13. Ground Conditions

Appendix 13.1 - Phase I Desk Study. Civic Earth. 2023

Civic Earth

Job Title
Mayfield Phase 1B

Prepared for
LandsecU+I

Report Type
Phase 1 Desk Study and Data Review

Date
16 November 2023



Contents

1. Introduction 3
2. Site Context 4
2.1 Site Location 4
2.2 Site Description 4
2.3 Proposed Development 5
3. Historical Development 7
3.1 Sources of Information 7
3.2 Site History 7
3.3 Planning History 10
4. Anticipated Ground Conditions 12
4.1 Published BGS Geology 12
4.2 Unpublished BGS Geology 13
4.3 Surface Mining and Ground Workings 13
4.4 Hydrology and Hydrogeology 14
4.5 Ground Hazards 14
5. Environmental Setting 16
5.1 Environmental Disclosure Report 16
5.2 Radon 17
6. Previous Investigations 18
6.1 Introduction 18
6.2 Ground Conditions 18
6.3 Groundwater Conditions 19
6.4 Ground Contamination 20
6.5 Groundwater Contamination 21
6.6 Ground Gas 21
6.7 Remediation and Validation Works 22
6.8 Limitations of Existing Site Investigation 24
7. Preliminary Risk Assessment 25
7.1 Introduction 25
7.2 Preliminary Conceptual Site Model 25
8. Geotechnical Preliminary Risk Assessment 32
9. Conclusions and Recommendations 33
9.1 Conclusions 33
9.2 Recommendations 33

Plates

Plate 1: Approximate Site Location Plan (©OpenStreetMap Contributors) 4
Plate 2: OS MasterMap Site Plan (excerpt from Enviro + Geo Insight Report) 5
Plate 3: Conceptual Sketch for Proposed Redevelopment (Shedkm Architects Limited Feasibility Report Review) 6
Plate 4: UXO Risk Mapping 11
Plate 5: Superficial Deposits (based on excerpt from Groundsure Enviro + Geo Insight Report) 12
Plate 6: Bedrock Geology (based on excerpt from Groundsure Enviro + Geo Insight Report) 12
Plate 7. Excerpt from Groundsure Enviro + Geo Insight Report illustrated Worked Ground / Made Ground 13
Plate 8: ROC 2020 Ground Investigation Exploratory Hole Location Plan for "Zone 5" (Approximate Site Boundary in Red) 18
Plate 9: Summary of ROC Soil Contamination 21
Plate 10. Illustrative Conceptual Site Model 31

Appendices

Appendix A: Site Walkover Record and Photographs

Appendix B: Historical Maps

Appendix C: Groundsure Enviro + Geo Insight Report

Appendix D: Detailed UXO Risk Assessment

Appendix E: BGS Records

Appendix F: Risk Assessment Methodology

Phase 1 Desk Study and Data Review

Prepared by	**Kirsty Poore MSc MSci (Hons) CGeol FGS ARSM ROGEP**
Reviewed by	Dan Matthews BEng CSci CEnv MIEnvSc
Report Ref.	51001-CE-02-XX-R-G-1001
Issued	16/11/2023
Status	P02

This report is the copyright of Civic Earth and is for the sole use of the person/organisation to whom it is addressed. It may not be used or referred to in whole or in part by anyone else without the express agreement of Civic Earth. Civic Earth do not accept liability for any loss or damage arising from any unauthorised use of this report. Civic Earth is a trading name of Civic Earth Ltd (registered number 14897633), which is a limited company registered in England, registered address Carver's Warehouse, 77 Dale Street, Manchester M1 2HG.

© Civic Earth 2023

1. Introduction

Civic Earth Limited was appointed on 19 October 2023 by Civic Engineers on behalf of LandsecU+I (the Client) to undertake a Phase 1 Desk Study, data review and Preliminary Risk Assessment for the proposed redevelopment of the Mayfield Phase 1B development area (herein referred to as "the site"). The Phase 1B development area forms part of the wider Mayfield Development.

A desk study was previously carried out for the wider Mayfield Development by BuroHappold Engineering (BuroHappold) in 2017[1], which included the site. A ground investigation was subsequently carried out within the site by ROC Consulting (ROC) in 2020[2].

The aim of this report is to evaluate potential human health, environmental and geotechnical risks and constraints associated with the proposed development, including:

- Information obtained from a review of available historical mapping and environmental disclosure report for the site and the previous BuroHappold desk study report[1];
- A summary of the anticipated ground conditions and associated geotechnical and geoenvironmental constraints based on review of available published and unpublished sources and previous site investigation data[2];
- A preliminary qualitative contamination source-pathway-receptor risk assessment based on the available desk study information and the current proposed redevelopment plans; and
- Recommendations for ground investigation and further assessment, if required.

This document is intended to support the planning application for the development and to inform the scope for further site investigation, if required. It is assumed that ecological and archaeological desk studies/assessments will be undertaken by others and fall outside the scope of this report.

[1] BuroHappold (2017) *Mayfield Regeneration. Geoenvironmental and Geotechnical Desk Study Report*. Reference 035548 Revision 0. 10 August 2017.
[2] ROC (2020) *Mayfield Park. Phase 2 Site Investigation.* Reference 4153-ROC-XX-XX-RP-ES-P2SI1 Revision R1. 22 December 2020.

2. Site Context

2.1 Site Location

The site is located off Hoyle Street in Manchester. The approximate postcode for the site is M12 6HW. The National Grid coordinates for the approximate centre of the site are 385200E, 397499N and the site is approximately 1.43 ha in size. The site location is illustrated in Plate 1.

Plate 1: Approximate Site Location Plan (©OpenStreetMap Contributors)



2.2 Site Description

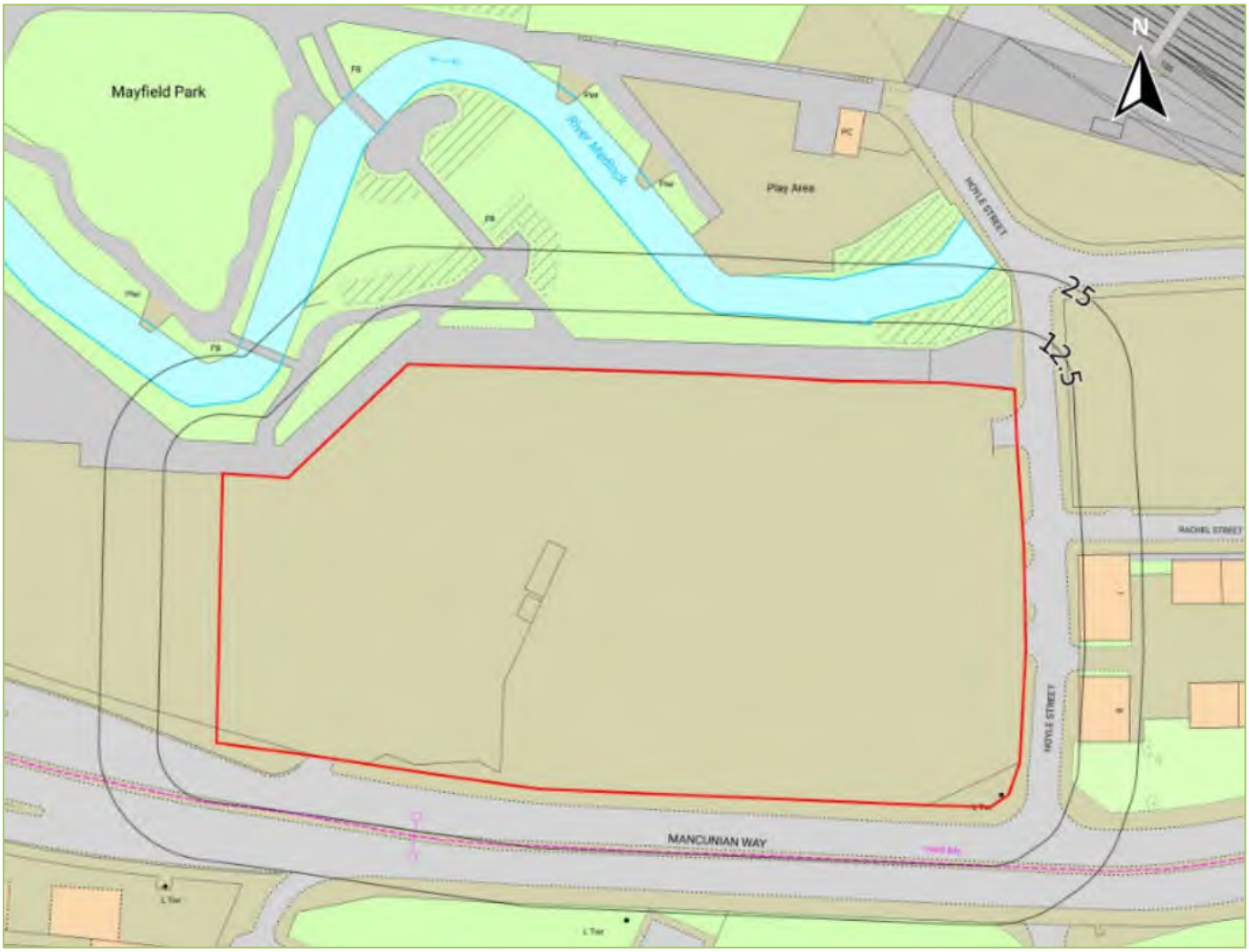
A site walkover was carried out on 2 November 2023 by an engineer from Civic Earth and full details of the site walkover are included in the site walkover record and photographs included in Appendix A. The site layout is illustrated in Plate 2.

The site is roughly rectangular is shape and bounded to the north by Mayfield Park, to the east by Hoyle Street, to the south by Mancunian Way (A635) and to the west by the Phase 1A area of the Mayfield Development. The site is currently an unoccupied parcel of land following the recent completion of earthworks across the wider Mayfield Development. It is understood from Civic Engineers that the site was used as a stockpiling and soil remediation area during the works; earthworks were carried out across Mayfield Park to the north and the Phase 1A area to the west, however, it is understood that no earthworks were carried out within the site. Dense vegetation is present along the southern and eastern site boundaries and vegetation clearance works were being carried out at the time of the site walkover. Evidence of the previous site buildings' ground slabs and cobblestone roads were also observed.

Current ground level ranges from approximately +37.5m above ordnance Datum (mOD) in the western third of the site to approximately +42mOD (approximate street level) in the east of the site, with a gentle slope down towards the northern site boundary from the access route off Hoyle Street. A brick retaining wall, orientated north-south, separates the lower western area of the site and extends two thirds of the way into the site from the south boundary. A structural engineer from Civic Engineers Limited advised that the retaining wall is likely to have been

a basement retaining wall given the presence of a cobbled access route to the east of the wall, and likely to be of brick and mortar construction only. An electrical substation is located towards the northern end of the retaining wall. A second, smaller retaining wall was observed to the west of the main retaining wall, with a historical access route from Mancunian Way to the east of this second wall at a higher ground level.

Plate 2: OS MasterMap Site Plan (excerpt from Enviro + Geo Insight Report)



2.3 Proposed Development

It is understood that the current proposals for the redevelopment of the site include the construction of three plots (Plot J, K and L) between approximately 6 and 14 storeys in height. The locations of the Plots within the site are illustrated in Plate 3.

Plate 3: Conceptual Sketch for Proposed Redevelopment (Shedkm Architects Limited Feasibility Report Review)



3. Historical Development

3.1 Sources of Information

The historical development of the site has been traced from Ordnance Survey mapping (included in Appendix B) and historical satellite mapping included in the Groundsure Enviro + Geo Insight report (included in Appendix C). In addition, pertinent information on the site's history contained within the BuroHappold desk study review[1] has been included.

3.2 Site History

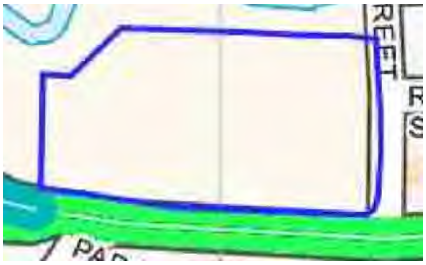
3.2.1 On-Site

The pertinent history of the site is summarised in Table 1 along with relevant excerpts from historical maps and aerial photographs.

Table 1: Summary of Site History

1851 – 1:1,056	1889 – 1:2,500	1908 – 1:2,500
		
The south of the central and eastern site areas is occupied by the terraced residential properties of Selby Street, Ashton Street and Egerton Street. Brodie Street is located towards the northern site boundary with buildings associated with the off-site *Britannia Brewery* encroaching onto the north of the site. Chapel Field Lane dissects the site north-south to the west of the residential properties, with a *Reservoir* beyond Chapel Field Lane. Buildings, including a *Boiler*, are present along the northwest site boundary associate with the off-site *Tannery* and *Ardwick Dye Works*.	The northeast of the site is now occupied with residential properties with a new access road, Charlie Street, constructed between the properties. Additional residential properties have also been constructed within the south of the site, to the west of Chapelfield Lane. An Inn is indicated in the southeast corner of the site. The *Reservoir* is no longer indicated and large industrial buildings associated with *Chapelfield Works (Indiarubber)* which is indicated in place of *Ardwick Dye Works*. The southwest corner of the site remains undeveloped, and buildings associated with *Ardwick Tannery* occupy the northwest corner of the site.	The site remains predominantly unchanged from the 1889 mapping with the exception of the northwest corner of the site where a *Chimney* is now indicated, and additional small structures are present in the southwest corner of the site (associated with the off-site *Water Meter Works)*.

1922 – 1:2,500	1948 – 1:1,250	1964 – 1:1,250
		
The site remains predominently unchanged from the 1908 mapping with the exception of the south of the western area where the residential properties to the west of Chapelfield Lane have been demolised and replaced by a large industrial building. The east boundary of the building appears to align with the prsent day retaining wall observed within the site.	An *Ash Hopper* is indicated in the northwest of the site, associated with *Chapelfield Works (Indiarubber).* The majority of the residential properties across the central and eastern areas of the site have been demolished, with six unnamed buildings now present across the central area of the site. In addition, the *Brewery* that encroached onto the northeast of the site is no longer indicated (and is identified as *Ruins* on mapping of 1950). The *Inn* is now identified as a *Public House.*	The remaining residential properties have been cleared and a *Works* is indicated across the northeast area of the site. Two additional buildings are indicated adjacent to the east site boundary, and the large rectangular structure towards the middle of the site has been demolished and a smaller sqaure structure indicated adjacent to the *Works*. The west site area, to the west of Chapelfield Lane, remains relatively unchanged.
1968 – 1:2,500	**1986 – 1:1,250**	**2001 – 1:10,000**
		
The Public House and small neighbouring structures have been demolished. The configuration of the *Works* building in the northeast of the site has changed and extended to the south and west and a *Rubber & Plastic Works* is now located across the southeast area of the site. The west site area, to the west of Chapelfield Lane, remains relatively unchanged with the exception fo the southwest corner where a *Water Meter Factory* encroaches onto the site. Two unidentified structures also encroach onto the northeast of the site.	The *Rubber & Plastic Works* and *Water Meter Factory* are now indicated as *Works*. Three *Tanks* are indicated within the site, two within the centre of the site and one in the south of the site. The large industrial structures that occupied the west of the site, to the west of Chapelfield Lane, have been demolished. In addition, the northwest area of the site has predominantly been cleared from the *Chapelfield Works (Indiarubber)* buildings.	The site remains predominantly unchanged in layout from the 1986 mapping and is identified as *Hoyle Street Industrial Estate.*

2003 – 1:1,250	2009 – Aerial Photography	2015 – Aerial Photography
		
The site remains predominantly unchanged in layout from the 1986 mapping. The site is identified as *Hoyle Street Industrial Estate* on the 2001 1:10,000 scale mapping.	The site remains in a similar layout to the 2003 mapping. The south of the west area of the site, between the two retaining walls identified during the site walkover, is heavily vegetated.	The budilings in the east of the site have been demolished. The east area of the site remains relatively unchanegd in layout and includes a car parking area.
2019 – Aerial Photography	**2022 – Aerial Photography**	**2023 – 1:10,000**
		
The vegetation across the site has predominantly been cleared and the site appears to be unoccupied.	The site is indicated in its present day layout.	The site is indicated in its present day layout.

Earliest available historical mapping of the site indicates that the northern and western areas of the site were predominantly occupied by industrial activities (Reservoir, Ardwick Dye Works, Ardwick Tannery, Chapelfield Works (Indiarubber) and Britannia Brewery) whilst the eastern and southern areas of the site were predominantly occupied by residential properties. By 1948, the majority of structures in the eastern area of the site (residential properties and the brewery) are no longer indicated and its possible that they may have been demolished due to bomb damage during the Second World War (see Section 3.4). Two large industrial buildings were also indicated in the southwest and central areas of the site, and it is considered likely that the current brick retaining wall that extends into the site was constructed at this time. A Works was subsequently constructed in the northeast of the site c.1964 and a Rubber & Plastic Works in the southeast of the site c.1968. By 1986, the structures in the west of the site were demolished and Tanks were recorded in the middle of the site and adjacent to the (Rubber & Plastic) Works in the southeast of the site. The site remained predominantly unchanged in layout, with aerial photography indicating areas of the site as car parking, until c.2015 when the on-site structures were demolished.

3.2.2 Off-Site

The earliest available mapping dated 1851 and 1889 indicates that the site is located between industrial and residential areas. *Ardwick Dye Works, Britannia Brewery, Chapel Field Dye Works, Ardwick Tannery, Water Meter Works, Timber Yard, Mayfield Works (Dye and Print), Reservoirs, Hanover Mill (Cottom)* and a *Goods Yard* are indicated within 250m north of the site, some of which encroach onto the site, and residential properties are indicated to the south of the site. The site is bounded to the south by Tipping Street, to the east by New York Street (later Hoyle Street), to the west by undeveloped land and a *Tannery* and to the north by *Ardwick Dye Works* and *Britannia Brewery.* The River Medlock meanders east to west between approximately 30m and 50m north of the site and railway lines are indicated approximately 100m northeast of the site, orientated northwest-southeast.

Mapping of 1922 indicated that the *Mayfield Works (Dye and Print)* approximately 50m northwest of the site has been demolished and *Mayfield Station* is indicated approximately 100m northwest of the site. By 1932, *Britannia*

Brewery adjacent (and encroaching onto) the northeast of the site was indicated to be disused, and *Midland Shirt Factory* and a *Bakery* were indicated approximately 20m to 100m southwest of the site. A *Mineral Water Manufactory* and *Tyre Works* are located between 130m and 240m southwest of the site.

Mapping of 1948 indicates that widespread redevelopment of the surrounding area has taken place, with the residential properties to the east and south predominantly demolished with plots of empty, undeveloped land indicated on the mapping which may be indicative of bomb damage during the Second World War. *Britannia Brewery* is no longer indicated, and the eastern section *Mayfield Station* has been demolished. Residential and commercial development took place to the southeast of the site from the 1950s with an increase in residential properties and schools identified on the historical mapping. The industrial buildings to the north of the site remained until their recent demolition as part of the wider Mayfield Development.

3.3 Planning History

A review of Manchester City Council planning portal[3] includes the following selected planning applications for the site:

- **F02789:** Retention of garage for commercial vehicles at Moseley Rubber Company Limited in July 1975.
- **122365/FO/2019**: Temporary change of use of existing Unit 5 building (Use Class B8) to indoor BMX facility (Use Class D2) for a period of two years, decided in 2019.
- **137072/FO/2023:** Erection of a temporary construction compound and logistical hub (Sui Generis) to facilitate the construction of Mayfield Phase 1 (approved under application ref no 132255/JO/2021 and 125248/FO/2019 as amended) and neighbouring infrastructure developments until July 2030. The BuroHappold desk study[1] was submitted as part of this application in 2023.

Due to the generally commercial and residential nature of the area, a full review of the planning history has not been undertaken; however, it is noted that a high number of applications relate to the wider Mayfield Development.

3.4 Unexploded Ordnance

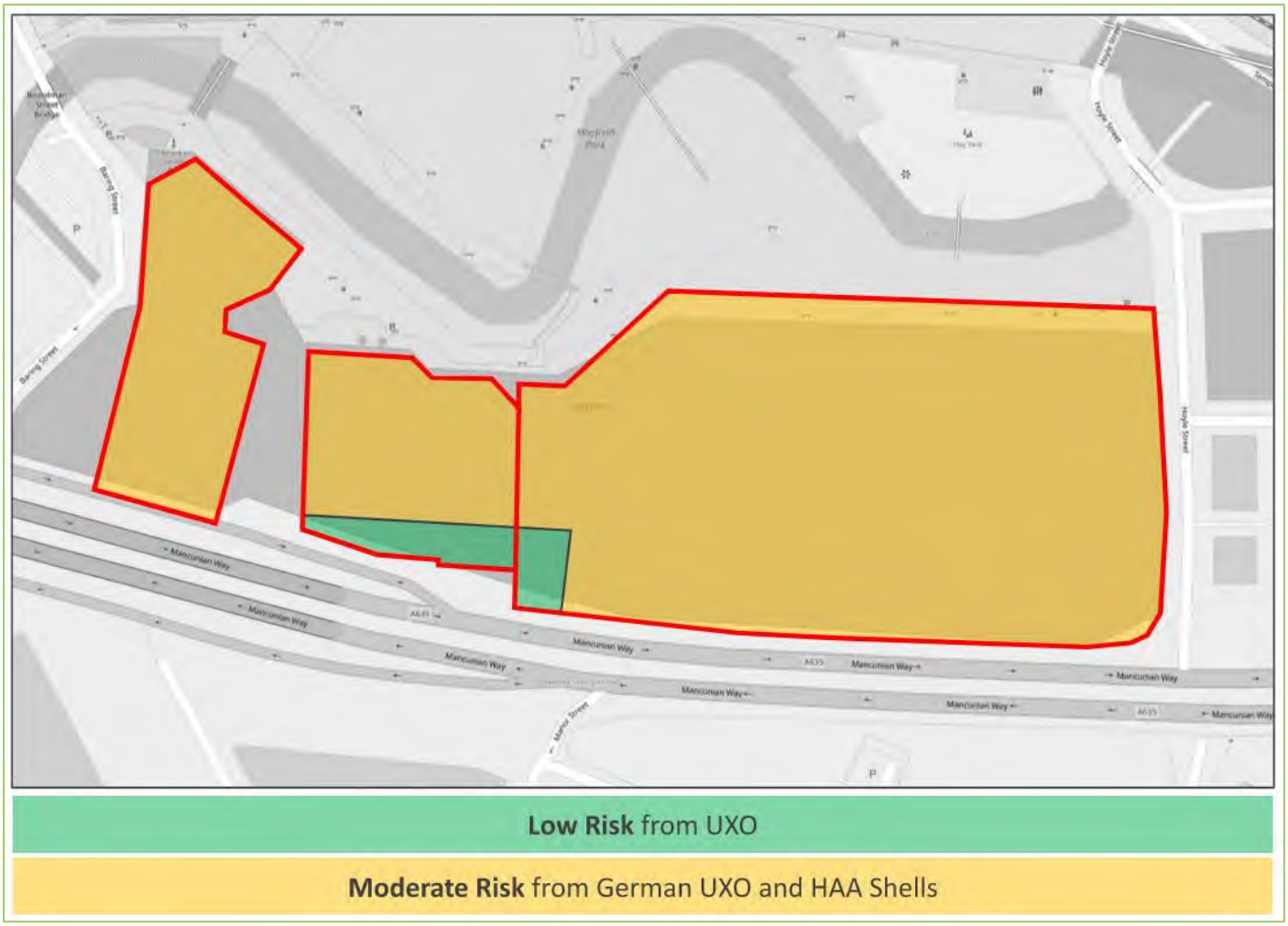
A detailed unexploded ordnance (UXO) risk assessment has been carried out for the site by Brimstone. The report is included in Appendix D and concludes that the site is considered to be at a moderate risk from UXO with the exception of the southwest corner which is considered to be at a low risk from UXO (see Plate 4).

The report outlines that the buildings in the west of the site sustained moderate or severe damage as a result of a parachute mine, and whilst no damage was recorded to the residential properties in the southwest and east of the site, most of the houses were cleared by at least 1944, likely earlier. This reflects the observations made on the historical mapping in Section 3.2.1. The UXO report stated that the clearance of the residential houses may be indictive of bomb damage, as no evidence of planned clearance was uncovered.

The report recommended that UXO safety awareness briefings are provided prior to all intrusive works, that an intrusive magnetometer probe survey is carried out at any proposed pile positions within the moderate risk zone, and a watching brief is carried out by an EOD engineer during excavation of all open excavations and magnetometer survey of all site investigation borehole locations within the moderate risk zone.

[3] https://pa.canterbury.gov.uk/online-applications/search.do?action=simple&searchType=Application, accessed on 24 October 2023.

Plate 4: UXO Risk Mapping



4. Anticipated Ground Conditions

4.1 Published BGS Geology

With reference to the British Geological Survey (BGS)[4] website, BGS Sheet 85[5] and the Groundsure Enviro + Geo Insight report obtained for the site (see Appendix C), the site is anticipated to be underlain by Alluvium across the northwest half of the site and Till (Diamicton) across the southeast half of the site (see Plate 5) overlying the Chester Formation (Sandstone), see Plate 6). Two northwest-southeast trending faults in the bedrock are located approximately 200m to 300m, northeast and southwest of the site.

Plate 5: Superficial Deposits (based on excerpt from Groundsure Enviro + Geo Insight Report)

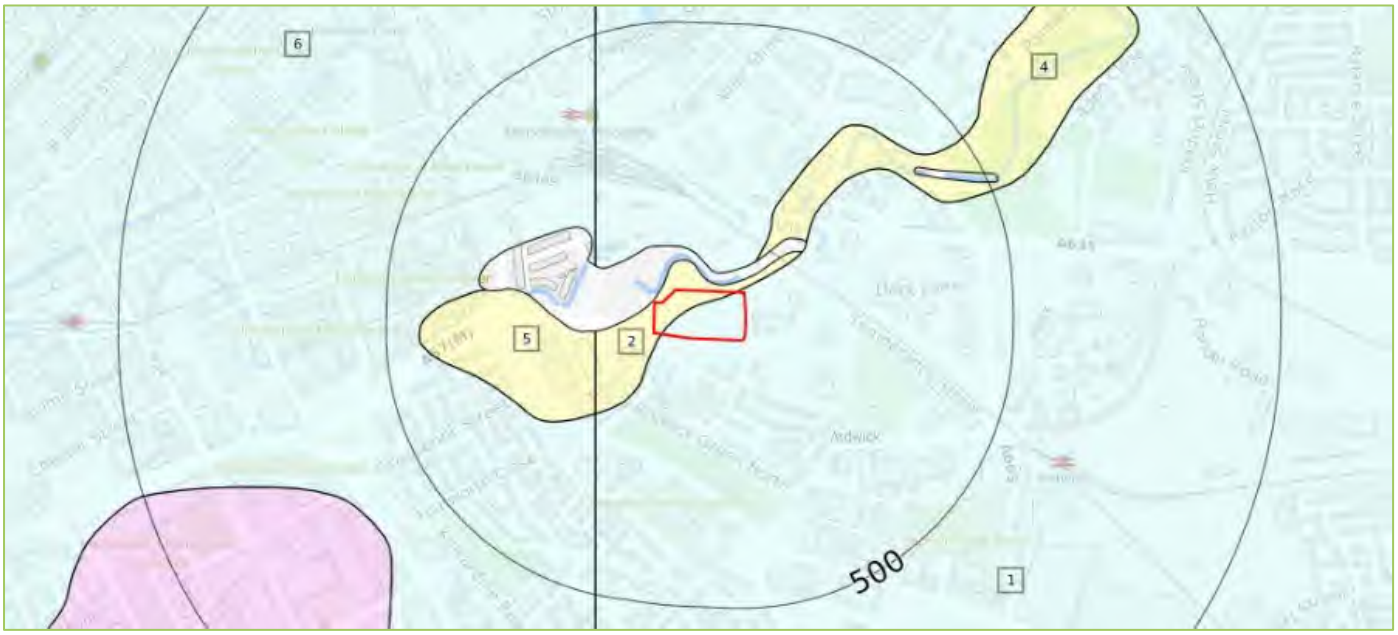


Plate 6: Bedrock Geology (based on excerpt from Groundsure Enviro + Geo Insight Report)



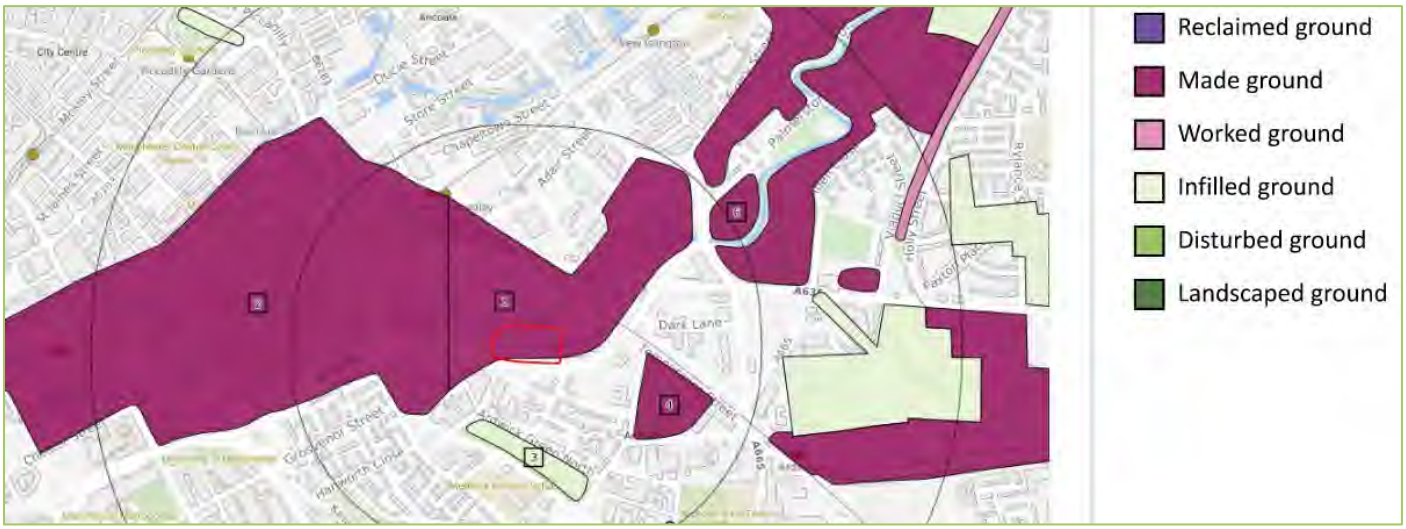
[4] British Geological Survey (BGS), www.bgs.ac.uk (06 November 2023)
[5] BGS (2011) *Manchester, Sheet 85. Solid and Drift.* 1:50,000.

With reference to the BGS Lexicon[4], the geological units can be described as follows:

- **Alluvium**: soft to firm consolidated, compressible silty clay, but can contain layers of silt, sand, peat and basal gravel.
- **Till**: unsorted and unstratified drift, generally over-consolidated material, consisting of a heterogenous mixture of clay, sand, gravel, and boulders varying widely in size and shape.
- **Chester Formation (Sandstone)**: conglomerates and reddish brown, cross-bedded pebbly sandstones with subordinate beds of red-brown mudstone. It is noted that the Chester Formation was previously referred to as the Chester Pebble Beds Formation (as indicated on BGS Sheet 85). The Chester Formation forms part of the Sherwood Sandstone Group.

With reference to the Groundsure Enviro + Geo Insight report obtained for the site (see Appendix C), deposits of artificial Made Ground (undivided) are present across the majority of the site as illustrated in Plate 7.

Plate 7. Excerpt from Groundsure Enviro + Geo Insight Report illustrated Worked Ground / Made Ground



4.2 Unpublished BGS Geology

There are two historical BGS records available for review within the site boundary and 15 records within 250m of the site, as illustrated in Section 16 of the Groundsure Enviro + Geo Insight reports (Appendix C).

The ground conditions typically encountered a variable thickness of Made Ground overlying superficial deposits of loamy sand, stiff clay and sand and gravel. The superficial deposits were underlain by red sand and new red sandstone (assumed to be the weathered and 'fresh' Chester Formation). Copies of the BGS records are included in Appendix E.

4.3 Surface Mining and Ground Workings

There is one record for surface ground workings within the site; the record relates to a pond and is dated 1851. Based on the location of the record, it is considered likely that the record relates to the reservoir indicated on the historical mapping. A further three records for surface ground workings are identified within 250m of the site relating to ponds (dated between 1851 and 1890). There are no records of underground workings on or within 250m of the site.

The site is located within a Coal Mining Area as defined by the Coal Authority; however, the site is not located within a Development High Risk Area[6]. There are no records of mining cavities within 250m of the site.

[6] Coal Authority Interactive Map Viewer (https://mapapps2.bgs.ac.uk/coalauthority/home.html) Accessed 7 November 2023.

