



EARTH ENVIRONMENTAL
& GEOTECHNICAL

Phase 1 GeoEnvironmental Desk Study

Land Adjacent to 11 Walter Street
Prestwich

May 2023

On behalf of

SONU MEDICAL AESTHETICS

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1.0 INTRODUCTION

Appointment

- 1.1 Earth Environmental & Geotechnical Ltd have been commissioned by Sonu Medical Aesthetics (the Client), to undertake a Phase I Environmental Desk Study for a proposed development at Walter Street, Prestwich.
- 1.2 It is understood that the Client intends to develop the site for a residential end use. The proposed development is presented in Figure 1.

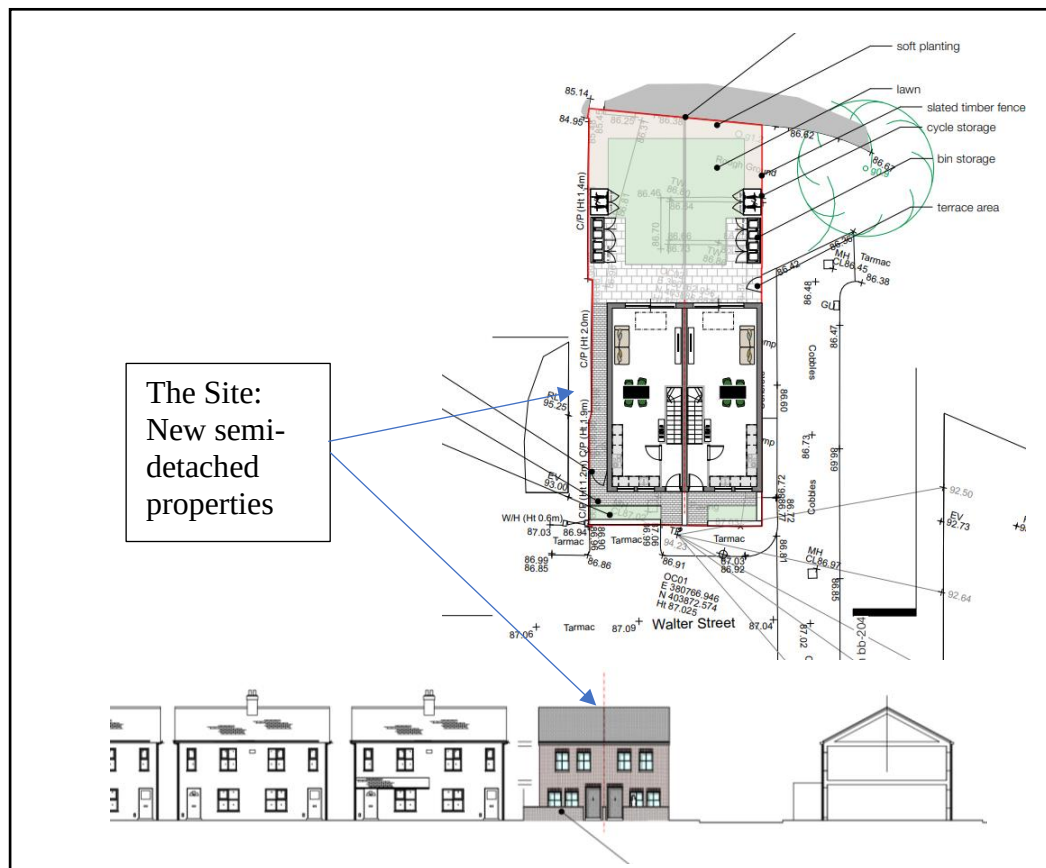


Figure 1: Site Proposals

Objective

- 1.3 The purpose of the Desk Study is to collate available geological and environmental data for the site (and its environment) and provide a preliminary geotechnical and geo-environmental appraisal, with a site-specific conceptual model. This enables a preliminary assessment of geo-environmental risks to be undertaken and, if necessary, provides information for the design of a Phase 2 Ground Investigation.

Scope

1.4 The Phase I Environmental Desk Study comprises of a site reconnaissance visit and a review of the following information sources, some of which were provided by the client:

- British Geological Survey online maps and database.
- Google Earth imagery.
- Environment Agency online mapping data.
- Historical Ordnance Survey maps.
- The site and surrounding areas environmental, geological, and mining data presented in the site specific GroundSure Reports (Appendix 1).
- Coal Authority Interactive Viewer.
- Planning drawings.

2.0 SITE LOCATION AND DESCRIPTION

- 2.1 The site is located approximately 800m south west of Junction 17 of the M60 Manchester Outer Ring Motorway, adjacent to no. 11 Walter Street, Prestwich M25 3HJ. The approximate grid co-ordinates for the centre of the site are E: 380757, N: 403886.
- 2.2 A location plan is shown below as Figure 2.



Figure 2 Site Location

Site Utility Services

- 2.3 Site service plans have not been obtained for the site on behalf of the client. The status of all services should be checked prior to any development (including site investigation) commencing.
- 2.4 An inspection cover was noted at the south west end of the site and an overhead cable pole at the southern boundary.

3.0 ENVIRONMENTAL SETTING

- 3.1 The geology of the site is covered by British Geological Survey (BGS) online data and the site specific GroundSure report (Appendix 1).
- 3.2 Environmental conditions are covered by Environment Agency (EA) and BGS online data, and the site specific GroundSure report (Appendix 1).

