



EARTH ENVIRONMENTAL
& GEOTECHNICAL

Phase 1 GeoEnvironmental Desk Study

Langdale Mews

Langdale Avenue

Levenshulme

May 2025

On behalf of

P4B Architecture

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PHASE I GEOENVIRONMENTAL DESK STUDY

LANGDALE MEWS

LANGDALE AVENUE

LEVENSHULME

FOR

P4B ARCHITECTURE

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Report No. A6814/25/FDS **MAY 2025**

Report Title:	**Phase I GeoEnvironmental Desk Study** **Langdale Mews, Langdale Avenue, Levenshulme**
Report Reference:	**A6814/25/FDS**
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EARTH ENVIRONMENTAL & GEOTECHNICAL
A Technics Group Company

CONTENTS

1.0 INTRODUCTION 1
Appointment 1
Objective 1
Scope 1
2.0 SITE LOCATION AND DESCRIPTION 3
3.0 ENVIRONMENTAL SETTING 6
Geology 6
Hydrogeology and Hydrology 6
Ground Workings, Mining and Other Underground Workings 7
Mining and Other Underground Workings 7
Radon Potential 8
Landfill & Waste Management Activity 8
Industrial Land Use Information 9
Environmental Permits, Incidents and Registers 10
Environmentally Sensitive Sites 11
Ecology 11
Archaeology 11
Potential Flood Risks 11
4.0 SITE HISTORY 13
5.0 SITE WALKOVER SURVEY 19
6.0 PRELIMINARY CONTAMINATION RISK ASSESSMENT 21
Introduction 21
Potential Sources 22
Potential Receptors 22
Potential Pathways 22
7.0 GEOTECHNICAL HAZARDS ASSOCIATED WITH THE DEVELOPMENT 25
8.0 CONCLUSIONS AND RECOMMENDATIONS 27
Conclusions 27
Recommendations 27

FIGURES

Figure 1 Proposed Development Area
Figure 2 Site Location Plan
Figure 3 Site Photograph
Figure 4 Waste and Landfill map
Figure 5 OS Map Extract 1848-1849
Figure 6 OS Map Extract 1893
Figure 7 OS Map Extract 1985-1989
Figure 8 Aerial Photograph 2023
Figure 9 Site Features Plan
Figure 10 Site Walkover Photograph Locations

TABLES

Table 1 Environmental Permits, Incidents and Registers within 500m of the Site
Table 2 Summary of Site History
Table 3 Summary of Site History from Aerial Photographs
Table 4 Consequence, Probability and Risk
Table 5 Estimation of Level of Risk by Comparison of Consequence and Probability
Table 6 Preliminary Conceptual Model
Table 7 Summary of Geotechnical Hazards
Table 8 Summary of Geotechnical Considerations

APPENDICES

Appendix 1 Groundsure Reports
Appendix 2 Site Photographs
Appendix 3 Site Walkover Notes
Appendix 4 Report Limitations

1.0 INTRODUCTION

Appointment

1.1 Earth Environmental & Geotechnical Ltd have been commissioned by P4B Architecture (the Client) to undertake a Phase I Environmental Desk Study for a proposed extension at Langdale Mews, Levenshulme.

1.2 The client is proposing an extension of an apartment block. The proposal is for No.2 - 1 bed apartments on the ground, first floor and No.1 - 1 bed duplex apartment over the second and third floor.

1.3 A proposed development plan is presented as Figure 1.

Objective

1.4 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

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

- British Geological Survey online maps.
- 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.
- Manchester City Council Planning Portal.

Figure 1: Proposed Development Area



2.0 SITE LOCATION AND DESCRIPTION

2.1 The site (0.14 hectares) is situated in a residential/ commercial zone in Levenshulme, approximately 0.35km from Levenshulme train station.

2.2 The area of the proposed extension is generally flat.

2.3 The approximate National Grid Reference for the centre of the site is SJ 87532 93935 (X: 387532, Y: 393935) and the nearest postcode is M19 3NT.

2.4 The site predominantly features hardscape elements, including expansive asphalt and concrete surfaces. Centrally positioned is a residential apartment building and a car park to the east.

2.5 Soft landscape areas, featuring grassy sections, are in the northern part of the site.

2.6 Access to the site can be gained via an entrance east of the site, which leads to Langdale Avenue.

2.7 The site is fully enclosed by a brick wall, with a metal gate along the eastern boundary.

2.8 The site is bordered by commercial buildings to the south and west, residential buildings to the north and east, and Langdale Avenue to the east.

2.9 A location plan is shown below as Figure 2, together with a recent site photograph as Figure 3 (overleaf).

Figure 2: Site Location Plan



Figure 3: Site Photograph



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 Enviro+Geo Insight report (Appendix 1).

3.2 Environmental conditions are covered by the Environment Agency (EA) and British Geological Survey (BGS) online data, and the site-specific GroundSure Enviro+Geo Insight report (Appendix 1).

Geology

3.3 The BGS states that the site is not underlain by artificial deposits.

3.4 The site is recorded to be underlain by superficial deposits of Devensian till, generally comprising till, sand, and clay with or without boulders.

3.5 The bedrock geology beneath the site is shown to be the Triassic Chester Pebble Beds Formation, generally comprising reddish-orange fine to coarse sandstone.

3.6 There are 4no. records of linear features, within 500m of the site boundary, with the nearest a geological fault 100m west of the site.

3.7 There are no records of landslips within 500m of the site.

3.8 There are 2no. borehole records within 250m of the site. The nearest borehole, 222m to the northwest, reveals clay to the base of the borehole at 15.24m.