4.4 Hydrology and Hydrogeology

The Environment Agency (EA) has produced an aquifer designation system consistent with the requirements of the Water Framework Directive. The designations have been set for superficial and bedrock geologies and are based on the importance of aquifers for potable water supply and their role in supporting surface water bodies and wetland ecosystems.

The superficial deposits of Alluvium and Till are designated as Secondary Undifferentiated aquifers. The underlying Chester Formation sandstone bedrock is designated as a Principal aquifer.

The site is located not located within a groundwater Source Protection Zone (SPZ). There are two records for a historical on-site groundwater abstraction point for Moseley Rubber Co. Limited for 'general cooling (low loss) dated 1966. It is understood that the abstraction point is located in the far north of the site was fitted with a manhole during the wider site enabling works (see section 6.7).

A further five records for groundwater historical groundwater abstraction are identified approximately 760m west (two records for non-evaporative cooling), 810m southeast (one record for heat pump) and 100m west (two records for general use relating to secondary category (medium loss) and heat pump).

The *River Medlock* is located approximately 10m north of the site at its closest point, meandering through Mayfield Park. The river flows west/southwest, and regional groundwater flow direction is anticipated to be towards the southwest.

4.5 Ground Hazards

The risks associated with potential geological hazards within 50m of the site have been assessed using the Enviro + Geo Insight report (Appendix C) and are summarised in Table 2.

Table 2: Geological Hazards

Hazard	Risk
Shrink-swell clays	Very low
Running Sands	Very low
Compressive Deposits	Negligible to very low
Collapsible Deposits	Negligible to very low
Landslides	Very low
Ground Dissolution	Negligible

It is noted that the Groundsure Geo + Enviro Insight report identifies a record for a ground cavity / sinkhole incident on Mancunian Way to the south of the site. The record is dated August 2016 and identified as 12m in diameter and 'opened in torrential downpours, possible former culvert collapse'. The road has since been repaired and the road is operational.

In addition, the BuroHappold desk study[1] refers to a void (approximately 1.5m in diameter and approximately 5m deep) that appeared in the car park of the Transport for Greater Manchester building, approximately 120m northwest of the site, in June 2017. An assessment of the void was carried out by BuroHappold who identified that the void was located at the base of a gentle slope where surface water was likely to flow towards during heavy periods of rainfall. The undulating nature of the tarmac hardstanding in the area suggested that differential settlement of the poorly compacted underlying Made Ground was still possibly occurring and BuroHappold concluded that the ponding of the surface water in this area may have contributed to the void's formation. In

addition, cracking / failures of the river wall were observed in the area. BuroHappold recommended excavation of the void area to identify potential features for the likely cause of the void and removal of the Made Ground in the area and replacement with suitable compacted material and reinstatement of a reinforced concrete slab. It is unknown whether this remedial work was carried out.

5. Environmental Setting

5.1 Environmental Disclosure Report

The Groundsure Enviro + Geo Insights report (included in Appendix C) has been used to provide information on the environmental setting of the site and to assist in identifying possible sources of ground contamination. A summary of the pertinent records generally within 250m from the site is provided below in Table 3. For full details the Groundsure Enviro + Geo Insights reports should be referred to. The records generally reflect the key pertinent features identified on the historical mapping. It is noted that the distances stated are approximate.

Table 3: Summary of Pertinent Information from the Environmental Disclosure Report

Environmental Record	Record Details	Distance from Site
Historical Industrial Land Uses	10 records within the site relating to a brewery, dye works, unspecified station, unspecified works, unspecified commercial/ industrial and unspecified tank. 22 records between 10m and 100m of the site relating to unspecified tanks, railway sidings, railway buildings, goods station, unspecified works and dye works. A further 40 records between 100m and 250m of the site relating to unspecified tanks, tyre works, railway buildings, unspecified works, unspecified deports, unspecified mills, industrial school, chimney, goods yards, police station and cotton mill.	 Various
Historical Tanks	7 records within the site for unspecified tanks and tanks. 13 records between 10m and 250m of the site relating to tanks and unspecified tanks.	 Various
Historical Energy Features	2 records between 50m and 100m of the site for electrical substations. 7 records between 100m and 250m of the site for electrical substations.	70m SW and 95m SW Various
Historical Garages	14 records of historical garages between 100m and 250m of the site. 1 record of a historical motor repair works.	Various 195m W
Historical or Active Landfills	No records identified on or within 250m of the site.	
Historical Waste Sites	1 record for a scrap yard dated 1991.	20m N
Licensed Waste Sites	4 records of licensed waste sites on-site relating to treatment of waste to produce soil (issued 2015 to E Delaney Demolition Limited) and metal recycling site (issued 1996 to Mr. A Donnelly). Details of waste management license numbers are included in the Enviro + Geo Insight Report. 3 records of licensed waste sites between 20m and 50m of the site relating to a metal recycling site and inert and excavation waste and treatment (two records).	 20m E, 50m NE, 50m NE
Current or Recent Petrol Stations	1 record for an obsolete, unbranded fuel station at 11 Fairfield Street, Manchester M1 2WR.	150m NR

Environmental Record	Record Details	Distance from Site
Waste Exemptions	1 record identified on-site for the storage of waste in a secure place. 27 records between 20m and 250m from the site relating to screening and blending of waste, use of waste in construction, use of waste in construction of entertainment or educational installations, burning waste in the open, storage of waste in a secure place, sorting mixed waste, manual treatment of waste, crushing and emptying waste vehicle oil filters, recovery of textiles, treatment of waste wood and waste plant matter, recovery of scrap metal , mechanical treatment of end of life tyres, deposit of waste from a railway sanitary convenience and storage of sludge.	Various
Recent Industrial Land Uses	2 records for on-site tanks. It is noted that no tanks were observed during the site walkover. 25 records between 45m and 250m of the site relating to business parks/industrial estates, vehicle repair and servicing, beds and bedding, electricity substations, foodstuffs, telecommunications, army reserve centre, construction and tool hire, photographic and optical equipment, recycling services, water pumping station, distribution and haulage and unspecified works/ factories.	Various
Licensed Pollutant Releases	1 historical record for the on-site release of other mineral processes. 1 historical record within 250m of the site for the release of non-ferrous metal foundry processes.	40m E
Licensed Discharge Consent to Controlled Waters	8 records identified between 150m and 250m of the site relating to sewage discharges (sewer storm overflow) into the River Medlock.	160m E, 165m W, 165m NE, 170m W, 175m NE, 180m NE
Pollution Incidents to Controlled Waters	2 records identified within 250m of the site relating to a non-identified pollutant and contaminated water (urban runoff). Both records record minor impact to controlled waters.	80m E, 175m W
Environmental Designations	The site is located within a SSSI Impact Risk Zone – details are presented in the Geo + Enviro Insight report.	

5.2 Radon

The environmental disclosure report has identified that the site does not lie within a Radon Affected Area as less than 1% of properties are estimated to have a radon level at or above the action level. No radon protective measures are therefore considered necessary. It is noted however that if basements are proposed which shall be occupied or part occupied, current guidance requires monitoring for radon, irrespective of the initial risk assessment.

6. Previous Investigations

6.1 Introduction

The BuroHappold desk study states that a ground investigation was carried out at the wider Mayfield Development by Ground Investigation & Piling Limited (GIP) in April 2017 which comprised the excavation of seven window sample boreholes and associated monitoring and testing. However, the factual data from the ground investigation is not included within the BuroHappold desk study and Civic Earth have therefore not been able to review this information and ascertain which boreholes, if any, were carried out within the site boundary.

An intrusive ground investigation was carried out across the wider Mayfield Development by ROC Consulting (ROC) in September 2020[2]. The investigation was carried out within five zones, with the site subject to this report located within ROC's "Zone 5 – Hoyle Street West Area"; the blue zone illustrated in Plate 8.

Plate 8: ROC 2020 Ground Investigation Exploratory Hole Location Plan for "Zone 5" (Approximate Site Boundary in Red)



The scope of the ROC investigation within the Zone 5 area included three cable percussion boreholes (BH401 to BH403), eight window sample boreholes (WS401 to WS408) and 11 trial pits (TP401 to TP410 and TP402A). As illustrated in Plate 8, access to approximately half of the site was limited due to the presence of a large material stockpile during the ground investigation and whilst trial pits were excavated in this area, the trial pits were excavated within the material stockpile that is no longer present on site.

6.2 Ground Conditions

A summary of the ground conditions encountered at the site during the ROC investigation is provided in Table 1. It is noted that the ground conditions encountered in trial pits TP401 to TP406 including trial pit TP402A have been omitted from the summary as the trial pits were positioned within the stockpile, which has since been removed from site.

Table 4: Summary of ROC "Zone 5" Ground Conditions

Stratum	Depth to Top of Stratum (mbgl) [mOD]	Typical Thickness (m)
CONCRETE with 10mm rebar / Asphalt. [HARDSTANDING]	0.00 [39.04 to 36.93]	0.10 to 0.20
Vegetation over dark brown organic sandy SILT with frequent roots and rootlets. Encountered in trial pit TP407 only. [TOPSOIL]	0.00 [38.03]	0.30
Loose to medium dense grey red brown slightly clayey sandy gravel / loose brick masonry in a matrix of brown sandy clay / soft grey brown slightly sandy gravelly clay / brown slightly clayey sandy gravelly cobbles. Gravel is fine to coarse of brick, concrete, sandstone, mudstone and limestone. Rate slate, timber and glass. Occasional ash, asphalt and rebar noted. Intact light brown sandstone brick sett encountered in borehole BH402. Cobble set /obstruction encountered in boreholes WS402 (0.50mbgl), WS403 (0.70mbgl) and WS404 (0.65mbgl). Asbestos cement encountered in borehole WS405 (0.45mbgl). Concrete including 'metal sheet' encountered in borehole WS408 (0.50m to 0.80mbgl). Hydrocarbon odour noted in trial pit TP409 (0.95m to 1.10mbgl). [MADE GROUND]	0.00 to 0.20 [41.71 to 37.07]	0.70 to 4.80
Mottled orange brown to dark brown slightly gravelly clayey silty SAND / silty CLAY / brown slightly clayey sandy GRAVEL. Gravel is fine to coarse subrounded to rounded of mudstone and quartz. Strong chemical hydrocarbon odour noted in borehole WS401. Encountered in boreholes WS401, WS406, WS407 and WS408* only. [ALLUVIUM]	0.80 to 3.50 [45.28 to 34.83]	0.80 to 2.10
Stiff becoming very stiff brown slightly gravelly sandy CLAY. Gravel is fine to medium quartz and mudstone with occasional cobbles of mudstone. Encountered in boreholes BH403, WS407 and WS408* only. [GLACIAL TILL]	1.00 to 1.80 [40.71 to 36.40]	0.95 to 2.20
Completely weathered extremely weak reddish brown SANDSTONE (recovered as sand) / orange brown red slightly gravelly clayey fine to coarse SAND. Gravel is subrounded to rounded of sandstone and quartz. Encountered in exploratory holes BH401 to BH403, WS406, WS407, TP409 [WEATHERED CHESTER SANDSTONE FORMATION]	1.10 to 5.00 [38.51 to 33.65]	Proven to 6.20mbgl [32.84mOD]

*Borehole WS407 records Glacial Till above deposits of Alluvium which is unexpected as the Alluvium is a younger deposit than Glacial Till and geological faulting of the superficial deposits is not anticipated. It is noted that the description of Alluvium in borehole WS407 is very similar to the description of the Weathered Chester Sandstone Formation in trial pit TP409, and it is therefore considered that the Sandstone has been incorrectly identified as Alluvium.

6.3 Groundwater Conditions

No groundwater strikes were encountered during the ROC ground investigation within the "Zone 5" area. Ground gas and groundwater monitoring wells were installed within boreholes BH401 and BH402 within the Made Ground, and in borehole BH403 within the Glacial Till and groundwater was not encountered during the subsequent monitoring visits.

It is noted in the ROC report that the Chester Sandstone Formation was investigated to a greater extent as part of a separate ROC ground investigation to the west of the site[7] (at the Mayfield Phase 1A site), and these investigations recorded a significant weathered zone (between 7m and 10m in thickness) which overlies the more competent

[7] ROC (2020) *Plot O + N, Mayfield. Phase 2 Site Investigation.* Reference ROCP/LD/AS/P2_4134. October 2020.

bedrock. The boreholes within the Phase 1A site were extended to approximately 30m below ground level and a resting groundwater table was recorded at c.30m to 31mOD. However, due to the 'general absence of groundwater encountered in monitoring wells, and the tendency for water strikes to be recorded above lower permeability stratum', ROC considered it unlikely that groundwater beneath the site is in hydraulic continuity with the River Medlock, expect potentially in proximity to the River Medlock.

6.4 Ground Contamination

Visual and olfactory signs of contamination were recorded by ROC during the ground investigation, the details are which are summarised in Table 5.

Table 5: Summary of ROC "Zone 5" Visual and Olfactory Contamination during Ground Investigation

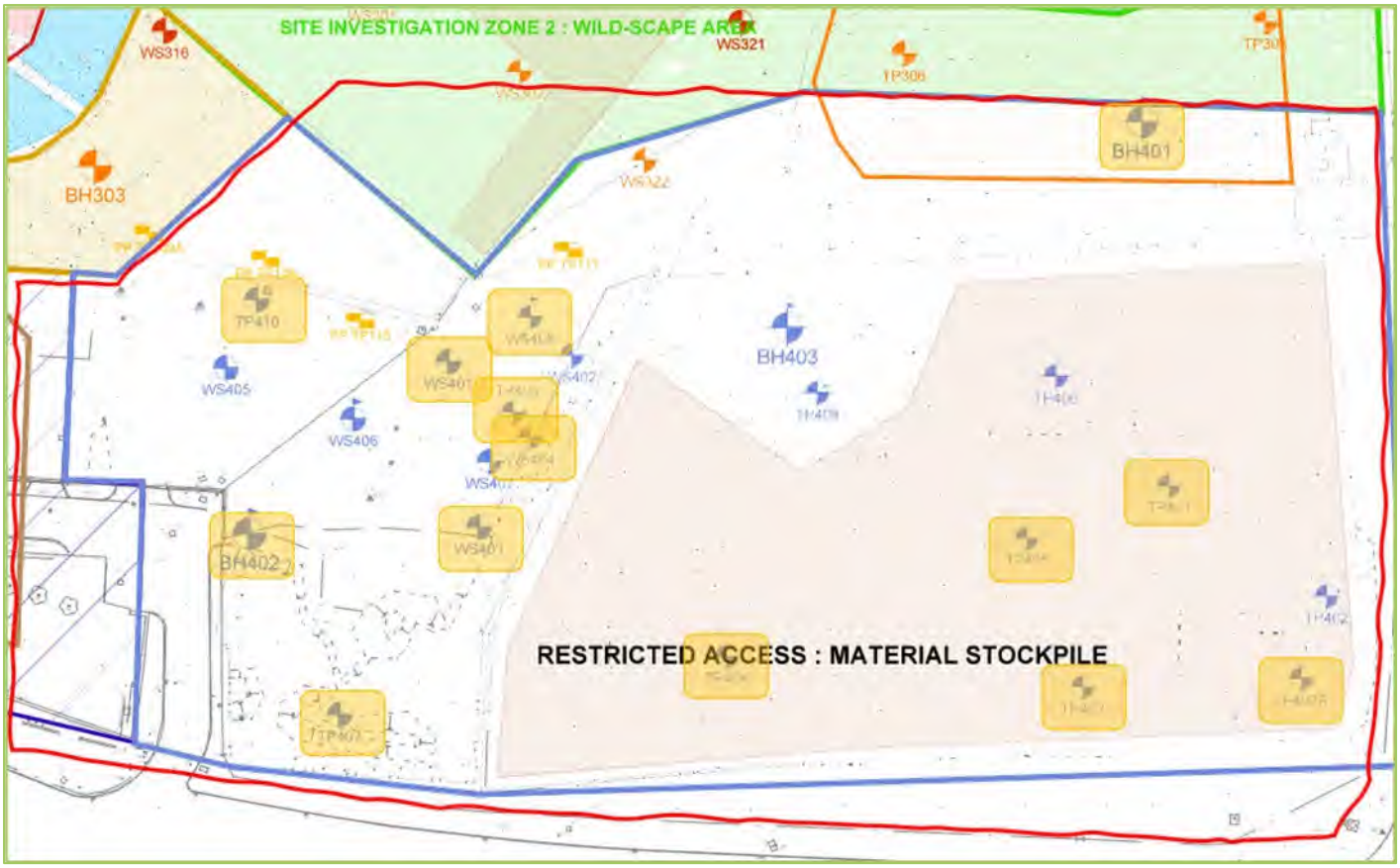
Location	Depth (mbgl) [mOD]	Description
WS401	3.30 to 4.00 [34.28 to 34.98]	Strong chemical odour. Considered by ROC to be associated with the historical above ground storage tanks located in the area.
WS404	0.30 to 0.65 [38.16 to 37.81]	Seepage of black contaminated water impacting soils, very strong hydrocarbon odour. Considered by ROC to be associated with the historical above ground tanks located in the area.
TP409	0.35 to 0.75 [37.84 to 37.44] 0.95 to 1.10 [37.24 to 37.09]	Hydrocarbon odour. Considered by ROC to be associated with the historical above ground tanks located in the area.
TP410	0.30 to 0.70 [36.87 to 36.47]	Moderate hydrocarbon odour. Considered by ROC to be associated with the historical above ground tanks located in the area.

An assessment of soil contamination at the site was carried out by ROC where the soil chemical analysis results were assessed against a 'Public Open Space – Park' end use criteria. The results of the assessment for the exploratory holes within the site indicated elevated concentrations of lead within the Made Ground at borehole WS408. In addition, elevated concentrations of total petroleum hydrocarbons (TPH) (but at concentrations below the assessment criteria) were recorded at exploratory holes BH401, BH402, TP407, WS401, WS403 and WS404 between 200mg/kg and 7,680mg/kg). Elevated concentrations of lead and polycyclic aromatic hydrocarbons (PAHs) were recorded in the stockpiled material (which has now been removed from site) at trial pits TP403 and TP404.

Asbestos was also recorded within the Made Ground in seven locations (WS401, WS404, WS408, TP401, TP402A, TP405, TP407) between 0.4m and 2.0mbgl; the asbestos material was identified as chrysotile and amosite cement, board and loose fibres between <0.001% and 0.465% by weight). It is noted that the material encountered in trial pits TP401, TP402A and TP405 has since been removed from site.

A summary of the locations where soil contamination has been identified is provided in Plate 9, noting that the material stockpile is no longer present on site.

Plate 9: Summary of ROC Soil Contamination



6.5 Groundwater Contamination

No groundwater was recorded during the monitoring rounds at the site. However, sampling of this water table across the wider Mayfield Development by ROC revealed localised elevated levels of heavy metals, PAHs and TPH in the same locations where similar hotspots of soil borne contamination were noted. In some cases, the elevated concentrations were considered marginal and considered by ROC to pose a low risk; however, at some locations remedial action was recommended to reduce the risk to local groundwater quality. No measurable variance in surface water quality was noted up or down stream of the site within the Medlock by ROC, which supported ROC's notion the site is not having a significant impact on water quality as it passes the site.

6.6 Ground Gas

Ground gas monitoring carried out within the site by ROC included four monitoring rounds at boreholes BH401, BH402 and BH403 between 2 October 2020 and 20 October 2020. A summary of the results is provided in Table 6.

Table 6: Summary of ROC Ground Gas Monitoring Results

Location	Target Stratum	Steady Flow (l/hr)	Steady Oxygen (%v/v)	Steady Carbon Dioxide (%v/v)	Maximum Methane (%v/v)
BH401	Made Ground	0.0	17.6 to 20.6	0.3 to 2.8	0.0
BH402	Made Ground	0.0	15.8 to 20.9	0.0 to 1.6	0.0
BH403	Glacial Till	0.0	18.3 to 20.8	1.4 to 2.3	0.0

Risks posed by ground gas across the wider Mayfield Development were not considered applicable for the majority of the site by ROC, owing to the then public open space end use. However, it is noted that this ROC assessment is no longer valid for the current proposed development of the site. The limited ground gas monitoring results recorded by ROC within the site indicate a low risk from ground gases; however, additional monitoring would be required to confirm the ground gas regime at the site.

6.7 Remediation and Validation Works

Following completion of the ROC ground investigation at the site and across the wider Mayfield Development, two remediation strategies were produced by ROC; the first for Mayfield Park[8] to the north and northwest of the site, and the second for Plots O, N and M[9], the land to the west of the site.

The remediation strategy for Mayfield Park and Plots O, N and M generally included; capping layers in areas of soft landscaping to mitigate the risks to human health; removal of grossly contaminated / impacted soils during excavation of Made Ground to top of natural strata; on-site treatment and re-use of Made Ground soils; excavation of Made Ground at specific borehole locations to mitigate the risks to controlled waters; and installation of barrier pipes for new water supply pipework.

The remediation strategy for Mayfield Park[9] also included a technical note[10] specific to residual contamination associated with Ardwick Tannery, which encroached slightly onto the southwest corner of the Phase 1B site as indicated on the historical mapping of 1851 in Section 3.2.1. The ROC technical note[10] summarises that the animal tanning operations were underway since c.1850 and expanded in size during the period leading up to the 1890s, with tan pits in the south and east of the tannery removed and constructed on top of, suggesting the tan pits were moved internally within the new structures. The tannery was subsequently cleared and developed between 1890 and 1908 into Chapelfield Indian Rubber works.

The ROC technical note[10] outlined that "no evidence of any animal products or residual organic material was noted in any of the exploratory holes formed across [Mayfield Park and Plot M]" and subsequent chemical analysis works in the tannery area revealed minor elevated concentrations of heavy metals and PAHs. The composition of the Made Ground in the area of the tannery was reported to be of typical demolition type material. ROC concluded that the residual risks posed by the historical tannery were low to the identified receptors based on the "comprehensive" historical development into other works and the lack of evidence of deleterious organic and animal material identified during the ground investigation works. However, it was noted that the proposed development of the Mayfield Park / Plot M areas included limited potential for significant bulk earthwork operations, and therefore potential exposure of potential residual tannery waste which may not be the case for the site subject to this report. It was therefore recommended by ROC that a watching brief be put in place with specific emergency control measures in the event that tannery related contamination is observed during excavation works, and materials excavated from the tannery area not be re-used until they have been suitably inspected and verified as being free from potential tannery related contamination.

The tannery watching brief and discovery strategy included visual inspection of soils for the presence of animal bones, animal hair, animal carcass or flesh, animal hides and significant quantities of deleterious or organic rich materials or sludge. Should any of the above be encountered, operations would cease, and the excavation backfilled with at least 1m thickness of unimpacted material, and the location and spatial extent recorded. The area would then be investigated, removed and remediated in accordance with the guidance document "Guidance on assessing risk of Tannery Contamination on building land" with appropriate approvals and sanctions from regulatory authorities[11].

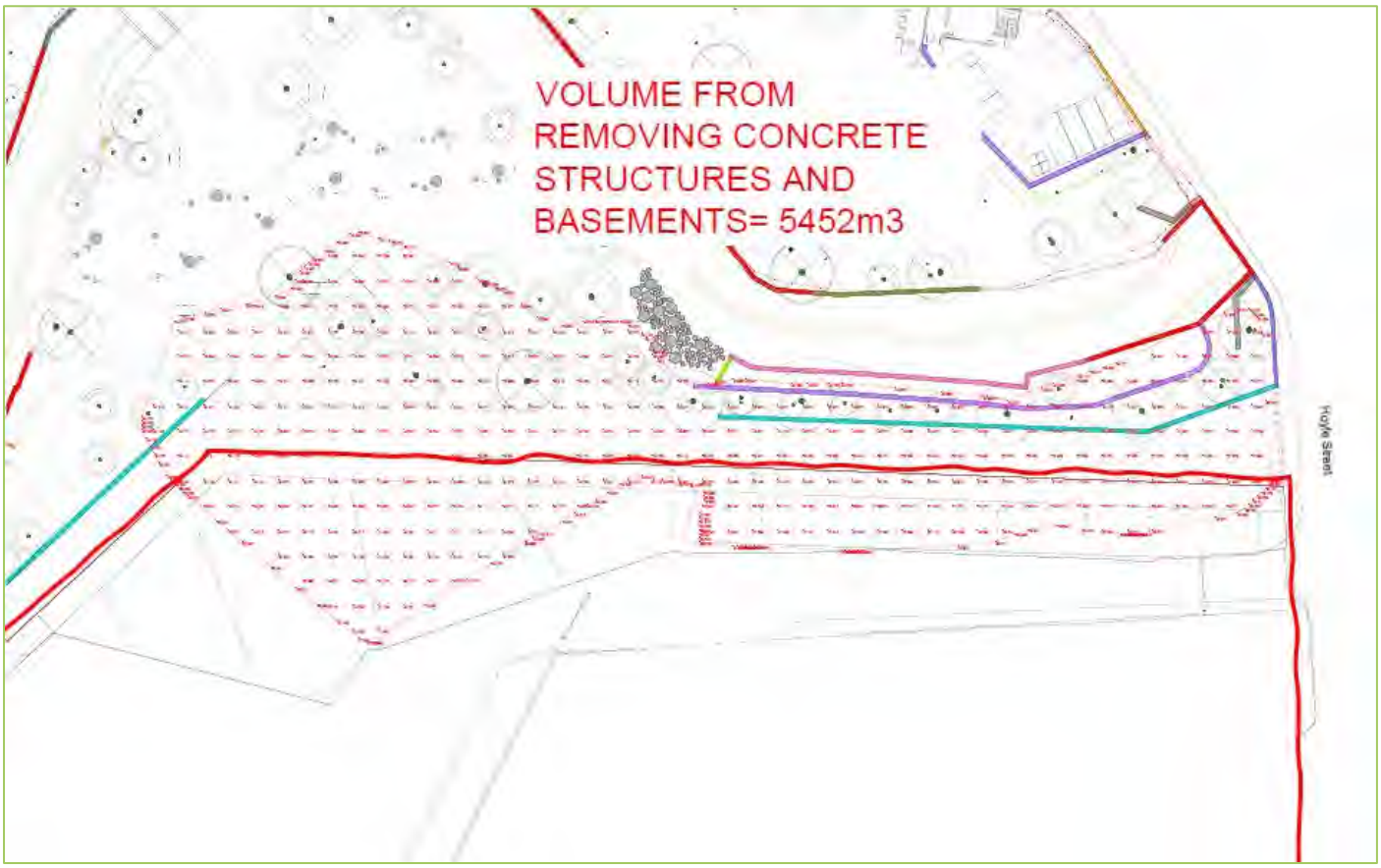
A remediation strategy specific to the site has not been produced, however, the remediation strategy for Mayfield

[8] ROC (2020) *Plots O, N & M, Mayfield, Manchester. Phase 3A Remediation Strategy.* Reference 4153-ROC-XX-XX-RP-ES-P3RS2 Revision 2. 18 December 2020.
[9] ROC (2020) *Mayfield Park, Mayfield, Manchester. Phase 3A Remediation Strategy.* Reference 4153-ROC-XX-XX-RP-ES-P3RS1 Revision 2. 17 December 2020.
[10] ROC (2021) *Technical Note 1.1. Residual Tannery Contamination on Mayfield Park, Manchester.* Reference 4153-ROC_XX_XX_RP_ES_TM1.1. 3 February 2021.
[11] PHE (2014) *Guidance on assessing risk of anthrax on building land.* September 2014.

Park[9] makes reference to exploratory holes WS401, WS404 and TP409 as a hotspot of hydrocarbon contamination (referenced as Hydrocarbon Hotspot #2). It was recommended by ROC that the impacted Made Ground and shallow natural soils be removed and replaced to prevent further on-going movement of TPH contamination into the underlying Principal aquifer.

Remediation and validation works were subsequently carried out by E3P across the off-site Mayfield Park and Plots M, N and O[12]. It is understood that enabling works were only undertaken in the far north of the site, which comprised the southern part of the Wetlands area, also referred to as The Wildscape (see Pate 10 below). These works comprised the removal of concrete structures and basements and backfilling with site won material.

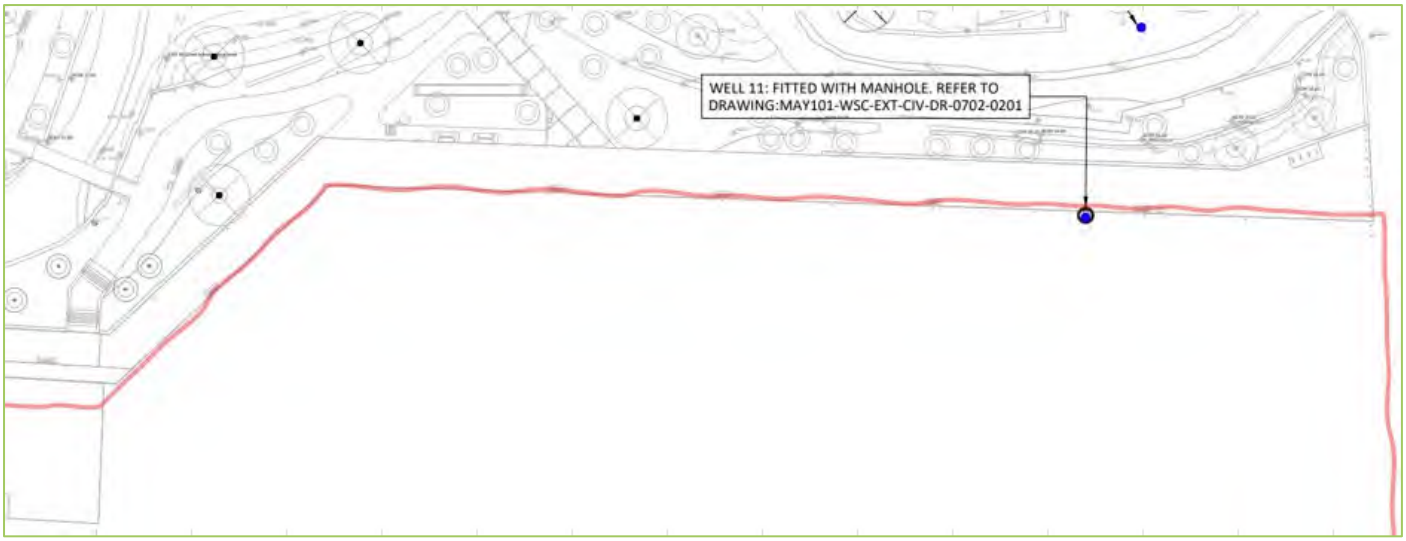
Plate 10. Based on extract from E3P report showing area of excavation in the Wetlands Area (PP O'Connor Drawing WE002)



In addition, during the enabling works an abstraction well located in the far north of the site was identified and fitted with a manhole cover, as indicated in Plate 11.

[12] E3P (2021) *Mayfield Parks and Plots M, N and O. Validation Report*. Reference 14-575-R1-Rev1. November 2021.

Plate 11. Approximate location of abstraction wee (extract from Civic Engineers Drawing MAY101-WSC-EXT-CIV-DR-7060-0200)



Whilst the area in the southeast of the site (Delaney's Yard) was used for processing and stockpiling of material, it is understood that no enabling or remediation works were carried out within the site outside of the Wetlands Area. The E3P report states that Hydrocarbon Hotspot #2 was not remediated as the hotspot was located outside of their site boundary. This was confirmed in conversations with Richard Meredith (who oversaw the enabling and remediation works) on 15 November 2023. Richard also confirmed that he was not aware of any further ground investigation records.

6.8 Limitations of Existing Site Investigation

Following a review of the ROC investigation data, the following limitations and data gaps have been identified for the site:

- No deeper investigation of the bedrock sandstone has been carried out to inform foundation design;
- No groundwater monitoring and sampling/chemical analysis has been carried out of the Principal aquifer;
- Limited ground gas monitoring has been carried out across the site to inform the requirement for ground gas protection measures in the proposed development;
- No investigation has been carried out in the southeast of the site where a large material stockpile was previously located or within the northwest of the site where the tannery buildings are indicated to encroach onto the site; and
- The ROC report identified a hotspot of hydrocarbon contamination that was not remediated as part of the E3P remediation works, and it is recommended that further investigation and delineation of this hotspot is carried out to inform the remediation strategy for the site.

7. Preliminary Risk Assessment

7.1 Introduction

Historical contamination of land may present harm to human health and the environment. Current UK legislation stipulates that the risk associated with potential land contamination is assessed and remediated, if necessary. Under the Town and Country Planning Act 1990 (as amended), potential land contamination is a "material planning consideration" together with the National Planning Policy Framework[13] (revised in July 2023), which means that a planning authority must consider contamination when they prepare development plans or consider individual applications for planning permission. It is the responsibility of the developer to carry out the remediation where it is required and satisfy the Local Authority that the remediation has been carried out as agreed.

Additionally, Part 2A of the Environmental Protection Act 1990 requires that a significant source-pathway-receptor linkage exists to determine a site as contaminated land. This means that there has to be a contaminant present, a receptor that could be harmed by this contaminant, and a pathway linking the two. Part 2A deals with the contamination risk from a site in its current use, however, the planning system requires that the proposed use is considered. Where remediation is carried out under the planning system, it should be ensured that the site is in such a condition that it would still not meet the definition of contaminated land under Part 2A.

