



**EARTH ENVIRONMENTAL
& GEOTECHNICAL**
A Technics Group Company

Phase 1 GeoEnvironmental Desk Study

54 Derby Street

Cheetham Hill

On behalf of

Kacoo Investments Ltd

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1.0 INTRODUCTION

Appointment

- 1.1 Earth Environmental & Geotechnical Ltd have been commissioned by Kacoo Investments Ltd (the Client) to undertake a Phase I Environmental Desk Study for a proposed extension at 54 Derby St Cheetham Hill, Manchester.
- 1.2 The client is proposing to erect a single storey building comprising 2no. units (B8 storage or distribution) with associated alterations to car parking layout.
- 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.

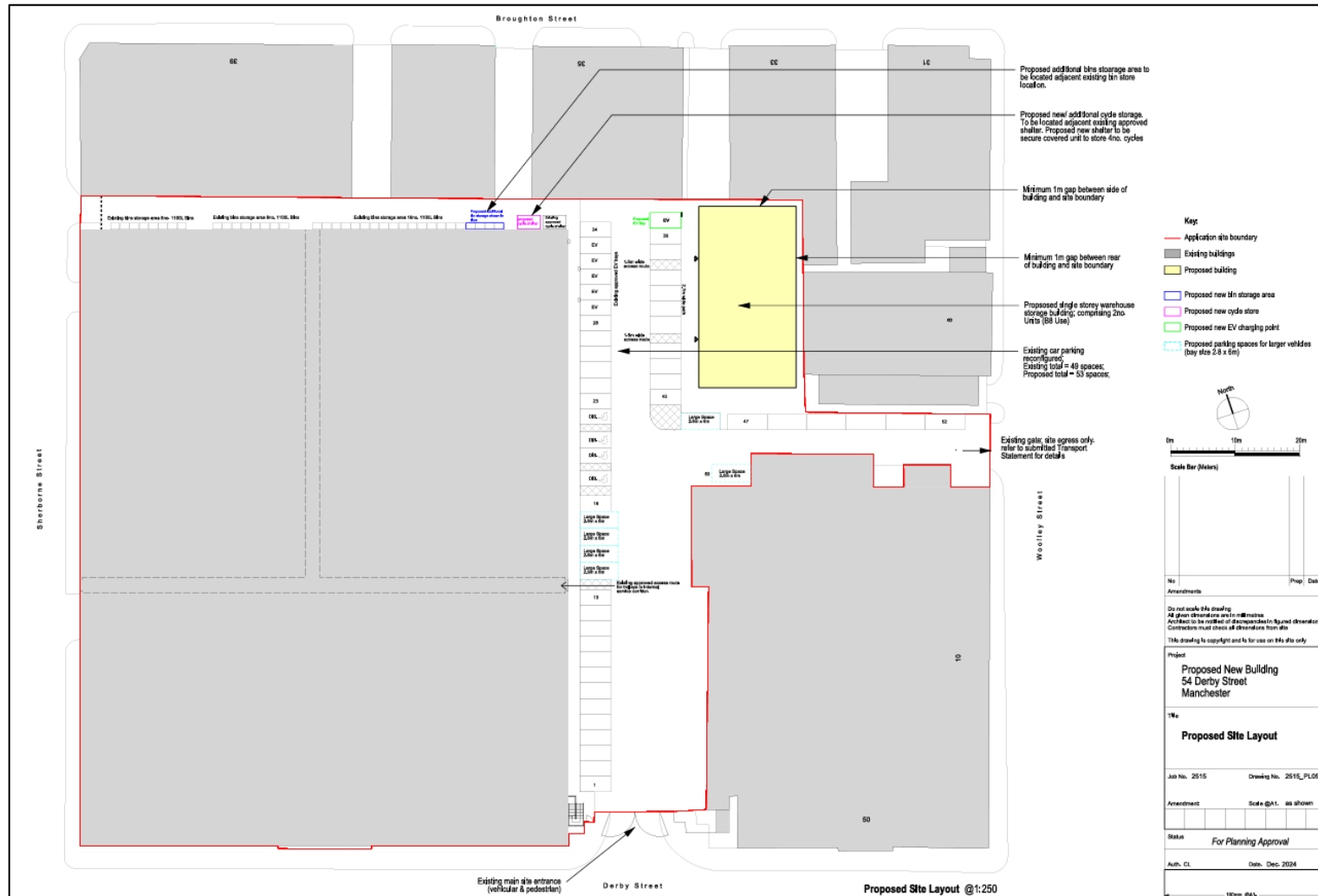
Scope

- 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.

Previous Reports

- 1.6 Earth Environmental and Geotechnical are not aware of any previous reports for this site.

Figure 1: Proposed Development Area



2.0 SITE LOCATION AND DESCRIPTION

- 2.1 The site (1.04 hectares) is situated in a commercial zone in Cheetham Hill approximately 200m from New Islington tram stop.
- 2.2 The area of the proposed extension is generally flat, with some slight elevation changes.
- 2.3 The approximate National Grid Reference for the centre of the site is SJ 83918 99930 (X: 383918, Y: 399930) and nearest postcode M4 6DH.
- 2.4 The site mostly consists of hard surfaces, including asphalt and concrete areas with industrial and commercial buildings located in the southern (Restart Reformer Pilates, Manchester), eastern (Hazrat Sultan Bahu Trust, Manchester), and central parts of the site (concrete yards and open spaces).
- 2.5 Soft landscape areas can be found western, northwestern, northeastern and eastern site boundaries.
- 2.6 The surface development of the area has transformed much of the natural environment into hard landscapes consisting of paved roads, concrete structures, and industrial buildings. Soft landscape areas of the site consist of small patches of vegetation and overgrown areas along the western, northwestern, and northeastern boundaries near the edges of the warehouses. There are no significant tree-lined areas or large green spaces directly within the site.
- 2.7 Access to the site can be gained via an entrance to the east of the site which leads to Woolley Street. Access can also be gained via an entrance to the south of the site which leads to Derby Street.
- 2.8 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.
- 2.9 The site is surrounded by Derby Street to the south, Sherbourne Street to the west, industrial and commercial buildings to the north and northeast, and warehouse units and service yards to the east.
- 2.10 A location plan is shown below as Figure 2, together with a recent site photograph as Figure 3 (overleaf).