Geology

- 3.3 BGS and Groundsure information indicate that the site is underlain by “hummocky glacial deposits: Devensian Sand and Gravel.” These deposits are from the last ice age and are described by the BGS as: *“Lithologically diverse and complex glacial deposits that have characteristic moundy topographic form. Composed of rock debris, clayey till and poorly- to well-stratified sand and gravel.”*
- 3.4 All natural ground subsidence hazards such as running sand and shrink/swell clays are anticipated to be low.
- 3.5 Bedrock is indicated to be the Permo-Triassic Manchester Marl Formation. The rock below the site is not indicated to be faulted.
- 3.6 There are two borehole records (SD80SW418 and 419) identified close to the site at 44m and 103m to the south, drilled in 1994 for a sewer scheme. Around half a metre of ashy made ground was encountered from surface. Both holes terminate at 5.5m depth in medium dense glacial sands. In the hole closest to the site, two layers (1.1m and 1.4m thick) of glacial clay are present within the sand.

Mining and Other Underground Workings

- 3.7 The site is within a coal mining area as defined by the Coal Authority. Coal measures rock will be present below the Permo-Triassic strata at depth, and it is possible that they may contain coal seams which have been mined. However, these strata are likely to be too deep to affect the proposed development and the Coal Authority online interactive map does not show the site to be within a Coal Authority High Risk Area for development. There are no mine shafts identified on historical mapping within 1km.
- 3.8 Surface workings are shown approximately 137m to the south of the site that are thought to be former sand pits. Several such pits were historically present in the general area.
- 3.9 There are no records of non-coal mining within 1km.

Radon Potential

- 3.10 The property is not located in a Radon Affected Area. Less than 1% of properties are above the Action Level. Therefore, radon protection measures are not necessary.

Hydrogeology and Hydrology

- 3.11 The superficial deposits are classified by the Environment Agency (EA) as a Secondary A Aquifer, described as:

'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.'

- 3.12 The bedrock is classified by the EA as a Secondary B Aquifer, with a low vulnerability to pollution transmission. The strata are described as:

'Predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons, and weathering. These are generally the water-bearing parts of the former non-aquifers.'

- 3.13 The groundwater vulnerability within the secondary aquifer superficial deposits has been classified as high:

'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.'

- 3.14 There are no groundwater abstraction licence records within 1km of the site. The closest record is 1.48km SW of the site for process water which has been operating since 1966. There are a further 20 records between 1.5km and 2.0km from the site, however, none are for drinking water, and the site is not located within a source protection zone.

- 3.15 There are no surface water features identified within 250m of the site, and no surface water abstraction licence records within 1.7km of the site.

Landfill & Waste Management Activity

- 3.16 There are no records of any landfills within 500m of the site, or any historical waste sites that are within influencing distance.

Industrial Land Use Information

- 3.17 There are 3no. records of potentially contaminative historical land uses identified within 250m of the site. The closest record refers to recycling services located 40m north west of the site at Leach Mews. Electricity sub stations are identified 104m and 155m away.

- 3.18 No current or historical petrol stations are listed within 500m. Historical garages are indicated 292m east.

- 3.19 Historical tanks are all over 300m from the site. An historical gas works was 311m west of the site.

- 3.20 There are no records of National Grid high voltage underground electricity transmission cables, high pressure gas pipelines, or contaminated land, within 500m of the site.

- 3.21 There are no historical or current railways or tunnel features identified within 250m of the site.
- 3.22 The site is not within 500m of the route of the Crossrail or High Speed 2 rail projects.

Environmental Permits, Incidents and Registers

- 3.23 The Groundsure Report includes records of environmental permits, incidents, and registers within 500m of the site, which are summarised in Table 1 below.

Table 1: Environmental Permits, Incidents and Registers within 500m of the Site

Permit/Incident/Register	Number
Sites Determined as Contaminated Land under Part 2A EPA 1990	0
Dangerous or Hazardous (COMAH and NIHHS) Sites	0
Regulated Explosive Sites	0
Planning Hazardous Substance Consents and Enforcements	0
Historical Licensed Industrial Activities (IPC)	0
Part A (1) and IPPC Authorised Activities	0
Part A (2) and Part B Activities and Enforcements	1
Category 3 or 4 Radioactive Substance Authorisations	0
Licensed Discharge Consents	6
Pollutant Release to Surface Waters (Red List)	0
Pollutant Release to Public Sewer	0
List 1 Dangerous Substances Inventory Sites	0
List 2 Dangerous Substances Inventory Sites	0
Substantiated Pollution Incidents (Category 1 and 2)	2

- 3.24 The record of a Part A (2) and Part (B) installation refers to "F D Kitchens Ltd" 66m east of the site for timber manufacture. This is not anticipated to have adversely affected the site.
- 3.25 The six discharge consents (closest to site: 193m NW) refer to storm overflow and are not anticipated to have adversely affected the site.
- 3.26 There are 2no. records for Substantiated Pollution Incidents (Category 1 and 2) within 500m of the study site. The closest record is 440m SE and refers to a category 2 (significant) incident in 2009 involving organic chemicals/products which impacted water. A second incident in 2005 is listed where sewage materials had a significant impact on water 478m SW. These incidents are sufficiently distant in both time and space from the site that ongoing adverse impacts are not anticipated.

Environmentally Sensitive Sites

- 3.27 The site is located within a SSSI Impact Risk Zone but is not one of the types of developments listed that require consultation.

- 3.28 A conservation area is located 136m south of the site. There are no other sensitive sites identified, such as Sites of Special Scientific Interest (SSSI) Special Areas of Conservation (SAC) etc within 250m.

Ecology

- 3.29 An ecological assessment of the site falls outside the brief of this report. Where considered necessary, advice should be sought from an ecological specialist in this respect.