7.2 Preliminary Conceptual Site Model

A preliminary conceptual model has been compiled for the site with respect to the proposed development to identify the potential sources of contamination and the associated potential contaminant linkages. This model also informs the potential need for further investigation at the site.

7.2.1 Potential Sources

Potential contamination sources can include both current and historical activities on site and in the surrounding area. The potential sources outlined in Table 7 have been identified at the site.

Table 7: Potential Sources

Hazard	Description
Historical and current land on-site uses	Historical industrial uses including storage tanks, electrical substation, tannery and rubber and plastic works could be a potential source of a wide range of contaminants including heavy metals, chlorinated solvents, polychlorinated biphenyls (PCBs), hydrocarbons and tannery related waste material.
On site Made Ground	Potential for Made Ground to be present due to the site's historical development, which could be a potential source of a wide range of contaminants including heavy metals, hydrocarbons and asbestos material. Previous ROC ground investigation encountered elevated concentrations of TPH, PAHs. Asbestos and lead within the Made Ground. It is noted that there is the potential for a significant thickness of Made Ground at the location of the historical reservoir.
Off-site historical land uses	Potentially contaminative land uses have been identified within the vicinity of the site including a tannery, water meter works, dye and print works, timber mill and tanks. These could be potential sources for a wide range of contaminants including heavy metals, hydrocarbons and asbestos; however, it is noted that the surrounding land to the north and west has been remediated as part of the wider Mayfield Development[12].
Ground gases / vapour	Made Ground and Alluvium can be a source of ground gas where an appreciable organic content is present. If present, degradation of hydrocarbons/organic chemicals can also produce organic vapours and ground gases.
Groundwater	Perched water in the Made Ground and shallow aquifers in the superficial Alluvium and Glacial Till deposits may be a source of contamination resulting from impacts from the previous on and off-site sources. Potential contaminants in water would be similar to those present in the soils, as discussed above.

[13] Ministry of Housing, Communities and Local Government (2023). National Planning Policy Framework.

7.2.2 Potential Pathways

The potential migration pathways that may be present at the site are outlined in Table 8.

Table 8: Potential Pathways

Hazard	Description
Ingestion and inhalation	Contamination within the Made Ground and/or shallow natural soils can result in the ingestion or inhalation of contaminated soils (and asbestos fibres if present) where soil is exposed and inhalation of ground gases/vapours.
Direct / dermal contact	Direct/dermal contact with contaminated soils or shallow groundwater can result in the uptake of contaminants through the skin (where soil is exposed) or permeation of contaminants through structures.
Root uptake	Uptake of phytotoxic contaminants by plants and vegetation within areas of soft landscaping.
Lateral and vertical migration	Leaching from potential contamination in the soils may impact the water in the Made Ground, underlying Secondary Undifferentiated aquifers (Alluvium and Glacial Till), underlying Principal aquifer (Chester Sandstone Formation) and surface water receptors (River Medlock).
Ground gas / vapour migration	Lateral migration of ground gases and/or vapours through the soil matrix could lead to accumulation within buildings, posing a risk of asphyxiation or explosion.
Drainage and services	Could provide a preferential pathway for dissolved phase contaminant migration and/or ground gases/vapour transport.

7.2.3 Potential Receptors

The potential receptors have been identified based on the proposed primarily residential end use of the site and are outlined in Table 9.

Table 9: Potential Receptors

Hazard	Risk, if source and pathway present
Future site users	Users of the site considered to be at risk from possible contamination associated within shallow soils and groundwater, if source and pathway are present.
Construction workers	Considered to be at risk from potential contamination within soils and groundwater during groundworks. Such persons are likely to be in close contact with potentially contaminated materials on site associated with the current and historical uses of the site and surrounding area.
Off-site residents	Potentially at risk from potential contaminants in wind-blown dust and potential odours/vapours generated during development works.
Controlled waters	The surrounding aquifer (Secondary Undifferentiated aquifers of the Alluvium and Glacial Till and Principal aquifer of the Chester Sandstone Formation) and local surface waters (River Medlock) are potentially at risk from the leaching of contaminants from potentially contaminated soils and groundwater. Migration anticipated to be reduced by cohesive horizons in the Glacial Till and Alluvium.
Buildings / Infrastructure / services	Potentially at risk from ground gas migration, aggressive ground conditions and contaminants that may permeate through underground services such as water supply pipes.
Plants and vegetation	Primarily at risk from phototoxic contaminants such as boron, copper, nickel and zinc.

7.2.4 Preliminary Risk Assessment

A preliminary qualitative risk assessment has been undertaken for the site based on the findings of the conceptual site model and the potential contaminant linkages that may exist at the site in accordance with the October 2020 Land Contamination Risk Management Guidance (LCRM)[14]. The magnitude of the risks associated with potential contaminant linkages has been assessed using criteria broadly based on those presented in CIRIA Report C552[15], and are summarised in Table 10. The risk assessment methodology is presented in Appendix F and an illustrative conceptual site model is provided in Plate 12.

[14] Environment Agency (2020). *Land Contamination Risk Management (LCRM)*.
[15] CIRIA (2001) Contaminated Land Risk Assessment. A guide to good practice. C552.

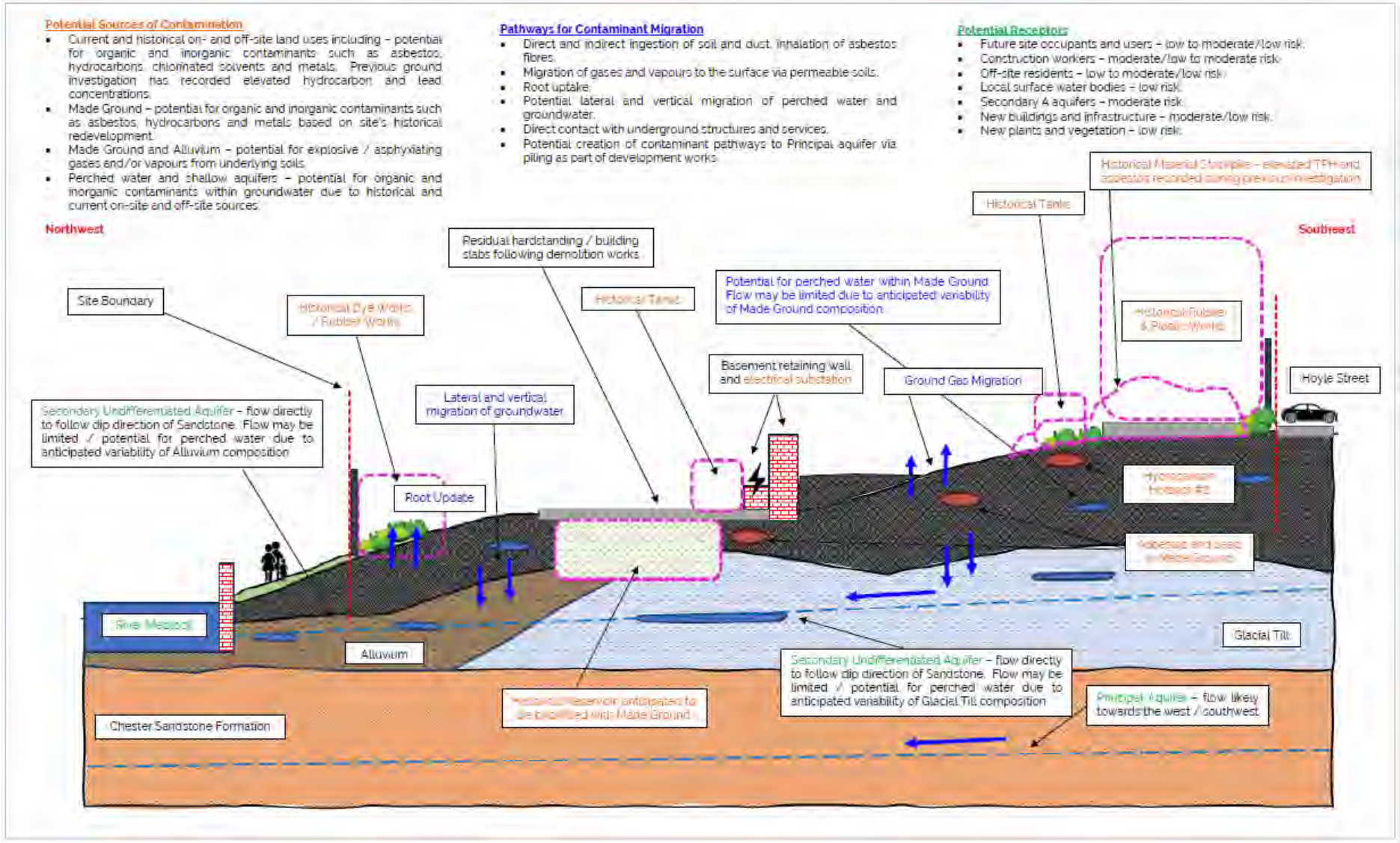
Table 10: Preliminary Qualitative Risk Assessment

Potential Source/Medium	Potential Exposure Route	Potential Receptor	Severity	Probability	Risk Rating	Comments
Explosive/ asphyxiating gases/vapours from underlying soils (Made Ground and Alluvium) and potential on and off-site sources	Migration of gases and vapours through the surface via permeable soils and drainage & services	Internal building spaces & future occupiers	Medium	Likely	Moderate	Potential for significant thickness of Made Ground on site based on historical development and ROC investigation. Elevated concentrations of hydrocarbons recorded during ROC investigation. Preliminary ground gas monitoring indicates a low risk. *However, further assessment of underlying geology and ground gas monitoring recommended to assess ground gas regime for the site.*
Organic/ inorganic contaminants within underlying soils and perched groundwater within the Made Ground	Direct/indirect ingestion of soil and dust, inhalation of particle vapours and asbestos fibres and dermal contact	Construction workers	Medium	Likely	Moderate	Potential for shallow soils to be impacted with asbestos and/or contaminants and elevated concentrations of hydrocarbons and lead recorded during ROC investigation. However, risk would be mitigated by use of appropriate PPE. *Chemical analysis and assessment of shallow soils required to assess risk.*
		Future site users	Medium	Low likelihood	Moderate/low	Potential for shallow soils to be impacted with asbestos and/or contaminants and elevated concentrations of hydrocarbons and lead recorded during ROC investigation. However, hardstanding and buildings are proposed across the majority of the site which will act as a barrier between receptor and potential contamination within underlying soils. Likely soft landscaping will require growth medium to mitigate potential risks. Consideration of potential vapour intrusion into buildings required. *Chemical analysis and assessment of shallow soils required to assess risk.*
		Off-site residents	Medium	Low likelihood	Moderate/low	Potential for shallow soils to be impacted with asbestos and/or contaminants, elevated lead and hydrocarbon concentrations recorded during ROC investigation. Assumes that appropriate site practices are adopted to prevent dust generation during construction e.g., dampening down and covering stockpiles etc.
	Direct contact with underground structures	Buildings and structures, buried services	Mild	Likely	Moderate/low	Buried concrete to be designed as appropriate for ground conditions. Potential for contamination within Made Ground where new buried water

Potential Source/Medium	Potential Exposure Route	Potential Receptor	Severity	Probability	Risk Rating	Comments
	and services					supply pipes will be laid. *Chemical assessment of soils required to assess risk.*
	Root uptake	Plants and vegetation	Minor	Likely	Low	Potential for shallow soils to be impacted with asbestos and/or contaminants. It is assumed that a suitable growth medium will be required for new areas of soft landscaping to mitigate risks to receptors. *Chemical analysis and assessment of shallow soils required to assess risk.*
	Vertical migration	Shallow Secondary Undifferentiated aquifer (*Glacial Till / Alluvium*)	Medium	Likely	Moderate	Potential for contaminants within the soil to leach to the underlying aquifer within superficial deposits. Proposed buildings and hardstanding across majority of the site will limit leaching potential. In addition, cohesive horizons within Made Ground may mitigate migration of contaminants. *Analysis and assessment of soils and groundwater required to assess risk.*
		Principal aquifer (Chester Sandstone Formation)	Medium	Low likelihood	Moderate/low	Potential for contaminants within the soil to leach to the underlying aquifer within bedrock. Proposed buildings and hardstanding across majority of the site will limit leaching potential. In addition, cohesive horizons within overlying superficial deposits may mitigate migration of contaminants. *Analysis and assessment of soils and groundwater required to assess risk.*
		Local surface water bodies (*River Medlock*)	Mild	Low likelihood	Low	Potential for shallow soils and perched water to be impacted with contaminants based on historical and current site use. However, proposed buildings and hardstanding across majority of the site will limit leaching potential. In addition, cohesive horizons within Made Ground and superficial deposits may mitigate migration of contaminants. *Analysis and assessment of soils and groundwater required to assess risk.*
Organic / inorganic contaminants within shallow groundwater aquifers	Direct contact and ingestion of contaminated groundwater	Future site users	Medium	Unlikely	Low	Hardstanding, buildings and formal landscaping is proposed across the site which will limit the exposure to future site users. Monitoring during the
		Construction workers	Medium	Low likelihood	Moderate/low	

Potential Source/Medium	Potential Exposure Route	Potential Receptor	Severity	Probability	Risk Rating	Comments
(Alluvium / Glacial Till)		Off-site residents	Medium	Unlikely	Low	ROC ground investigation did not encounter shallow groundwater, however, if present, construction workers may come into contact with shallow water during excavation works. *Assessment of groundwater profile and contamination is required to assess risk.*
	Inhalation of vapours	Future site users	Medium	Low likelihood	Moderate/low	Elevated hydrocarbon concentrations recorded in shallow soils during ROC investigation; however, shallow groundwater not encountered nor visual evidence of free product. *Assessment of groundwater profile and contamination is required to assess risk.*
	Lateral migration	Local surface water bodies (River Medlock)	Mild	Low likelihood	Low	Potential for contaminants within the groundwater to migrate to local surface water bodies. However, present of hardstanding and buildings across the proposed development will limit leaching potential and therefore mobilisation of contaminants into groundwater. In addition, cohesive horizons of Glacial Till and Alluvium would likely limit migration of groundwater. *Assessment of groundwater profile and contamination is required to assess risk.*
	Vertical migration	Principal aquifer (Chester Sandstone Formation)	Medium	Low likelihood	Moderate/low	Potential for contaminants within the shallow groundwater to migrate to underlying bedrock aquifer. Presence of buildings and hardstanding and cohesive horizons of superficial deposits will limit potential for vertical migration of potential contaminants to bedrock aquifer in these areas. *Assessment of groundwater profile and contamination is required to assess risk.*
	Direct contact with underground services	Buildings and structures	Mild	Likely	Moderate/low	Buried concrete to be designed as appropriate for ground conditions. Assessment of groundwater profile and contamination is required to assess risk.

Plate 12. Illustrative Conceptual Site Model (NOT TO SCALE)



8. Geotechnical Preliminary Risk Assessment

Based on the desk study review of the ground model for the proposed development of the site, the potential geotechnical risks are outlined in Table 11 below.

Table 11: Preliminary Geotechnical Risk Assessment

Geotechnical Hazard	Consequence and Impacted Parties	Risk Rating	Comments
Unexploded Ordnance	Damage to infrastructure, utilities and loss of life	Moderate	With reference to the detailed UXO risk assessment, the majority of the site is indicated to be within an area at moderate risk from UXO. On-site UXO mitigation measures will be required during intrusive site investigation works, earthworks and construction works as set out in the Brimstone report.
Historical and existing buildings and structures	Access restrictions for ground investigation, and below ground obstructions including existing and historical foundations and retaining structures.	Moderate	Existing and historical structures and foundations including the historical reservoir, foundations of previous buildings and existing retaining walls will need to be grubbed out if they are unable to be reused. Hard material could potentially be processed and reused as engineered fill. Depending on formation levels, voids will need to be backfilled with engineered fill. In addition, the existing and historical structures and foundations provide a constraint for ground investigation.
Variable thickness of Made Ground and superficial deposits	Damage to proposed infrastructure through settlement, insufficient bearing capacity, potential for differential settlement	Moderate	Various construction and demolition of buildings has historically taken place across the site including historical reservoir across the centre of the site. Therefore, there is the potential for a variable thickness of Made Ground that will need to be considered in terms of foundation and pavement design as well as compression / heave associated with the cohesive deposits. Potential for variable thickness and composition of Alluvium and Glacial Till that will need to be considered. Investigation required to obtain geotechnical data on underlying ground conditions to determine geotechnical design parameters for proposed structures, pavements, car parks and roads.
Aggressive ground conditions	Structural damage to foundations	Moderate	Investigation recommended to obtain soil and groundwater samples for sulphate and pH analysis, to allow concrete design assessment to be undertaken.
Site gradient / topography	Design of site redevelopment / cut and fill strategy, earthworks design, retaining structures, potential for differential settlement, material re-use strategy	Moderate	The current site gradient and tiered nature in proximity to the on-site retaining walls will need consideration with respect to the cut and fill strategy / re-profiling of the site to create a level platform for buildings. Consideration will need to be given to the design of foundations, floor slabs and pavement design. Site levels and earthworks design to consider options to minimise off-site disposal through material re-use on site subject to appropriate waste management regulations and procedures.
Unknown ground and groundwater conditions	Damage to infrastructure, unsafe or uneconomic design, reduced bearing capacity of shallow foundations / piled foundations.	Moderate/low	The superficial deposits and bedrock beneath the site are anticipated to be variable based on ROC site investigation data. Limited investigation of groundwater model has been carried out at the site to date. Investigation of shallow and deep soils and groundwater level required to obtain information for geotechnical design.
Shallow groundwater	Reduced bearing capacity, groundwater entering excavations during construction	Moderate/low	Limited investigation of groundwater model has been carried out at the site to date. Excavations may extend into shallow water table which may require dewatering during construction. Investigation of shallow groundwater conditions required to confirm groundwater profile.

9. Conclusions and Recommendations

9.1 Conclusions

This Phase 1 Desk Study Report has been produced to evaluate the potential risks to human health and the environment, and to identify potential geotechnical constraints associated with the proposed development.

The preliminary qualitative risk assessment indicates that there is generally a low to moderate risk to the identified receptors from potential contaminations associated with the current and former uses of the site and surrounding areas, and potential Made Ground associated with the former development of the site.

In addition, the assessment has identified a number of potential geotechnical constraints associated with the anticipated underlying ground conditions, including the potential for below ground obstructions (for example historical foundations), a variable thickness of Made Ground associated with the historical development of the site including reservoir and risk of UXO to potential intrusive investigation works and/or construction works.

9.2 Recommendations

Following a review of the ROC investigation data and the desk study information, the following limitations and data gaps have been identified for the site:

- No deeper investigation of the bedrock sandstone has been carried out to inform foundation design;
- No groundwater monitoring and sampling/chemical analysis has been carried out of the Principal aquifer;
- Limited ground gas monitoring has been carried out across the site to inform the requirement for ground gas protection measures in the proposed development;
- No investigation has been carried out in the southeast of the site where a large material stockpile was previously located or within the northwest of the site where the tannery buildings are indicated to encroach onto the site;
- The ROC report identified a hotspot of hydrocarbon contamination that was not remediated as part of the E3P remediation works.

It is therefore recommended that a supplementary intrusive ground investigation is undertaken to address the above data gaps so that the risks from contamination can be assessed and a remediation strategy developed, to inform material management decisions in terms of material re-use / off-site disposal and to obtain parameters for the geotechnical design of the project, such as foundation, floor slab and pavement design.

Appendix A

Site Walkover Record and Photographs

Project Name:	**Phase 1B Mayfield**		
Address:	Land off Hoyle Street, M12 6HW	Job Number:	51001-02
Date:	26 October 2023	Engineer:	K. Poore
Weather:	Overcast, dry, very wet underfoot		

Site Layout Plan



Site Access

Pedestrian Access	Via pedestrianised walkway to north of site. Pedestrian gate in hoarding at boundary between Phase 1A and Phase 2A.
Vehicular Access	Main vehicle access gate in east of site off Hoyle Street. Additional access gate in west of site into Phase 1A area.
Parking Arrangements	Available across site.
Restrictions	Small slopes within site, retaining wall within western third of site.

Access for Site Investigation (Drilling Rigs, Excavators etc.)	Good access, small slopes to be considered when travelling around site.
Surface Covering	
Type of Cover	Exposed Made Ground / crush, asphalt, concrete surfacing and cobbles.
Quality of Cover	Concrete cover in reasonable condition.
Evidence of Existing Boreholes	None observed.
Topography	
Flat / Sloping / Stepped etc.	Generally flat with slope between central third and western third (from historical street level to basement level) and slope down to hoarding along northern boundary. Step down from central third to western third due to retaining wall.
Evidence of Subsistence	None observed.
Significant Slopes	None observed aside from the above noted slopes.
Local Depressions	None observed.
Vegetation	
Trees (Type & Estimated Height)	None observed.
Other Vegetation	Bushes and grasses along southern boundary, retaining wall, eastern boundary and within northern area. Vegetation contractor on site during walkover with a stockpile of cleared vegetation observed in southeast area of site.
Japanese Knotweed	No obvious signs noted, however, presence cannot be discounted.
Giant Hogweed	No obvious signs noted, however, presence cannot be discounted.
Himalayan Balsam	No obvious signs noted, however, presence cannot be discounted.
Signs of Stressed Vegetation / Poor Growth / Disease	None observed.
Services	
Location and Details of Manhole Covers, Wells, Marker Pegs	Occasional manhole observed.

Utility Scar Features	None observed, site has been subject to historical clearance to ground level
Overhead Services	None observed.
Water Supply	None observed.
Buildings and Structures	
Number, Height, Construction Material, Roof Construction Material	Retaining wall separating central and western third of site. The Structural Engineer on site during the walkover advised that the historical street level was likely on the eastern side of the retaining wall due to the presence of cobble stones, with the west side of the wall being at historical basement level. The Structural Engineer advised that the wall is likely of brick and mortar construction, unlikely to contain concrete, with corbelled brick foundations. Retaining wall also present adjacent to south site boundary – observed to be of similar construction.
Current Uses	N/A
Evidence of Subsistence / Cracking / Water Damage	Evidence of cracking in brick retaining wall structures.
Presence of Potential Asbestos Containing Material (ACM)	None observed.
Existing Foundations	None observed.
Existing Basements / Cellars	None observed.
Surface Water and Groundwater	
Evidence of Flooding	Surface water ponding observed in localised areas across the site.
Evidence of High Water Table	None observed.
Rivers, Springs, Wells, Ponds, Ditches, Streams (incl. Flow Direction and Size)	River Medlock to north of site.
Potential Sources of Contamination	
Fly Tipped Material	None observed.
Evidence of Filled Ground	Earthworks have taken place across the Phase 1A area with the site used for stockpiling and remediation of soils during the works. Likely that areas of the site have been subject to infilling, likely minor, to achieve desired working platform areas for earthworks.

Evidence of Tanks (USTs, ASTs, Interceptors, Pipework) incl. Fuel Spillages	None observed.
Stored Substances	None observed.
Electricity Substations	Small substation (Moseleys Hoyle Steet substation) located on western side of the retaining wall that extends into the site.
Other Identified Potential Sources	None observed.
Surrounding Land Use	
Residential / Commercial / Industrial incl. Type of Industry / Commercial Activity	North – Mayfield Park and River Medlock East – Hoyle Street, commercial unit and unoccupied land South – A635 / A57(M) highway (Mancunian Way) West – Mayfield Phase 1A development area
Railways / Viaducts / Bridges	None observed.
Tunnels	None observed.
Other Identified Pertinent Uses	None observed (retaining walls noted above)
Anecdotal Information	
Civic Engineers	Following site clearance / demolition of the buildings the site was used to stockpile and remediate soils from the Phase 1A area and Mayfield Park areas during earthworks. Significant thicknesses of Made Ground and historical foundations/obstructions are likely to remain in-situ below ground.
Neighbours / Locals	None present.
Other Comments	

Project Name:	**Phase 1B Mayfield**		
Address:	Land off Hoyle Street, M12 6HW	Job Number:	51001-02
Date:	26 October 2023	Engineer:	K. Poore
Weather:	Overcast, dry, very wet underfoot		

Photo Location Plan



© Civic Earth 2023

Site Photos



1. Historical basement retaining wall in western area of site



2. Historical basement retaining wall in western area of site



3. South retaining / boundary wall



4. South retaining / boundary wall



5. Electric cables along southern site boundary



6. Short section of retaining wall towards west site boundary

© Civic Earth 2023

Site Photos



7. Western third of site – varied hardstanding and exposed Made Ground



8. Western third of site – varied hardstanding and exposed Made Ground



9. Substation adjacent to retaining wall



10. Subsidence of retaining wall



11. Overview of northeast of site



12. Overview of northeast of site

© Civic Earth 2023

Site Photos



13. Overview of southeast of site



14. Cobbled causeway on east side of retaining wall



15. Overview of southeast of site



16. Stockpiles of cobblestones and sandstone in south of site



17. Dense vegetation along southern boundary



18. Access gate off Hoyle Street and pre-fab concrete wall.

© Civic Earth 2023

Appendix B
Historical Maps



Groundsure INSIGHTS

Site Details:

MAYFIELD PHASE 1B,
MANCHESTER, M12 6HW

Client Ref: 51001-02
Report Ref: GS-ODV-ZU9-CC2-DT3
Grid Ref: 385195, 397495

Map Name: 1056 Scale Town Plan
Map date: **1851**
Scale: 1:1,056
Printed at: 1:1,056

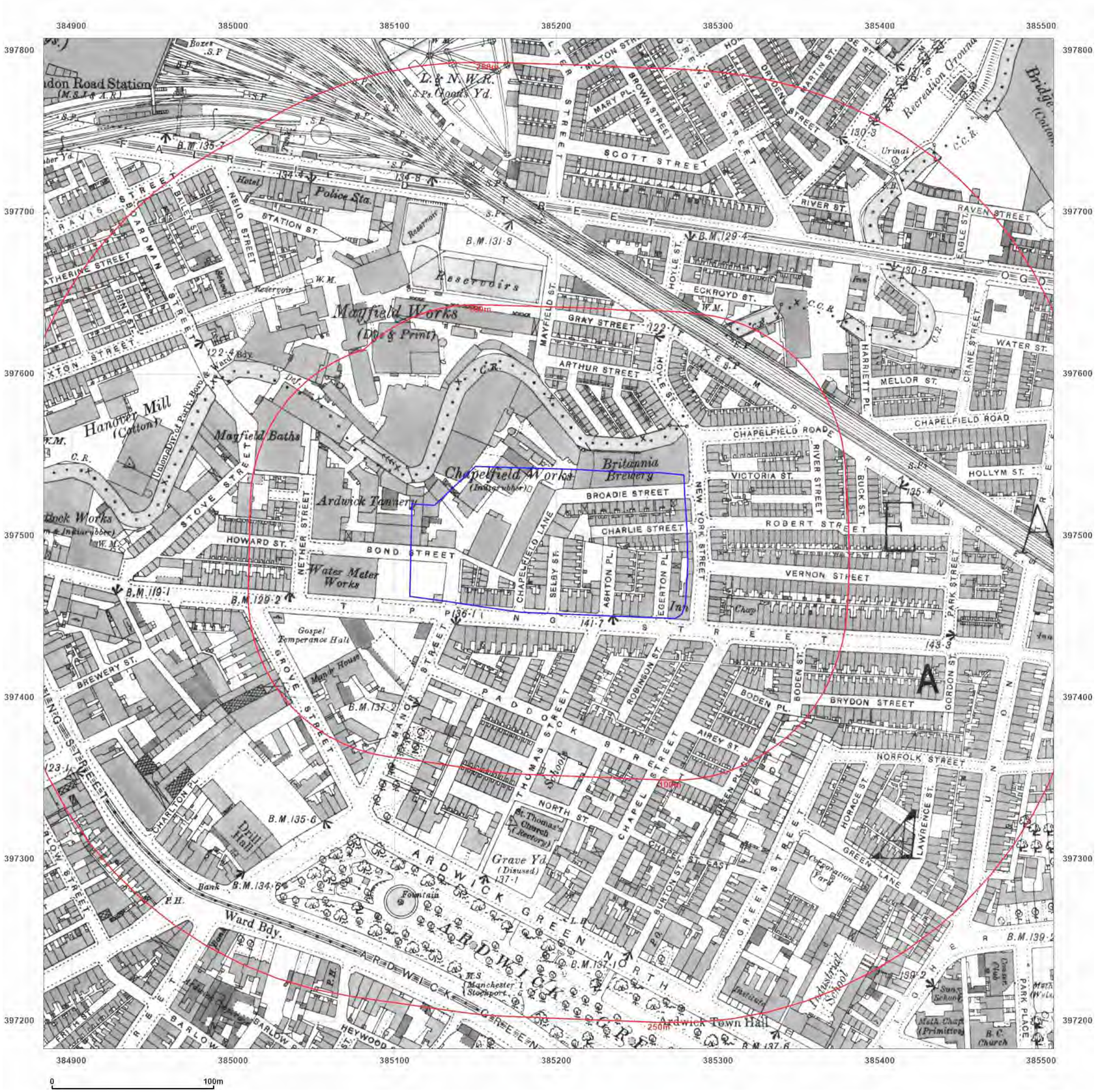
N
W E
S

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 06 November 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

MAYFIELD PHASE 1B,
MANCHESTER, M12 6HW

Client Ref: 51001-02
Report Ref: GS-ODV-ZU9-CC2-DT3
Grid Ref: 385195, 397495

Map Name: County Series

Map date: **1889**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 06 November 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

MAYFIELD PHASE 1B,
MANCHESTER, M12 6HW

Client Ref: 51001-02
Report Ref: GS-ODV-ZU9-CC2-DT3
Grid Ref: 385195, 397495

Map Name: County Series Town Plan
Map date: **1891**
Scale: 1:500
Printed at: 1:1,000

N
W E
S

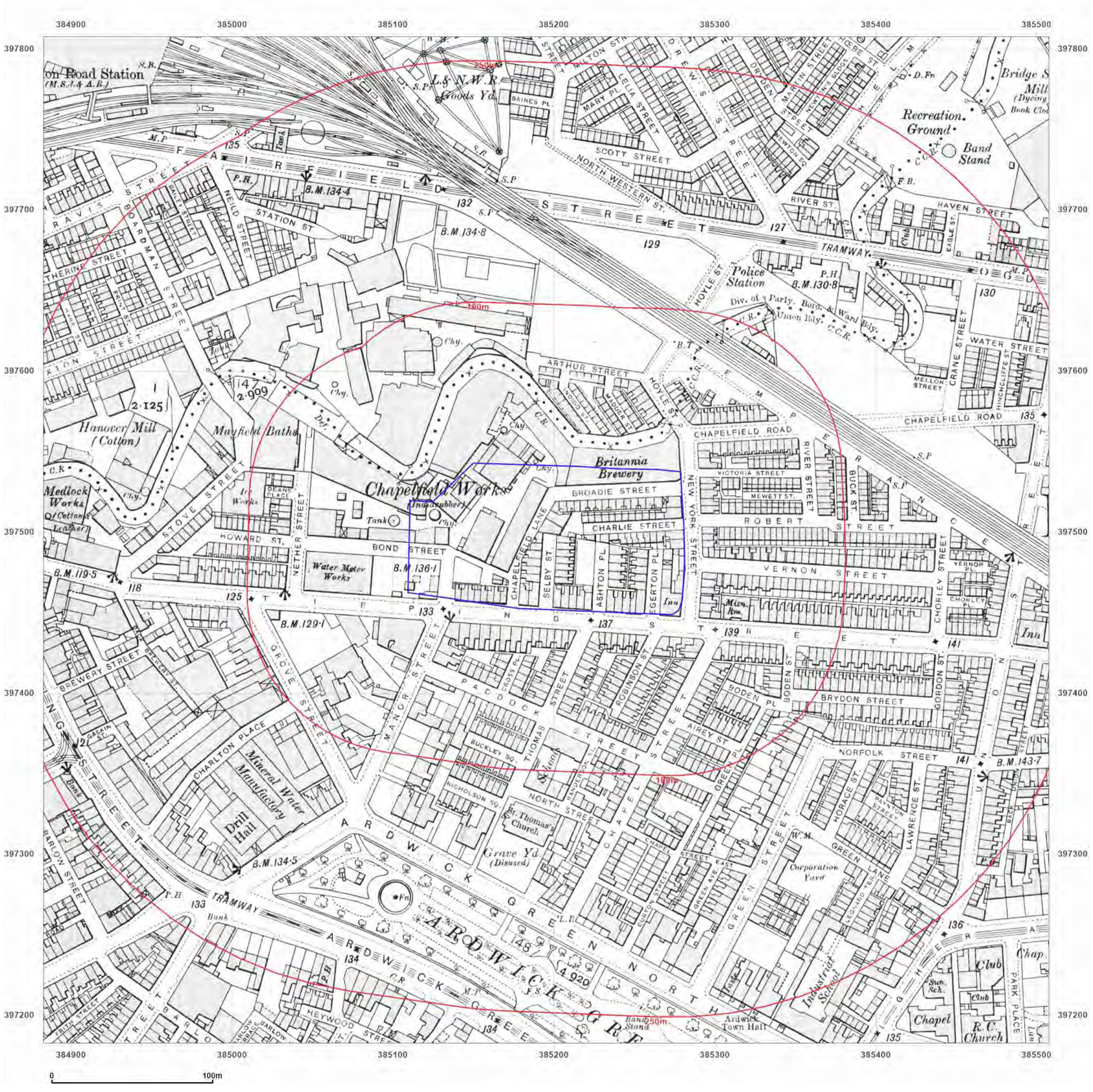
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 06 November 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