Figure 2: Site Location Plan

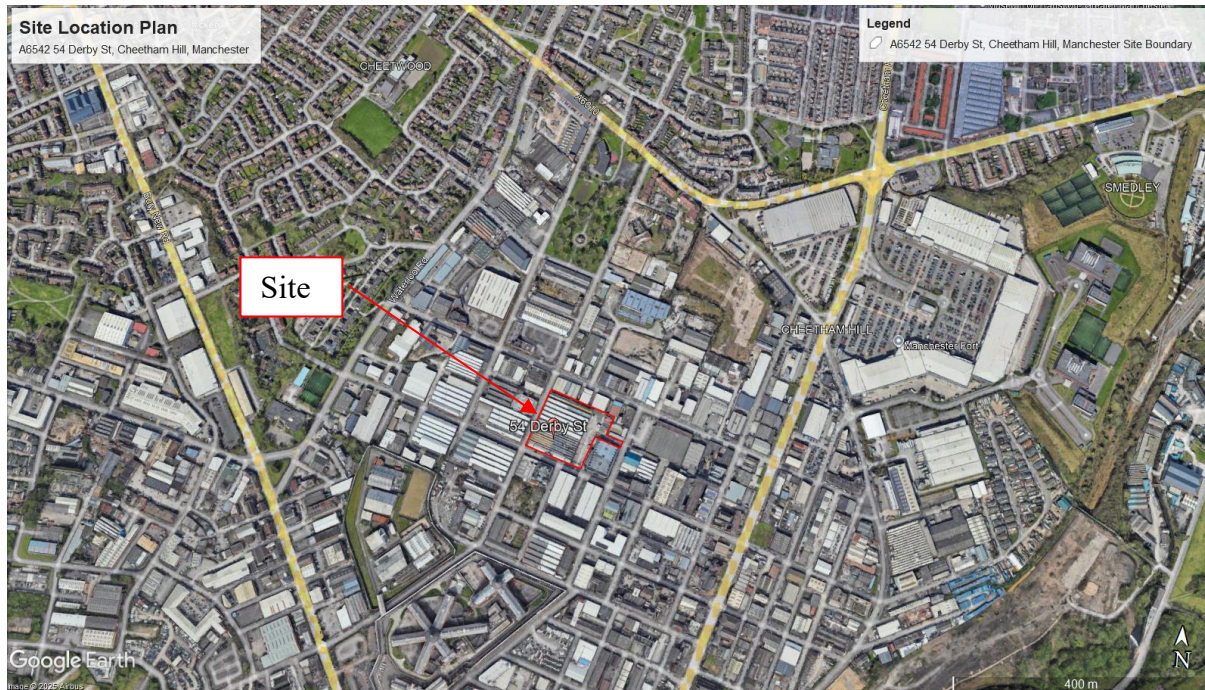


Figure 3: Site Photograph



Site Utility Services

- 2.11 Site service plans have been obtained for the site and a specialist utility company will be scanning and marking out all underlying services prior to site investigation.

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 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. Due to the urban setting of the site made ground is anticipated.
- 3.4 The site is recorded to be underlain by superficial deposits of Devensian till, generally comprising of till, sand and clay with or without boulders.
- 3.5 The bedrock geology beneath the site is shown to be the Triassic Chester Formation generally comprising of 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 46m south west of the site.
- 3.7 There are no records of landslips within 500m of the site.
- 3.8 There are 20no. borehole records within 250m of the site. The nearest borehole 8m to the north reveals clay to the base of the borehole at 12.50m.
- 3.9 The following hazards ratings applicate 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 moderate 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 36no. groundwater abstraction license records within 2km of the site. The nearest record refers a historical to borehole at premises, Derby Street, Cheetham, Manchester 75m south of the site.
- 3.14 There are no surface water abstraction license records within 2km of the site.
- 3.15 There are 10no. potable water abstraction licenses record within 2km of the site. The nearest record refers to a historical borehole at premises, Derby Street, Cheetham, Manchester 75m south of the site.
- 3.16 The site is not located within a Source Protection Zone.
- 3.17 The site is not located within 500m of a Source Protection Zone within a confined aquifer.
- 3.18 There is not a water network entry located within 250m 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 Irwell (Croal to Lrk) 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 5no. records of British Pits within 500m of the site. The nearest record refers to Broughton Street Brickworks, located 185m north west of the site.
- 3.23 There are 75no. records of historical surface ground working features, identified within 250m of the site boundary. The nearest record refers to Unspecified Ground Workings located on-site in 1894.

Mining and Other Underground Workings

- 3.24 The Coal Authority suggests that the site does not lie within an area affected by underground coal mining.
- 3.25 There are no records of non-coal mining areas located within 1km of the site.

- 3.26 There are no records for historical underground working features identified within 1km of the site.
- 3.27 There are 2no. records of historical mineral planning areas within 500m of the site. The nearest record refers to Broughton Street, surface mineral working located 39m northeast of the site in 1947.
- 3.28 There is 1no. record of researched mining identified within 500m of the site. This record refers to stone, located 28m southwest of the site. There are no records of mining record office plans and BGS mine plans within 500m of the site. However, there is 1no. record of coal mining located on-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.