Archaeology

- 3.30 An archaeological assessment falls outside the brief of this report. Where considered necessary, advice should be sought from an archaeological specialist in this respect.
- 3.31 There are no listed buildings or ancient monuments within 250m of the site.

Potential Flood Risks

- 3.32 Detailed assessment of flood risks is outside the scope of this report; however, the site is not indicated to be within a flood zone.
- 3.33 Groundwater flooding risk at the site is "Moderate":

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)

Previous Site Investigations

- 3.34 Earth Environmental & Geotechnical Ltd are not aware of any previous site investigations carried out on the site.

4.0 SITE HISTORY

- 4.1 The historical development of the site has been determined by reference historical plans and Google Earth imagery. The reviewed historical plans comprise only readily available records and may be limited; however, the information available to date indicates that additional searches are unlikely to add to our understanding of the site. The earliest available historical mapping covering the site dates back to 1848.
- 4.2 The site history is summarised in Table 2, below, followed by selected extracts from the maps as Figure 3.

Table 2: Summary of Site History

Date	On-Site History	Surrounding Land Use History
1848-1850 1:10,560	The site is at the edge of a wooded area which extends to the north.	The surrounding land is woodland to the north and open fields to the south, east and west. Residential properties are around 400m east. A gravel pit is around 600m SW.
1891 1:10,560 1893 1:2,500	The wooded area is no longer shown. The northern boundary of the site is possibly a watercourse	A residential plot "The Mount" is shown to the northern site boundary. A gas works is shown around 300m to the west. A large collection of buildings labelled "County Lunatic Asylum" is located around 300m north.
1907-1908 and 1915 1:10,560 1909 1:2,500	The housing estate which currently surrounds the site is shown, although there are no houses fronting on to Walter Street.	Residential development surrounds the site to the east and south. Excavations are shown at the gas works, and around 100m south of the site. A large industrial building is shown approximately 50m east of the site.
1922-23 1:2,500 1:10,560	Two buildings are shown at the site, in the south western sector, abutting houses fronting on to Walter street to the west.	The excavations south of the site are labelled "sand pit."
1932-38 1:2,500 1:10,560	Only one building is shown at the site, with the one closest to Walter Street no longer shown.	The sand pit to the south of the site is no longer labelled The gas works is no longer labelled, although the buildings remain. The map of 1938 no longer shows the gasholders.
1951-1953 1:1,250 1:2,500	An additional small building is shown at the northern boundary of the site.	The industrial building 50m east of the site is labelled as "Clough Works" and "Clough Sawmills"
1955-56 1:10,560	No significant changes.	The excavations adjacent to the gas works are no longer shown. The area is open fields.

Date	On-Site History	Surrounding Land Use History
1965-68 1:10,560	No significant changes.	No significant changes.
1971 -77 1:1,250 1:10,000	A row of small buildings is shown on the site which are probably garages. The two previous buildings remain.	Buildings are shown at the rear boundary of the site which are probably the present-day garages. The Clough Sawmills building located around 50m east is now a larger, more rectangular building.
1981-88 1:10,000	Site detail is not visible at this scale.	No significant changes.
1990-1993 1:1,250	No significant changes.	No significant changes.
2001 1:10,000	Site detail is not visible at this scale.	No significant changes.
2003 1:1,250	Garages still on site.	No significant changes.
2010 1:10,000	Site detail is not visible at this scale	No significant changes.
2023 1:10,000	Site detail is not visible at this scale	No significant changes.
Aerial Imagery 2000, 2009	Detail is difficult to see but the 2009 image looks like the garages are still in place, possibly with a double pitch roof and a line of roof windows.	No significant changes.
Aerial Imagery 2015, 2019	These images are more blurry and possibly show the garages, or the existing slabs.	No significant changes.
Google Earth Aerial Imagery 2020	The garages are no longer present, and the site is being used for car parking. The concrete bases remain.	No significant changes.



Extract from 1922 Map: Two buildings on site



Extract from 2003 Map showing garages on the site and a building in the west. The building in the west is present on site from at least 1922 and the northernmost garage is present since 1951.

Figure 3: Selected Historical Map Extracts

7.0 SITE WALKOVER SURVEY

- 7.1 The site was visited on 4th May 2023 by an experienced engineering geologist. Photographs from the visit are presented as Appendix 2, and notes from the visit as Appendix 3.
- 7.2 At the time of the visit, the site comprised a vacant plot in a residential area, surrounded on three sides by housing, and by a block of garages to the northern boundary, which was being used by the surrounding houses. The garage block was at a lower level than the site, with the north west corner of the site having sloping ground. The site was being used for parking.
- 7.3 The site was partially covered by hardstanding associated with former garages and fly tipped materials including plastic crates and garden waste. There was no obvious evidence of contamination such as oil stains or odorous materials. The northern end of the site was overgrown with evidence of recently removed trees. Japanese Knotweed was noted in this area.

8.0 PRELIMINARY CONTAMINATION RISK ASSESSMENT

Introduction

- 8.1 The following paragraphs outline a Preliminary Risk Assessment (PRA) for the site based on the above desk study information as defined by DEFRA and the EA Model Procedures for the Management of Land Contamination, CLR11⁽²⁰⁰⁴⁾.
- 8.2 Table 5 provides a Preliminary Conceptual Model (PCM) which considers the source-pathway-receptor linkages present alongside the likelihood, severity and risk level as defined within Table 3 and Table 4 below. The assessment of probability, a modified risk table, and certain consequence definitions are based on CIRIA C552 and CLR11.
- 8.3 Table 5 considers whether a pollution linkage is potentially present and provides a preliminary qualitative assessment of risk based on the information currently available. Where a possible linkage is identified, it does not necessarily mean that a significant risk exists but indicates that further information is required through appropriate site investigation to substantiate the conceptual model.
- 8.4 The PCM/PRA is based on a proposed residential end use.