MAYFIELD PHASE 1B,
MANCHESTER, M12 6HW

Client Ref: 51001-02
Report Ref: GS-ODV-ZU9-CC2-DT3
Grid Ref: 385195, 397495

Map Name: County Series

Map date: **1908**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

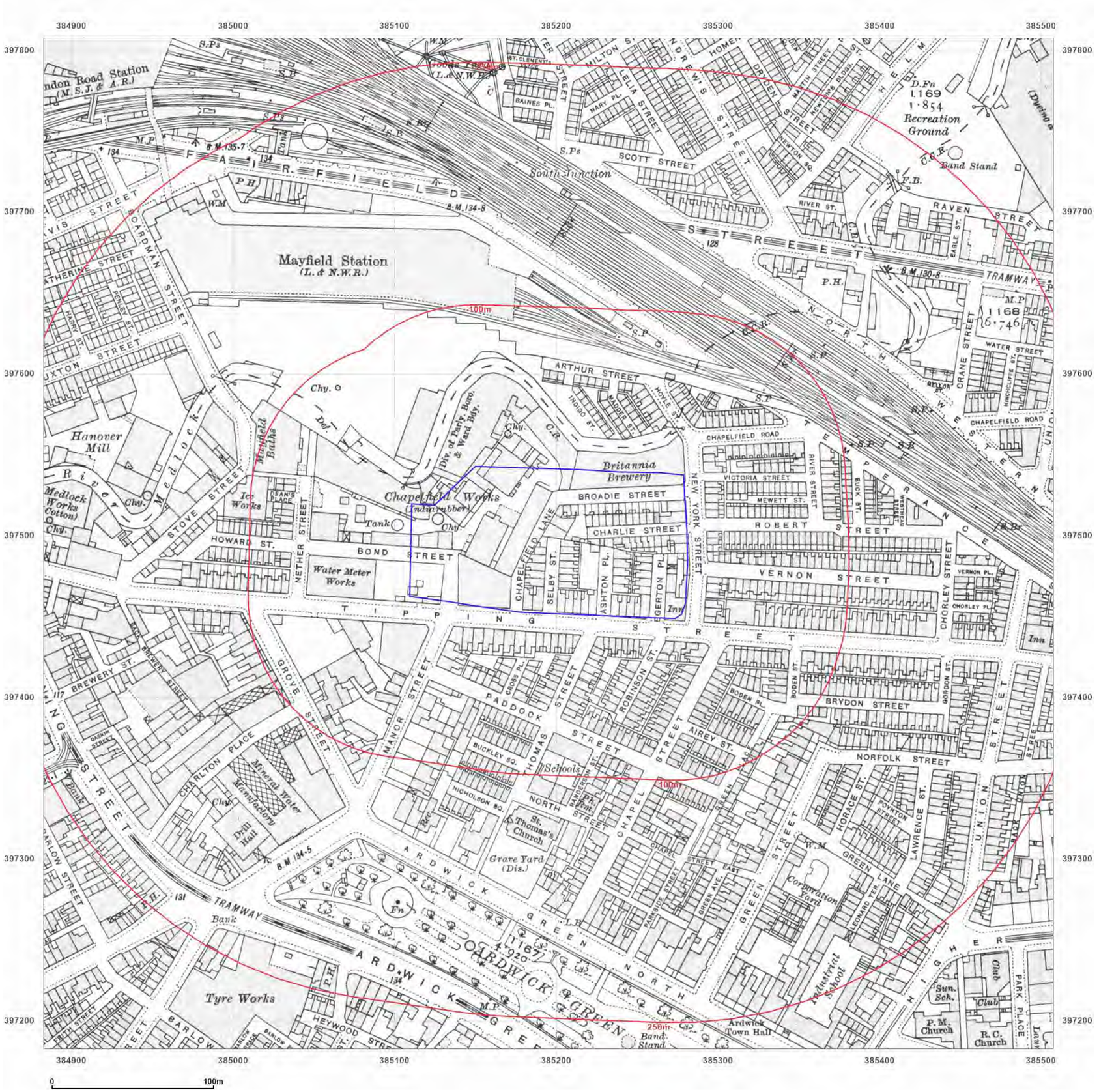
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 06 November 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

MAYFIELD PHASE 1B,
MANCHESTER, M12 6HW

Client Ref: 51001-02
Report Ref: GS-ODV-ZU9-CC2-DT3
Grid Ref: 385195, 397495

Map Name: County Series

Map date: **1922**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

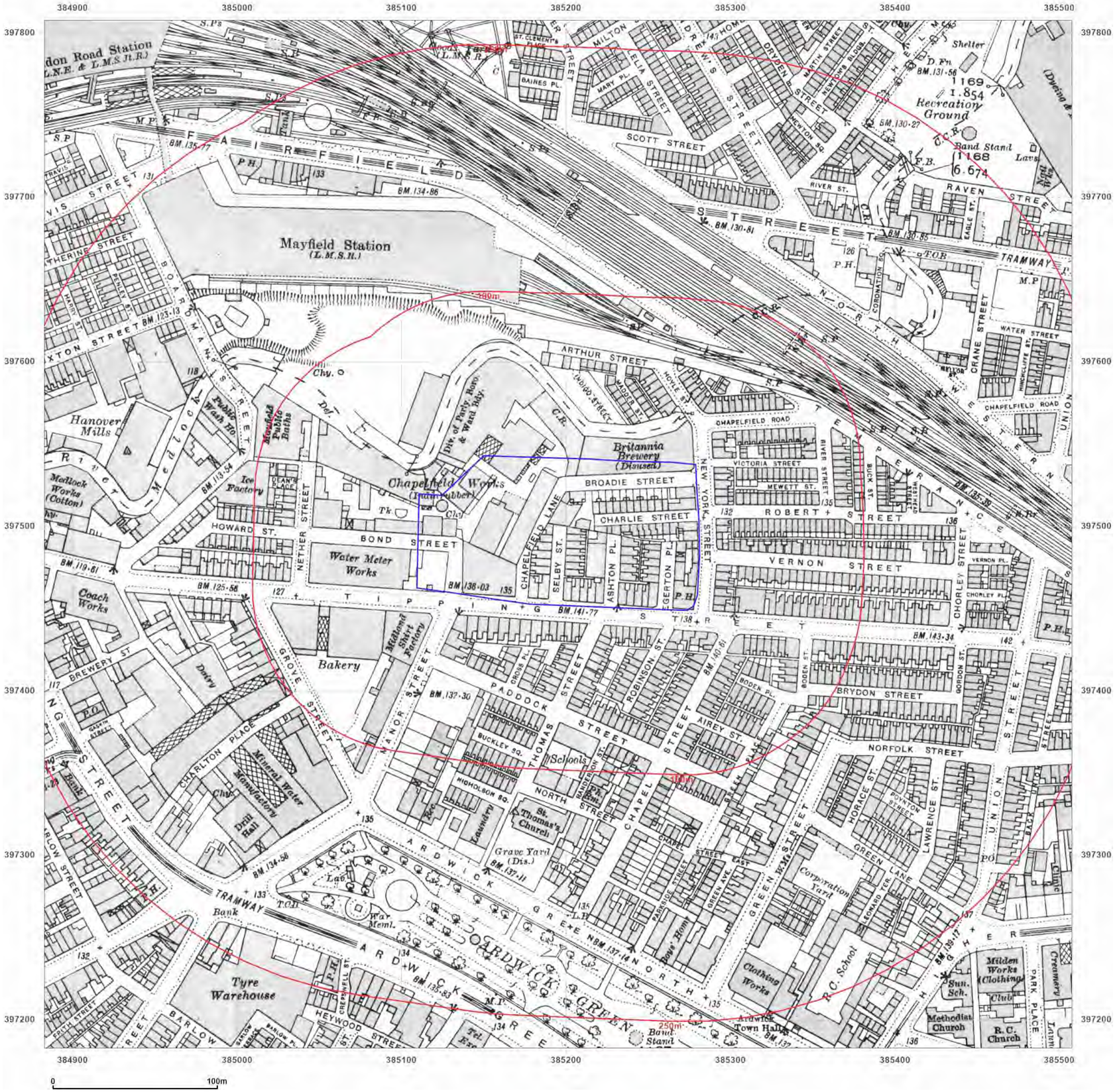
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 06 November 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

MAYFIELD PHASE 1B,
MANCHESTER, M12 6HW

Client Ref: 51001-02
Report Ref: GS-ODV-ZU9-CC2-DT3
Grid Ref: 385195, 397495

Map Name: County Series

Map date: **1932**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

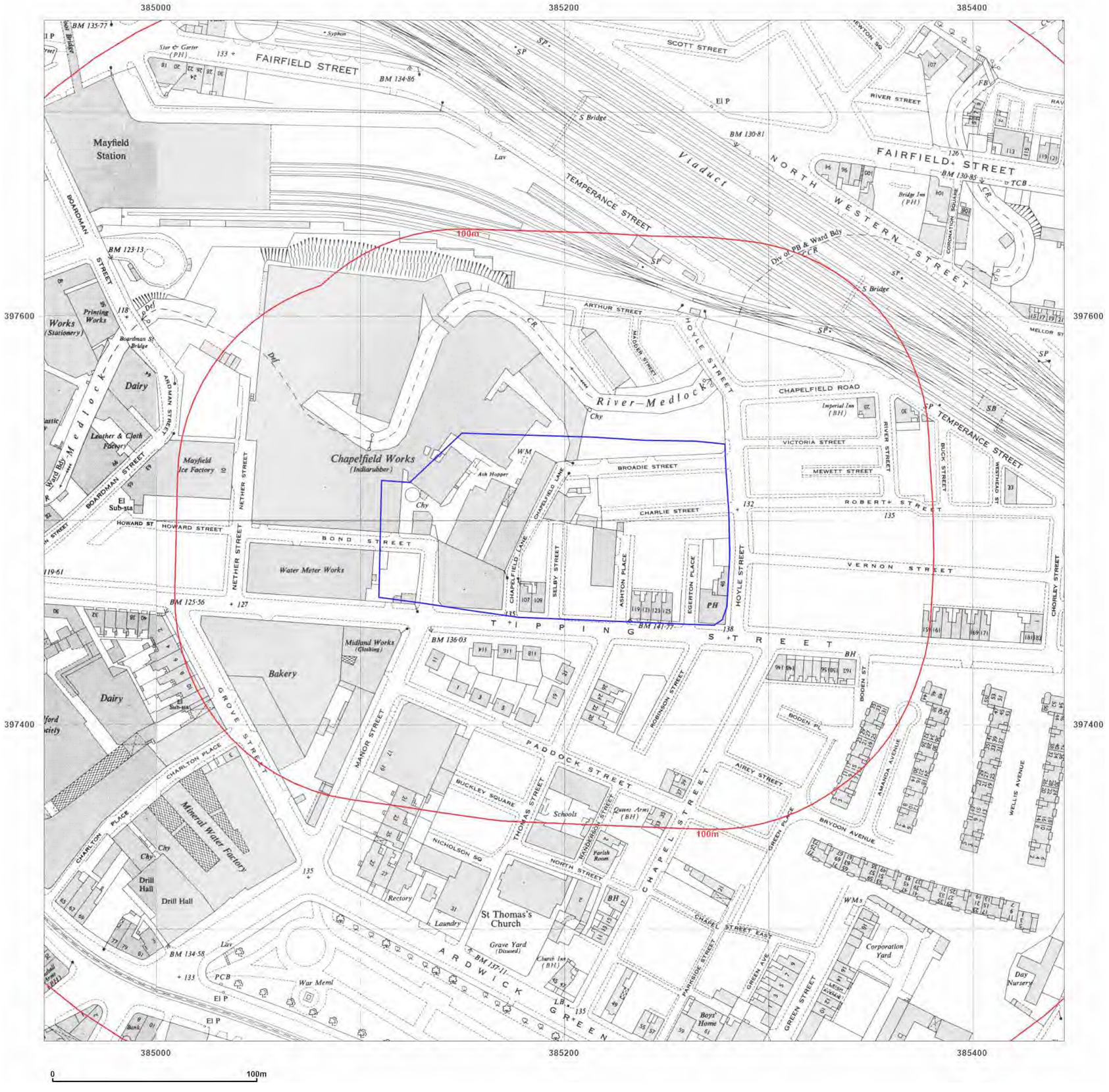
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 06 November 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

MAYFIELD PHASE 1B,
MANCHESTER, M12 6HW

Client Ref: 51001-02
Report Ref: GS-ODV-ZU9-CC2-DT3
Grid Ref: 385195, 397495

Map Name: National Grid

Map date: **1948**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
S

Surveyed 1948 Revised 1948 Edition N/A Copyright 1948 Levelled 1929	Surveyed 1948 Revised 1948 Edition N/A Copyright 1948 Levelled 1929
Surveyed 1948 Revised 1948 Edition N/A Copyright 1948 Levelled 1929	Surveyed 1948 Revised 1948 Edition N/A Copyright 1948 Levelled 1929

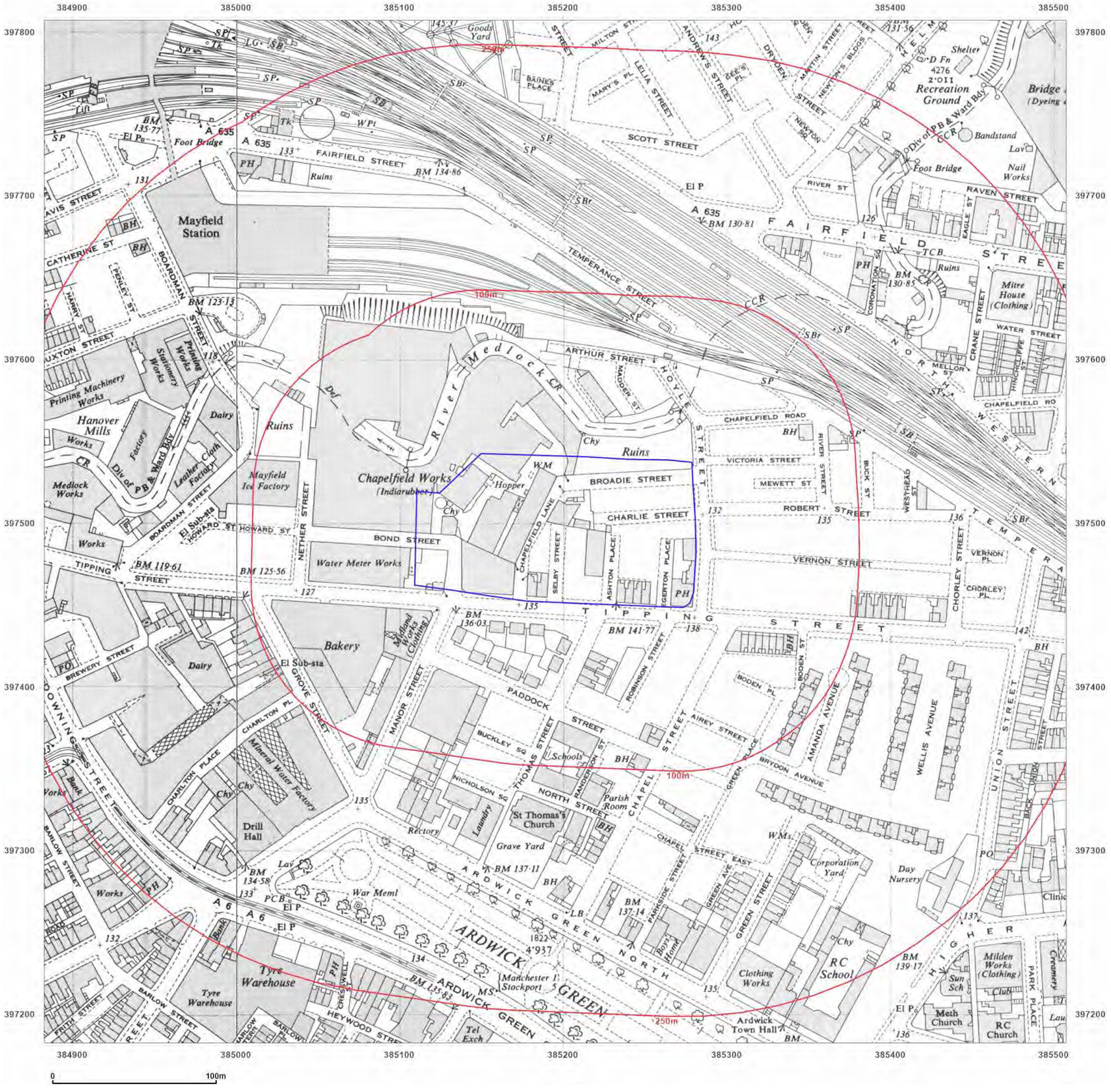
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 06 November 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

MAYFIELD PHASE 1B,
MANCHESTER, M12 6HW

Client Ref: 51001-02
Report Ref: GS-ODV-ZU9-CC2-DT3
Grid Ref: 385195, 397495

Map Name: National Grid
Map date: **1948-1950**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

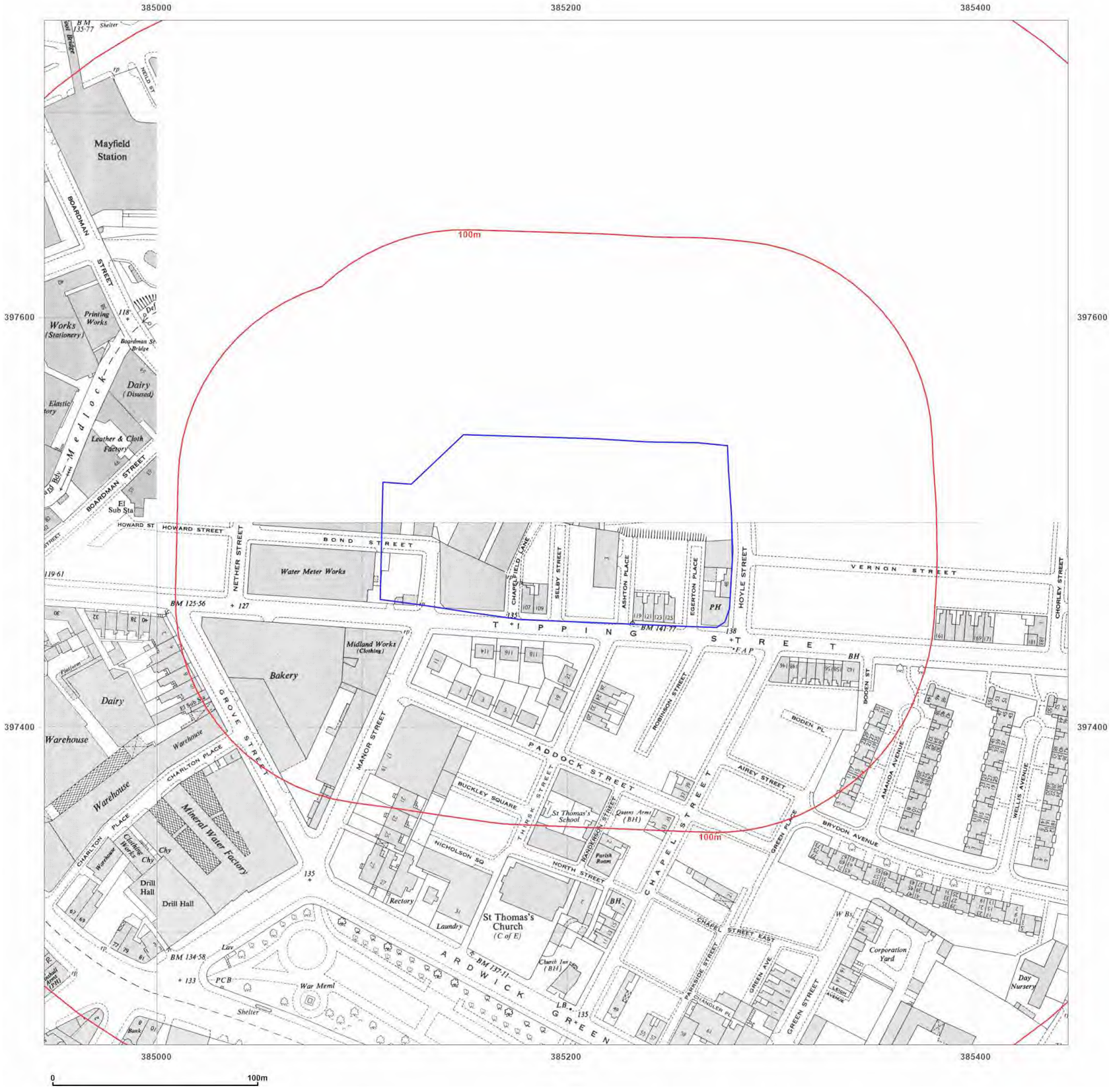
Powered by

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 06 November 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

MAYFIELD PHASE 1B,
MANCHESTER, M12 6HW

Client Ref: 51001-02
Report Ref: GS-ODV-ZU9-CC2-DT3
Grid Ref: 385195, 397495

Map Name: National Grid

Map date: **1952-1954**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
S

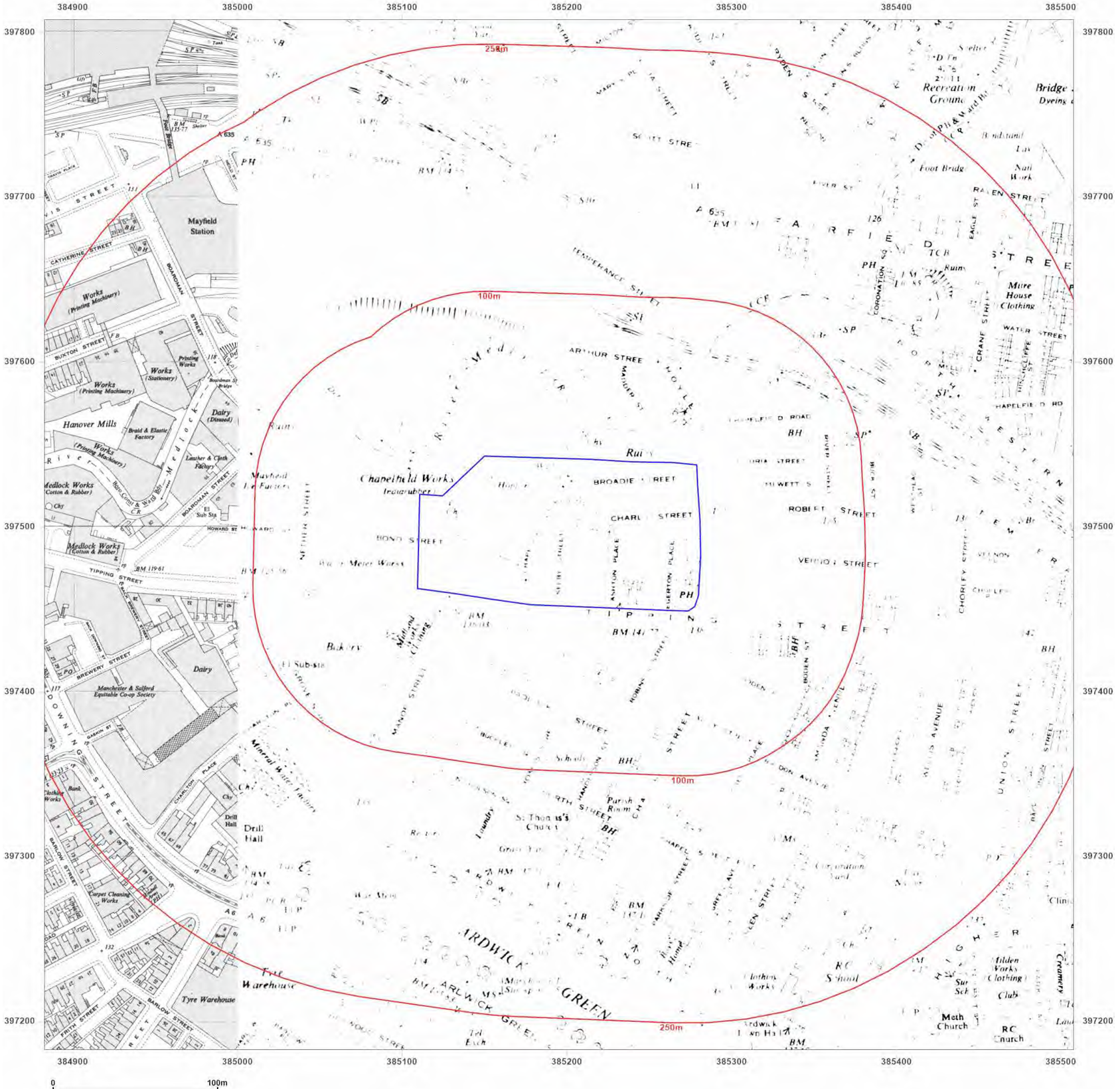
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 06 November 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

MAYFIELD PHASE 1B,
MANCHESTER, M12 6HW

Client Ref: 51001-02
Report Ref: GS-ODV-ZU9-CC2-DT3
Grid Ref: 385195, 397495

Map Name: National Grid
Map date: **1950-1955**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

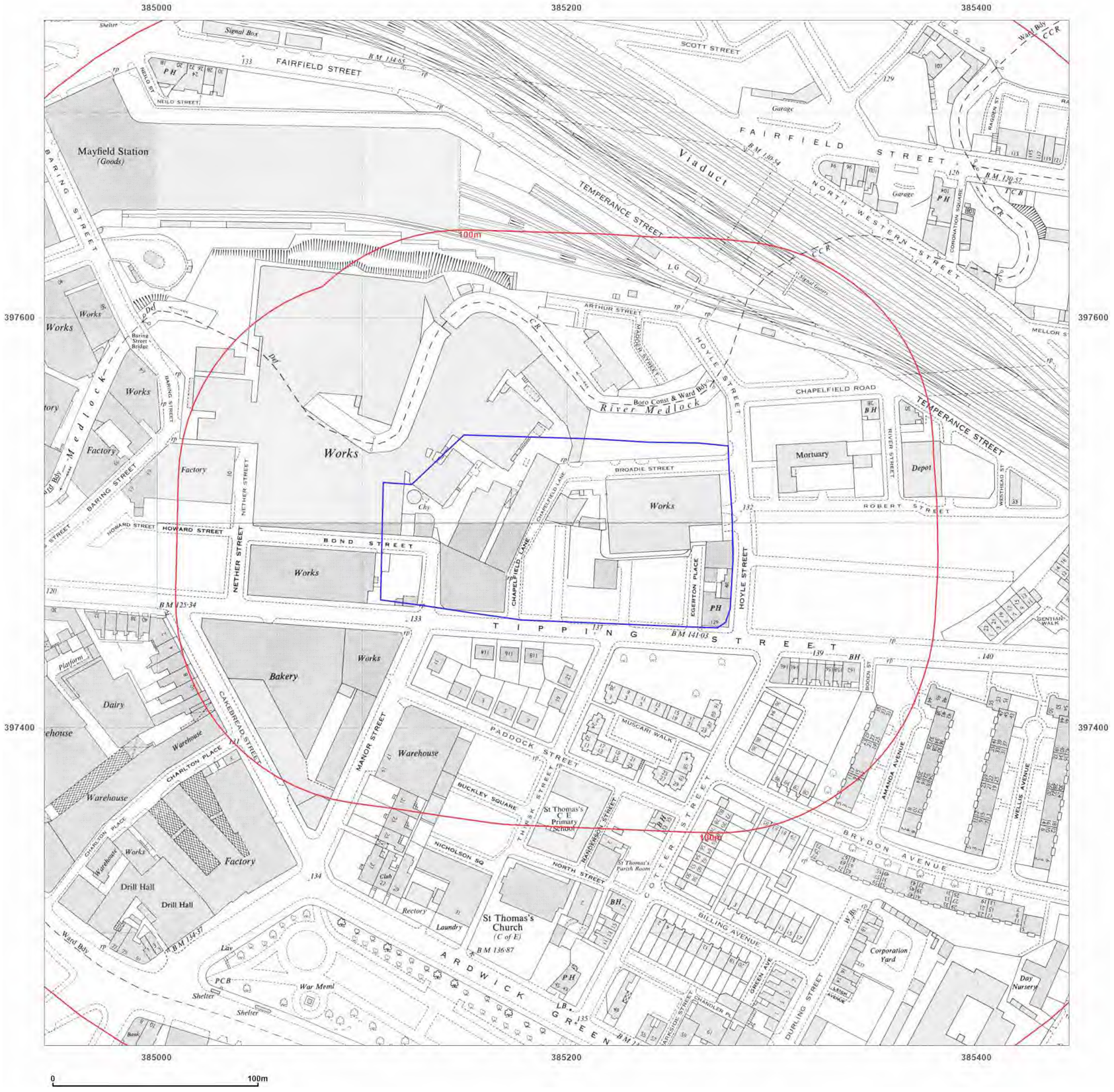
Powered by

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 06 November 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

MAYFIELD PHASE 1B,
MANCHESTER, M12 6HW

Client Ref: 51001-02
Report Ref: GS-ODV-ZU9-CC2-DT3
Grid Ref: 385195, 397495

Map Name: National Grid

Map date: **1960-1964**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
S

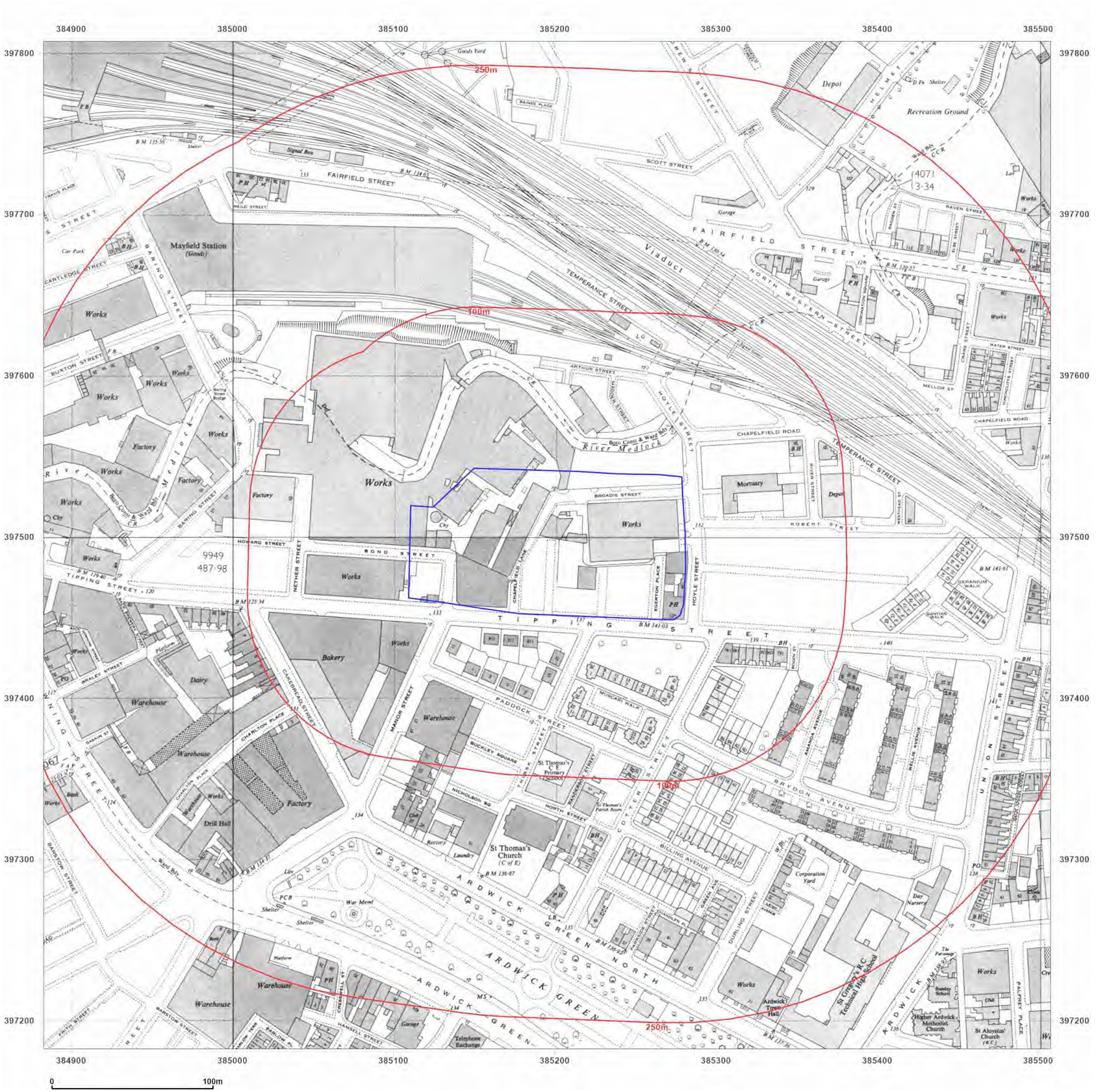
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 06 November 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Site Details:

MAYFIELD PHASE 1B,
MANCHESTER, M12 6HW

Client Ref: 51001-02
Report Ref: GS-ODV-ZU9-CC2-DT3
Grid Ref: 385195, 397495

Map Name: National Grid

Map date: **1965**

Scale: 1:2,500

Printed at: 1:2,500

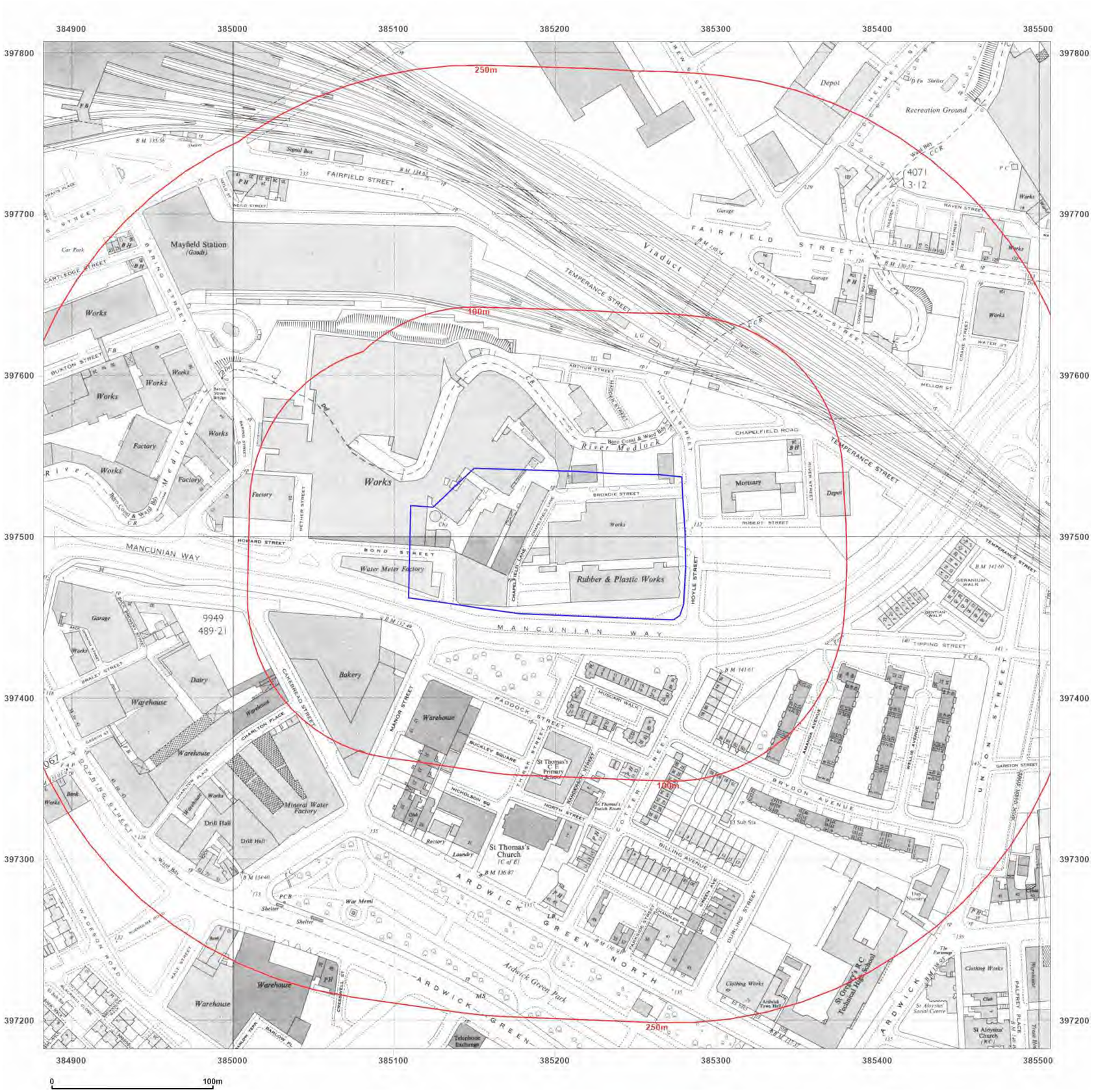
N
W E
S

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 06 November 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

MAYFIELD PHASE 1B,
MANCHESTER, M12 6HW

Client Ref: 51001-02
Report Ref: GS-ODV-ZU9-CC2-DT3
Grid Ref: 385195, 397495

Map Name: National Grid

Map date: **1968**

Scale: 1:2,500

Printed at: 1:2,500

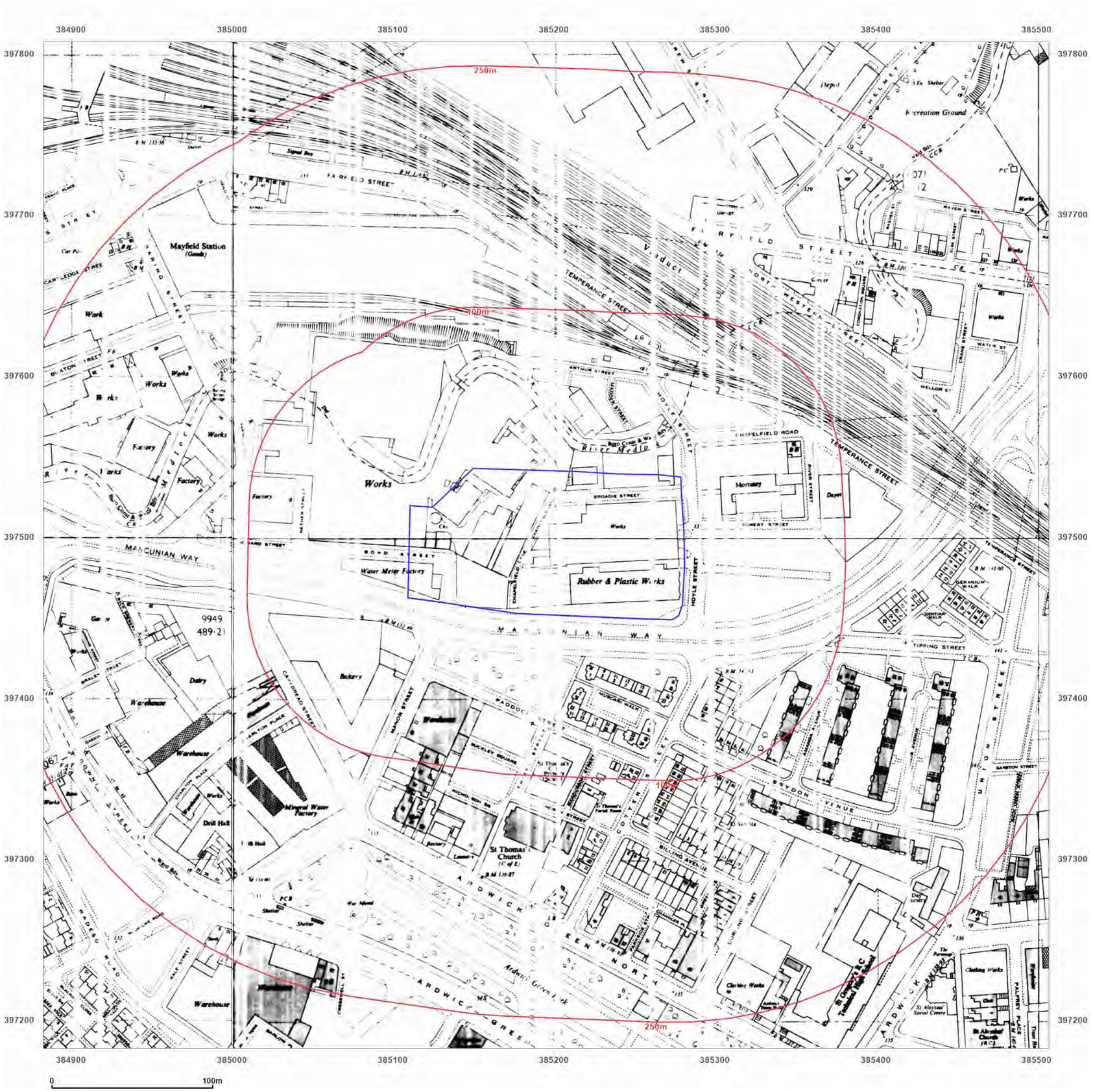
N
W E
S

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 06 November 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

MAYFIELD PHASE 1B,
MANCHESTER, M12 6HW

Client Ref: 51001-02
Report Ref: GS-ODV-ZU9-CC2-DT3
Grid Ref: 385195, 397495

Map Name: National Grid

Map date: **1970**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

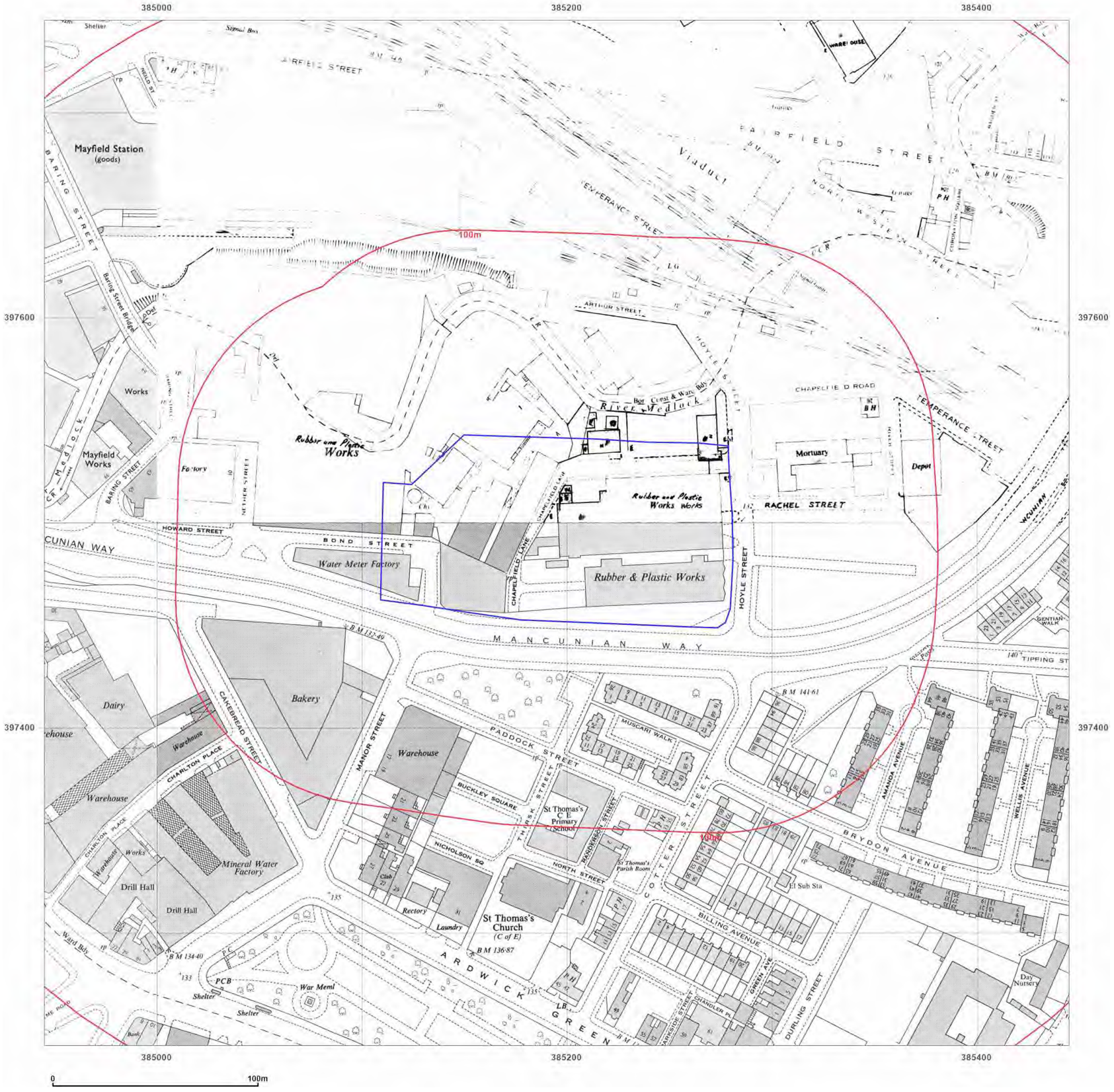
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 06 November 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

MAYFIELD PHASE 1B,
MANCHESTER, M12 6HW

Client Ref: 51001-02
Report Ref: GS-ODV-ZU9-CC2-DT3
Grid Ref: 385195, 397495

Map Name: National Grid

Map date: **1969-1974**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
S

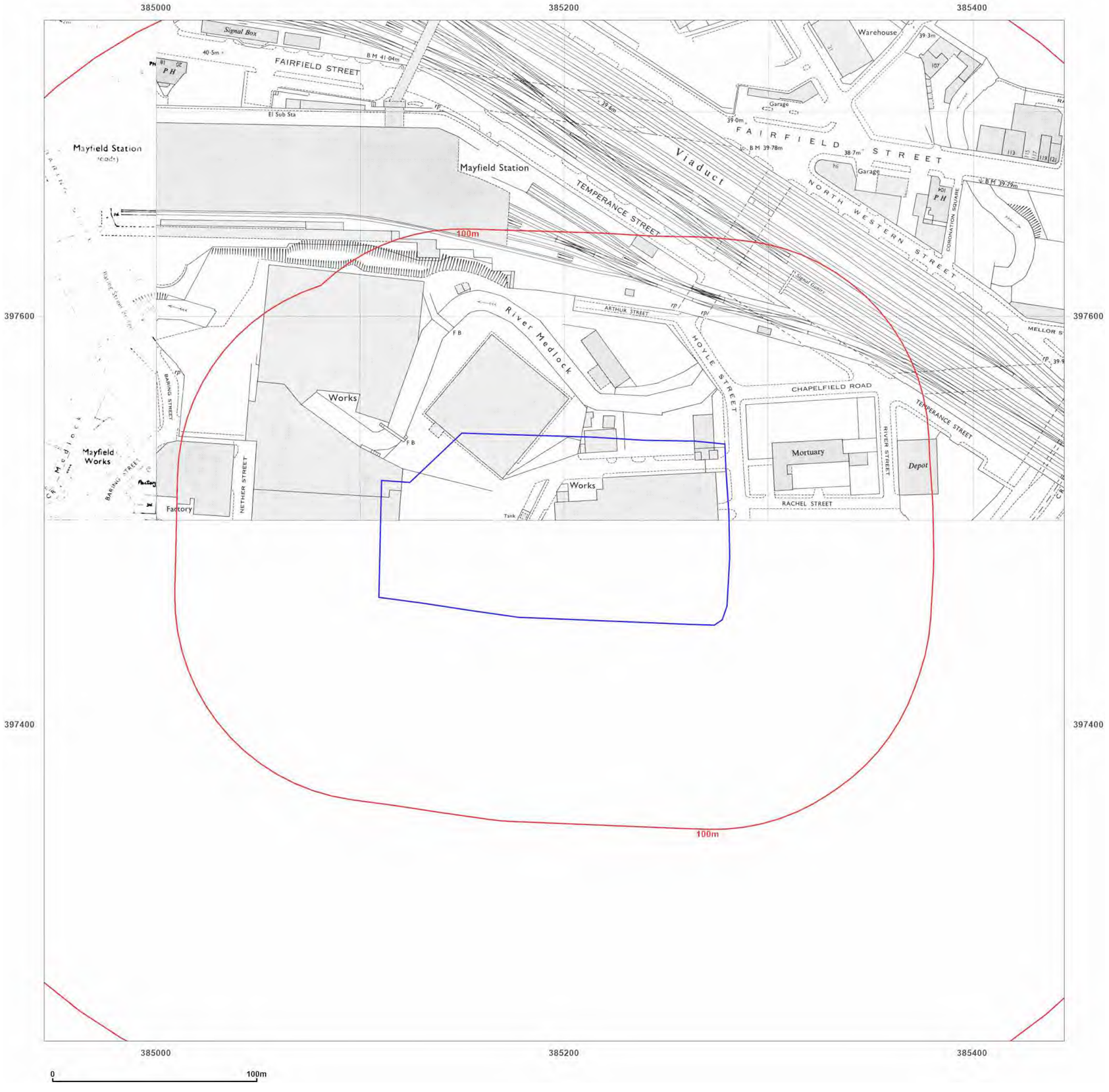
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 06 November 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

MAYFIELD PHASE 1B,
MANCHESTER, M12 6HW

Client Ref: 51001-02
Report Ref: GS-ODV-ZU9-CC2-DT3
Grid Ref: 385195, 397495

Map Name: National Grid

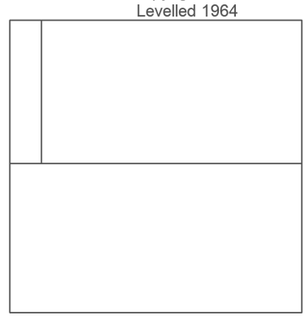
Map date: **1976-1977**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
S

Surveyed N/A	Surveyed 1948
Revised N/A	Revised 1976
Edition N/A	Edition N/A
Copyright 1976	Copyright 1977
Levelled N/A	Levelled 1964



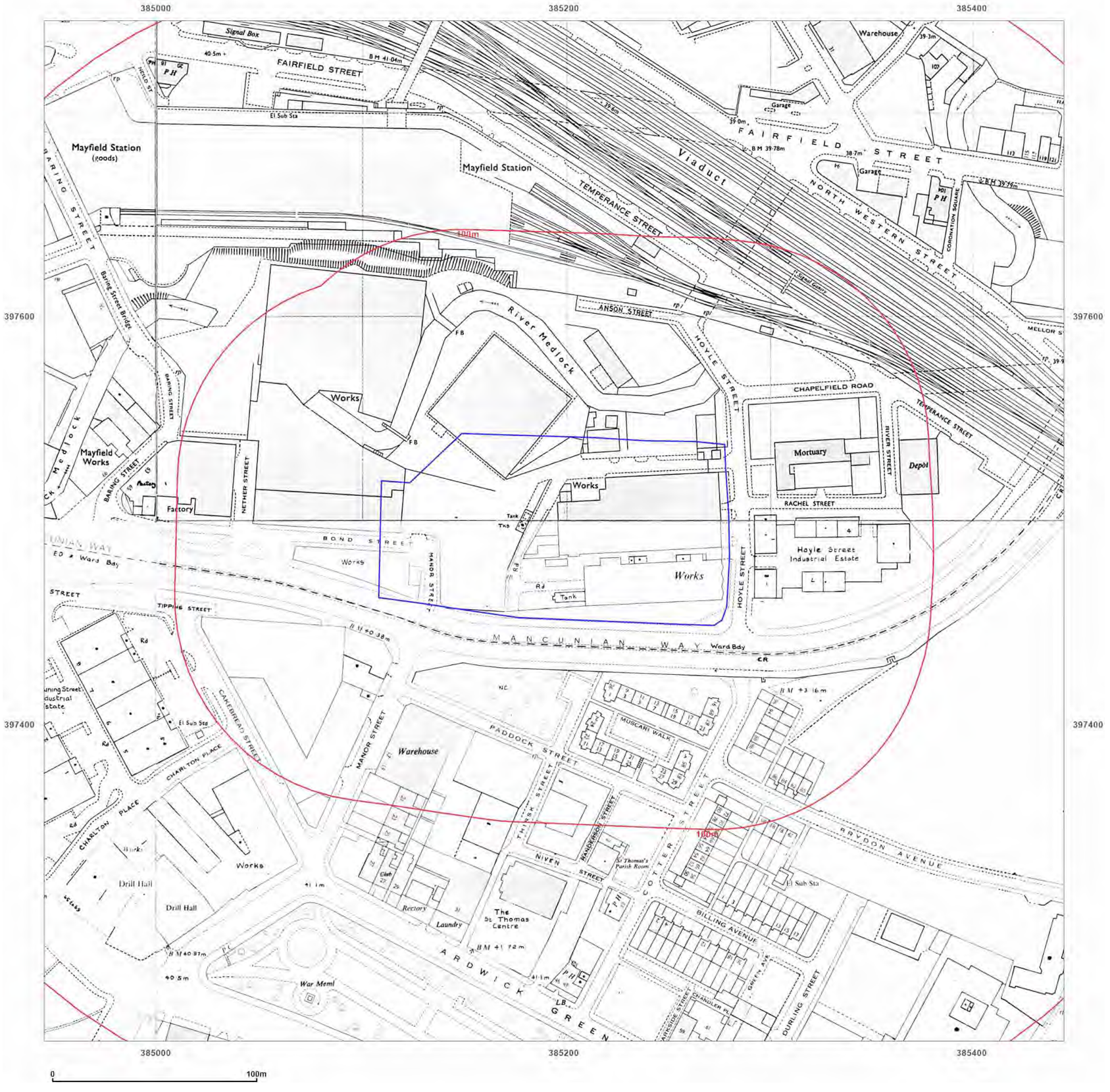
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 06 November 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

MAYFIELD PHASE 1B,
MANCHESTER, M12 6HW

Client Ref: 51001-02
Report Ref: GS-ODV-ZU9-CC2-DT3
Grid Ref: 385195, 397495

Map Name: National Grid

Map date: **1984-1986**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
S

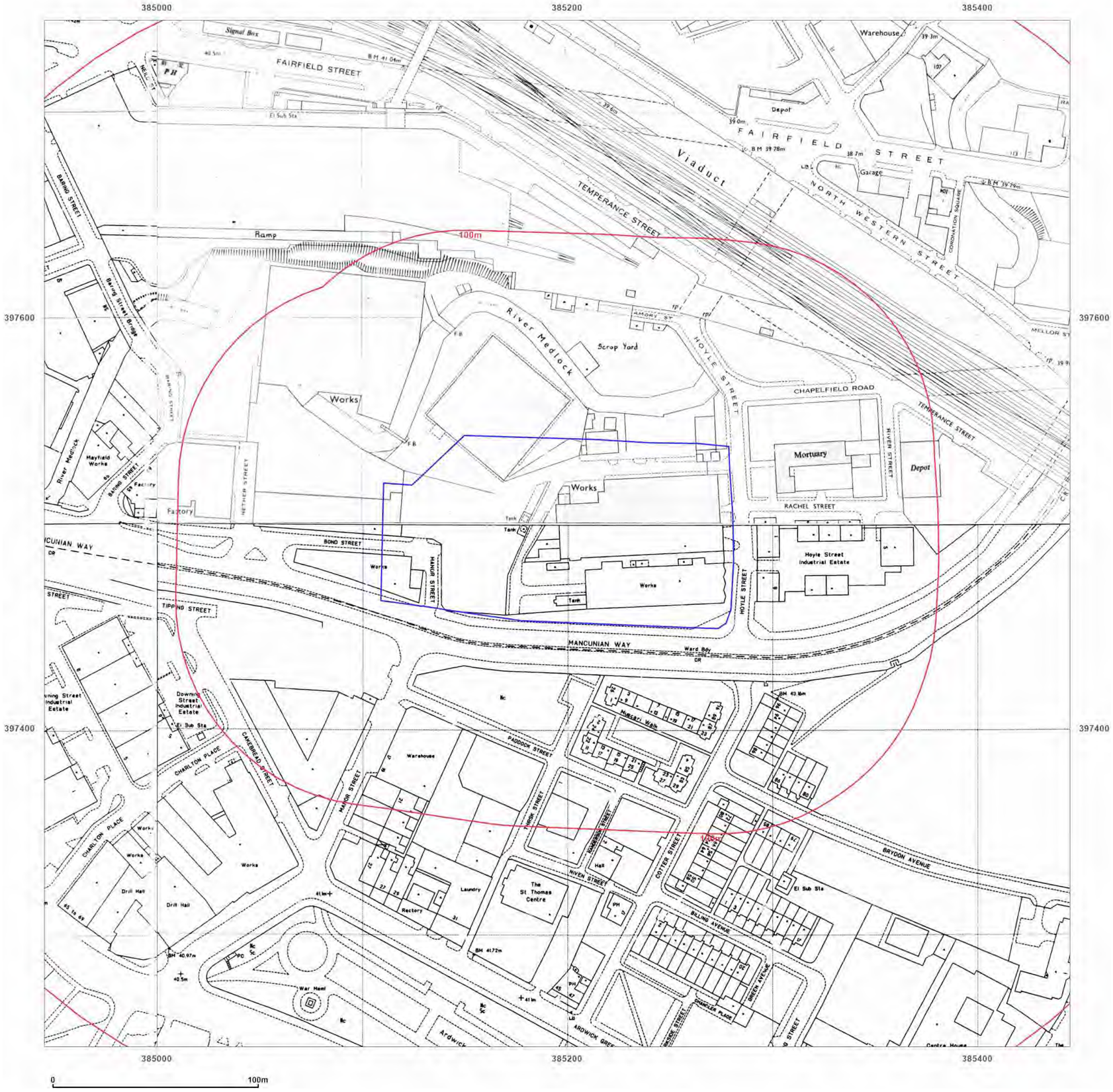
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 06 November 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

MAYFIELD PHASE 1B,
MANCHESTER, M12 6HW

Client Ref: 51001-02
Report Ref: GS-ODV-ZU9-CC2-DT3
Grid Ref: 385195, 397495

Map Name: National Grid
Map date: **1991-1992**
Scale: 1:1,250
Printed at: 1:2,000

N
W E
S

Surveyed 1992 Revised 1992 Edition N/A Copyright 1992 Levelled N/A	Surveyed 1964 Revised 1991 Edition N/A Copyright 1991 Levelled 1964
Surveyed 1992 Revised 1992 Edition N/A Copyright 1992 Levelled N/A	Surveyed 1992 Revised 1992 Edition N/A Copyright 1992 Levelled N/A

Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 06 November 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

MAYFIELD PHASE 1B,
MANCHESTER, M12 6HW

Client Ref: 51001-02
Report Ref: GS-ODV-ZU9-CC2-DT3
Grid Ref: 385195, 397495

Map Name: National Grid

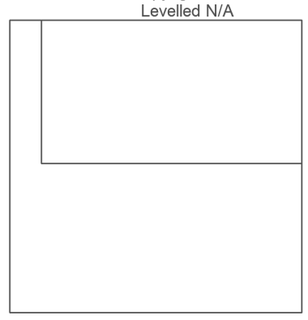
Map date: **1994**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
S

Surveyed 1994
Revised 1994
Edition N/A
Copyright 1994
Levelled N/A



Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 06 November 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

MAYFIELD PHASE 1B,
MANCHESTER, M12 6HW

Client Ref: 51001-02
Report Ref: GS-ODV-ZU9-CC2-DT3
Grid Ref: 385195, 397495

Map Name: National Grid

Map date: **1992-1995**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
S

Surveyed 1995
Revised 1995
Edition N/A
Copyright 1995
Levelled N/A

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

Surveyed 1995
Revised 1995
Edition N/A
Copyright 1995
Levelled N/A

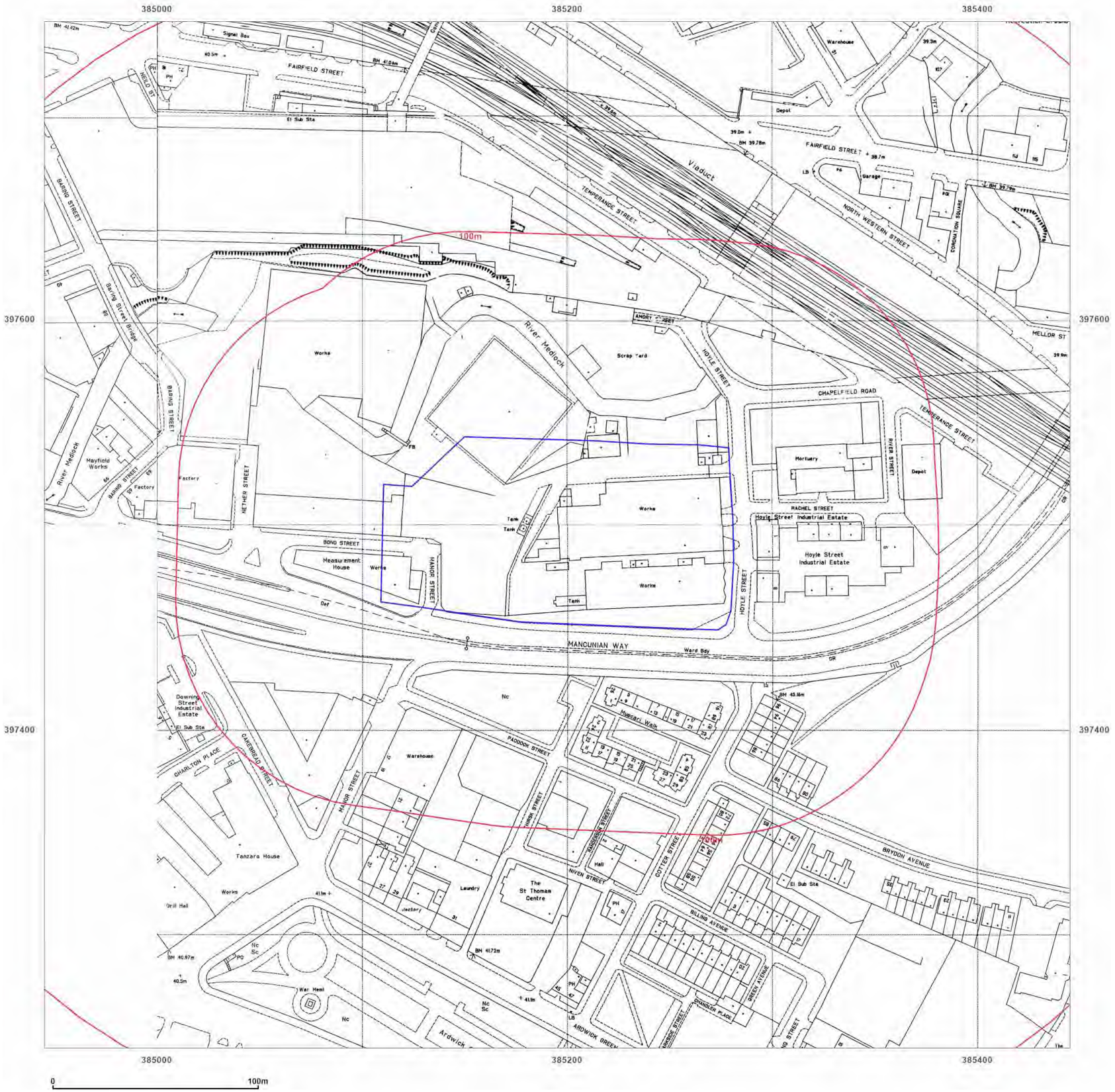
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 06 November 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