3.9 The following hazard ratings applicable to the site and land with 50m are presented in the Enviro + Geo Insight Report

- Shrink / swell clays: Very Low
- Running sands: Very Low
- Compressible deposits: Negligible
- Collapsible deposits: Very Low
- Landslides: Very Low
- Ground dissolution of soluble rocks: Negligible

Hydrogeology and Hydrology

3.10 The site is recorded to be underlain by superficial Devensian till deposits and has been assigned a Secondary Undifferentiated aquifer designation with a mixed flow type and a low to high permeability. The BGS states the following:

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

3.11 The Chester Formation is classified by the Environment Agency (EA) as a Principal Aquifer with a mixed flow type and a moderate to high permeability. The BGS states the following:

Principal *'Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers.'*

3.12 The groundwater vulnerability of the site has been classified as low for the bedrock aquifer. The soil leaching potential of the site is classified as low. The BGS states:

'Low' *Areas that provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability.'*

3.13 There are 15no. groundwater abstraction license records within 2km of the site. The nearest record refers a historical to borehole at Crossley Road Levenshulme, located 1.1km south of the site.

3.14 There are no surface water abstraction license records within 2km of the site.

3.15 There are no potable water abstraction licenses recorded within 2km of the site.

3.16 The site is not located within a Source Protection Zone.

3.17 The site is not within 500m of a Source Protection Zone within a confined aquifer.

3.18 There is 1no. water network entry located within 250m of the site. The record refers to Fallowfield Brook, an inland river not influenced by normal tidal action, located 10m south of the site.

3.19 There are no surface water features identified within 250m of the site.

3.20 There is 1no. Water Framework Directive (WFD) surface water bodies located within 250m of the site. The record refers to River Platt Brook (Source to Fallowfield Bk), located on site.

3.21 There is 1no. record of a Water Framework Directive (WFD) groundwater body located on site. The record refers to the Manchester and East Cheshire Permo-Triassic Sandstone Aquifers which had a poor chemical rating in 2019.

Ground Workings, Mining and Other Underground Workings

3.22 According to the BGS, there are 2no. records of British Pits within 500m of the site. The nearest record refers to Craddock Fold Brick Works, located 373m northeast of the site.

3.23 There are 49no. records of historical surface ground working features, identified within 250m of the site boundary. The nearest record refers to a pond 84m north of the site, dated 1923. The remaining records refer to both ponds and cuttings.

Mining and Other Underground Workings

3.24 The Coal Authority suggests that the site does not lie within a Coal Authority Development High Risk Area.

3.25 There is 1no. record of non-coal mining areas located within 1km of the site. The record refers to a Class A Vein Mineral commodity located 211m south west of the site.

3.26 There are 3no. records for historical underground working features identified within 1km of the site. All records refer to a tunnel located 146m south west of the site, dated 1976- 1989.

3.27 There is 1no. record of historical mineral planning areas within 500m of the site. The nearest record refers to Broom Avenue, surface mineral working located 450m east of the site.

3.28 There is no record of researched mining identified within 500m of the site.

3.29 There are no records of brine areas, gypsum extraction, tin mining, or clay mining on the site.

3.30 There are no records of natural cavities within 500m of the site.

3.31 There are no records for mining cavities identified within 1km of the site.

Radon Potential

3.32 The site is located in a Radon Affected Area, where less than 1% of properties are above the Action Level. Therefore, no radon protection measures are required in any new structures.

Landfill & Waste Management Activity

3.33 There are no active or recent Environment Agency landfill records within 500m of the site.

3.34 There are no records of BGS/DoE non-operational landfill sites within 500m of the site.

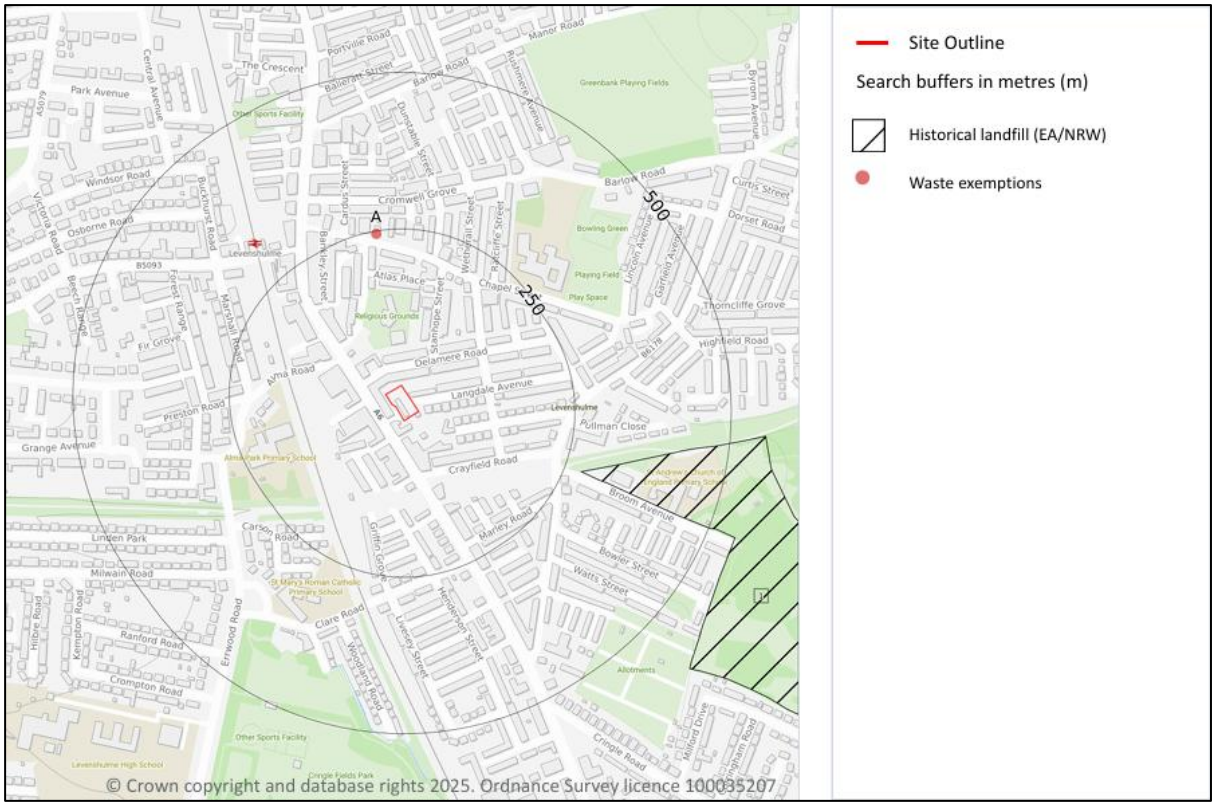
3.35 There are no records of a historical landfill from the Local Authority and Historical Mapping records within 500m of the site.