Table 3: Consequence, Probability and Risk

Probability	Consequence,	Risk
High Likelihood- There is a pollution linkage and an event 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	Very High – acute risk to the human health likely to result in significant harm. Risk of severe or irreversible effect on ground/surface water quality. Catastrophic damage to buildings / property.	Very High – there is a high potential that the source-pathway-receptor scenarios may give rise to harm to human health, or the environment and remedial action is likely to be required.
Likely – there is a pollution linkage, and all the elements are present, which means that it is probable an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.	High – Severe or irreversible effect on human health. Temporary severe or irreversible effect on ground/surface water quality. Reduction of water quality rendering groundwater or surface water unfit to drink and/or substantial adverse impact on groundwater dependant environmental receptors.	High – it is likely that the source-pathway-receptor scenarios may give rise to an impact on human health or the environment, which may require remediation and/or control measures to mitigate risks
Low likelihood– there is a pollutant linkage and circumstances are possible for an event could occur. However, it is by no means certain that even over a longer period such event would take place, and is less likely in the shorter term	Moderate – Long term or short-term moderate effect on human health. Moderate effect on ground/surface water quality, reversible with time. Reduced reliability of a supply at a groundwater or surface water abstraction source	Moderate – it is possible that the source-pathway-receptor scenarios may give rise to an impact on human health or the environment, however it is either relatively unlikely that such would be severe, or if any harm were to occur it is more likely that harm would be mild.
Unlikely – there is a pollution linkage, but circumstances are such that it is doubtful that an event would occur even in the very long term.	Low – Non-permanent health effects to human health (easily prevented by means such as personal protective clothing etc.) Slight effect on ground/surface water quality, reversible with time. Marginal reduced reliability of a supply at a groundwater or surface water abstraction source.	Low – it is possible that harm could arise at the source, however it is likely that this would at worst be mild.
		Very Low – it is unlikely that the source-pathway-receptor scenarios will give rise to an impact on human health or the environment.

Table 4: Estimation of Level of Risk by Comparison of Consequence and Probability

		Consequence			
		High	Moderate	Low	Very low
Probability	High Likelihood	Very High	High risk	Moderate risk	Moderate to low risk
	Likely	High risk	Moderate risk	Moderate to low risk	Low risk
	Low Likelihood	Moderate risk	Moderate to low risk	Low risk	Very low risk
	Unlikely	Moderate to low risk	Low risk	Very low risk	Very low risk

Potential Sources

- 8.5 The site is likely to have some made ground from previous development and demolition. It is also at a higher level than the land to the northern boundary and may have been built up in the past to create a level area for development.
- 8.6 There is a risk that contamination is present from the previous use of the site as garages. Oil spills and other hydrocarbons could be present, although the concrete hardstanding may have prevented or lessened migration.
- 8.7 Surrounding potential contamination sources include:
- Recycling services located 40m NW: Possible metalloids, PAH, Hydrocarbons
 - Historical gas works 300m NW: Tipped wastes: unlikely to have influenced the site which was within housing throughout most of the history of the gas works.
 - Historical sawmills 50m east: Timber treatment: Phenols, VOCs
- 8.8 There is therefore limited potential for the presence of contamination on the site.
- 8.9 No potential sources of ground gas have been identified unless high quantities of putrescible material or organic matter is present in the made ground. This is not considered likely.

Potential Receptors

- 8.10 The following receptors have been considered for the construction and operational stages of the proposed redevelopment.
- Current site users;
 - Adjacent land users;
 - Future land users;
 - Construction workers during site development works;
 - Groundwater within the underlying Secondary aquifers

Potential Pathways

8.11 The following pathways have been considered for the construction and operational stages of the proposed redevelopment.

- Dermal contact, ingestion, inhalation pathways of potentially contaminated soils;
- Downward vertical migration of leachate to shallow groundwater;
- Vertical or lateral migration of ground gas.

Table 5: Preliminary Conceptual Model

Source	Pathway	Receptor	Probability	Consequence	Risk	Comment
Made Ground and Industrial Land Use (PAH, TPH, BTEX compounds, VOC, PCB)	Dermal contact, ingestion, and inhalation of soils dust	Current Site Users	Unlikely	Moderate	Low	The site is currently unoccupied/ used for informal car parking. There is therefore limited potential for direct contact between contaminated soils and receptors. The risk is therefore considered to be LOW .
		Adjacent land users	Low Likelihood	Moderate	Low	Residential properties are located adjacent to the site. The risk is considered LOW and usual dust control measures should be implemented as part of good site working practices during construction to reduce dust generation.
		Future land users	Likely	Moderate	Moderate	Garden areas are proposed and there is a potential that contamination sources are present. Risk is therefore considered to be MODERATE .
		Construction Workers	Low Likelihood	Moderate	Low	Construction workers are likely to be exposed to potentially contaminated Made Ground materials during construction works, however exposure duration will be short-term only. Assuming appropriate health and safety measures are adopted (in line with CDM and other relevant health and safety guidance) a LOW risk to construction workers is anticipated.
	Downward vertical migration of leachate to shallow groundwater	Groundwater within the Underlying Aquifer	Likely	Moderate	Low	Shallow groundwater may be present beneath the site. However, there are no nearby abstraction licenses, and the underlying superficial soils are anticipated to be mixed cohesive and granular with high to low permeability. The risk to groundwater is therefore considered LOW .
	Vertical or lateral migration of ground gas	Current Site Users	Unlikely	Moderate	Low	There is potential for Made Ground soils beneath the site. However, given the age of the materials present it is likely that any gasses or volatile vapours originally present would now have dissipated. Furthermore, the site has no enclosed spaces. There is therefore no potential for direct contact between gasses, volatile vapours, and receptors. The risk to current site users from ground gas is therefore considered LOW .
		Adjacent land users	Unlikely	Moderate	Low	There is low potential for ground gas to be present. The risk to adjacent site users from ground gas is therefore considered LOW .
		Future land users	Unlikely	Moderate	Low	There is low potential for ground gas to be present. The risk to adjacent site users from ground gas is therefore considered LOW .