MAYFIELD PHASE 1B,
MANCHESTER, M12 6HW

Client Ref: 51001-02
Report Ref: GS-ODV-ZU9-CC2-DT3
Grid Ref: 385195, 397495

Map Name: National Grid

Map date: **1994-1995**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
S

Surveyed 1995
Revised 1995
Edition N/A
Copyright 1995
Levelled N/A

Surveyed 1994
Revised 1994
Edition N/A
Copyright 1994
Levelled N/A

Surveyed 1995
Revised 1995
Edition N/A
Copyright 1995
Levelled N/A

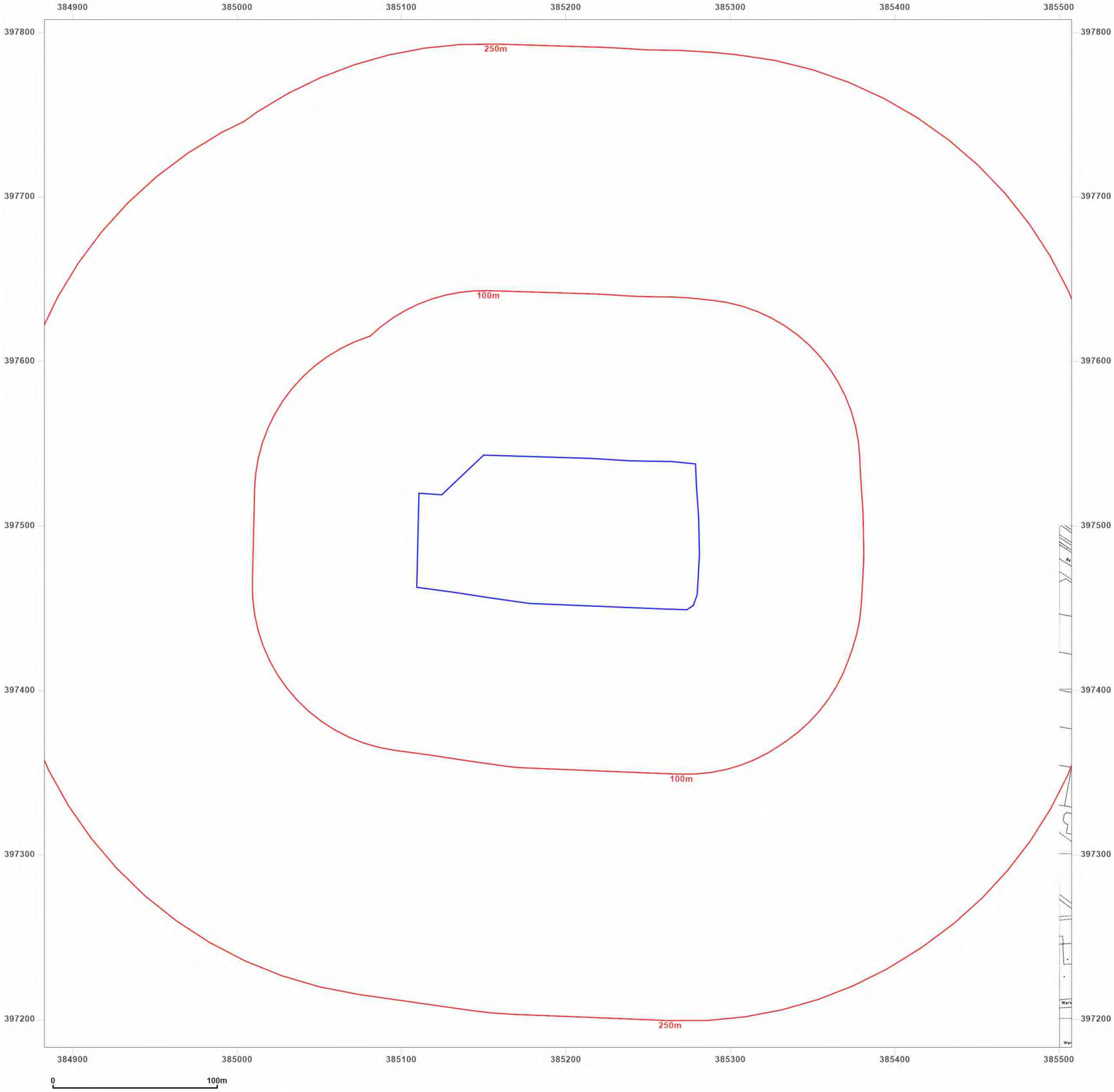
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 06 November 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

MAYFIELD PHASE 1B,
MANCHESTER, M12 6HW

Client Ref: 51001-02
Report Ref: GS-ODV-ZU9-CC2-DT3
Grid Ref: 385195, 397495

Map Name: National Grid

Map date: **1995**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 06 November 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

MAYFIELD PHASE 1B,
MANCHESTER, M12 6HW

Client Ref: 51001-02
Report Ref: GS-ODV-ZU9-CC2-DT3
Grid Ref: 385195, 397495

Map Name: LandLine
Map date: **2003**
Scale: 1:1,250
Printed at: 1:1,250

N
W E
S

2003

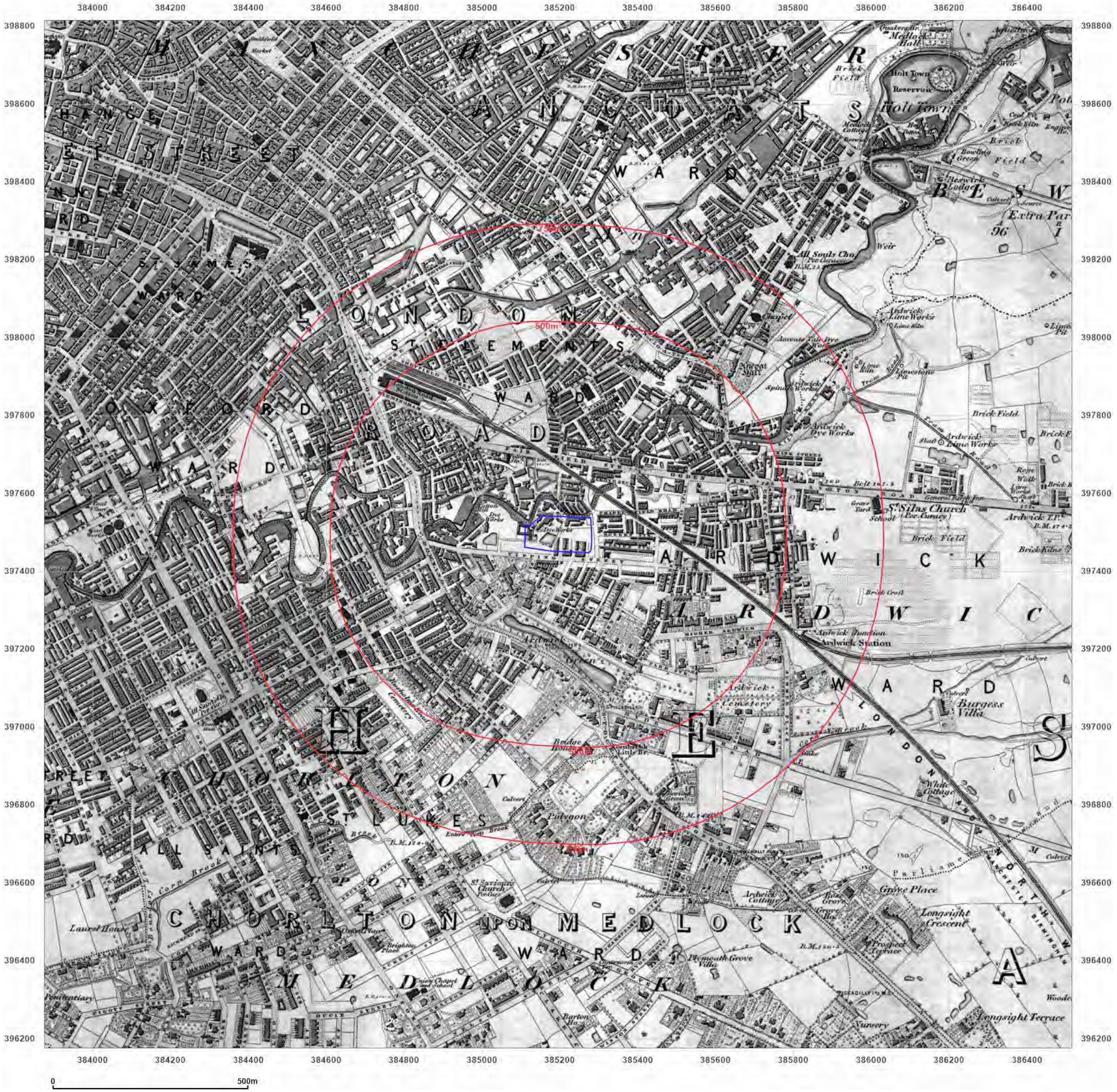
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 06 November 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

MAYFIELD PHASE 1B,
MANCHESTER, M12 6HW

Client Ref: 51001-02
Report Ref: GS-ODV-ZU9-CC2-DT3
Grid Ref: 385195, 397495

Map Name: County Series

Map date: **1848**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

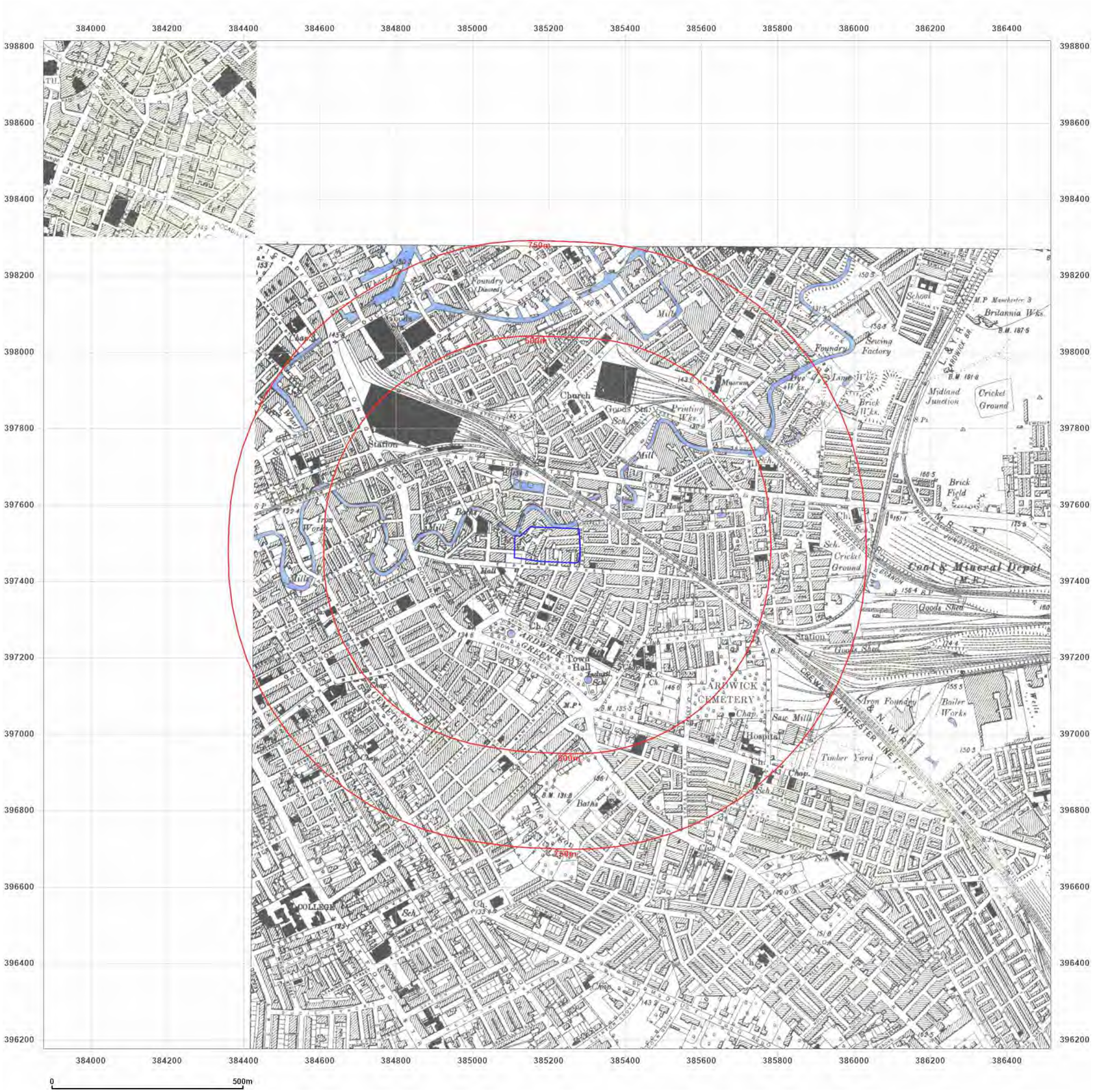
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 06 November 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

MAYFIELD PHASE 1B,
MANCHESTER, M12 6HW

Client Ref: 51001-02
Report Ref: GS-ODV-ZU9-CC2-DT3
Grid Ref: 385195, 397495

Map Name: County Series

Map date: **1890-1894**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

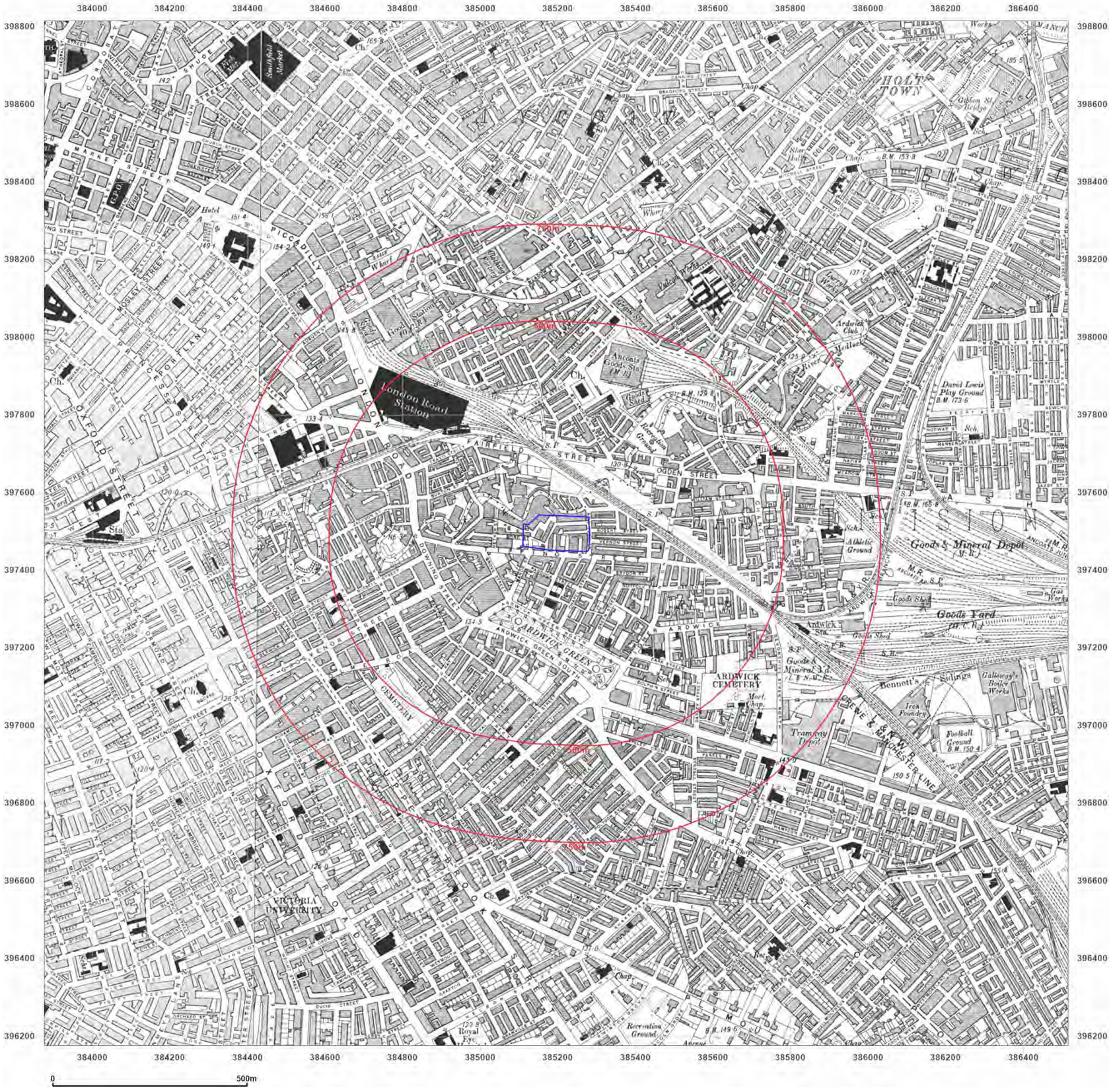
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 06 November 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

MAYFIELD PHASE 1B,
MANCHESTER, M12 6HW

Client Ref: 51001-02
Report Ref: GS-ODV-ZU9-CC2-DT3
Grid Ref: 385195, 397495

Map Name: County Series

Map date: **1905-1906**

Scale: 1:10,560

Printed at: 1:10,560

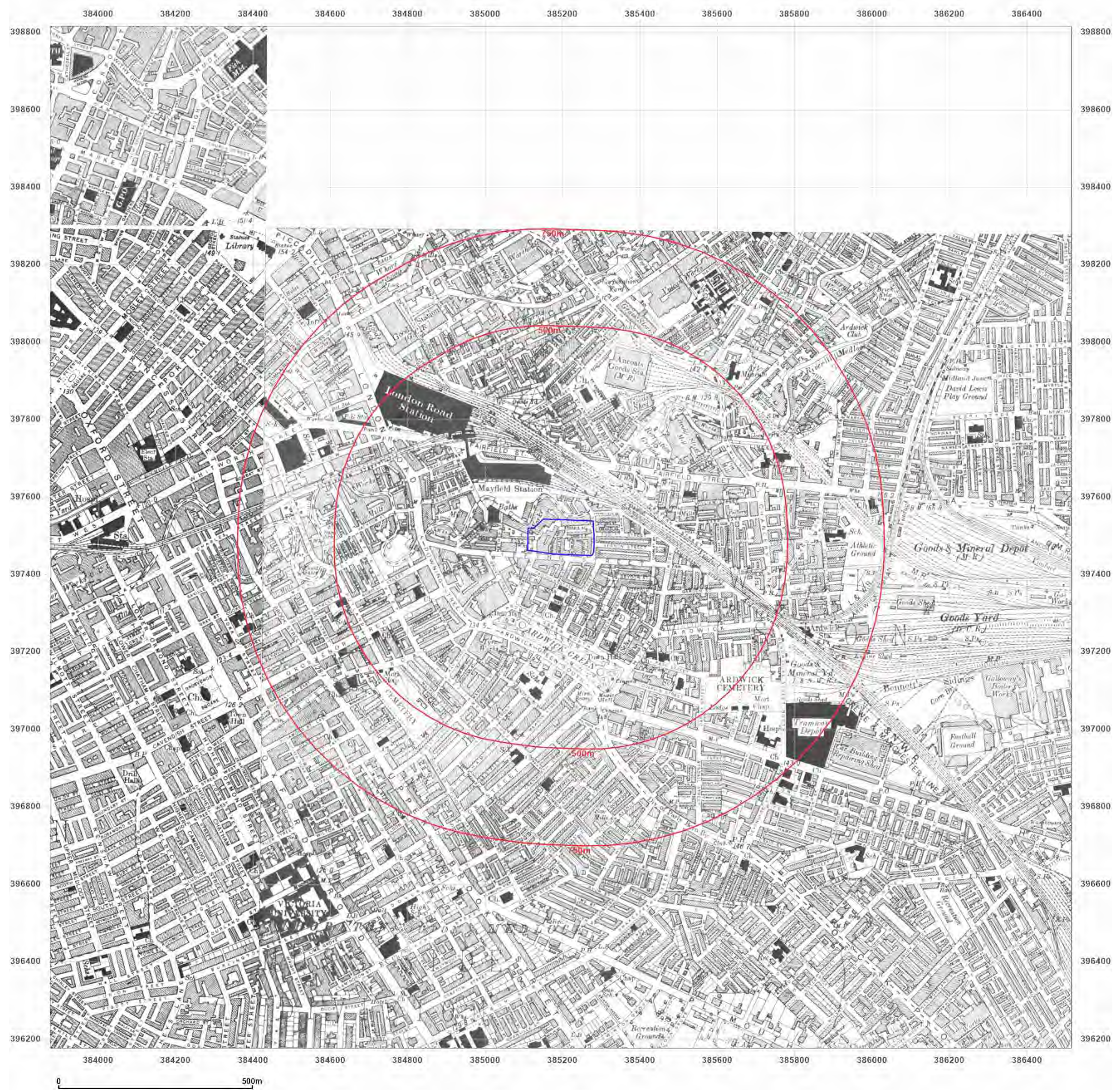
N
W E
S

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 06 November 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Site Details:

MAYFIELD PHASE 1B,
MANCHESTER, M12 6HW

Client Ref: 51001-02
Report Ref: GS-ODV-ZU9-CC2-DT3
Grid Ref: 385195, 397495

Map Name: County Series

Map date: **1923**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

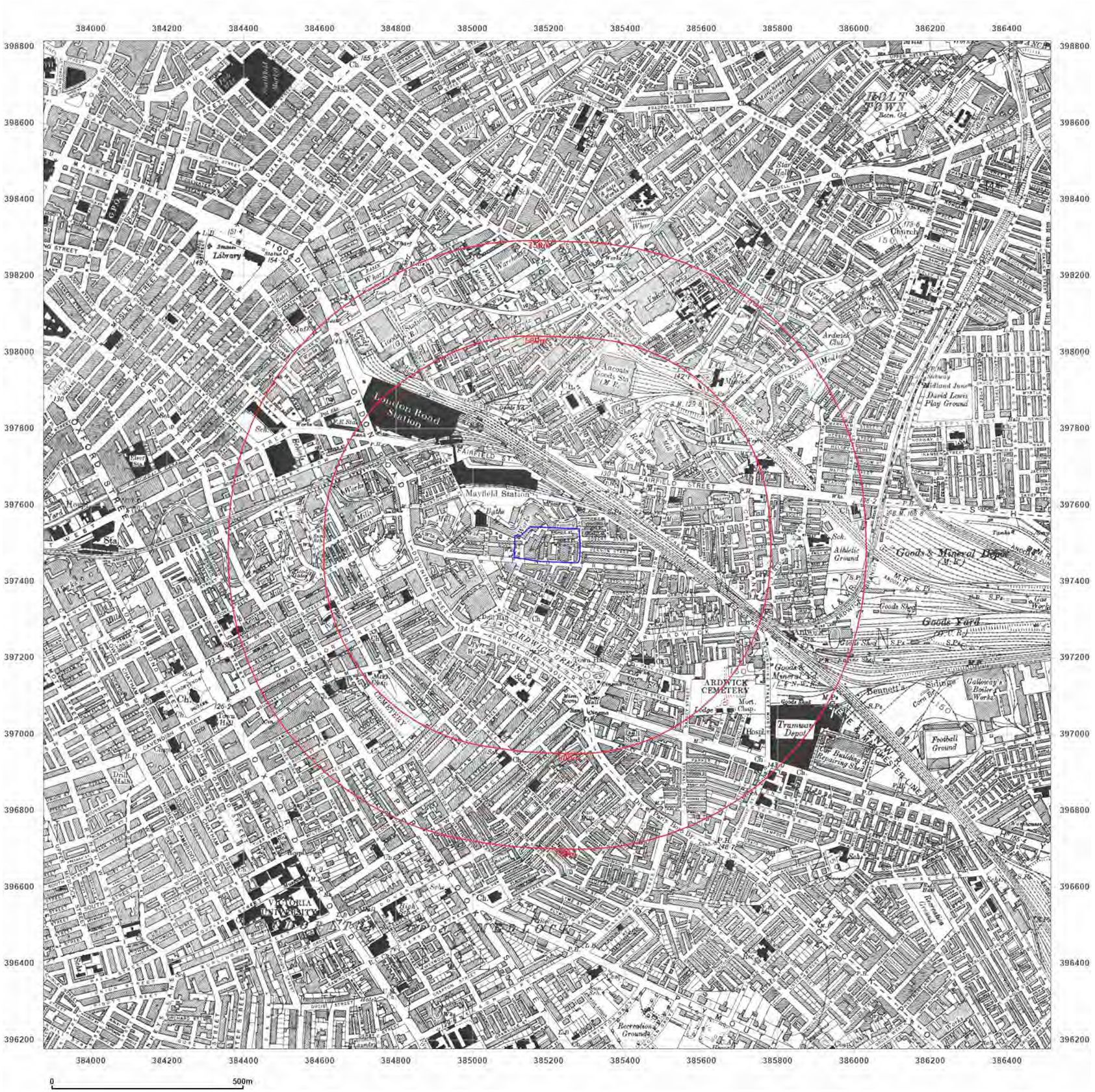
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 06 November 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

MAYFIELD PHASE 1B,
MANCHESTER, M12 6HW

Client Ref: 51001-02
Report Ref: GS-ODV-ZU9-CC2-DT3
Grid Ref: 385195, 397495

Map Name: County Series

Map date: **1923**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

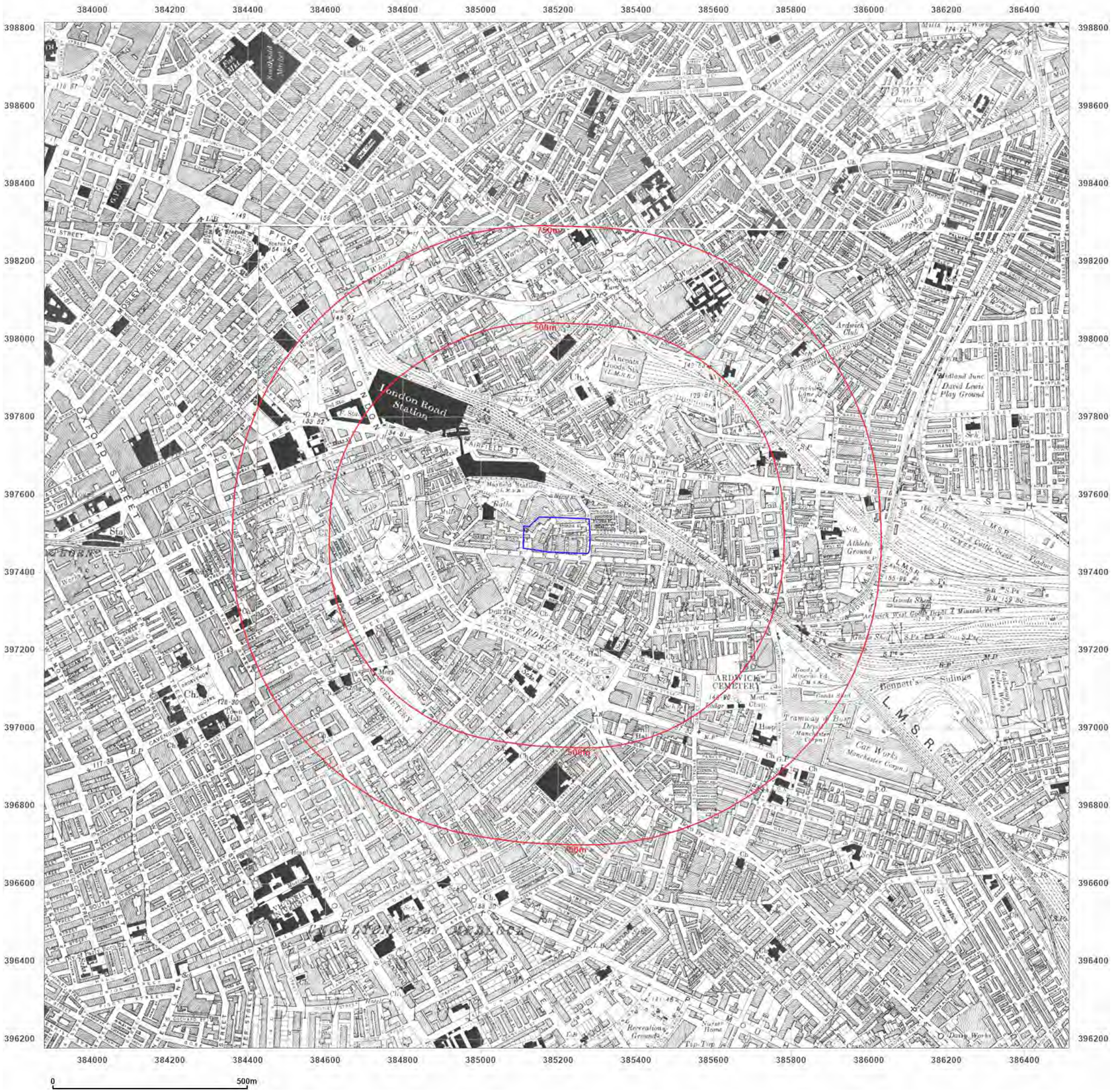
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 06 November 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

MAYFIELD PHASE 1B,
MANCHESTER, M12 6HW

Client Ref: 51001-02
Report Ref: GS-ODV-ZU9-CC2-DT3
Grid Ref: 385195, 397495

Map Name: County Series

Map date: **1931-1934**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

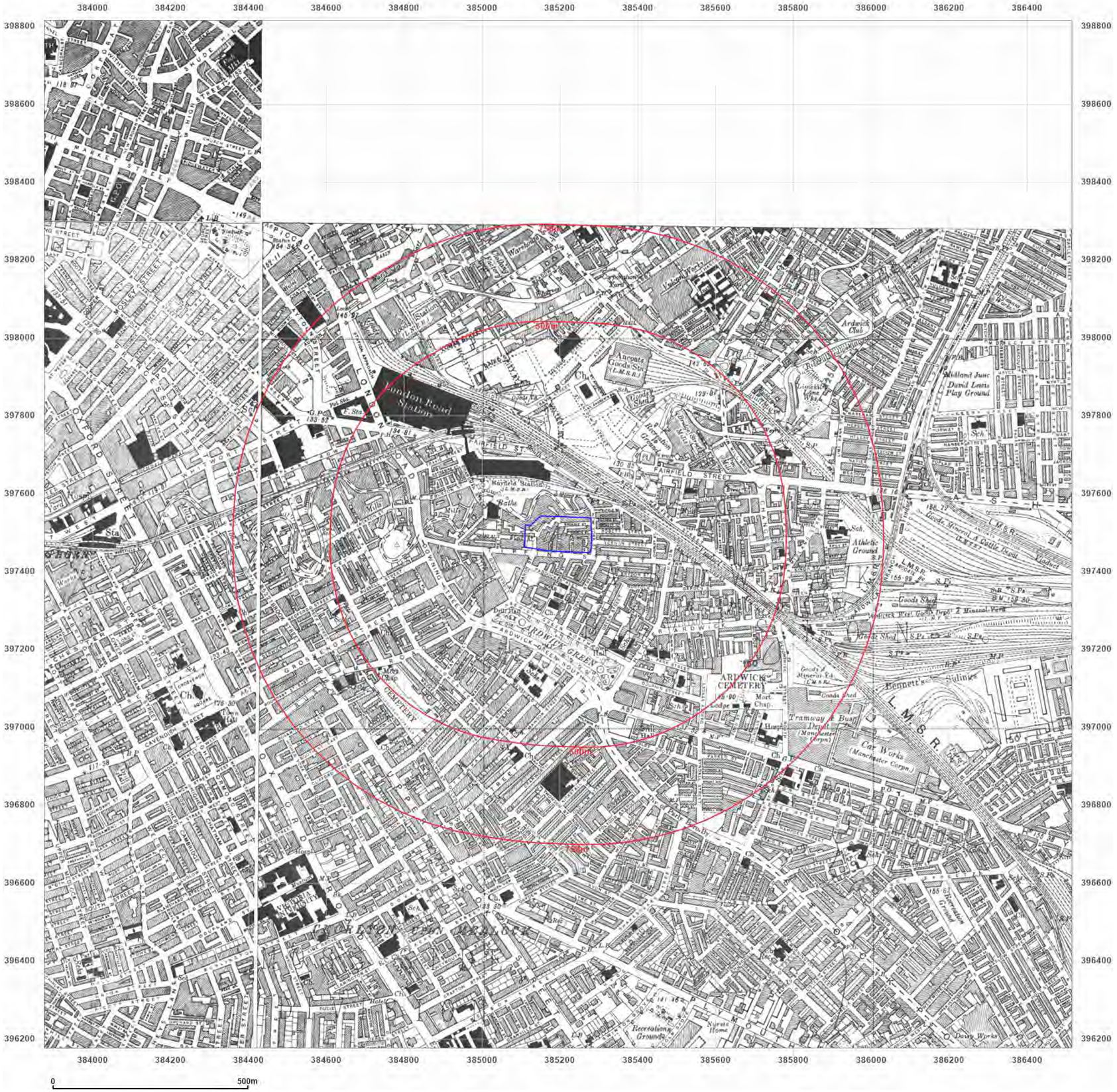
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 06 November 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