3.36 There is 1no. record of historic Environment Agency landfill sites within 500m of the site. The closest record refers to Cringle Road, Manchester located 278m east of the site. The landfill accepted inert, industrial, commercial, household, special and liquid waste from 1974 to 1979.

3.37 There are no records of historical waste sites within 500m of the site.

3.38 There are 2no. records of waste treatment, transfer, or disposable sites, within 500m of the site. Both records refer to Atlas Works, Chapel Street, Levenshulme, Manchester, M19 3QB, located 245m north of the site.

Figure 4: Waste and Landfill Map



Industrial Land Use Information

3.39 There are 179no. records of potentially contaminative historical land uses identified within 500m of the site. The closest record refers to an unspecified yard located on site, dated 1916- 1923.

3.40 There is 1no. record of historical tanks identified within 500m of the site. The closest record refers to an unspecified tank located 198m north of the site, dated 1995.

3.41 There are 16no. records of historical energy features identified within 500m of the site. The closest record refers to an Electricity Sub Station located 132m west of the site, dated 1992.

3.42 There are no records of historical petrol stations within 500m of the site.

3.43 There are no historical military land use records within 500m of the site.

3.44 There are 5no. records of historical garage and motor vehicle repair sites identified within 500m of the site. The closest record refers to garage located 432m northeast of the site dated 1984.

3.45 There are 1no. record for current petrol or fuel sites within 500m of the site. The record refers to an obsolete petrol station (REPSOL) located 497m southeast of the site.

3.46 There are 26no. records of current potentially contaminative industrial land uses identified within 250m of the site. The 2no. closest records both refer to Kms Sign & Digital Print industrial products located 44m northwest of the site.

3.47 There are no National Grid high voltage underground electricity transmission cables within 500m of the site.

3.48 There are no National Grid high-pressure gas transmission pipelines within 500m of the site.

3.49 There are 39no. historical railway and tunnel features identified within 250m of the site. The nearest feature refers to Railways located 86m west of the site, dated 1907.

3.50 There are 2no. historical railway lines identified within 250m of the site. The closest record refers to abandoned lines located 119m south of the site. The remaining record refers to historical OSM located 120m south of the site.

3.51 There are 25no. current active railway line records identified within 250m of the site. The nearest record refers to Manchester- Crewe rail line, located 139m west of the site.

3.52 There is no record of an underground railway line or tunnel identified within 250m of the site.

3.53 The site is not within 500m of the route of the High Speed 2 rail project.

3.54 The site is not within 500m of the route of the Crossrail 2 rail project.

Environmental Permits, Incidents and Registers

3.55 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	**1**
Dangerous or Hazardous (COMAH and NIHHS) Sites	0
Regulated Explosive Sites	0
Historical Licensed Industrial Activities (IPC)	0
Part A (1) and IPPC Authorised Activities	0
Part A (2) and Part B Activities and Enforcements	**2**
Category 3 or 4 Radioactive Substance Authorisations	0
Licensed Discharge Consents	**3**
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
Planning Hazardous Substance Consents and Enforcements	0
Substantiated Pollution Incidents	0
Pollution Inventory Substances, Wastes and Radioactive Wastes	0

3.56 There is 1no. record of Sites Determined as Contaminated Land under Part 2a EPA 1990. The record refers to the Highfield Country Park landfill site located 237m east of the site.

3.57 There are 2no. records of Licensed pollutant release (Part A (2)/ B) located within 500m of the site. The nearest record refers to Part B historical permit for dry cleaning, located 123m northwest of the site.

3.58 There are 3no. records of Licensed Discharge Consents to controlled waters located within 500m of the site. The closest record refers to miscellaneous discharges to surface water located 293m east of the site.

Environmentally Sensitive Sites

3.59 There is no record for a Site of Specific Scientific Interest (SSSI) located within 2km of the site.

3.60 There are no records of Conserved wetland sites (Ramsar sites) located within 2km of the site.

3.61 There are no records of Special Areas of Conservation (SAC) located within 2km of the site.

3.62 There are no records of Special Protection Areas (SPA) located within 2km of the site.

3.63 There are no records of National Nature Reserves (NNR) located within 2km.

3.64 There is 1 no. record of Local Nature Reserves (LNR) located within 2km of the site. The closest record refers to Highfield Country Park located 466m southeast of the site.

3.65 There is no record of a Designated Ancient Woodland located within 2km of the site.

3.66 There are no records of Biospheres, forest parks, and marine conservation within 2km of the site.

3.67 There are no records of Green Belt located within 2km of the site.

3.68 There are no records of Nitrate Vulnerable Zones (NVZ) located within 2km of the site.

3.69 There are no further records of environmentally sensitive sites within 2km of the site.

Ecology

3.70 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.