Source	Pathway	Receptor	Probability	Consequence	Risk	Comment
		Construction Workers	Unlikely	Moderate	Low	There is low potential for ground gas to be present. The risk to adjacent site users from ground gas is therefore considered LOW .
Asbestos Containing Material (ACM)		Current Site Users	Unlikely	Moderate	Low	The age of the previous developments at the site is such that asbestos may be present in the Made Ground soils beneath the site. However, asbestos is only harmful when disturbed. The site is currently unoccupied and there is therefore no plausible pollutant linkage. The risk to current site users is considered to be LOW .
		Adjacent land users	Low Likelihood	Moderate	Low	Asbestos may be present in the Made Ground soils beneath the site. Disturbance of soil during the construction phase may allow fibres to become airborne. The risk is therefore considered MODERATE to LOW . Dust control measures (dampening down) should be implemented as part of good site working practices in order to reduce the risk to LOW .
		Future land users	Low Likelihood	Moderate	Moderate	Asbestos may be present in the Made Ground soils beneath the site. Garden areas are proposed. The risk is therefore considered MODERATE .
		Construction Workers	Low Likelihood	Moderate	Low	Construction workers will be exposed to potential asbestos in soils during the construction phase. The risk is considered LOW .

9.0 GEOTECHNICAL HAZARDS ASSOCIATED WITH THE DEVELOPMENT

9.1 In addition to the environmental hazards there are also geotechnical hazards associated with the stability of the ground including load bearing capacity, slope stability and effects of ground mining activities. Local Authorities follow NPPF (2021) which requires that a site be suitable for its new use taking into account of ground conditions and land instability, including from natural hazards to former activities such as mining. A summary of the geotechnical considerations is provided below in Table 6.

Table 6: Summary of Geotechnical Hazards

Geohazards:	
Highly Compressible Ground	Negligible risk
Collapsible Soils	Very Low risk.
Swelling Clay	Negligible risk.
Running Sand	Very Low risk.
Ground Dissolution	Negligible risk.
Landslip	Very Low risk.
Mining & Quarrying	No mining or quarrying is recorded as taking place on site. The site is not located within a Coal Authority Development High Risk Area. Therefore, the mining risk is considered LOW .
Geotechnical Design Considerations	
Site Clearance	Concrete slabs and hardstanding are currently present on the site, with some fly tipped materials. Invasive weeds (Japanese knotweed) will need treatment prior to site clearance.
Trees	Semi mature trees are present at the northern boundary, and beyond the boundaries on 2 sides. Trees have recently been removed from the site. The shrink/swell potential of any clay soils present should be assessed.
Existing Buildings/Obstructions	Concrete slabs / hardstanding is present
Foundations	The depth and type of proposed foundations would depend on the ground conditions present on site. Made ground is anticipated, underlain by at least 5m thickness of glacial material comprising sand and gravel which may include beds of clay. An intrusive geotechnical investigation is recommended prior to any construction works.

Geotechnical Design Considerations	
Floor Slabs	Again, an intrusive geotechnical investigation is recommended prior to any construction works to discover the most suitable floor slab design for the on-site ground conditions.
Groundwater	Exact groundwater conditions are not known at this stage. For more detailed knowledge of the groundwater regime, an intrusive geotechnical investigation would be needed.
Earthworks	It is unlikely that any major earthworks will be required on the site.
Slopes	The site includes sloping ground at the northern boundary. This is within a proposed garden area.
Retaining Walls	It is unlikely retaining walls will be required
Chemically aggressive ground conditions	An intrusive geotechnical investigation would be necessary to assess the chemical conditions. .

10.0 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

- 10.1 The site has been occupied by outbuildings / garages since the 1920s which have now been demolished, leaving the concrete slabs in place. The site may be built up from surrounding land to the north. Made ground is anticipated and is potentially contaminated from previous site use (garages) and possibly from nearby sawmill and recycling industries.
- 10.2 Below any made ground, the site is underlain by superficial deposits classed as a Secondary A aquifer, overlying Permo-Triassic Marl (Secondary B Aquifer) which is likely to be beyond at least 5m depth.
- 10.3 The overall risk from soil contamination to residential end users and construction workers is concluded to be **MODERATE** and **LOW**.
- 10.4 The risk to controlled waters is concluded to be **LOW**.
- 10.5 Ground gas sources have not been identified and the made ground is unlikely to contain high volumes of putrescible material. The risk from ground gas to end users is considered to be **LOW**.

Recommendations

- 10.6 An intrusive investigation should be undertaken to establish geotechnical parameters for the design of foundations, floor slabs and any proposed drainage soakaways.
- 10.7 As part of the geotechnical investigation, it is recommended that samples of soil are recovered for contamination testing to confirm whether there are any potential risks. A water supply pipe risk assessment could also be carried out as part of these works.
- 10.8 Prior to site clearance, specialist advice should be sought for the treatment of Japanese Knotweed.