MAYFIELD PHASE 1B,
MANCHESTER, M12 6HW

Client Ref: 51001-02
Report Ref: GS-ODV-ZU9-CC2-DT3
Grid Ref: 385195, 397495

Map Name: County Series

Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

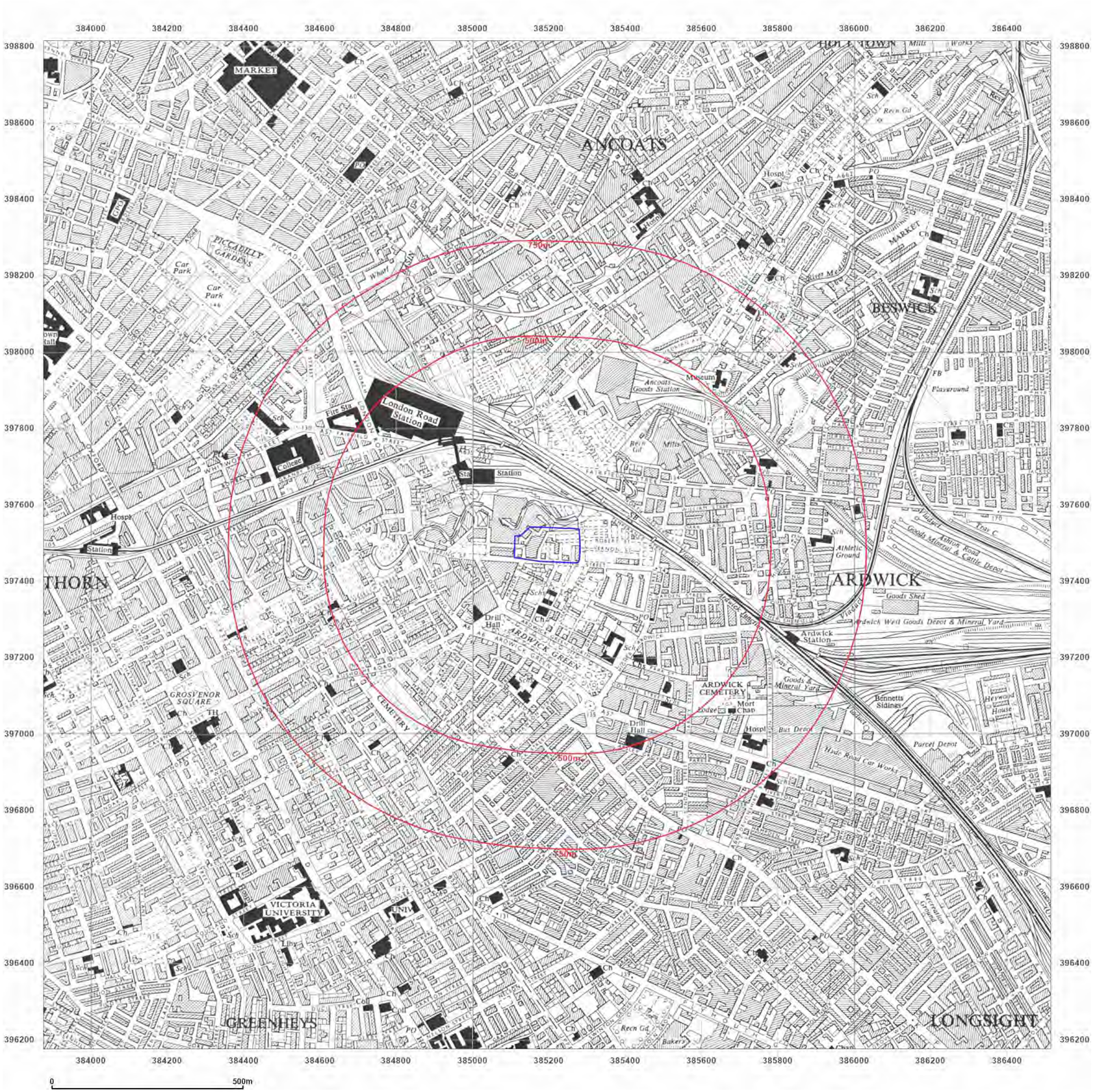
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 06 November 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

MAYFIELD PHASE 1B,
MANCHESTER, M12 6HW

Client Ref: 51001-02
Report Ref: GS-ODV-ZU9-CC2-DT3
Grid Ref: 385195, 397495

Map Name: Provisional

Map date: **1956**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

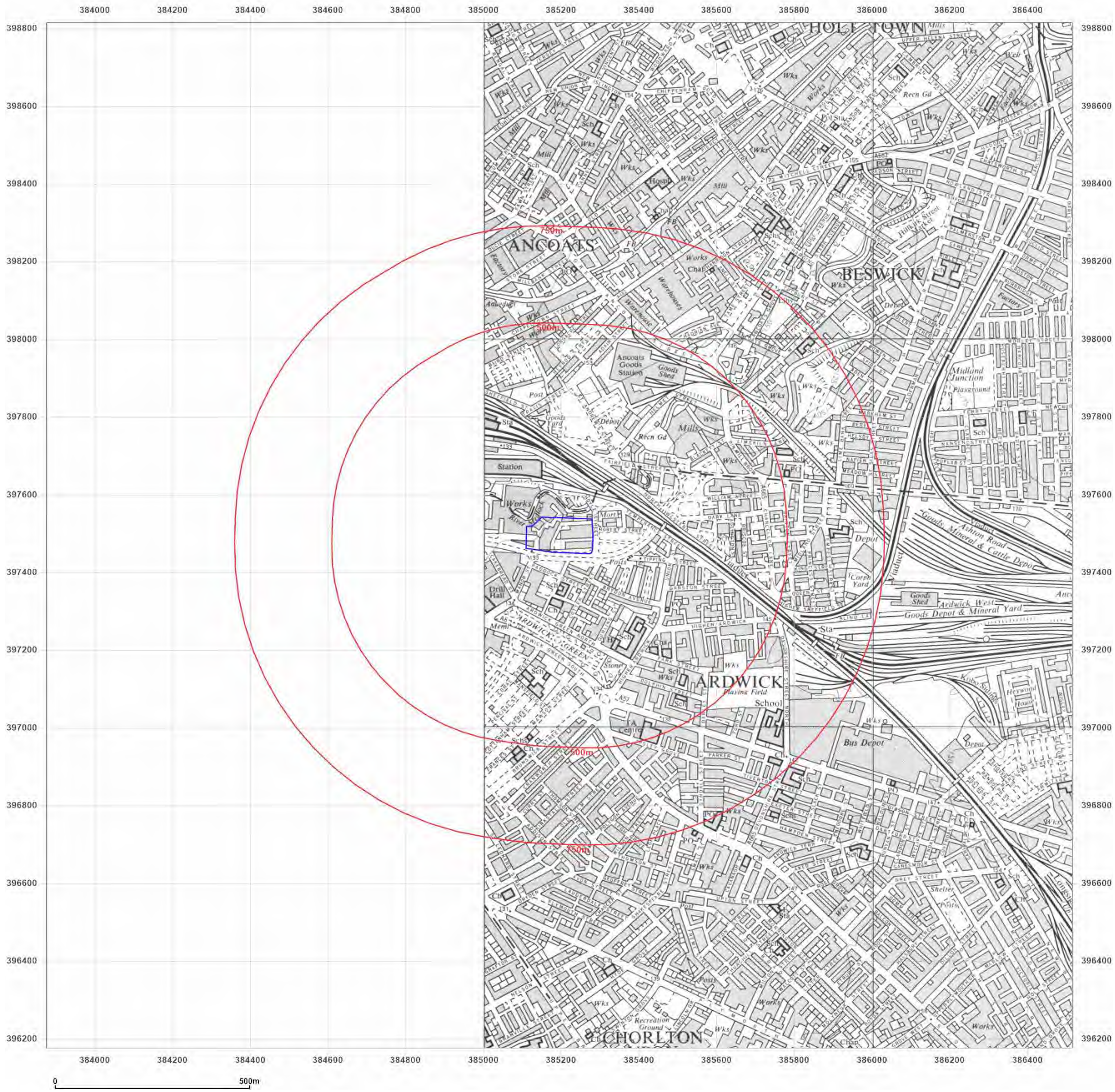
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 06 November 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Site Details:

MAYFIELD PHASE 1B,
MANCHESTER, M12 6HW

Client Ref: 51001-02
Report Ref: GS-ODV-ZU9-CC2-DT3
Grid Ref: 385195, 397495

Map Name: Provisional

Map date: **1968**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

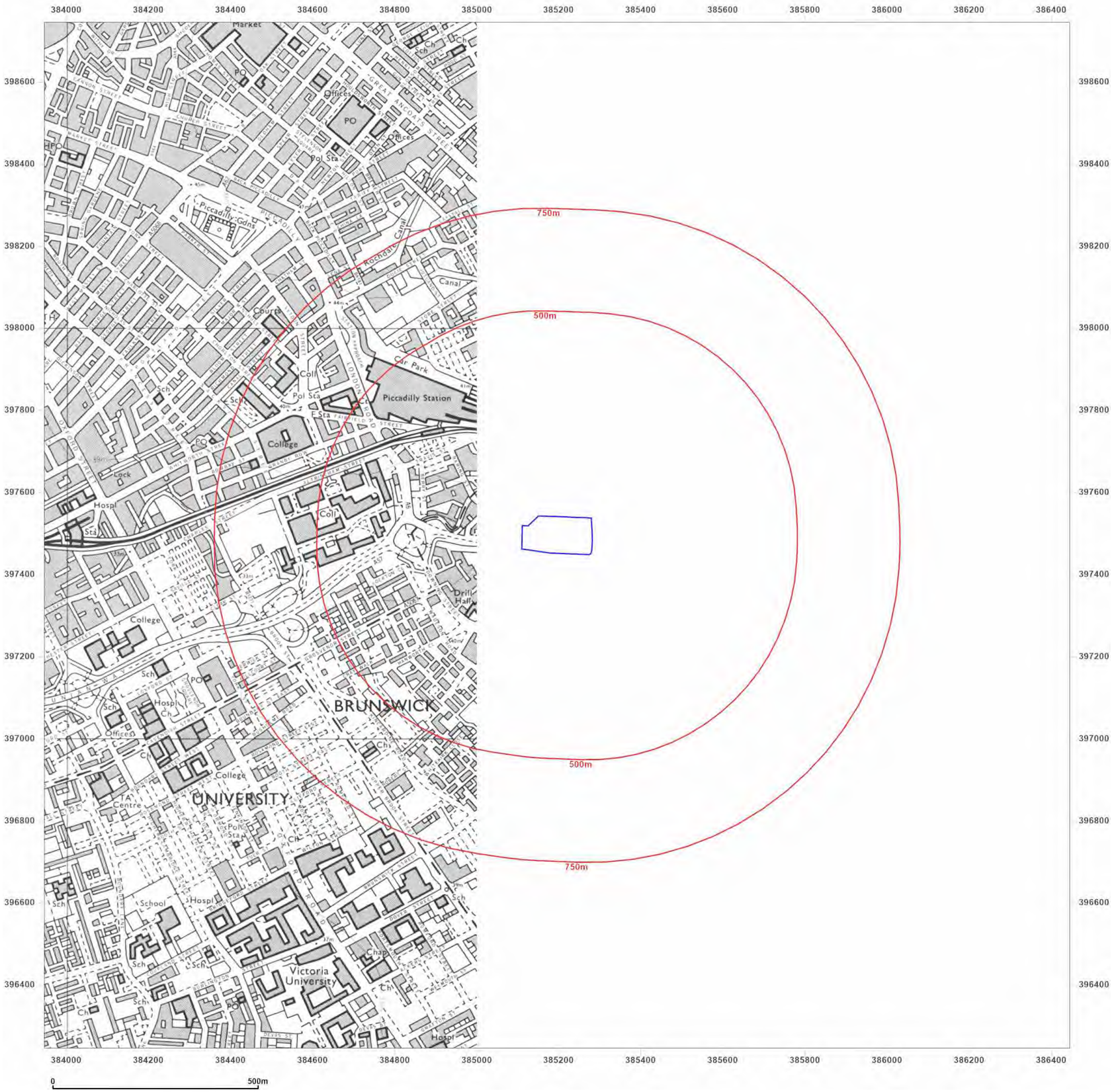
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 06 November 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

MAYFIELD PHASE 1B,
MANCHESTER, M12 6HW

Client Ref: 51001-02
Report Ref: GS-ODV-ZU9-CC2-DT3
Grid Ref: 385195, 397495

Map Name: National Grid

Map date: **1972**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

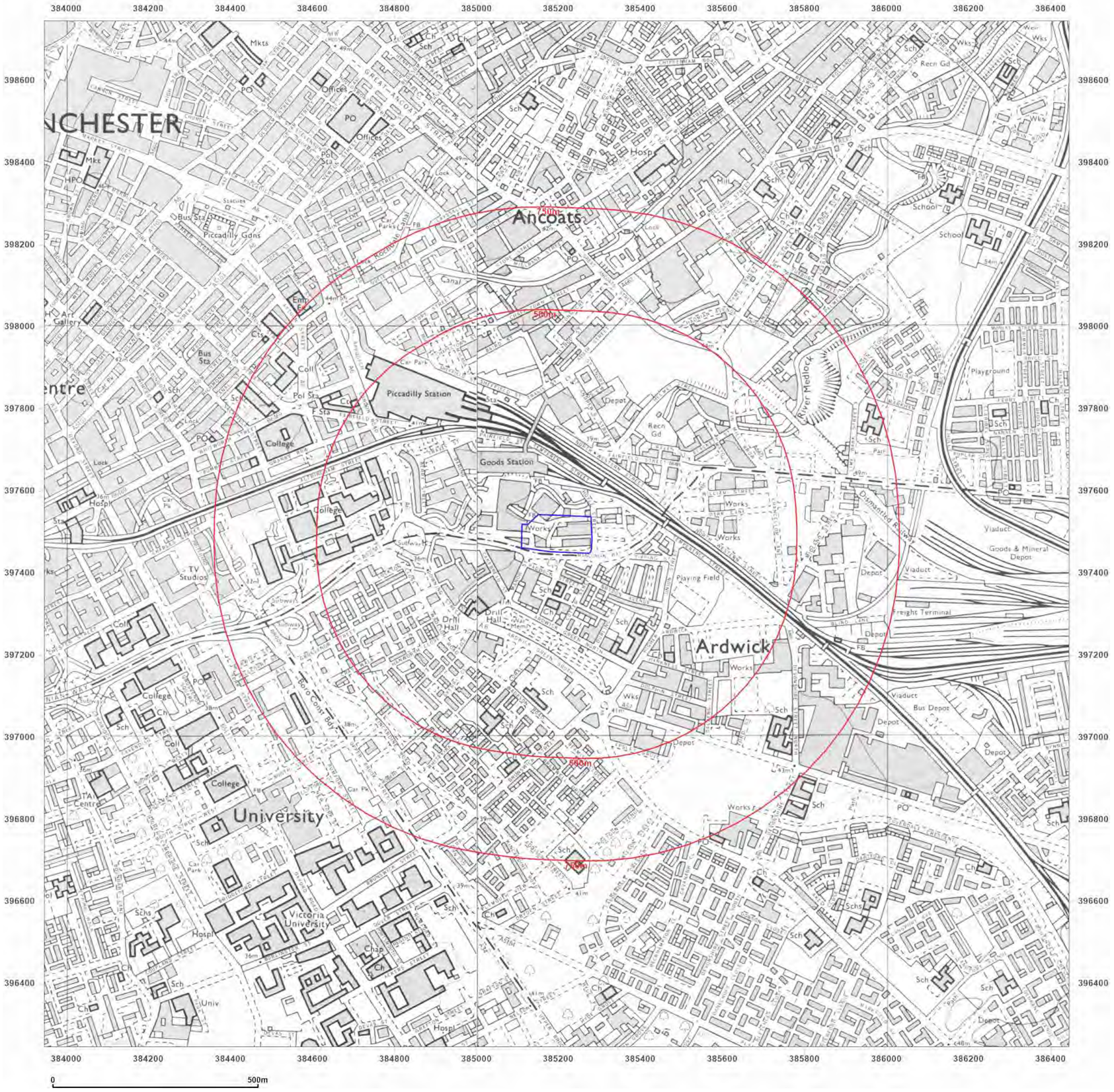
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 06 November 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

MAYFIELD PHASE 1B,
MANCHESTER, M12 6HW

Client Ref: 51001-02
Report Ref: GS-ODV-ZU9-CC2-DT3
Grid Ref: 385195, 397495

Map Name: National Grid

Map date: **1980-1981**

Scale: 1:10,000

Printed at: 1:10,000

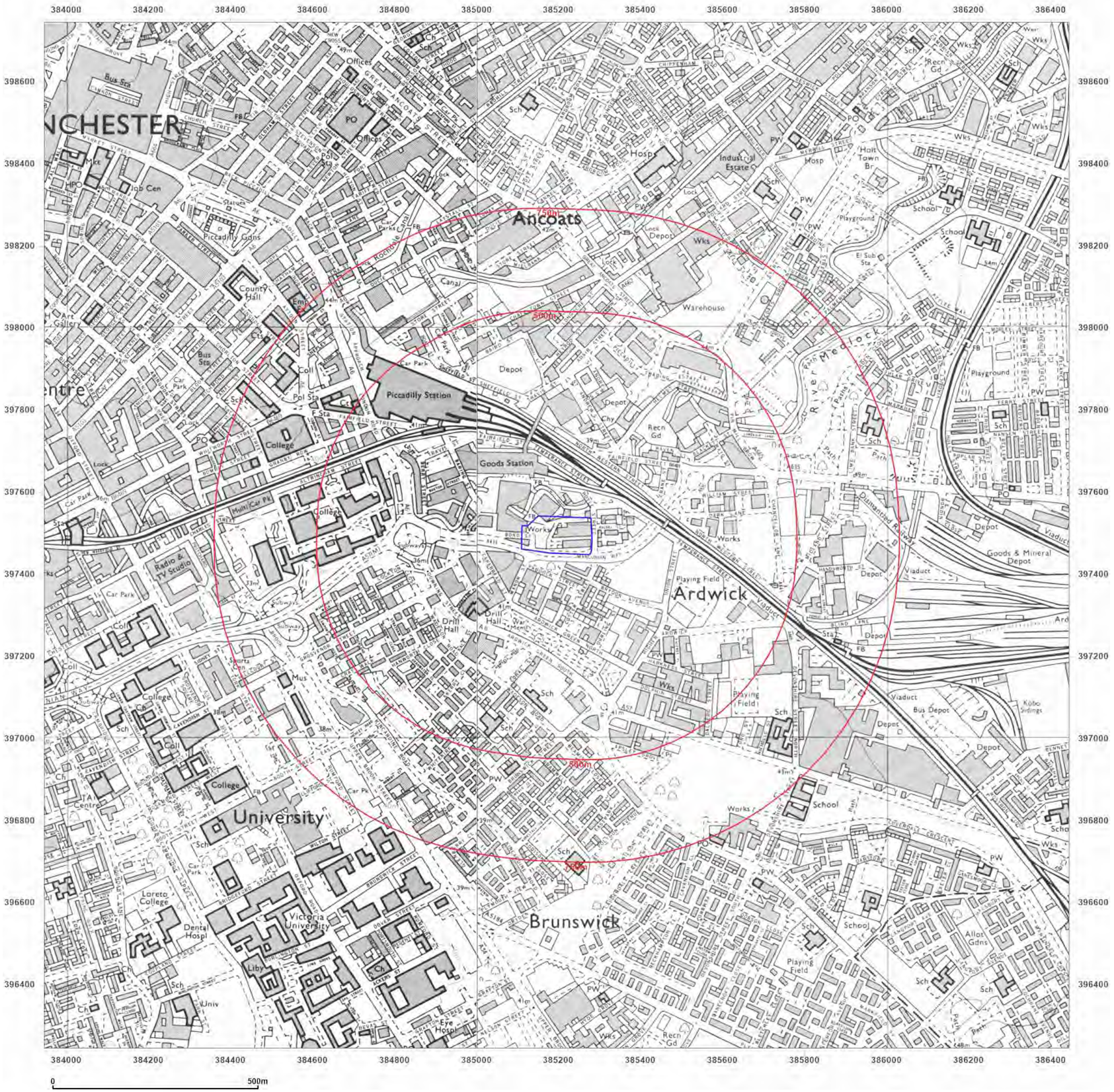
N
W E
S

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 06 November 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

MAYFIELD PHASE 1B,
MANCHESTER, M12 6HW

Client Ref: 51001-02
Report Ref: GS-ODV-ZU9-CC2-DT3
Grid Ref: 385195, 397495

Map Name: National Grid

Map date: **1985**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

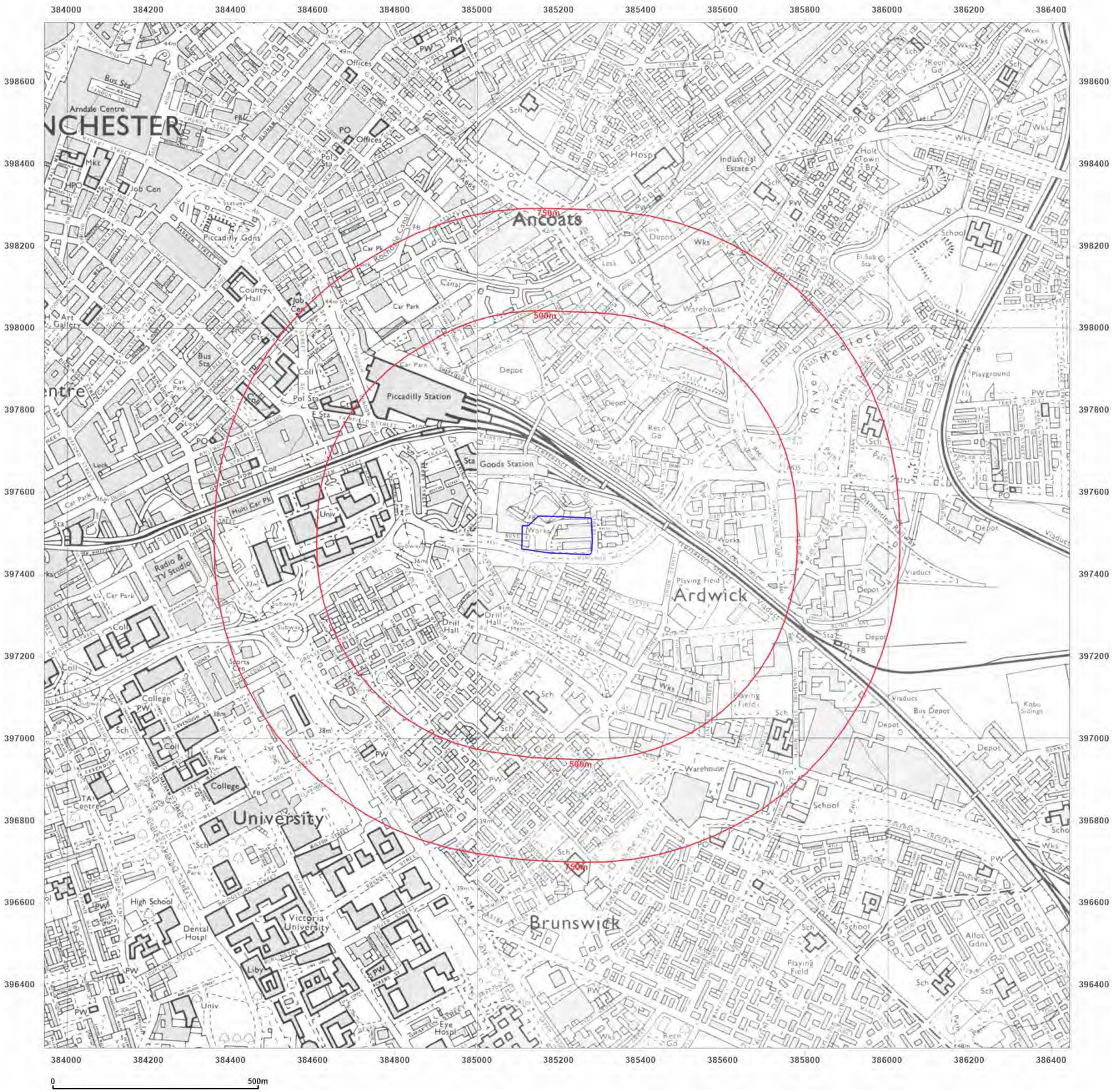
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 06 November 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

MAYFIELD PHASE 1B,
MANCHESTER, M12 6HW

Client Ref: 51001-02
Report Ref: GS-ODV-ZU9-CC2-DT3
Grid Ref: 385195, 397495

Map Name: National Grid

Map date: **1988-1991**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

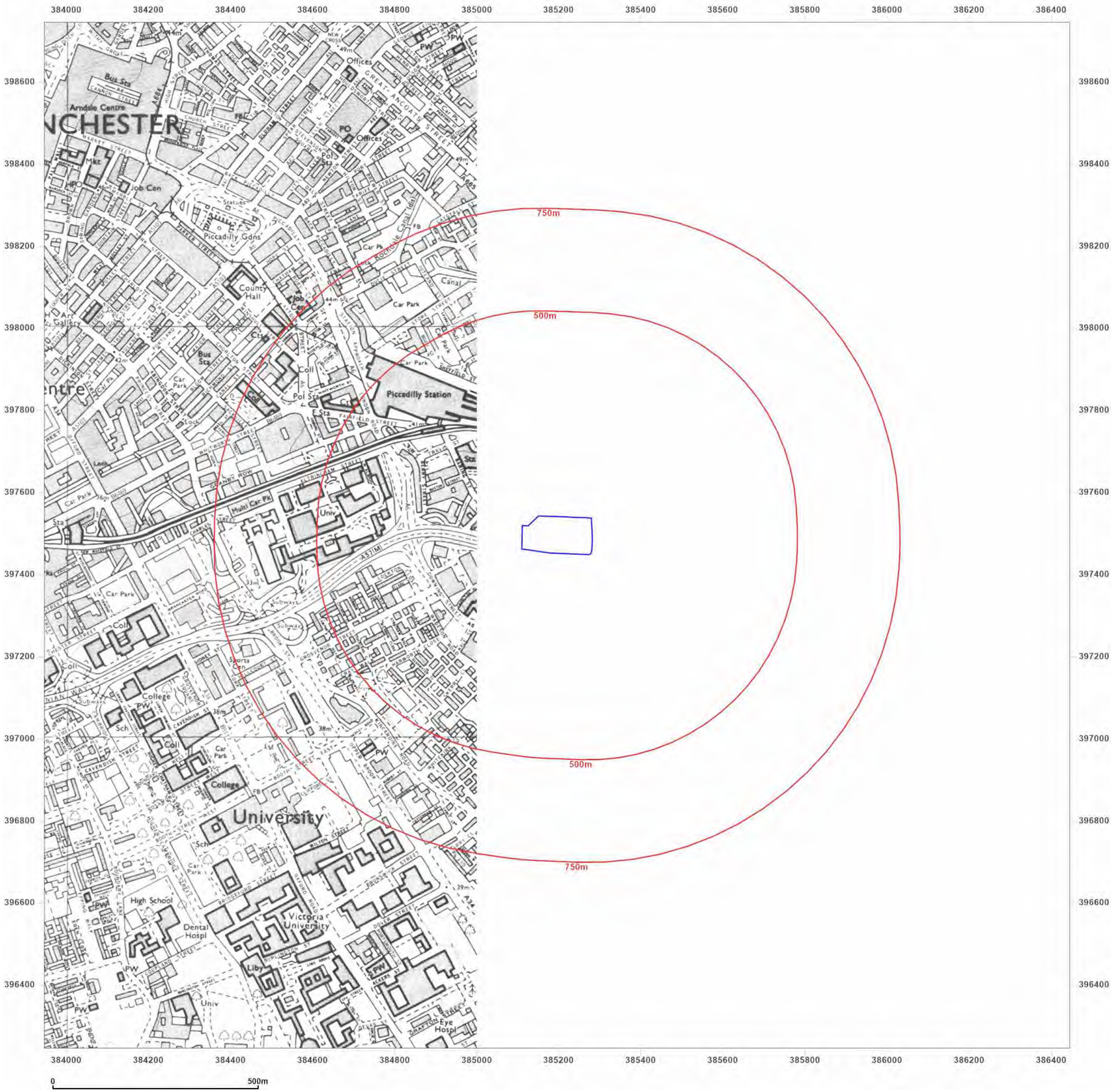
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 06 November 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

MAYFIELD PHASE 1B,
MANCHESTER, M12 6HW

Client Ref: 51001-02
Report Ref: GS-ODV-ZU9-CC2-DT3
Grid Ref: 385195, 397495

Map Name: National Grid

Map date: **1994**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 06 November 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

MAYFIELD PHASE 1B,
MANCHESTER, M12 6HW

Client Ref: 51001-02
Report Ref: GS-ODV-ZU9-CC2-DT3
Grid Ref: 385195, 397495

Map Name: National Grid
Map date: **2001**
Scale: 1:10,000
Printed at: 1:10,000

N
W E
S

2001

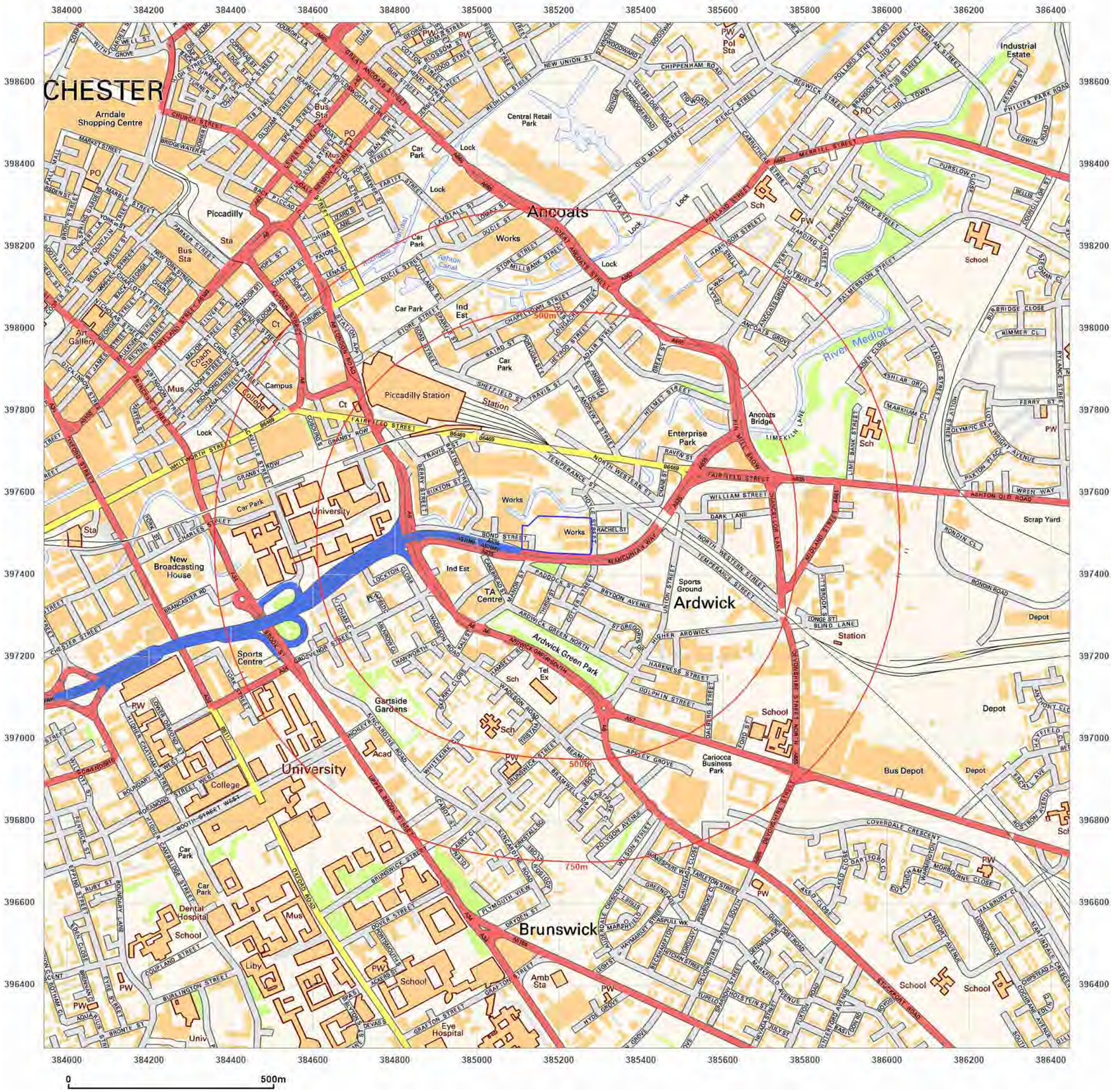
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 06 November 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