3.71 The land on the site is classified as urban land.

Archaeology

3.72 An archaeological assessment falls outside the brief of this report. Where considered necessary, advice should be sought from an archaeological specialist in this respect.

3.73 There are no records of World Heritage sites, areas of outstanding natural beauty, national parks, listed buildings, conservation areas, scheduled ancient monuments, and registered Parks and Gardens within 250m of the site.

Potential Flood Risks

3.74 Detailed assessment of flood risks is outside the scope of this report. However, the site does not lie within an Environment Agency Zone 2 or Zone 3 floodplain.

3.75 There are no records of risk of flooding from rivers and sea (RoFRaS) within 50m of the site. The onsite flood risk category is none.

3.76 There are no records of flood defences within 250m of the site.

3.77 There are no records for areas benefiting from flood defences within 250m of the site.

3.78 There are no records of flood storage areas within 250m of the site.

3.79 The highest risk of surface water flooding occurring on site from a 1 in 30-year event is 0.3m – 1.0m.

3.80 The highest risk of groundwater flooding occurring on-site is moderate.

4.0 SITE HISTORY

4.1 The historical development of the site has been determined by reference historical plans and Google Earth imagery. Information in the historically mapping study has been predominantly limited to the site or within 100m off the site to focus on the most directly relevant information. Beyond this radius only information deemed relevant will be referenced. Each map or photograph represents a snapshot of the site and its environment at the date of the survey. Any changes that occur at other times may not have been recorded on the maps and could represent an unidentified hazard to the site.

4.2 Only selected maps with a clear view of the site and surrounding area have been used, the information reported might not represent all pertinent information that could be obtained. The interpretation of the maps and/or other data commented on in this report is subjective.

4.3 The earliest available historical mapping covering the site dates to 1848- 1849. The site history is summarised in Table 2 and Table 3, below, followed by selected extracts from maps and aerial photographs in Figure 5 to 8.

Table 2: Summary of Site History

Date	Scale	On-Site History	Surrounding Land Use History
1848- 1849	1:10,560	Structures are located centrally on-site.	Little Cotton Mill and Big Cotton Mill Levenshulme located approximately 100m north of the site boundary. A school is located approximately 200m north of the site boundary. A Levenshulme railway is located approximately 200m west of the site boundary. Dye Works is located approximately 400m northeast of the site boundary. The remainder of the surrounding land within 500m of the site primarily consists of undeveloped open land.
1890 -1892	1:10,560	Structures are no longer visible on site.	Residential properties are located approximately 250m northwest of the site boundary. Brick works located approximately 500m northeast of the site boundary. Ponds and Lakes are located northeast and southeast within 500m of the site boundary. Surrounding land is more developed. Large reservoirs located approximately 800m northeast of the site boundary. The main road running north to south, adjacent to the western site boundary, has now been designated as Stockport Road. Manchester central station line located approximately 100m south of the site.

Date	Scale	On-Site History	Surrounding Land Use History
1893	1:2, 500	There is no significant change compared to the previous map.	Albert Mill located 100m north of the site. Reservoir located approximately 120m north of the site. Wire Mattress Works located approximately 200m northeast of the site boundary.
1905	1:10,560	There is a structure possibly for residential purposes located centrally north on site.	The surrounding area has experienced rapid residential development signalling growing housing demand and urban change. Residential buildings are located north, south, and west within 500m of the site boundary. Road networks were expanded to accommodate the increasing demands of residential growth. Highfield Iron Works located 500m east of the site boundary. Two schools are located approximately 400m northeast of the site boundary.
1907	1:2,500	Additional structures located on site along the eastern site boundary.	Electricity Sub-station located approximately 200m north of the site boundary. Police station located approximately 50m south of the site boundary. Pond located 250m southwest of the site boundary.
1915-1916	1:10,560	There is no significant change compared to the previous map.	Surrounding area has become more urbanized with a denser arrangement of roads, and buildings. Previous open land located approximately 300m east of the site now occupies residential buildings. Two schools are located approximately 250m southwest of the site boundary and are situated on Alma Park. Cringle Brook River located approximately 450m southwest of the site.
1922	1:2,500	There is no significant change compared to the previous map.	Land directly south of the site boundary has been labelled as Corporation Yard suggesting this land may have been used for council operations, like maintenance or storage. Nursery located approximately 150m south of the site.
1923 1933	1:10,560 1:2,500	There is no significant change compared to the previous map.	There is no significant change compared to the previous map.

Date	Scale	On-Site History	Surrounding Land Use History
1934	1:10,560	There is no significant change compared to the previous map.	Motor Car Works located approximately 800m south of the site boundary.
1938 1955-1956	1:10,560	There is no significant change compared to the previous map.	There is no significant change compared to the previous map.
1956- 1957	1:1,250	Previous properties appear to have been demolished leaving two singular structures north of the site.	Clinic located approximately 50m south of the site boundary. Properties previously located approximately 50m west of the site boundary have been demolished with Regal Cinema now standing in their place. Albert Mill located approximately 100m north of the site boundary has now been renamed as Saw Mill. Saw Mill appears to be under development with previous structures no longer visible. Possible residential development surrounding Corporation Yard with boundaries now visible.
1957- 1958	1:1,250	There is no significant change compared to the previous map.	There is no significant change compared to the previous map.
1965-1968	1:10,560	There is no significant change compared to the previous map.	Clay Pit located approximately 1km north of the site boundary.
1976 1981-1983	1:10,000	There is no significant change compared to the previous map.	There is no significant change compared to the previous map.
1982- 1987	1:1,250	Four more structures are now located centrally and to the south on site.	Buildings possibly residential have been constructed directly southeast of the site boundary. The Regal Cinemas located approximately 50m west of the site boundary has been repurposed into a club.
1988-1992	1:1,250	There is no significant change compared to the previous map.	There is no significant change compared to the previous map.
2001	1:10,000	There is no significant change compared to the previous map.	Manchester central station line located approximately 100m south of the site is now a dismantled railway.
2010 2025	1:10,000	One long rectangular shaped structure remains along the west boundary on site.	There is no significant change compared to the previous map.

