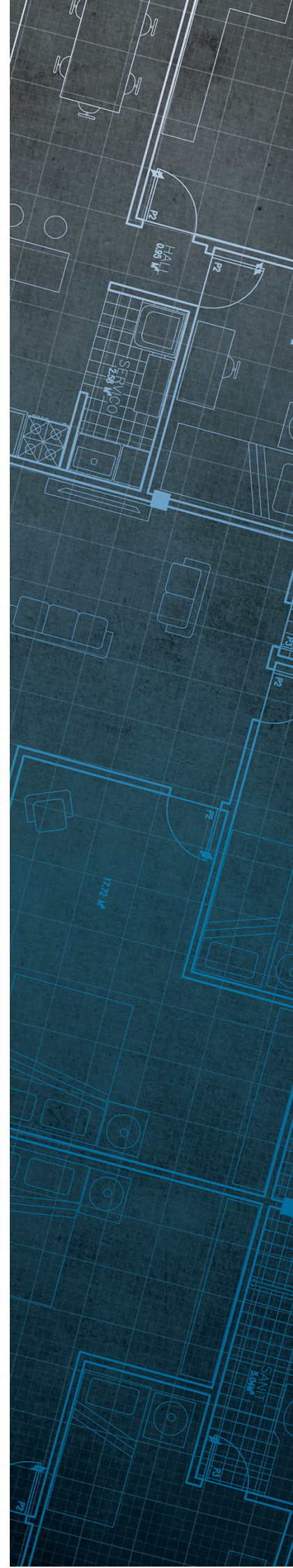
The Coal
Authority

Consultants Coal Mining Report

8673110 Land Between Welcomb
Street And Bertha Street, Whitworth
Street, Bradford, Manchester, M11
2nj
Greater Manchester

Date of enquiry:	13 April 2022
Date enquiry received:	13 April 2022
Issue date:	13 April 2022

Our reference:	51002988291001
Your reference:	GS-8673110



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

GROUNDSURE LIMITED

Enquiry address

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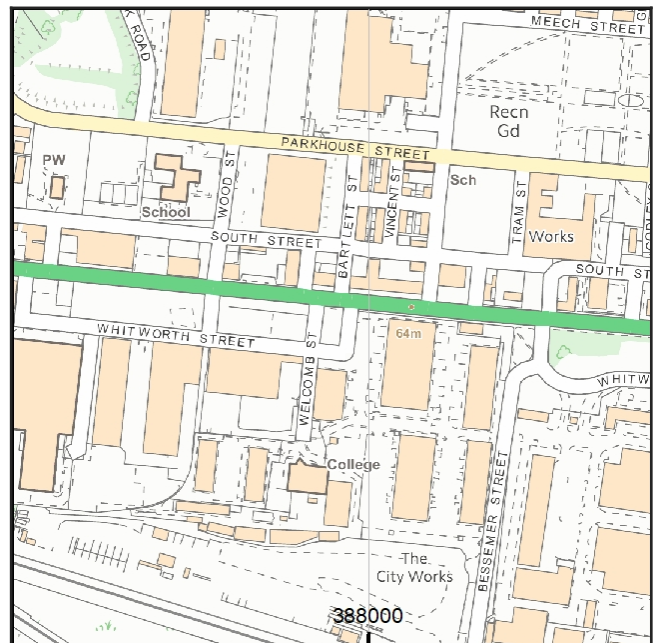
www.groundstability.com

 @coalauthority

 /company/the-coal-authority

 /thecoalauthority

 /thecoalauthority



Approximate position of property



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Section 1 – Mining activity and geology

Past underground mining

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
unnamed	PARKER	Coal	35BX	563	Beneath Property	18.0	South-West	80	1935
unnamed	CROMBOUK E	Coal	359O	891	North	14.3	South	120	1915
unnamed	CROMBOUK E	Coal	359N	951	North	17.9	South-West	120	1915
unnamed	CROMBOUK E	Coal	359Q	957	West	16.6	South-West	120	1929
unnamed	CROMBOUK E	Coal	359R	962	South-West	11.3	South-West	120	1957
unnamed	CROMBOUK E	Coal	359M	968	Beneath Property	25.3	South-West	120	1940
unnamed	CROMBOUK E	Coal	359S	980	West	10.7	South	120	1951
unnamed	ROGER	Coal	35B5	990	South-West	17.3	South-West	180	1957
unnamed	ROGER	Coal	35B6	1046	West	12.8	South-West	180	1940

Probable unrecorded shallow workings

None.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

None recorded within 100 metres of the enquiry boundary.

Abandoned mine plan catalogue numbers

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

11471	NW1169	989
NW645	2655	NW644

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

Outcrops

No outcrops recorded.

Geological faults, fissures and breaklines

No faults, fissures or breaklines recorded.

Opencast mines

None recorded within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

Section 2 – Investigative or remedial activity

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

Site investigations

None recorded within 50 metres of the enquiry boundary.

Remediated sites

None recorded within 50 metres of the enquiry boundary.

Coal mining subsidence

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

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

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

Mine gas

None recorded within 500 metres of the enquiry boundary.

Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

Section 3 – Licensing and future mining activity

Future underground mining

None recorded.

Coal mining licensing

None recorded within 200 metres of the enquiry boundary.

Court orders

None recorded.

Section 46 notices

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

Withdrawal of support notices

The property is in an area where a notice to withdraw support was given in 1955.

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.

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.

Key

Approximate position of the enquiry boundary shown 

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+44 (0)1623 637 000 (International)
www.groundstability.com