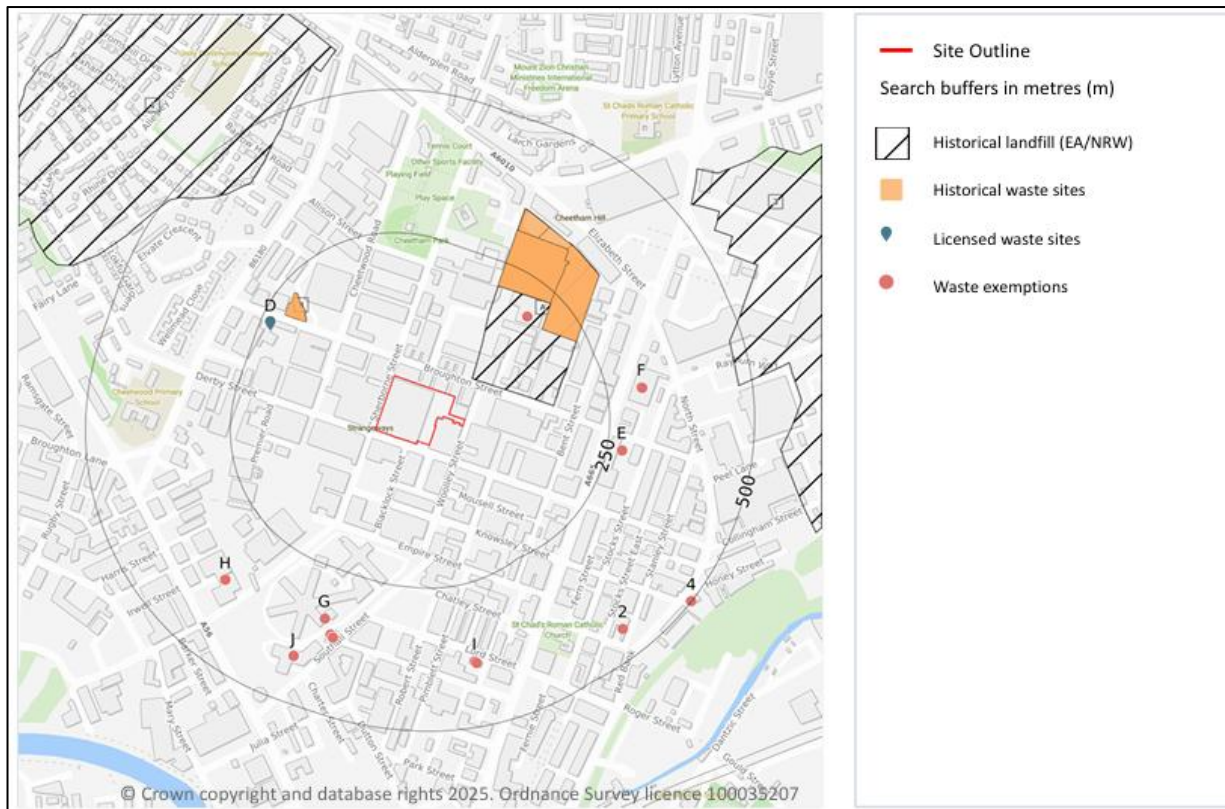
Radon Potential

- 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 records for 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 are 3no. records of historic Environment Agency landfill sites within 500m of the site. The closest record refers to Elizabeth Street, Cheetham, Greater Manchester located 44m northeast of the site.
- 3.37 There are 7no. records of historical waste sites within 500m of the site. The closest record refers to Scrap Metal Yard located 178m northwest of the site, dated 1973.
- 3.38 There are 2no. records of waste treatment, transfer, or disposable sites, within 500m of the site. Both records refer to Material Recycling Treatment Facility Kains Steel Drums, 49, Broughton Street, Manchester located 233m northwest of the site.

Figure 4: Waste and Landfill Map



Industrial Land Use Information

- 3.39 There are 238no. records of potentially contaminative historical land uses identified within 500m of the site. 6no. records are on site and refer to a police station (1906-1923), ground workings (1894) and commercial industrial (1931-1938).
- 3.40 There are 51no. records of historical tanks identified within 500m of the site. The closest record refers to an unspecified tank located 63m north of the site, dated 1958.
- 3.41 There are 66no. records of historical energy features identified within 500m of the site. The closest record refers to an Electricity Sub Station located on-site, dated 1950-1993.
- 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 58no. records of historical garage and motor vehicle repair sites identified within 500m of the site. The closest record refers to Motor Repair Works 120m southwest of the site dated 1962-1975.
- 3.45 There are no records for current petrol or fuel sites within 500m of the site.
- 3.46 There are 49no. records of potentially contaminative historical land uses identified within 250m of the site. 4no. records are on site including an electricity substation.

- 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 46no. historical railway and tunnel features identified within 250m of the site. The nearest feature refers to Tramway sidings located 51m north of the site and dated 1933.
- 3.50 There are no historical railway lines identified within 250m of the site.
- 3.51 There are no current active railway line records identified within 250m 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	0
Dangerous or Hazardous (COMAH and NIHS) 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	4
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	6
Pollution Inventory Substances, Wastes and Radioactive Wastes	0

- 3.56 There are 2no. Part A (2) and Part B Activities and Enforcements located within 500m of the site. The nearest record refers to historical permit for Respraying of Road Vehicles, located 485m south of the site.

- 3.57 There are 4no. Licensed Discharge Consents located within 500m of the site. The nearest record refers to Sewage Discharges/Sewer Storm Overflow Water Company located 384m southwest of the site.
- 3.58 There are 6no. Substantiated Pollution Incidents located within 500m of the site. The nearest record refers to minor land impact due to Household Waste, located 54m north 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 are 2no. records of Local Nature Reserves (LNR) located within 2km of the site. The closest record refers to the The cliff/ Kersal Dale located 1.8km northwest of the site.
- 3.65 There is no record of Designated Ancient Woodland located within 2km of the site.
- 3.66 There are no records of Biospheres, forests 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 5no. Nitrate Vulnerable Zones (NVZ) located within 2km of the site. The nearest record refers to Irwell/ Man. Ship Canal (Kearsley to Irlam Locks) NVZ located on-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, conservation areas, scheduled ancient monument and registered Parks and Gardens within 250m of the site.
- 3.74 There are 2no. records of listed buildings within 250m of the site. The nearest record refers to Former Boys Prison Block of HMP Manchester located 217m south of the site.

Potential Flood Risks

- 3.75 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.
- 3.76 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.
- 3.77 There are no records of flood defences within 250m of the site.
- 3.78 There are no records for areas benefitting from flood defences within 250m of the site.
- 3.79 There are no records of flood storage areas within 250m of the site.
- 3.80 The highest risk of surface water flooding occurring on site from a 1 in 1000-year event is 0.1m - 0.3m (within 50m).
- 3.81 The highest risk of groundwater flooding occurring on-site is moderate.

Unexploded Ordnance

- 3.82 The online Zetica UXO map shows the site within a moderate -risk zone. However, due to the close proximity to an existing building and its history, UXO supervision will not be required during site investigation.

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 back to 1848. 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	1:10,0560	<p>The site consists of open land, possibly used as landscaped grounds or agricultural fields. Site appears to have been a significant estate, with connections to landscaped gardens and leisure spaces.</p> <p>A small body of water (pond) is located near the central or eastern section of the site.</p>	<p>Residential development is visible northwest of the site with formal gardens, pathways and buildings indicating an organized estate possibly linked to the main site.</p> <p>A leisure or social area labelled 'Tea Gardens' is located west of the site.</p> <p>Natural features like streams and open fields are located southeast of the site suggesting agricultural land or undeveloped woodland.</p>
1850	1:1,056	There is no significant change compared to the previous map.	There is no significant change compared to the previous map.
1891	1:500	<p>Site is occupied by an Old Clay Pit indicating prior use for clay extraction.</p> <p>A large building or structure is now present in the southern part of the site.</p> <p>A small water feature is located towards the eastern section of the site.</p>	<p>Old Clay Pits located east and south of the site indicating expanded industrial excavation</p> <p>New buildings and structures are present northwest of the site, possibly linked to industrial or warehouse operations.</p> <p>A road network is visible around the site boundary.</p>
1892-1893	1:2,500	There is no significant change compared to the previous map.	<p>Number of Clay Pits in the surrounding area has increased showing continued widespread excavation.</p> <p>Brick Works facility has developed northeast and southwest of the site.</p> <p>Residential area located east of the site.</p>