Table 3: Summary of Site History from Aerial Photographs

Date	On-Site History	Surrounding Land Use History
2000	The photograph depicts a residential apartment block situated along the western boundary of the site. The rest of the area comprises a combination of hard-surfaced sections designated for parking and soft landscaped spaces, including grassy areas, located to the north.	The site is bordered by a main road, along with commercial and residential buildings to the west. Residential buildings surround the site to the north, east, and south. Railway located west of the site boundary.
2009	There is no significant change compared to the previous photograph.	The soft landscaped area situated to the southwest of the site boundary has been converted into a car park.
2015 2022 2023	There is no significant change compared to the previous photograph.	There is no significant change compared to the previous photograph.

4.4 On site between 1848 and 1849, structures were centrally located on-site, but by 1890–1892, these structures were no longer recorded. In 1905, a structure, possibly residential, appeared centrally to the north of the site, and by 1907, additional structures were built along the eastern boundary. From 1956 to 1957, two structures remained after earlier demolitions, and between 1982 and 1987, four more structures were added to the central and southern parts of the site. In 2000, a residential apartment block was situated along the western boundary, with parking areas and grassy landscapes in the north, and by 2010, one rectangular structure remained. No significant changes occurred after this point until 2025.

4.5 Offsite, from 1848 to 1849, the surrounding land featured Little and Big Cotton Mills 100m to the north, a school 200m to the north, Levenshulme railway 200m west, and Dye Works 400m northeast, with undeveloped land within 500m. By 1890–1892, residential properties were 250m northwest, brick works 500m northeast, and large reservoirs 800m northeast, as the surrounding land became more developed. Rapid residential development occurred by 1905 within 500m, and by 1915–1916, urbanization intensified with denser roads and buildings. Notable changes included the Regal Cinema replacing demolished properties 50m west in 1956–1957, while by 1982–1987, residential buildings were constructed southeast of the boundary, and the cinema was repurposed as a club. By 2001, the Manchester Central Station line 100m south was dismantled, with no major changes thereafter up to 2025.