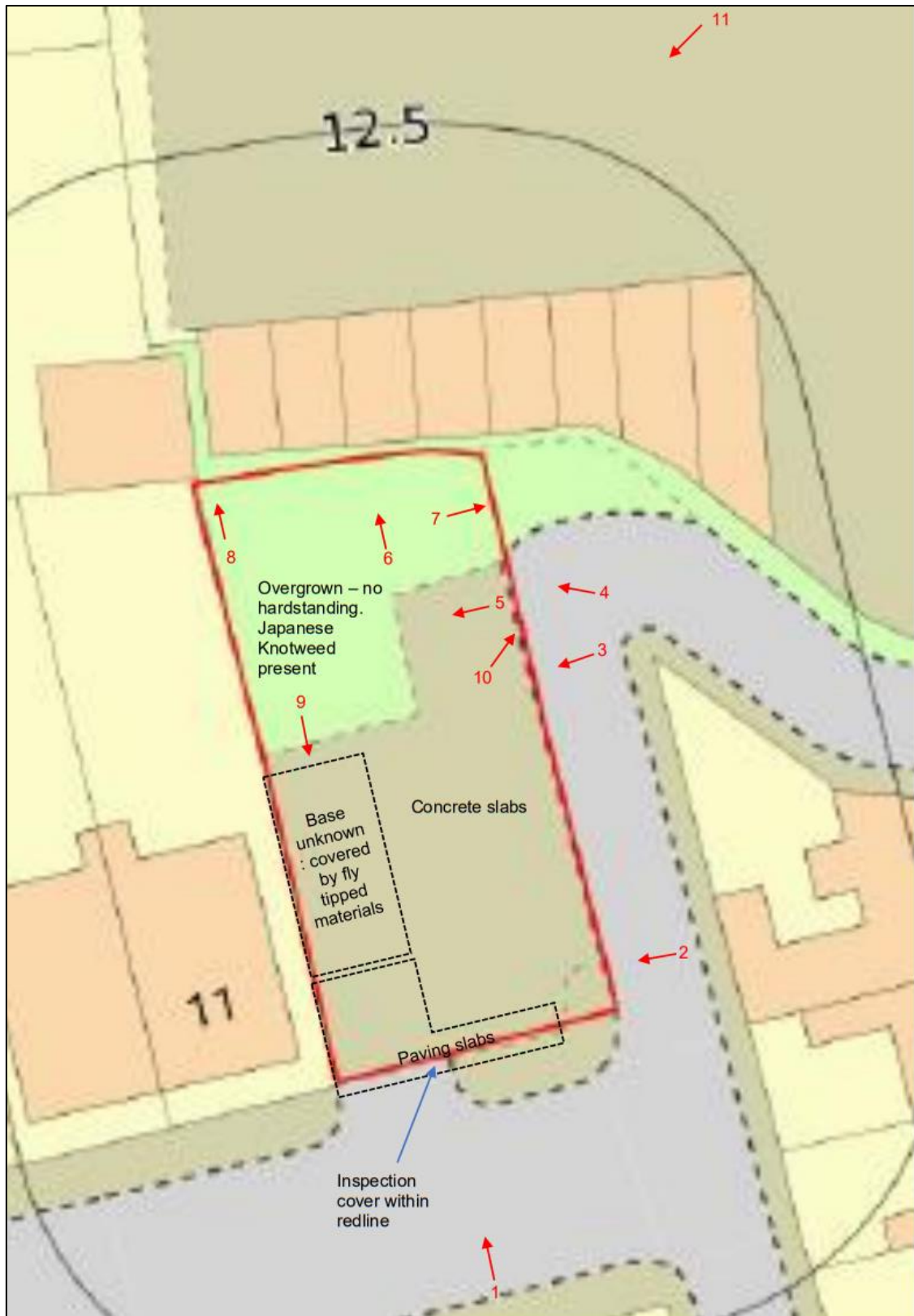
APPENDIX 1

GROUNDSURE REPORTS

APPENDIX 2

SITE PHOTOGRAPHS

Site Walkover Photo Location Plan



Earth Environmental & Geotechnical Ltd Tel: 0161 975 6088 Email: info@earthenvironmental.co.uk Web: www.earthenvironmental.co.uk	SITE PHOTOGRAPHS 
Job No.: A5417-23 Date: 4th May 2023	Site: Walter Street, Prestwich
Plate 1	Plate 2
	
Plate 3	Plate 4
	

Plate 5 : Old garage walls	Plate 6 : Recently removed trees and Japanese Knotweed
 A photograph showing a large pile of debris, including wood, branches, and some green plants, in front of a brick wall. The ground is covered with dry leaves and twigs.	 A photograph showing a brick wall with a red horizontal band. In front of the wall, there is a large pile of debris, including wood and branches, and some green plants. A small tree is visible in the background.
Plate 7: Looking east to “crescent” area	Plate 8 Evidence of drop to adjacent properties
 A photograph showing a large pile of debris, including wood, branches, and some green plants, in front of a brick wall. The ground is covered with dry leaves and twigs.	 A photograph showing a brick wall with a red horizontal band. In front of the wall, there is a large pile of debris, including wood and branches, and some green plants. A small tree is visible in the background.
Plate 9 General rubbish and tree chippings	Plate 10 Looking north to “crescent” area
 A photograph showing a large pile of debris, including wood, branches, and some green plants, in front of a brick wall. The ground is covered with dry leaves and twigs.	 A photograph showing a brick wall with a red horizontal band. In front of the wall, there is a large pile of debris, including wood and branches, and some green plants. A small tree is visible in the background.