Date	Scale	On-Site History	Surrounding Land Use History
			<p>Roads and pathways appear more developed around the site boundary.</p> <p>Land northwest and southwest of the site remains largely industrial.</p>
1891-1894	1:10,560	There is no significant change compared to the previous map.	There is no significant change compared to the previous map.
1906	1:10,560	Police station located southeast on site indicating a shift from industrial use to civic structure.	<p>Surrounding area has become more urbanized with a denser arrangement of roads, and buildings.</p> <p>Brick Works still exist northwest and northeast of the site boundary, but some areas have been repurposed for institutional and residential use.</p> <p>His Majesty's Prison and Assize courts are now prominent to the South.</p> <p>Electrical Substation located southwest of the site.</p> <p>Iron Works located southeast of site.</p> <p>Victoria Station located 750m South of the site.</p>
1908	1:2,500	There is no significant change compared to the previous map.	There is no significant change compared to the previous map.
1916-1921	1:10,560	There is no significant change compared to the previous map.	Residential or commercial structure located southeast of the site.
1922	1:2,500	Minor changes to the layout of Police Station on-site.	Ice Palace building located southeast of the site.
1923	1:10,560	There is no significant change compared to the previous map.	There is no significant change compared to the previous map
1931-1933	1:10,560	Police Station remains but with a new building attached centrally on-site.	<p>The Brick Works has changed to Printing Works southwest of the site.</p> <p>New buildings possibly commercial or industrial, have been developed west and southwest of the site.</p>
1933	1:2,500	The Aquatite Mill is centrally located on-site.	Chemical works building located southeast of the site.
1938	1:10,560	There is no significant change compared to the previous map.	Cheetham Park and a Football Ground located northwest of the site.
1949- 1951	1:1,250	The Aquatite Mills has undergone expansion, extending into the north and northeast areas of the site.	The North Western Electricity Board and Manchester Regional Hospital Board Headquarters located northwest of the site.

Date	Scale	On-Site History	Surrounding Land Use History
1950-1951	1:2,500	There is no significant change compared to the previous map.	There is no significant change compared to the previous map.
1952-1954	1:1,250	The site is now occupied by an Electrical Engineering Works located central and west of the site boundary.	There is no significant change compared to the previous map.
1956	1:10,560	There is no significant change compared to the previous map.	Recreational Ground located east of the site boundary.
1959	1:2,500	There is no significant change compared to the previous map.	There is no significant change compared to the previous map.
1958-1964		There is no significant change compared to the previous map.	There is no significant change compared to the previous map.
1968-1974		There is no significant change compared to the previous map.	North West Electricity Board Headquarters located northwest of the site boundary.
1972-1977		There is no significant change compared to the previous map.	There is no significant change compared to the previous map.
1980-1985		There is no significant change compared to the previous map.	The map shows urban developments with Strangeways Prison still present to the southwest. The density of buildings and infrastructure in the surrounding area might have increased or changed in function.
2001		Structures on site appear to have been demolished or repurposed, likely to make way for newer developments.	Possible expansion of road networks leading into Cheetham Hill. Caravan Park located east of site boundary. Arena located south of site boundary, attached to Victoria Station.
2010		There is no significant change compared to the previous map.	River Irwell located southwest, southeast and northeast of site boundary.
2025		There is no significant change compared to the previous map.	Increased green spaces or landscaped areas may be visible.

Table 3: Summary of Site History from Aerial Photographs

Date	On-Site History	Surrounding Land Use History
2000	The photograph is unclear but shows the site is occupied by commercial or industrial units located centrally of the site. The remainder of the site consists of hard surfaced areas used for parking	The site is surrounded by public roads Derby Street to the South and Sherbourne Street to the west. Industrial and commercial buildings to the north and northeast, and warehouse units and service yards to the east.
2009	There is no significant change compared to the previous photograph.	Signs of demolition located approximately 30m south of site.
2015	There is no significant change compared to the previous photograph.	Two new commercial or industrial units built south of site.
2022	There is no significant change compared to the previous photograph.	Signs of demolition located northeast of site. Green space located southwest of the site.
2023	There is no significant change compared to the previous photograph.	There is no significant change compared to the previous photograph.

- 4.4 The site was initially mapped as open land in 1848, likely used for landscaped grounds or agriculture, with a pond in the eastern section. By 1891, it became occupied by an Old Clay Pit with a large structure added to the southern area. In 1906, a police station marked a shift towards civic use. The Aquatite Mill was centrally established by 1933, expanding further between 1949 and 1954. By 1952, structures were demolished, and the site transitioned to Electrical Engineering Works. From 1972-1974, the site remained largely unchanged and later developed central commercial and industrial units with parking by 2001. Structures were repurposed or demolished in subsequent years, leading to modern developments by 2025.
- 4.5 Offsite, from 1848, residential developments with formal gardens and pathways were visible northwest of the site, indicating an organized estate. By 1891, industrial activity expanded with Old Clay Pits and structures east and south, alongside new buildings northwest, likely industrial or warehouse operations. Between 1892-1893, widespread clay pits and brickworks developed northeast and southwest, with roads becoming more established. In 1906, major civic and industrial additions included His Majesty's Prison and Assize Courts to the south, an Electrical Substation southwest, Iron Works southeast, and Victoria Station 750m south. By 1922, commercial growth included the Ice Palace southeast of the site, while by 1933, Printing and Chemical Works replaced earlier industries southwest and southeast. Cheetham Park and a football ground emerged northwest by 1938. Between 1980-1985, surrounding buildings and infrastructure increased in density or changed function, with road networks expanding significantly by 2001, particularly into Cheetham Hill, reflecting ongoing urbanization