Figure 5 OS Map Extract 1848-1849

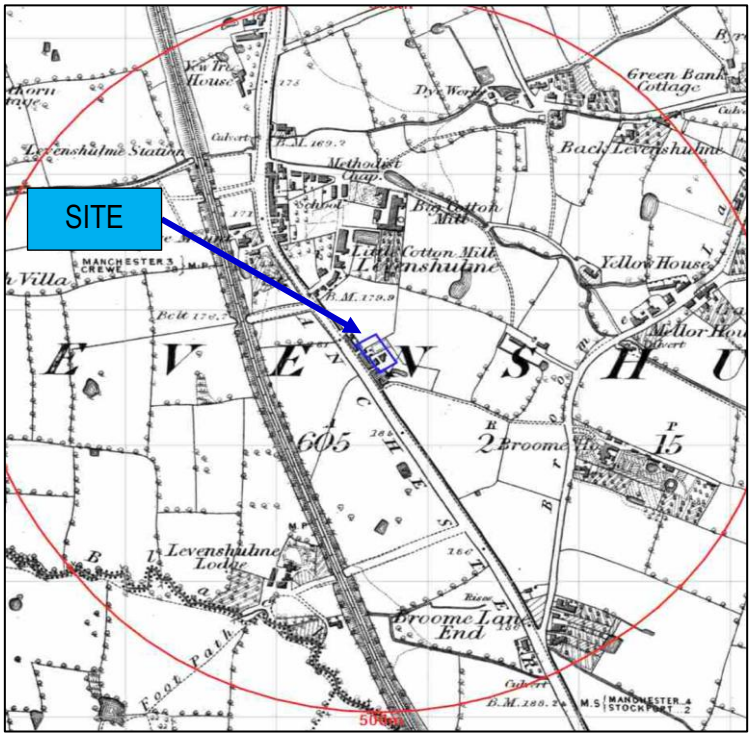


Figure 6 OS Map Extract 1893

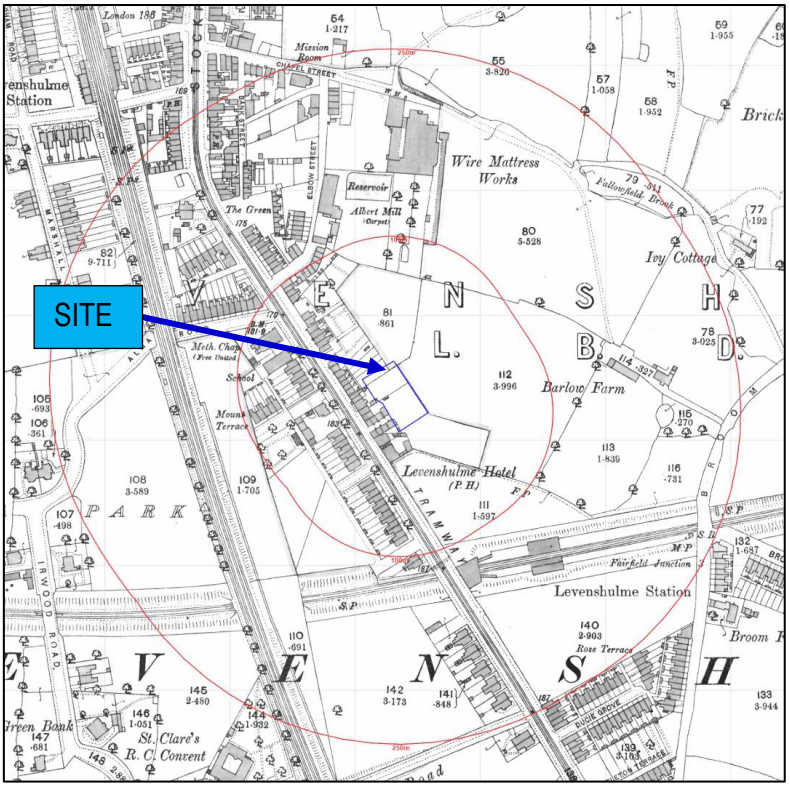


Figure 7 OS Map Extract 1985-1989

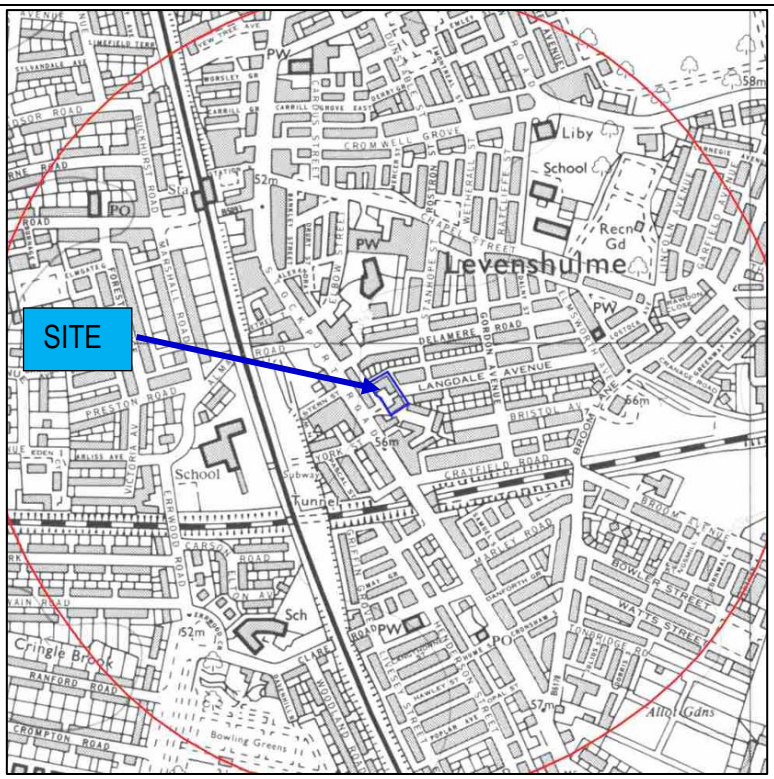
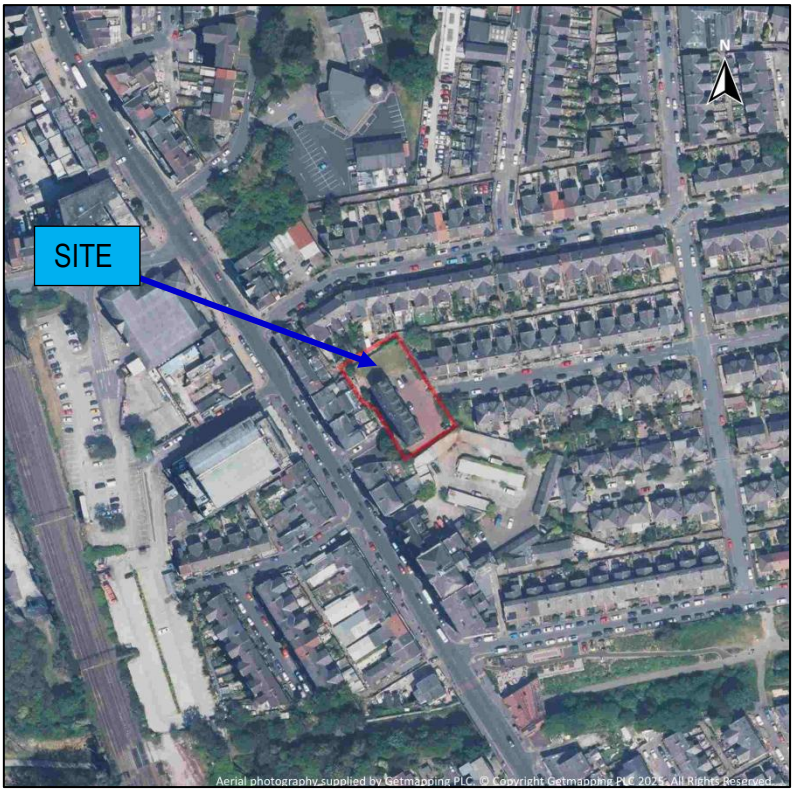


Figure 8 Aerial Photograph 2023



5.0 SITE WALKOVER SURVEY

5.1 A walkover survey was completed on 24th April 2025. The photographs and notes from this survey are appended to this report as Appendix 2 and Appendix 3, respectively.

5.2 Access to the site was gained via an entrance to the east of the site, which leads to Langdale Avenue.

5.3 The site is predominantly covered in hardstanding with a car park area to the east adjacent to the entrance. There is a central apartment block with a small area of soft landscaping used for recreation to the north of the site.

5.4 The site is bordered by commercial buildings to the south and west, residential buildings to the north and east, and Langdale Avenue to the east.

5.5 The site is fully enclosed by a brick wall, with a metal gate along the eastern boundary.

5.6 The site is relatively flat with no significant elevation changes.

5.7 The site is bound by a metal gate east and south of the site. The rest of the site is enclosed by buildings situated along the site boundary.