Plate 11 Garages on adjacent property showing drop in height	
	

APPENDIX 3

SITE WALKOVER NOTES

WALK OVER SURVEY REPORT

Site: Walter Street, Prestwich

Date: 4th May 2023

Job No: A5417-23

Undertaken By: D Daniels/C Kenny

Purpose of Site Walkover:

- 1) Provide further information for the Desk Study Report;
- 2) Identify potential contamination sources, pathways, and receptors;
- 3) Identify geotechnical features and potential geohazards;
- 4) Determine locations for exploratory boreholes.

Desk Study features checked during site visit	Feature and Information required	Present	Description / Comments
Site Setting	Description required for: Town/Country /Suburb Setting Industrial/Residential/Retail Usage Current Site use (if undertaking security and access to the site)		Unoccupied, being used for car parking
Evidence of Past Activities	Are there: Any relevant street names in area? Features or relics which indicate past history?	Yes /No Yes/ No	Hardstanding of former garages, some demolition rubble, recently removed trees.
Geographic Setting	Description required for: Low lying flood plain/dry valley/rolling hills etc.		No evidence of former watercourse on northern boundary (seen on historical maps)
Ground Conditions	Is there any evidence of: Mining, Mine entries Subsidence Landslip/slope erosion Former investigation works	Yes /No Yes /No Yes /No	

Desk Study features checked during site visit	Feature and Information required	Present	Description / Comments
Topography	Description required for: Are there apparent differences between site and surrounding area? (If yes describe the presence of retaining walls, and slopes). Is there evidence of Made Ground / Fill on site?	Yes/No Yes/No	Site slopes at the NW corner with the adjacent garages at a lower level – garage area may have been excavated, site may have been built up, to form a level development area in the past. Made ground is likely to be present
Site Boundaries and Neighbours	Description required for: Type of boundary demarcation (if any) on each side of site, usage of adjacent land and name of industrial/commercial occupiers. Note any adjacent features such as water course and other potentially environmentally sensitive uses (residential, school, infirmary, SSSI etc)		Residential use to west south and east and a block of garages to the north, for use by the surrounding houses. No boundary fencing to the east and south Fencing to the west (poor condition) Wall to garages to the north.
Vegetation	Are there any vegetation/trees on or close to site (if yes describe locations, type, maturity, etc) Is there any evidence of poor health / distress?	Yes/No Yes/No	Semi mature broad-leaved trees are present at the west and north site boundaries, with large mature evergreen trees adjacent to the north west corner. There is evidence of recent removal of semi mature broad-leaved trees from within the site. The northern end of the site was overgrown. Japanese knotweed was noted in this area.
Ground Surface	Are there areas of hardstanding and estimate the split between hard and soft cover? (If yes describe locations, types, and conditions). Is there any evidence of any spillages or staining?	Yes/No Yes/No	The south and south eastern sectors of the site are covered by hardstanding – concrete slabs from former garages and paving slabs. The western sector is of unknown surface as the surface here was covered by fly tipped materials. No obvious signs of contamination such as oil stains. Some fly tipping noted (garden waste, plastic crates etc).

Desk Study features checked during site visit	Feature and Information required	Present	Description / Comments
Site Drainage	Are there any drain covers / soakaways (if yes describe locations) Are there any outfalls/water courses on site (note the condition of water courses in open water courses. discolouration, odour, eutrophication, oily sheen, gas bubbling water, clear or cloudy) Where a watercourse runs alongside or crosses a site are there any differences in visible water quality upstream and downstream of the site?	Yes/No Yes/No Yes/No	Inspection cover (approx. 500x600mm) noted in SW corner of site . No evidence of former watercourse on northern boundary (seen on historical maps)
Electrical Equipment	Are there any electricity sub stations on or adjacent to the site? Are there any electrical transformers, capacitors, pylons etc on site?	Yes/No	Overhead cables (phone) are present on a pole located at the southern edge of the site, on Walter Street. .
Buildings	Is there any evidence of asbestos construction materials e.g., roofing, insulation materials. Do any buildings have basements? Do any buildings have a boiler room (if yes, describe fuel type and storage arrangements)?	Yes/No Yes/No Yes/No	

Desk Study features checked during site visit	Feature and Information required	Present	Description / Comments
Landfilling	Is there any evidence of gas protection measures (gas membrane, gravel-filled trenches, venting pipes, etc)?	Yes/No	
Process Air Emissions	Point Source: Are there any stacks / vents / cooling towers / abatement equipment? Fugitive Source: is there any stockpiled material / windblown dust / vapour process?	Yes/No Yes/No	
Storage of fuels & Chemicals	Are there any drums / containers (if yes, describe quantity, full /empty, stored on hard standing / soft landscaping, bunding)? Are there any above ground fuel tanks (if yes, describe locations, volumes, how many, bunding, used / disused, condition?) Is there any evidence of underground fuel tanks (fuel pumps, covers, vent pipes, how many and how large, fill point, used / disused, and condition)?	Yes/No Yes/No Yes/No	
Accidents	In the event of a large spillage would runoff affect any vulnerable watercourse/culverts? Are emergency procedures / equipment in place?	Yes/No Yes/No	