Figure 5 OS Map Extract 1850



Figure 6 OS Map Extract 1891

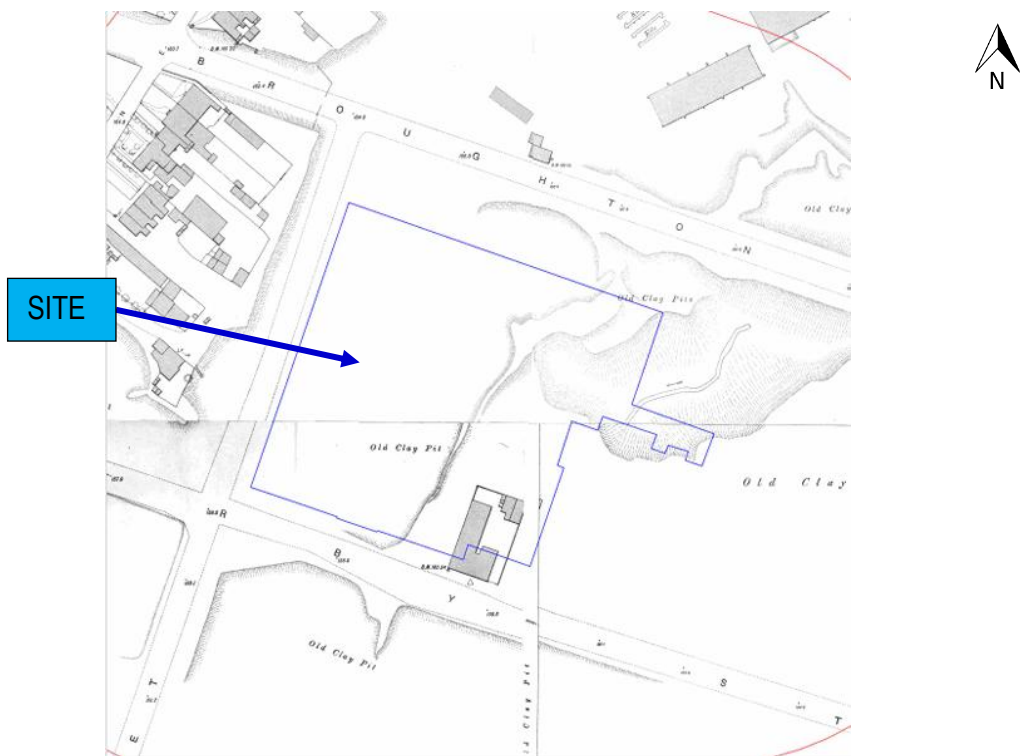


Figure 7 OS Map Extract 1950-1951

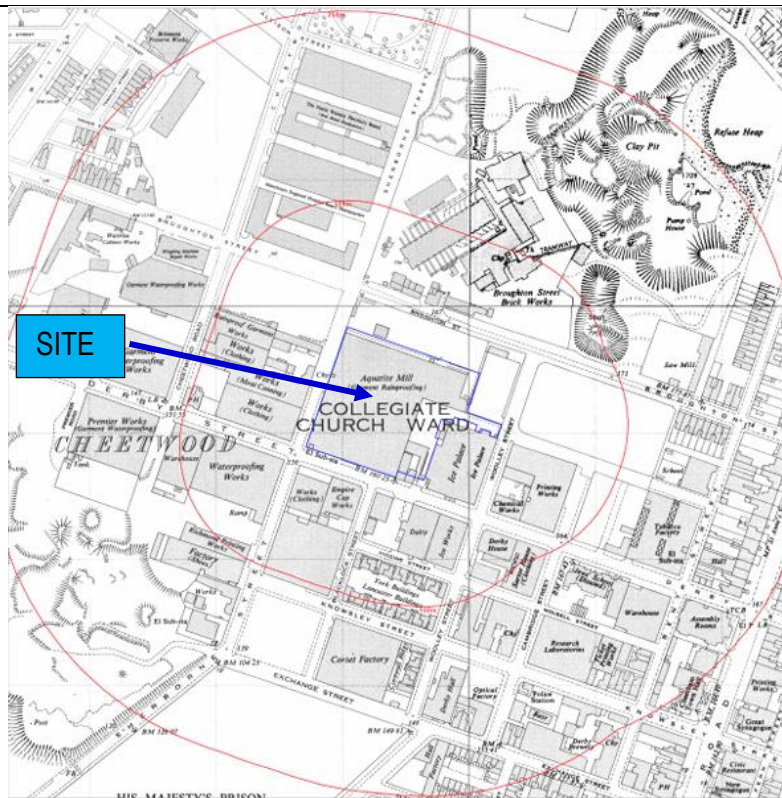
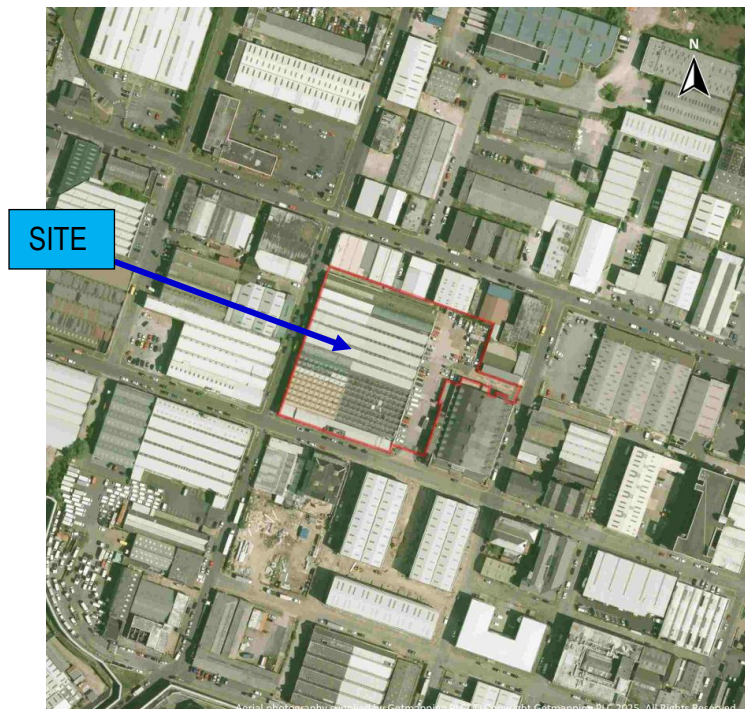