5.8 No asbestos was identified on the site walkover.

Figure 9: Site Features Plan



6.0 PRELIMINARY CONTAMINATION RISK ASSESSMENT

Introduction

6.1 The following paragraphs outline a Preliminary Risk Assessment (PRA) for the site based on the above desk study information as defined by Land Contamination Risk Management Environment Agency, July 2023.

6.2 Table 6 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 4 and Table 5 below. The assessment of probability, a modified risk table, and certain consequence definitions are based on CIRIA C552 and Land Contamination Risk Management Environment Agency, July 2023.

6.3 Table 6 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.

6.4 The PCM/PRA is based on a residential end use.

Table 4: 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 5: 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

6.5 To summarise, there is limited potential for the presence of contamination.

Potential Receptors

6.6 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;

Potential Pathways

6.7 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 6: Preliminary Conceptual Model

Source	Pathway	Receptor	Probability	Consequence	Risk	Comment
Made Ground (Heavy Metals, PAH, TPH, BTEX,)	Dermal contact, ingestion, and inhalation of soils dust	Current Site Users	Unlikely	Moderate	Low	The site is currently occupied by residents in the apartment block. The site consists of a central apartment block with a patch of soft landscaping to the north. The site is majority hardstanding. There is potential made ground within the soils below the site associated with the former structures, contact is likely to be limited. The risk is therefore considered to be **LOW**.
		Adjacent land users	Unlikely	Moderate	Low	Commercial and residential properties occupy the immediate surrounding area. There is potential for made ground below the site associated with the former structures. The site is majority covered in hardstanding. Therefore, the risk is **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	Unlikely	Moderate	Low	The client is proposing to extend the existing apartment block building. The site is majority covered in hardstanding but there are proposed areas of expansion to the existing soft landscaping. There is a potential source of made ground below the site associated with the former structures. The risk to future site users via direct exposure is **LOW**.
		Construction Workers	Low Likelihood	Moderate	Moderate to Low	Construction workers could potentially be exposed to 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 **MODERATE to LOW** risk to construction workers is anticipated.
	Downward vertical migration of leachate to shallow groundwater	Groundwater within the Underlying Aquifer	Unlikely	Moderate	Low	Shallow groundwater may be present beneath the site. Sources of contamination have not been identified on site and there are 15no. abstraction licenses located within 250m of the site. Underlying soils are a mixture of granular and cohesive particles. The risk to groundwater is therefore considered to be **LOW.**
	Lateral migration in surface waters	Surface Waters	Unlikely	Moderate	Low	There are no nearby surface water features. Therefore, the risk is **LOW**.
	Vertical or lateral migration of ground gas	Current Site Users	Low Likelihood	Moderate	Moderate to Low	The site is currently occupied by residents in the apartment block. There is potential for made ground below the site associated with the former structures. Underlying soils are a mixture of granular and cohesive materials. The risk to current site users from ground gas is **MODERATE to LOW.**

Source	Pathway	Receptor	Probability	Consequence	Risk	Comment
		Adjacent land users	Unlikely	Moderate	Low	There is potential for made ground below the site. Underlying soils are granular. Considering the age of potential made ground, the risk to adjacent site users from ground gas is **LOW.**
		Future land users	Low Likelihood	Moderate	Low	The risk to future land users from ground gas is **LOW.**
		Construction Workers	Low Likelihood	Moderate	Low	Construction workers may be exposed to ground gas/depleted oxygen conditions in confined spaces and excavations; however, the duration will be short term. The risk to construction workers from ground gas is **LOW.**
Asbestos Containing Material (ACM)		Current Site Users	Low Likelihood	Moderate	Low	The site is currently occupied by residents in the apartment block. There is potential for asbestos to be present in the made ground onsite from former structures. The site is mostly hard surfaced, with soft landscaping to the north. Therefore, risk to current site users is **LOW.**
		Adjacent land users	Low Likelihood	Moderate	Low	There is potential for made ground below the site with possible asbestos. Disturbance of soil during the construction phase may allow fibres to become airborne. The risk is therefore considered to be **LOW.**
		Future land users	Low Likelihood	Moderate	Low	The proposed commercial development includes the extension of the existing apartment block. Disturbance of potential ACM by future land users may allow fibres to become airborne. Most of the site will be covered in hardstanding, there are some areas of proposed soft landscaping to the north and west. Therefore, the risk is **LOW.**
		Construction Workers	Low Likelihood	High	Low	Construction workers may be exposed to potential asbestos in soils. The risk is considered **LOW.** A contamination assessment of the existing on-site soils would be required to determine the level of risk and necessary mitigation measures.

7.0 GEOTECHNICAL HAZARDS ASSOCIATED WITH THE DEVELOPMENT

7.1 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 hazards and geotechnical considerations is provided below Table 7 and Table 8, respectively.

Table 7: Summary of Geotechnical Hazards

Geohazards:	
Highly Compressible Ground	Negligible
Collapsible Soils	Very Low
Swelling Clay	Very Low
Running Sand	Very Low
Ground Dissolution	Negligible
Landslip	Very Low
Mining & Quarrying	No mining or quarrying is recorded as taking place on site. The Coal Authority suggests that the site does not lie within a Development High Risk Area.

Table 8: Summary of Geotechnical Considerations

Geotechnical Design Considerations	
Site Clearance	Site clearance will not be required.
Trees	No trees located onsite.
Existing Buildings/Obstructions	Existing apartment block onsite. However, the proposed development is an extension of this structure, therefore wont act as an obstruction to construction works.
Foundations	The depth and type of proposed foundations would depend on the ground conditions present on site. The site is underlain by Superficial deposits of Devensian Till and the bedrock geology is the Triassic Chester Formation, comprising sandstone. Therefore, shallow foundations may be feasible. However, if deep made ground is found onsite, then deeper foundation options should be considered.
Floor Slabs	A suspended floor slab is unlikely to be required for the proposed development.