Desk Study features checked during site visit	Feature and Information required	Present	Description / Comments
Waste	Are there any waste skips present on site? Are waste storage facilities adequate? Is there any litter/fly tipped material?	Yes/No Yes/No Yes/No	Some fly tipping noted (garden waste, plastic crates etc).
Atmospheric	Are there any fumes, odours originating from site or affecting site from neighbouring sites?	Yes/No	
Access / Further Investigations	If a Phase 2 Investigation is likely to be required, describe any access problems including headroom where relevant, services, overhead cables, restricted access areas, confined spaces, trafficked areas, etc that are likely to affect investigation scope/techniques. Identify possible site office and storage locations. Identify possible water supply		Hardstanding requiring breakers. Overhead cables at southern edge. N/A No apparent amenities.
Site Environs	Are there any local features that could have a harmful influence e.g., landfill, industrial processes, railway land? Are there any sensitive water features/courses near to the site?	Yes/No Yes/No	
Local Knowledge / Anecdotal Evidence			Currently being used for parking
Site Dimensions	Describe shape of Site in plan and measure dimensions.		Approx 10m x 25m, rectangular, with an additional "crescent" shaped area at the north east boundary. 0.02ha

APPENDIX 4

BGS BOREHOLE LOGS

APPENDIX 5

REPORT LIMITATIONS

LIMITATIONS

This contract was completed by Earth Environmental & Geotechnical Ltd on the basis of a defined programme and scope of works and terms and conditions agreed with the client. This report was compiled with all reasonable skill, and care, bearing in mind the project objectives, the agreed scope of works, the prevailing site conditions, the budget, and staff resources allocated to the project.

Other than that, expressly contained in the above paragraph, Earth Environmental & Geotechnical Ltd provides no other representation or warranty whether express or implied, is made in relation to the services. Unless otherwise agreed this report has been prepared exclusively for the use and reliance of the client in accordance with generally accepted consulting practices and for the intended purposes as stated in the agreement under which this work was completed. This report may not be relied upon, or transferred to, by any other party without the written agreement of a Director of Earth Environmental & Geotechnical Ltd.

If a third party relies on this report, it does so wholly at its own and sole risk and Earth Environmental & Geotechnical Ltd disclaims any liability to such parties.

It is Earth Environmental & Geotechnical Ltd understanding that this report is to be used for the purpose described in the introduction to the report. That purpose was an important factor in determining the scope and level of the services. Should the purpose for which the report is used, or the proposed use of the site change, this report will no longer be valid and any further use of, or reliance upon the report in those circumstances by the client without Earth Environmental & Geotechnical Ltd review and advice shall be at the client's sole and own risk.

The report was written in 2023 and should be read in light of any subsequent changes in legislation, statutory requirements, and industry best practices. Ground conditions can also change over time and further investigations, or assessment should be made if there is any significant delay in acting on the findings of this report. The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the report inaccurate or unreliable. The information and conclusions contained in this report should not be relied upon in the future without the written advice of Earth Environmental & Geotechnical Ltd. In the absence of such written advice of Earth Environmental & Geotechnical Ltd, reliance on the report in the future shall be at the client's own and sole risk. Should Earth Environmental & Geotechnical Ltd be requested to review the report in the future, Earth Environmental & Geotechnical Ltd shall be entitled to additional payment at the then existing rate or such other terms as may be agreed between Earth Environmental & Geotechnical Ltd and the client.

The observations and conclusions described in this report are based solely upon the services that were provided pursuant to the agreement between the client and Earth Environmental & Geotechnical Ltd. Earth Environmental & Geotechnical Ltd has not performed any observations, investigations, studies or testing not specifically set out or mentioned within this report.

Earth Environmental & Geotechnical Ltd is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the services. For the avoidance of doubt, unless otherwise expressly referred to in the introduction to this report, Earth Environmental & Geotechnical Ltd did not seek to evaluate the presence on or off the site of electromagnetic fields, lead paint, radon gas or other radioactive materials.

The services are based upon Earth Environmental & Geotechnical Ltd observations of existing physical conditions at the site gained from a walkover survey of the site together with Earth Environmental & Geotechnical Ltd interpretation of information including documentation, obtained from third parties and from the client on the history and usage of the site. The findings and recommendations contained in this report are based in part upon information provided by third parties, and whilst Earth Environmental & Geotechnical Ltd have no reason to doubt the accuracy and that it has been provided in full from those it was requested from, the items relied on have not been verified.

No responsibility can be accepted for errors within third party items presented in this report. Further Earth Environmental & Geotechnical Ltd was not authorised and did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services, during the performance of the services. Earth Environmental & Geotechnical Ltd is not liable for any inaccurate information, misrepresentation of data or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to Earth Environmental & Geotechnical Ltd and including the doing of any independent investigation of the information provided to Earth Environmental & Geotechnical Ltd save as otherwise provided in the terms of the contract between the client and Earth Environmental & Geotechnical Ltd.

Where field investigations have been carried out these have been restricted to a level of detail required to achieve the stated objectives of the work. Ground conditions can also be variable and as investigation excavations only allow examination of the ground at discrete locations. The potential exists for ground conditions to be encountered which are different to those considered in this report. The extent of the limited area depends on the soil and groundwater conditions, together with the position of any current structures and underground facilities and natural and other activities on site. In addition, chemical analysis was carried out for a limited number of parameters [as stipulated in the contract between the client and Earth Environmental & Geotechnical Ltd] based on an understanding of the available operational and historical information, and it should not be inferred that other chemical species are not present.

The groundwater conditions entered on the exploratory hole records are those observed at the time of investigation. The normal speed of investigation usually does not permit the recording of an equilibrium water level for any one water strike. Moreover, groundwater levels are subject to seasonal variation or changes in local drainage conditions and higher groundwater levels may occur at other times of the year than were recorded during this investigation.

Any site drawing(s) provided in this report is (are) not meant to be an accurate base plan but is (are) used to present the general relative locations of features on, and surrounding, the site.