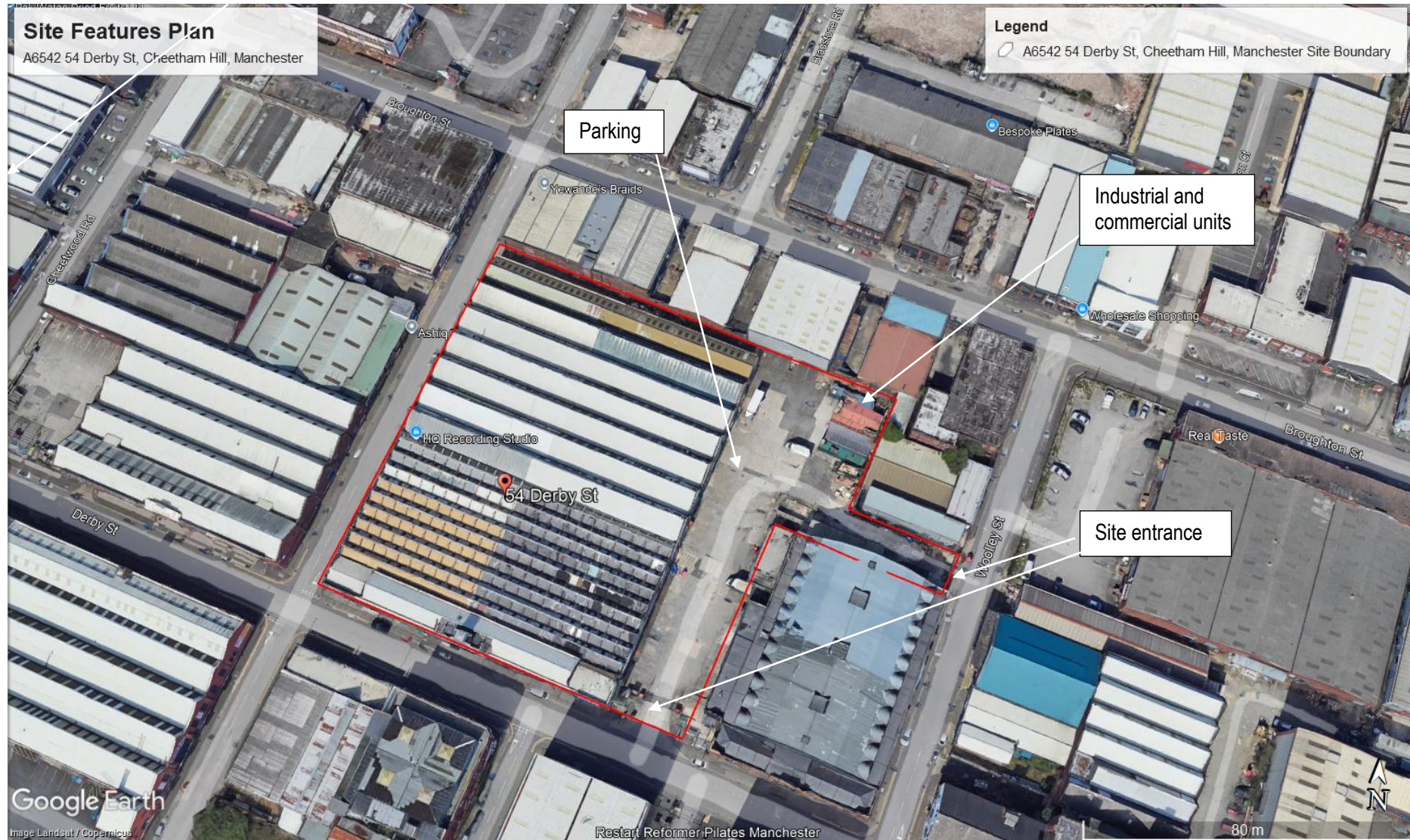
Figure 8 Aerial Photograph 2019



5.0 SITE WALKOVER SURVEY

- 5.1 A walkover survey was completed on 24th March 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 Woolley Street. Access can also be gained via an entrance to the south of the site which leads to Derby Street.
- 5.3 The site mostly consists of hard surfaces, including asphalt and concrete areas with industrial and commercial buildings located in the southern (Restart Reformer Pilates, Manchester), eastern (Hazrat Sultan Bahu Trust, Manchester), and central parts of the site (Concrete yards and open spaces). Soft Landscape areas can be found Western, Northwestern, Northeastern and Eastern site boundaries.
- 5.4 The surface development of the area has transformed much of the natural environment into hard landscapes consisting of paved roads, concrete structures, and industrial buildings. Soft landscape areas of the site consist of small patches of vegetation and overgrown areas along the western, northwestern, and northeastern boundaries near the edges of the warehouses. There are no significant tree-lined areas or large green spaces directly within the site.
- 5.5 The site is relatively flat.
- 5.6 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.
- 5.7 The site is surrounded by Derby Street to the South, Sherbourne Street to the west, industrial and commercial buildings to the north and northeast, and warehouse units and service yards to the east.

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 commercial 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 potential for the presence of contamination associated with the following:

- Made ground associated with the construction of previous onsite developments.
- Ground gases associates with infilling of former brick quarry.
- Former printing works.
- Asbestos from current and previous onsite developments.

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	Likely	Low	Moderate to Low	The site is currently hard surfaced in the areas of previous clay pit. There is potential made ground within the soils below the site, contact is likely to be limited. The risk is therefore considered to be MODERATE TO LOW .
		Adjacent land users	Likely	Low	Moderate to Low	Both, commercial and industrial properties surround the site as well as a public road. There is potential for made ground below the site and the site is almost completely hard surfaced. Therefore, the risk is considered to be MODERATE TO 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 erect a single storey building comprising 2no. units (B8 storage or distribution) with associated alterations to car parking layout. The site consists of completely hard surface. There is a potential source of made ground below the site. The risk to future site users via direct exposure is considered to be 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	Likely	Low	Moderate to Low	Shallow groundwater may be present beneath the site. Sources of contamination are present and there are 4no. abstraction licenses located within 250m of the site. Underlying soils are a mixture of granular and cohesive particles. Considering the age and type of backfilled material, the risk to groundwater is therefore considered to be MODERATE TO LOW .
	Lateral migration in surface waters	Current Site Users	Unlikely	Low	Very Low	There are no nearby surface water features. Therefore, the risk is considered to be VERY LOW .
	Vertical or lateral migration of ground gas	Current Site Users	Low Likelihood	Low	Low	There is potential for made ground below the site. Underlying soils are considered to be a mixture of granular and cohesive materials. Considering the age of backfilled material, the risk to current site users from ground gas is considered to be LOW .
		Adjacent land users	Low Likelihood	Low	Low	There is potential for made ground below the site. Underlying soils are granular. Considering the age of potential made

Source	Pathway	Receptor	Probability	Consequence	Risk	Comment
						ground, the risk to adjacent site users from ground gas is considered to be LOW .
		Future land users	Low Likelihood	Moderate	Low	There is potential for Made Ground from former development at the site and other potential sources are considered of low risk. Considering the age of potential made ground, the risk to future land users from ground gas is considered to be LOW .
		Construction Workers	Low Likelihood	Moderate	Moderate to 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 considered to be MODERATE TO LOW .
Asbestos Containing Material (ACM)		Current Site Users	Unlikely	Moderate	Low	There is potential for asbestos to present in the made ground onsite due to former land use. However, the site is mostly hard surfaced. Therefore, risk to current site users is considered to be LOW .
		Adjacent land users	Low Likelihood	Moderate	Moderate to 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 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	Low	The proposed commercial development includes the construction of a single-storey building consisting of two units. Disturbance of potential ACM by future land users may allow fibres to become airborne. However, the proposed development is 100% hard surfaced and sources of ACM is limited. Therefore, the risk is considered to be LOW .
		Construction Workers	Low Likelihood	Moderate	Moderate to Low	Construction workers may be exposed to potential asbestos in soils. The risk is considered MODERATE to 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
Collapse 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 an area affected by underground coal mining.

Table 8: Summary of Geotechnical Considerations

Geotechnical Design Considerations	
Site Clearance	Site clearance will not be required.
Trees	Site is 100% hardstanding with no significant tree coverage and no obvious signs of vegetation stress or contamination impacts.
Existing Buildings/Obstructions	Commercial buildings are located centrally, southeast northwest, southwest on- site. The remainder of the site predominantly consists of hard surfaced asphalt and concrete areas.
Foundations	The depth and type of proposed foundations would depend on the ground conditions present on site. A piled foundation solution may be required due to former clay pits located on-site. The site is underlain by Superficial till deposits and the Chester Pebble Beds Formation.
Floor Slabs	A suspended floor slab may be required due to former clay pits located in the position of the proposed development. However, verification of the ground would be required.