Geotechnical Design Considerations	
Groundwater	Groundwater conditions are not known at this stage. For more detailed knowledge of the groundwater regime, an intrusive geotechnical investigation would be needed. However, it is recorded that the site is underlain by Secondary undifferentiated aquifer within the superficial deposits and a Principal aquifer within the bedrock deposits. The highest risk of groundwater flooding on site is recorded as moderate.
Earthworks	It is unlikely that any major earthworks will be required on the site.
Slopes	The site is relatively flat.
Retaining Walls	No retaining walls onsite.
Chemically aggressive ground conditions	Chemically aggressive ground conditions are not expected at this site. However, an intrusive geotechnical investigation would be necessary to confirm this at the specified development location.

8.0 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

8.1 There is limited potential for the presence of contamination on the site.

8.2 The site is recorded to be underlain by superficial deposits of Devensian till, generally comprising till, sand, and clay with or without boulders.

8.3 The bedrock geology beneath the site is shown to be of the Triassic Chester Formation, generally comprising reddish-orange fine to coarse sandstone.

8.4 The overall risk from soil contamination to end users is **LOW,** and to construction workers is **LOW.**

8.5 The risk to controlled waters is concluded to be **LOW** based on the limited source potential and absence of nearby surface water features.

8.6 The risk from ground gas to end users is **LOW,** and to construction workers is **LOW**.

8.7 The site is in a Radon Affected Area, where less than 1% of properties are above the Action Level. Therefore, no radon protection measures are required in any new structures.

8.8 The site does not lie within a floodplain.

8.9 Strip or pad foundation is likely to be suitable at the site.

Recommendations

8.10 No further action is necessary with respect to the environmental setting of the site.

APPENDIX 1

GROUNDSURE REPORTS

APPENDIX 2

SITE PHOTOGRAPHS

<table>
<tr><td>Earth Environmental & Geotechnical Ltd

Tel: 0161 975 6088
Email: info@earthenvironmental.co.uk
Web: www.earthenvironmental.co.uk</td><td>SITE PHOTOGRAPHS

EARTH ENVIRONMENTAL & GEOTECHNICAL</td></tr>
<tr><td>Job No.: A6814</td><td>Site: Langdale Mews, Levenshulme</td></tr>
<tr><td>Plate 1 View east of Langdale Road</td><td>Plate 2 View west of Langdale Mews</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Date: 24th April 2025</td><td>Date: 24th April 2025</td></tr>
<tr><td>Plate 3 View northwest of the north of the building</td><td>Plate 4 View southwest of the south of the building</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Date: 24th April 2025</td><td>Date: 24th April 2025</td></tr>
</table>

Earth Environmental & Geotechnical Ltd

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Email: info@earthenvironmental.co.uk
Web: www.earthenvironmental.co.uk

SITE PHOTOGRAPHS

EARTH ENVIRONMENTAL & GEOTECHNICAL

Job No.: A6814

Site: Langdale Mews, Levenshulme

Plate 5 View southwest of the skip and car park



Plate 6 View west of the south of the building



Date: 24th April 2025

Date: 24th April 2025

Plate 7 View north of the back of the building



Plate 8 View east of the north of the building



Date: 24th April 2025

Date: 24th April 2025

Figure 10: Site Walkover Photograph Locations



APPENDIX 3

SITE WALKOVER NOTES

EARTH ENVIRONMENTAL & GEOTECHNICAL
A Technics Group Company

WALK OVER SURVEY REPORT

Site: Langdale Mews, Levenshulme **Date:** 24th April 2025

Job No: A6542 **Undertaken By:** Hannah Moore

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)		Urban Setting within Levenshulme, Manchester. Commercial and residential area.
Evidence of Past Activities	Are there: Any relevant street names in area? Features or relics which indicate past history?	 Yes/~~No~~ Yes/~~No~~	 Langdale Avenue. Block of flats located onsite.
Geographic Setting	Description required for: Low lying flood plain/dry valley/rolling hills etc.		The site is within a relatively flat urban area with no significant elevation changes.
Ground Conditions	Is there any evidence of: Mining, Mine entries Subsidence Landslip/slope erosion Former investigation works	 ~~Yes~~/No ~~Yes~~/No ~~Yes~~/No	 No known mining history in immediate vicinity. No visible evidence of subsidence. Area is relatively flat with no significant slope erosion concerns.

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 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)		The site is bordered by commercial buildings to the south and west, residential buildings to the north and east, and Langdale Avenue to the east.
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	Small plot of soft landscaping to the north of the site. No trees or shrubs.
Ground Surface	Are there areas of hardstanding and estimate the split between hard and soft cover? (If yes describe locations, types, and conditions). Is the any evidence of any spillages or staining?	Yes/~~No~~ ~~Yes~~/No	The site consists of approximately 5% soft landscaped areas and 95% hard surfaced areas.

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	Drain covers along Langdale Avenue.
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	No substations observed within or immediately adjacent to site. No evidence of electrical transformers, capacitors, or pylons on site.
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~~	Waste skip onsite. Litter scattered throughout site such as household waste and wooden pallets.
Atmospheric	Are there any fumes, odours originating from site or affecting site from neighbouring sites?	~~Yes~~/No	On- site controlled fire burning waste.
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		Site is accessible.
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			
Site Dimensions	Describe shape of Site in plan and measure dimensions.		Section 2.3

APPENDIX 4

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 2025 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.