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.
Soakaways	Soakaways are considered to be potentially feasible on the site.
Earthworks	It is unlikely that any major earthworks will be required on the site.
Slopes	The site is relatively flat.
Retaining Walls	At the northern end of the site, a collapsed retaining wall is present, behind which built-up soils are observed, containing made ground.
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 The earliest available historical mapping covering the site dates back to 1848, where the site location appears to have been a significant estate, with connections to landscaped gardens and leisure spaces. In 1891, the site was occupied by an Old Clay Pit indicating prior use for clay extraction. Additionally, a large building or structure was present in the southern part of the site. In 1906 a Police Station was located southeast on site indicating a shift from industrial use to civic structure.
- 8.2 During 1931- 1933 the Police Station remained but with a new building, Aquatite Mill attached centrally on-site. From 1949- 1951 The Aquatite Mills had undergone expansion, extending into the north and northeast areas of the site. During 1952- 1954 the site was then occupied by an Electrical Engineering Works located central and west of the site boundary. In 2001, structures on site appear to have been demolished or repurposed, likely to make way for newer developments.
- 8.3 There is potential for the presence of contamination associated with the following, Made ground associated with the construction of previous onsite developments, ground gases from previous quarry infilling and asbestos from current and previous onsite developments.
- 8.4 The site is recorded to be underlain by superficial deposits of Devensian till, generally comprising of till, sand and clay with or without boulders.
- 8.5 The bedrock geology beneath the site is shown to be of the Triassic Chester Formation generally comprising of reddish orange fine to coarse sandstone.
- 8.6 The overall risk from soil contamination to commercial end users and construction workers is concluded to be **MODERATE to LOW**.
- 8.7 The risk to controlled waters is concluded to be **LOW** based on the limited source potential and absence of nearby surface water features.
- 8.8 Although possible ground gas sources are present onsite and within 250m of the site, due to the age of infilled material, the risk from ground gas to end users is therefore considered to be **MODERATE to LOW**.
- 8.9 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.
- 8.10 The site does not lie within a flood plain.
- 8.11 The online Zetica UXO map shows the site within a moderate -risk zone. However, due to the close proximity to an existing building and its history, UXO supervision will not be required during site investigation.
- 8.12 Strip or pad foundation are likely to be suitable at the site.
- 8.13 Ground bearing slabs are likely to be feasible at the site and will need to be examined further.
- 8.14 Soakaways are considered to potentially be feasible on the site.

Recommendations

- 8.15 A site investigation is required, which may involve drilling boreholes to recover soil samples for contamination testing and assess ground conditions for foundation design.
- 8.16 As part of the investigation, it is recommended that ground gas monitoring be undertaken.

APPENDIX 1

GROUNDSURE REPORTS

APPENDIX 2

SITE PHOTOGRAPHS

<p style="text-align: center;">Earth Environmental & Geotechnical Ltd</p> <p> Tel: 0161 975 6088 Email: info@earthenvironmental.co.uk Web: www.earthenvironmental.co.uk </p>	<p style="text-align: center;">SITE PHOTOGRAPHS</p> <p style="text-align: center;">  </p>
<p style="text-align: center;">Job No.: A6542</p>	<p style="text-align: center;">Site: 54 Derby Street, Cheetham Hill, Manchester.</p>
<p style="text-align: center;">Plate 1 View of Southern site access</p>	<p style="text-align: center;">Plate 2 View of eastern site access</p>
	
<p style="text-align: center;">Date: 24th March 2025</p>	<p style="text-align: center;">Date: 24th March 2025</p>
<p style="text-align: center;">Plate 3 View facing north east showing commercial wheelie bins, household waste and wooden pallets.</p>	<p style="text-align: center;">Plate 4 View facing east showing cardboard skip.</p>
	
<p style="text-align: center;">Date: 24th March 2025</p>	<p style="text-align: center;">Date: 24th March 2025</p>

Plate 5 View facing central north showing on-site controlled fire burning waste.



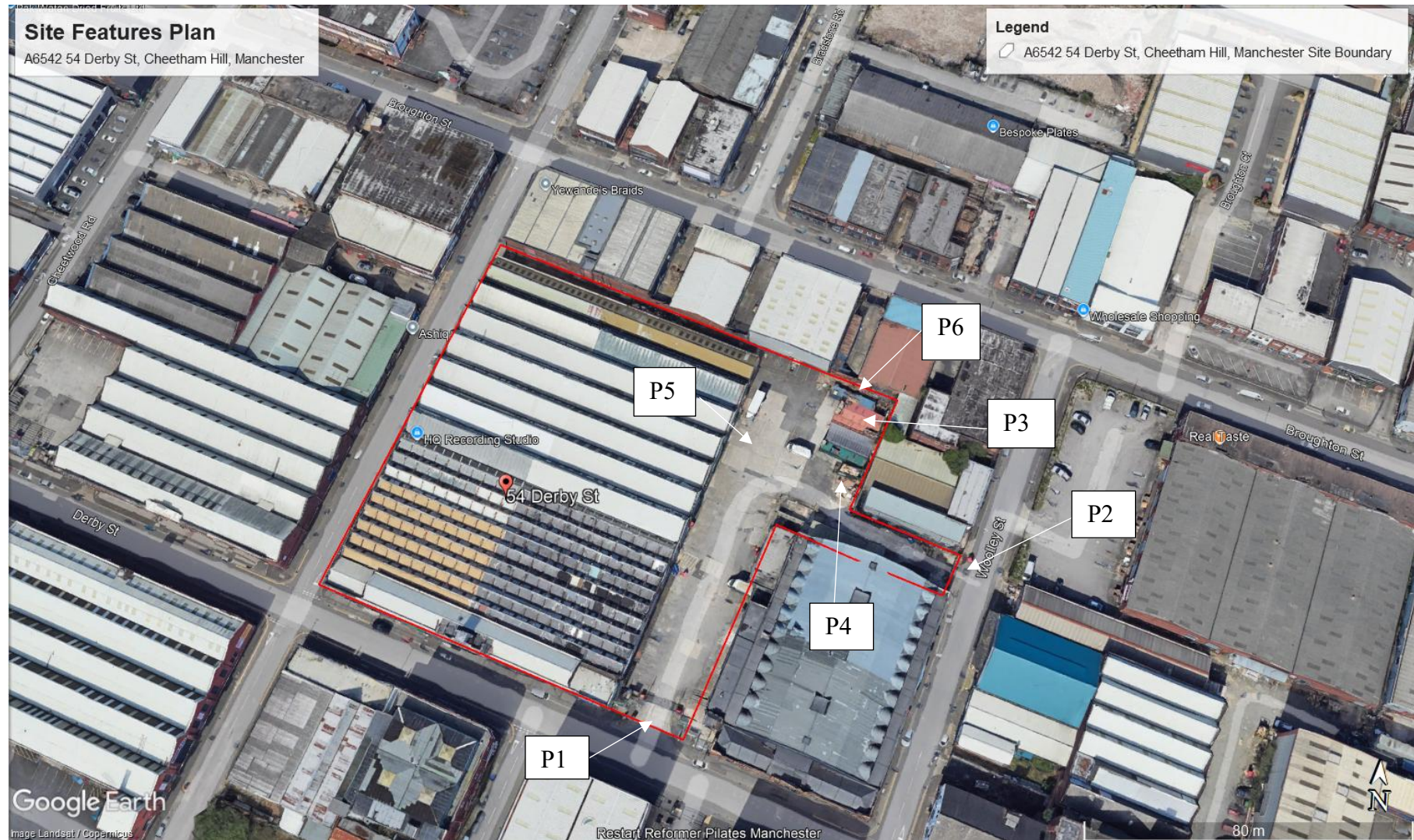
Date: 24th March 2025

Plate 6 View facing northeast showing retaining wall.



Date: 24th March 2025

Figure 10: Site Walkover Photograph Locations



APPENDIX 3

SITE WALKOVER NOTES

WALK OVER SURVEY REPORT

Site: 54 Derby St, Cheetham Hill, Manchester

Date: 24th March 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	<p>Description required for:</p> <p>Town/Country/Suburb Setting</p> <p>Industrial/Residential/Retail Usage</p> <p>Current Site use (if undertaking security and access to the site)</p>		<p>Urban Setting within Cheetham Hill, Manchester.</p> <p>Industrial units specializing in shelving, mail distribution, traders toy shops and a sun bed studio.</p>
Evidence of Past Activities	<p>Are there:</p> <p>Any relevant street names in area?</p> <p>Features or relics which indicate past history?</p>	<p>Yes/No</p> <p>Yes/No</p>	
Geographic Setting	<p>Description required for:</p> <p>Low lying flood plain/dry valley/rolling hills etc.</p>		<p>The site is within a relatively flat urban area with no significant elevation changes. River Irwell is located Southwest, posing a potential flood risk.</p> <p>Rolling hills that could have been flattened.</p>
Ground Conditions	<p>Is there any evidence of:</p> <p>Mining, Mine entries Subsidence</p> <p>Landslip/slope erosion</p> <p>Former investigation works</p>	<p>Yes/No</p> <p>Yes/No</p> <p>Yes/No</p>	<p>No known mining history in immediate vicinity. No visible evidence of subsidence.</p> <p>Area is relatively flat with no significant slope erosion concerns.</p> <p>Potential past site investigations linked to industrial use.</p> <p>The tarred land obscures visible evidence of mining, subsidence, landslip, or investigations.</p>

Desk Study features checked during site visit	Feature and Information required	Present	Description / Comments
Topography	<p>Description required for:</p> <p>Are there apparent differences between site and surrounding area? (If yes describe the presence of retaining walls, and slopes).</p> <p>Is there evidence of Made Ground / Fill on site?</p>	<p>Yes/No</p> <p>Yes/No</p>	<p>There are noticeable differences between the site and its surrounding area. At the northern end of the site, a collapsed retaining wall is present, behind which built-up soils are observed, containing made ground.</p> <p>There is evidence of made ground or fill material on the site.</p>
Site Boundaries and Neighbours	<p>Description required for:</p> <p>Type of boundary demarcation (if any) on each side of site, usage of adjacent land and name of industrial/commercial occupiers.</p> <p>Note any adjacent features such as water course and other potentially environmentally sensitive uses (residential, school, infirmary, SSSI etc)</p>		<p>The central north of the site features a brick wall. To the northeast and southeast, there are outer walls of commercial buildings. The central east is open land, while the south is bordered by a metal fence. The west side also has an outer wall of a commercial building, and the northwest includes a metal gate.</p>
Vegetation	<p>Are there any vegetation/trees on or close to site (if yes describe locations, type, maturity, etc)</p> <p>Is there any evidence of poor health / distress?</p>	<p>Yes/No</p> <p>Yes/No</p>	<p>100% hardstanding with no significant tree coverage and no obvious signs of vegetation stress or contamination impacts.</p>
Ground Surface	<p>Are there areas of hardstanding and estimate the split between hard and soft cover? (If yes describe locations, types, and conditions).</p> <p>Is there any evidence of any spillages or staining?</p>	<p>Yes/No</p> <p>Yes/No</p>	<p>The site consists of approximately 5% soft landscaped areas and 95% hard surfaced areas.</p> <p>Plenty of staining observed for industrial purposes. Abundance of ash in northern area of the site. Isolated oil patches northeast of site boundary.</p>

Desk Study features checked during site visit	Feature and Information required	Present	Description / Comments
Site Drainage	<p>Are there any drain covers / soakaways (if yes describe locations)</p> <p>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)</p> <p>Where a watercourse runs alongside or crosses a site are there any differences in visible water quality upstream and downstream of the site?</p>	<p>Yes/No</p> <p>Yes/No</p> <p>Yes/No</p>	<p>Drainage runs through central areas of the site from north to south along a tar road. More drains are joined east to west of the site. Drain located central northern and eastern site boundary.</p>
Electrical Equipment	<p>Are there any electricity sub stations on or adjacent to the site? Are there any electrical transformers, capacitors, pylons etc on site?</p>	Yes /No	<p>No substations observed within or immediately adjacent to site.</p> <p>No evidence of electrical transformers, capacitors or pylons on site.</p>
Buildings	<p>Is there any evidence of asbestos construction materials e.g. roofing, insulation materials.</p> <p>Do any buildings have basements?</p> <p>Do any buildings have a boiler room (if yes, describe fuel type and storage arrangements)?</p>	<p>Yes/No</p> <p>Yes/No</p> <p>Yes/No</p>	

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?	Yes/ No	Cardboard skip and seven commercial waste wheelie bins located on site.
	Are waste storage facilities adequate?	Yes /No	Litter scattered throughout site such as household waste and wooden pallets.
	Is there any litter/fly tipped material?	Yes/ No	
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	<p>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.</p> <p>Identify possible site office and storage locations.</p> <p>Identify possible water supply</p>		<p>Site is accessible.</p> <p>Water is available in commercial units by a tap. No water source outside of commercial units.</p>
Site Environs	Are there any local features that could have a harmful influence e.g. landfill, industrial processes, railway land?	Yes /No	
	Are there any sensitive water features/courses near to the site?	Yes /No	
Local Knowledge / Anecdotal Evidence			
Site Dimensions	Describe shape of Site in plan and measure dimensions.		The site is an irregular shape and is approximately 120m in length (southwest to northeast) and 110m in width (northwest to southeast). It is 1.04ha.

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.