MAYFIELD PHASE 1B,
MANCHESTER, M12 6HW

Client Ref: 51001-02
Report Ref: GS-ODV-ZU9-CC2-DT3
Grid Ref: 385195, 397495

Map Name: National Grid

Map date: **2010**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

2010

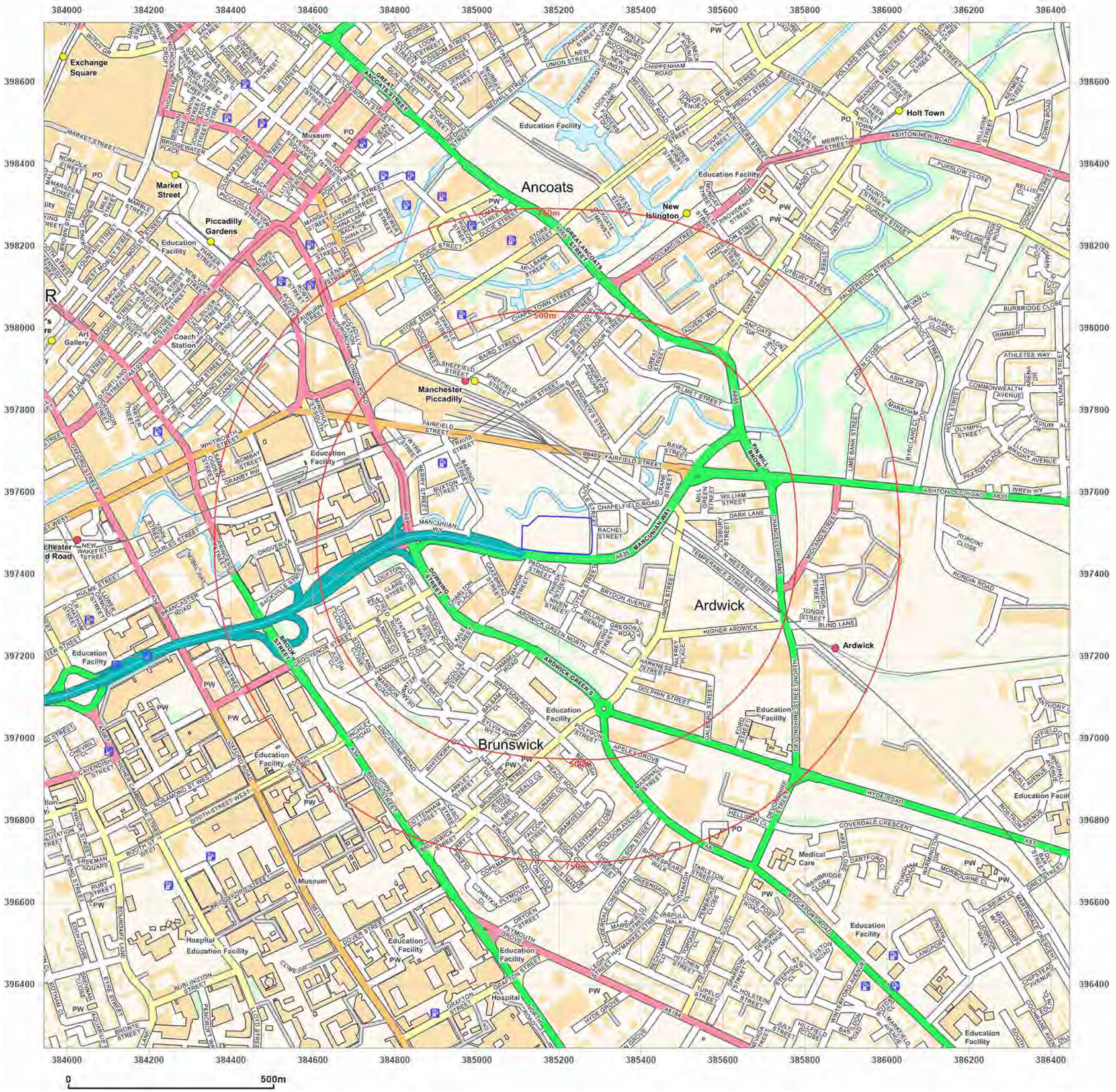
Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 06 November 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

MAYFIELD PHASE 1B,
MANCHESTER, M12 6HW

Client Ref: 51001-02
Report Ref: GS-ODV-ZU9-CC2-DT3
Grid Ref: 385195, 397495

Map Name: National Grid

Map date: **2023**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

2023

Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 06 November 2023

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf

Appendix C

Groundsure Enviro + Geo Insight Report

Groundsure LOCATION INTELLIGENCE

Enviro+Geo Insight

MAYFIELD PHASE 1B, MANCHESTER, M12 6HW

Order Details

Date: 06/11/2023

Your ref: 51001-02

Our Ref: GS-JVL-RD1-3BV-OWL

Site Details

Location: 385200 397499

Area: 1.43 ha

Authority: Manchester City Council ↗



Summary of findings p. 2 >

OS MasterMap site plan p.14 >

Aerial image p. 9 >

groundsure.com/insightuserguide ↗

Contact us with any questions at:
info@groundsure.com ↗
01273 257 755

Certified B Corporation

Summary of findings

Page	Section	Past land use >	On site	0-50m	50-250m	250-500m	500-2000m
15 >	1.1 >	Historical industrial land uses >	10	5	57	113	-
22 >	1.2 >	Historical tanks >	7	2	11	60	-
25 >	1.3 >	Historical energy features >	0	0	9	12	-
27	1.4	Historical petrol stations	0	0	0	0	-
27 >	1.5 >	Historical garages >	0	0	15	17	-
28	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped >	On site	0-50m	50-250m	250-500m	500-2000m
29 >	2.1 >	Historical industrial land uses >	15	7	79	171	-
39 >	2.2 >	Historical tanks >	12	4	24	86	-
44 >	2.3 >	Historical energy features >	0	0	23	37	-
47	2.4	Historical petrol stations	0	0	0	0	-
47 >	2.5 >	Historical garages >	0	0	25	29	-
Page	Section	Waste and landfill >	On site	0-50m	50-250m	250-500m	500-2000m
50	3.1	Active or recent landfill	0	0	0	0	-
50	3.2	Historical landfill (BGS records)	0	0	0	0	-
51	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
51 >	3.4 >	Historical landfill (EA/NRW records) >	0	0	0	1	-
51 >	3.5 >	Historical waste sites >	0	2	0	2	-
52 >	3.6 >	Licensed waste sites >	4	3	0	0	-
54 >	3.7 >	Waste exemptions >	1	3	24	47	-
Page	Section	Current industrial land use >	On site	0-50m	50-250m	250-500m	500-2000m
61 >	4.1 >	Recent industrial land uses >	2	1	24	-	-
63 >	4.2 >	Current or recent petrol stations >	0	0	1	2	-
64	4.3	Electricity cables	0	0	0	0	-
64	4.4	Gas pipelines	0	0	0	0	-
64	4.5	Sites determined as Contaminated Land	0	0	0	0	-

64	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
64	4.7	Regulated explosive sites	0	0	0	0	-
65	4.8	Hazardous substance storage/usage	0	0	0	0	-
65	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
65	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
65 >	**4.11 >**	**Licensed pollutant release (Part A(2)/B) >**	1	1	0	6	-
66	4.12	Radioactive Substance Authorisations	0	0	0	0	-
66 >	**4.13 >**	**Licensed Discharges to controlled waters >**	0	0	8	3	-
68	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
68	4.15	Pollutant release to public sewer	0	0	0	0	-
69	4.16	List 1 Dangerous Substances	0	0	0	0	-
69	4.17	List 2 Dangerous Substances	0	0	0	0	-
69 >	**4.18 >**	**Pollution Incidents (EA/NRW) >**	0	1	3	3	-
70	4.19	Pollution inventory substances	0	0	0	0	-
70	4.20	Pollution inventory waste transfers	0	0	0	0	-
70	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	**Hydrogeology >**	On site	0-50m	50-250m	250-500m	500-2000m
71 >	**5.1 >**	**Superficial aquifer >**	Identified (within 500m)				
73 >	**5.2 >**	**Bedrock aquifer >**	Identified (within 500m)				
75 >	**5.3 >**	**Groundwater vulnerability >**	Identified (within 50m)				
76	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
76	5.5	Groundwater vulnerability- local information	None (within 0m)				
77 >	**5.6 >**	**Groundwater abstractions >**	0	2	0	0	32
86	5.7	Surface water abstractions	0	0	0	0	0
86	5.8	Potable abstractions	0	0	0	0	0
87	5.9	Source Protection Zones	0	0	0	0	-
87	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-

Page	Section	**Hydrology >**	On site	0-50m	50-250m	250-500m	500-2000m
88 >	**6.1 >**	**Water Network (OS MasterMap) >**	0	2	2	-	-

89 >	6.2 >	Surface water features >	0	1	3	-	-
89 >	6.3 >	WFD Surface water body catchments >	1	-	-	-	-
90 >	6.4 >	WFD Surface water bodies >	0	1	0	-	-
90 >	6.5 >	WFD Groundwater bodies >	1	-	-	-	-
Page	Section	River and coastal flooding >	On site	0-50m	50-250m	250-500m	500-2000m
91 >	7.1 >	Risk of flooding from rivers and the sea >	High (within 50m)				
92	7.2	Historical Flood Events	0	0	0	-	-
92	7.3	Flood Defences	0	0	0	-	-
92	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
92	7.5	Flood Storage Areas	0	0	0	-	-
93 >	7.6 >	Flood Zone 2 >	Identified (within 50m)				
94 >	7.7 >	Flood Zone 3 >	Identified (within 50m)				
Page	Section	Surface water flooding >					
95 >	8.1 >	Surface water flooding >	1 in 30 year, 0.3m - 1.0m (within 50m)				
Page	Section	Groundwater flooding >					
97 >	9.1 >	Groundwater flooding >	High (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
98	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
98	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
98	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
98	10.4	Special Protection Areas (SPA)	0	0	0	0	0
99	10.5	National Nature Reserves (NNR)	0	0	0	0	0
99	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
99	10.7	Designated Ancient Woodland	0	0	0	0	0
99	10.8	Biosphere Reserves	0	0	0	0	0
100	10.9	Forest Parks	0	0	0	0	0
100	10.10	Marine Conservation Zones	0	0	0	0	0
100	10.11	Green Belt	0	0	0	0	0
100	10.12	Proposed Ramsar sites	0	0	0	0	0

100	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
101	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
101	10.15	Nitrate Sensitive Areas	0	0	0	0	0
101 >	**10.16 >**	**Nitrate Vulnerable Zones >**	0	0	0	0	3
102 >	**10.17 >**	**SSSI Impact Risk Zones >**	1	-	-	-	-
103	10.18	SSSI Units	0	0	0	0	0
Page	Section	**Visual and cultural designations >**	On site	0-50m	50-250m	250-500m	500-2000m
104	11.1	World Heritage Sites	0	0	0	-	-
105	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
105	11.3	National Parks	0	0	0	-	-
105 >	**11.4 >**	**Listed Buildings >**	0	0	11	-	-
106	11.5	Conservation Areas	0	0	0	-	-
106	11.6	Scheduled Ancient Monuments	0	0	0	-	-
106	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	**Agricultural designations >**	On site	0-50m	50-250m	250-500m	500-2000m
107 >	**12.1 >**	**Agricultural Land Classification >**	Urban (within 250m)				
108	12.2	Open Access Land	0	0	0	-	-
108	12.3	Tree Felling Licences	0	0	0	-	-
108	12.4	Environmental Stewardship Schemes	0	0	0	-	-
108	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	**Habitat designations >**	On site	0-50m	50-250m	250-500m	500-2000m
109 >	**13.1 >**	**Priority Habitat Inventory >**	0	0	1	-	-
110	13.2	Habitat Networks	0	0	0	-	-
110	13.3	Open Mosaic Habitat	0	0	0	-	-
110	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	**Geology 1:10,000 scale >**	On site	0-50m	50-250m	250-500m	500-2000m
111 >	**14.1 >**	**10k Availability >**	Identified (within 500m)				
112 >	**14.2 >**	**Artificial and made ground (10k) >**	1	0	3	2	-
114 >	**14.3 >**	**Superficial geology (10k) >**	2	1	3	0	-

115	14.4	Landslip (10k)	0	0	0	0	-
116 >	14.5 >	Bedrock geology (10k) >	1	0	3	1	-
117 >	14.6 >	Bedrock faults and other linear features (10k) >	0	0	1	3	-
Page	Section	**Geology 1:50,000 scale** >	On site	0-50m	50-250m	250-500m	500-2000m
118 >	15.1 >	50k Availability >	Identified (within 500m)				
119 >	15.2 >	Artificial and made ground (50k) >	1	0	1	1	-
120 >	15.3 >	Artificial ground permeability (50k) >	1	0	-	-	-
121 >	15.4 >	Superficial geology (50k) >	2	0	1	0	-
122 >	15.5 >	Superficial permeability (50k) >	Identified (within 50m)				
122	15.6	Landslip (50k)	0	0	0	0	-
122	15.7	Landslip permeability (50k)	None (within 50m)				
123 >	15.8 >	Bedrock geology (50k) >	1	0	2	0	-
124 >	15.9 >	Bedrock permeability (50k) >	Identified (within 50m)				
124 >	15.10 >	Bedrock faults and other linear features (50k) >	0	0	1	1	-
Page	Section	**Boreholes** >	On site	0-50m	50-250m	250-500m	500-2000m
125 >	16.1 >	BGS Boreholes >	2	2	23	-	-
Page	Section	**Natural ground subsidence** >					
128 >	17.1 >	Shrink swell clays >	Very low (within 50m)				
129 >	17.2 >	Running sands >	Low (within 50m)				
131 >	17.3 >	Compressible deposits >	Moderate (within 50m)				
133 >	17.4 >	Collapsible deposits >	Very low (within 50m)				
134 >	17.5 >	Landslides >	Very low (within 50m)				
135 >	17.6 >	Ground dissolution of soluble rocks >	Negligible (within 50m)				
Page	Section	**Mining and ground workings** >	On site	0-50m	50-250m	250-500m	500-2000m
137	18.1	BritPits	0	0	0	0	-
138 >	18.2 >	Surface ground workings >	1	0	3	-	-
138	18.3	Underground workings	0	0	0	0	0
138	18.4	Underground mining extents	0	0	0	0	-
138	18.5	Historical Mineral Planning Areas	0	0	0	0	-

139 >	18.6 >	Non-coal mining >	0	0	0	0	2
139 >	18.7 >	JPB mining areas >	Identified (within 0m)				
139	18.8	The Coal Authority non-coal mining	0	0	0	0	-
140	18.9	Researched mining	0	0	0	0	-
140	18.10	Mining record office plans	0	0	0	0	-
140	18.11	BGS mine plans	0	0	0	0	-
140 >	18.12 >	Coal mining >	Identified (within 0m)				
141	18.13	Brine areas	None (within 0m)				
141	18.14	Gypsum areas	None (within 0m)				
141	18.15	Tin mining	None (within 0m)				
141	18.16	Clay mining	None (within 0m)				
Page	Section	Ground cavities and sinkholes >	On site	0-50m	50-250m	250-500m	500-2000m
142	19.1	Natural cavities	0	0	0	0	-
143 >	19.2 >	Mining cavities >	0	0	0	1	0
143 >	19.3 >	Reported recent incidents >	0	1	0	0	-
144	19.4	Historical incidents	0	0	0	0	-
144	19.5	National karst database	0	0	0	0	-
Page	Section	Radon >					
145 >	20.1 >	Radon >	Less than 1% (within 0m)				
Page	Section	Soil chemistry >	On site	0-50m	50-250m	250-500m	500-2000m
147 >	21.1 >	BGS Estimated Background Soil Chemistry >	2	0	-	-	-
147 >	21.2 >	BGS Estimated Urban Soil Chemistry >	4	5	-	-	-
148	21.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-
Page	Section	Railway infrastructure and projects >	On site	0-50m	50-250m	250-500m	500-2000m
149	22.1	Underground railways (London)	0	0	0	-	-
149	22.2	Underground railways (Non-London)	0	0	0	-	-
150	22.3	Railway tunnels	0	0	0	-	-
150 >	22.4 >	Historical railway and tunnel features >	0	4	49	-	-
152	22.5	Royal Mail tunnels	0	0	0	-	-

152 >	22.6 >	Historical railways >	0	0	12	-	-
153 >	22.7 >	Railways >	0	0	91	-	-
156	22.8	Crossrail 1	0	0	0	0	-
157	22.9	Crossrail 2	0	0	0	0	-
157 >	22.10 >	HS2 >	0	0	4	0	-

Recent aerial photograph



Capture Date: 18/10/2022

Site Area: 1.43ha

Recent site history - 2019 aerial photograph



Aerial photography supplied by Getmapping PLC. © Copyright Getmapping PLC 2023. All Rights Reserved.

Capture Date: 22/04/2019

Site Area: 1.43ha

Recent site history - 2015 aerial photograph



Capture Date: 11/06/2015

Site Area: 1.43ha

Recent site history - 2009 aerial photograph



Capture Date: 02/06/2009

Site Area: 1.43ha

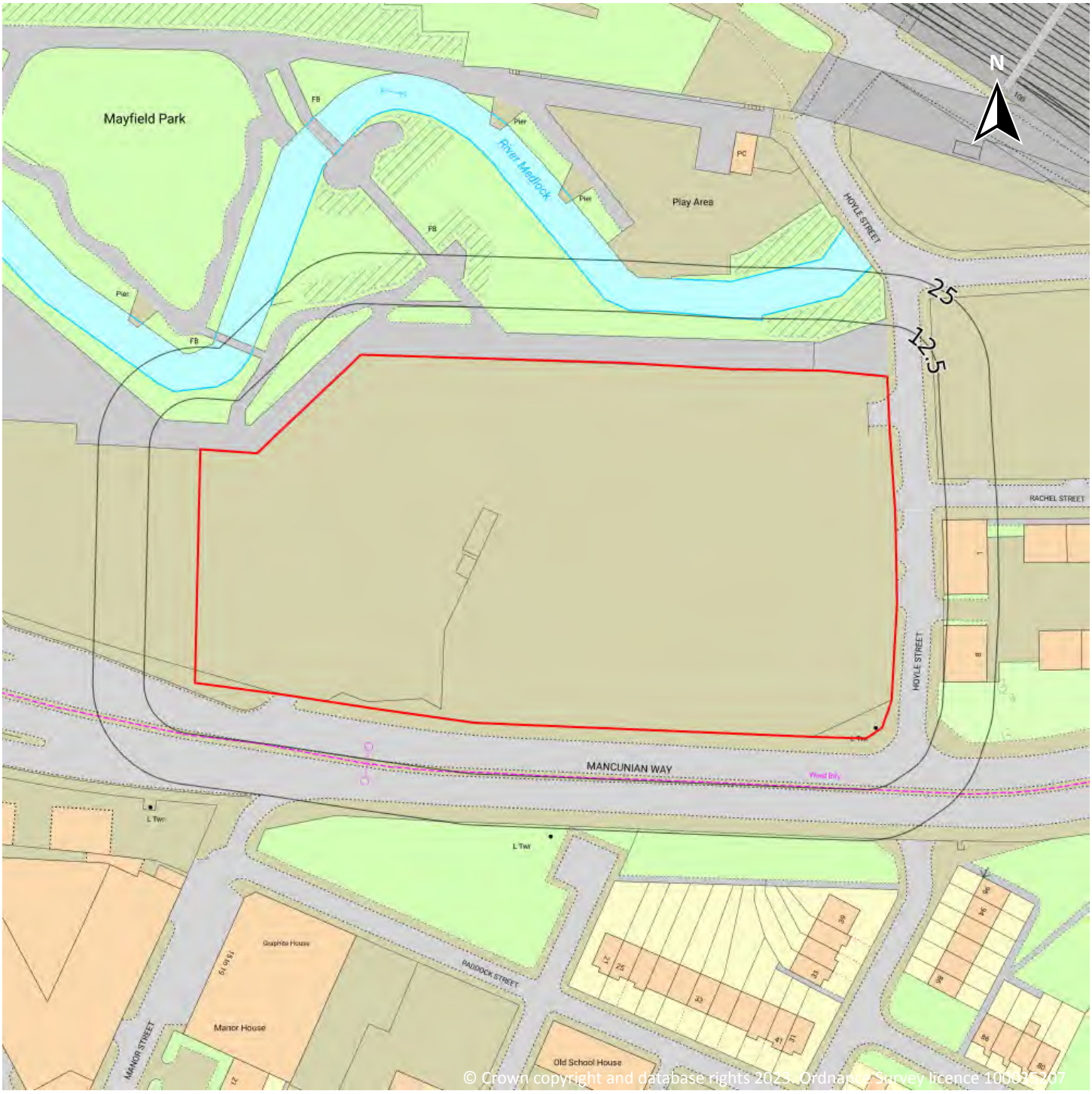
Recent site history - 2000 aerial photograph



Capture Date: 27/06/2000

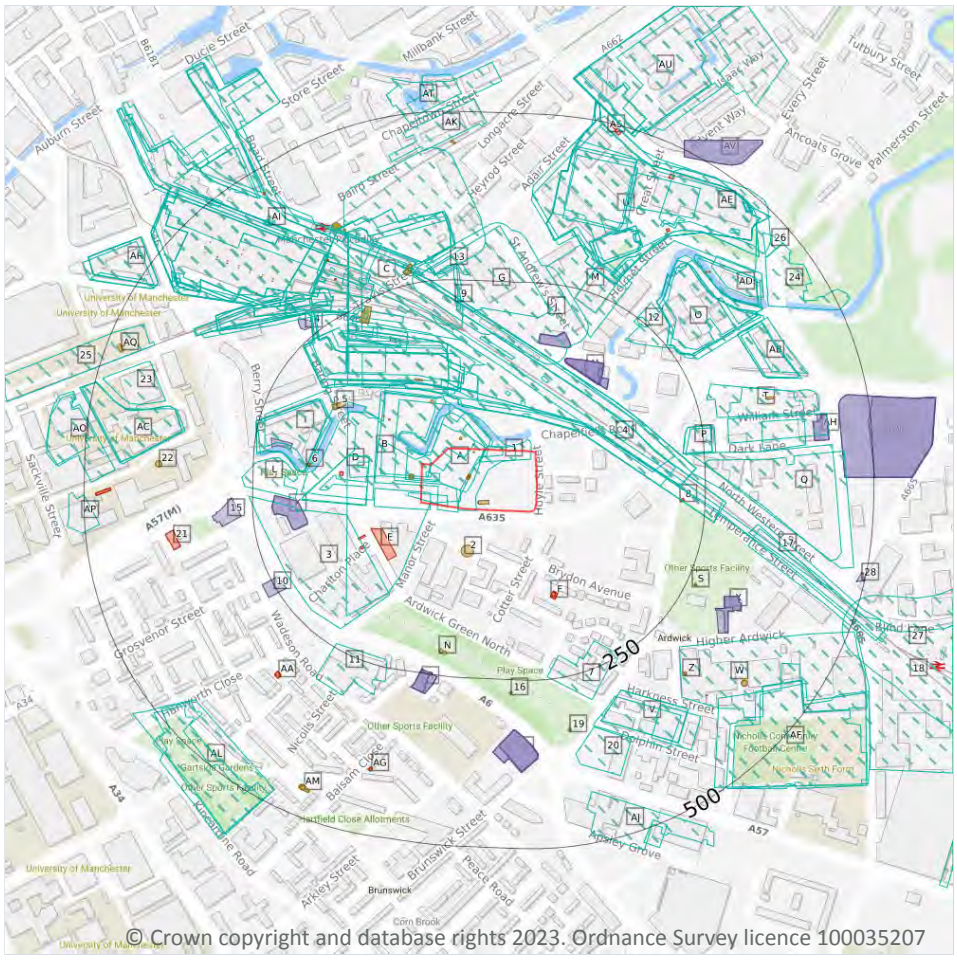
Site Area: 1.43ha

OS MasterMap site plan



Site Area: 1.43ha

1 Past land use



© Crown copyright and database rights 2023. Ordnance Survey licence 100035207

Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

Historical garages

1.1 Historical industrial land uses

Records within 500m	185

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

Features are displayed on the Past land use map on **page 15 >**

ID	Location	Land use	Dates present	Group ID
1	**On site**	**Brewery**	**1915 - 1923**	**932621**

ID	Location	Land use	Dates present	Group ID
A	**On site**	**Dye Works**	**1851**	**833959**
A	**On site**	**Unspecified Station**	**1991**	**843724**
A	**On site**	**Unspecified Works**	**1985 - 1991**	**854217**
A	**On site**	**Unspecified Commercial/Industrial**	**1956**	**930471**
A	**On site**	**Unspecified Works**	**1915 - 1923**	**967647**
A	**On site**	**Unspecified Tank**	**1915 - 1923**	**968563**
A	**On site**	**Unspecified Works**	**1915 - 1923**	**979112**
B	**On site**	**Unspecified Works**	**1968**	**976597**
B	**On site**	**Unspecified Works**	**1978**	**980989**
A	11m W	Unspecified Tank	1915 - 1923	921963
C	46m NE	Railway Sidings	1923	879517
C	47m NE	Railway Sidings	1915	849007
C	47m NE	Railway Sidings	1934 - 1938	899923
C	50m NE	Railway Building	1923	820266
C	55m NE	Railway Sidings	1985 - 1991	932616
C	58m NE	Railway Sidings	1968	889807
C	59m NE	Railway Sidings	1956	950162
C	61m NE	Railway Sidings	1985 - 1988	878187
C	61m NE	Railway Sidings	1978	900007
C	67m NE	Railway Building	1923	820267
D	69m W	Dye Works	1851	833960
C	75m NE	Railway Sidings	1851	923729
D	78m W	Unspecified Works	1915	858353
D	79m W	Unspecified Works	1923	968971
C	80m N	Goods Station	1985 - 1991	980310
C	81m N	Railway Building	1923	820268
C	85m N	Railway Station	1923	871349
C	87m N	Railway Stations	1915	887476

ID	Location	Land use	Dates present	Group ID
C	87m N	Railway Stations	1934 - 1938	900032
C	93m NW	Goods Station	1978	858349
C	100m N	Railway Station	1968	981899
C	104m NE	Railway Building	1923	820269
3	106m SW	Unspecified Commercial/Industrial	1923	847885
4	117m E	Railway Building	1923	820265
G	132m NE	Unspecified Depot	1985	849011
C	136m N	Railway Buildings	1923	833659
C	146m NW	Railway Station	1956	989397
I	147m W	Cotton Mill	1851	797897
I	150m W	Unspecified Mill	1923	919594
C	153m NW	Police Station	1851	832592
I	156m W	Unspecified Mill	1915	857457
I	156m W	Unspecified Mill	1934	945749
I	156m W	Unspecified Mills	1938	979357
I	156m W	Unspecified Mills	1890	989407
C	161m N	Railway Sidings	1890 - 1905	979002
C	166m NW	Railway Building	1934 - 1938	983618
C	169m NW	Railway Building	1915	940308
C	175m NW	Railway Station	1988 - 1994	979216
C	176m NW	Railway Station	1956	949532
L	184m W	Unspecified Works	1915 - 1923	861369
M	188m NE	Unspecified Depot	1985 - 1991	914152
C	196m NW	Railway Building	1956 - 1968	855450
C	198m NW	Railway Building	1968 - 1978	934108
G	199m N	Goods Yard	1968	811695
J	204m NE	Chimney	1985 - 1991	901328
C	210m NW	Railway Building	1923	820449

ID	Location	Land use	Dates present	Group ID
7	212m SE	Industrial School	1890	833220
O	213m NE	Unspecified Mill	1890	881657
9	216m N	Railway Building	1923	820446
P	219m E	Unspecified Mills	1915	872890
P	219m E	Unspecified Mills	1934 - 1938	982285
C	221m NW	Railway Building	1978	874711
P	223m E	Unspecified Mills	1923	974027
C	223m NW	Railway Building	1915 - 1938	865882
M	225m NE	Unspecified Depot	1968 - 1978	954606
C	228m NW	Railway Building	1956	917214
Q	228m E	Unspecified Works	1978	877776
11	238m SW	Tyre Works	1915 - 1923	987255
12	245m NE	Unspecified Tank	1915 - 1938	970730
C	250m NW	Railway Sidings	1994	844263
C	250m NW	Railway Sidings	1971	884730
C	251m NW	Railway Station	1978	851643
C	251m NW	Railway Station	1968	921332
Q	251m E	Unspecified Works	1985 - 1991	987558
O	252m NE	Unspecified Mill	1915	908517
O	252m NE	Unspecified Mills	1938 - 1956	957321
O	252m NE	Unspecified Mill	1934	991978
O	255m NE	Unspecified Mill	1923	974952
13	258m N	Smithy	1923	843313
C	259m N	Unspecified Depot	1991	962321
C	264m N	Railway Building	1923	820447
O	264m NE	Unspecified Mill	1968	935579
C	265m NW	Railway Station	1923	941202
C	265m NW	Railway Station	1890 - 1905	959335

ID	Location	Land use	Dates present	Group ID
T	266m E	Brewery	1915 - 1923	926890
C	266m N	Smithy	1915	843312
C	268m NW	Railway Buildings	1923	833663
C	273m NW	Railway Building	1956	820448
C	273m NW	Railway Station	1985 - 1994	890876
C	273m NW	Railway Station	1971	897274
C	273m NW	Railway Station	1978	897926
U	274m NE	Railway Sidings	1934	857332
U	274m NE	Railway Sidings	1915	905447
U	274m NE	Railway Sidings	1905	943711
U	274m NE	Railway Sidings	1938	947526
U	274m NE	Railway Sidings	1923	964887
U	275m NE	Railway Sidings	1890	860700
C	275m NW	Railway Station	1956	935665
C	278m N	Goods Yard	1915 - 1923	898838
C	279m N	Goods Yard	1934 - 1938	929364
M	283m NE	Railway Building	1923	954689
M	284m NE	Railway Building	1915	879984
M	284m NE	Railway Building	1934 - 1938	961111
T	288m E	Unspecified Works	1978	830482
U	288m NE	Goods Station	1956	897884
T	290m E	Brewery	1934 - 1938	979812
M	292m NE	Goods Shed	1915	875452
M	292m NE	Goods Shed	1934 - 1938	937484
C	292m NW	Railway Building	1985 - 1994	978063
C	292m NW	Railway Building	1978	955370
C	292m NW	Railway Building	1971	985873
M	293m NE	Goods Shed	1905	939631

ID	Location	Land use	Dates present	Group ID
M	293m NE	Goods Shed	1923	948483
V	296m SE	Unspecified Commercial/Industrial	1978	796807
V	296m SE	Unspecified Works	1968	977680
W	296m SE	Unspecified Works	1968 - 1978	979806
V	300m SE	Unspecified Works	1915	873002
U	301m NE	Goods Station	1968	941668
C	311m NW	Railway Building	1923	820444
17	318m E	Railway Sidings	1934	890601
18	320m E	Railway Sidings	1923	952334
20	333m SE	Unspecified Works	1978	830420
T	337m E	Unspecified Factory	1915 - 1923	947201
U	343m NE	Railway Sidings	1956 - 1968	845148
V	345m SE	Unspecified Works	1985 - 1991	990514
U	346m N	Goods Station	1905 - 1938	920838
AB	347m NE	Pin Mill	1915	878297
AB	347m NE	Pin Mill	1934 - 1938	932894
U	348m N	Goods Station	1890	970801
AB	350m NE	Pin Mill	1923	845642
AC	355m W	Unspecified Mills	1923	914258
AC	359m W	Unspecified Mills	1934 - 1938	854159
AC	359m W	Unspecified Mills	1915	967472
AB	362m NE	Unspecified Works	1968	830481
AD	362m NE	Printing Works	1890	809618
AD	363m NE	Unspecified Commercial/Industrial	1934	796801
AD	363m NE	Unspecified Works	1915 - 1923	989036
AD	375m NE	Unspecified Works	1968	866667
U	384m NE	Unspecified Ground Workings	1851	800648
AE	389m NE	Unspecified Commercial/Industrial	1985 - 1991	988506

ID	Location	Land use	Dates present	Group ID
U	389m NE	Goods Shed	1968	834671
AF	390m SE	Cemetery	1851	851050
C	391m NW	Railway Station	1851	942543
23	392m W	Unspecified Works	1915 - 1923	934829
24	408m NE	Unspecified Factory	1915 - 1923	881854
C	415m NW	Railway Buildings	1923	833658
AI	418m NW	Railway Building	1905 - 1923	924355
AI	418m NW	Railway Building	1934 - 1938	893266
AF	424m SE	Cemetery	1905 - 1956	954544
AJ	424m S	Drill Shed	1915 - 1923	979855
AF	431m SE	Cemetery	1890	925381
AK	433m N	Unspecified Works	1968	830437
25	434m W	Unspecified Commercial/Industrial	1923	796723
AE	435m NE	Railway Building	1923	820445
AL	445m SW	Cemetery	1851	948454
26	446m NE	Unspecified Works	1915 - 1923	954396
AL	450m SW	Cemetery	1956	980504
AO	455m W	Unspecified Works	1915 - 1923	954702
C	462m NW	Grain Store	1915 - 1923	946860
AL	462m SW	Cemetery	1890 - 1938	877404
C	464m NW	Railway Building	1938	820435
AE	474m NE	Railway Building	1934 - 1938	874386
AE	474m NE	Railway Building	1915	935014
AR	474m NW	Fire Station	1985 - 1994	864327
AR	474m NW	Fire Station	1978	872224
AR	474m NW	Fire Station	1956 - 1971	924791
AE	475m NE	Railway Building	1923	950526
AR	476m NW	Fire Engine Station	1915 - 1923	869627

ID	Location	Land use	Dates present	Group ID
AR	476m NW	Fire Station	1934 - 1938	857211
AP	478m W	Unspecified Works	1915 - 1923	972915
AS	481m N	Railway Building	1938	820434
AT	485m N	Unspecified Works	1923	970752
C	485m NW	Railway Building	1905 - 1938	893315
AO	486m W	Iron Works	1890	822793
27	487m E	Goods Depot and Mineral Yard	1938	917896
AU	490m NE	Vulcan Works	1915	918761
AU	490m NE	Vulcan Works	1934 - 1938	930130
AJ	491m SE	Unspecified Depot	1978	818418
AS	492m NE	Grain Store	1923	849549
AS	492m NE	Grain Store	1905	904364
AS	493m NE	Grain Store	1915	945610
AT	496m N	Unspecified Works	1968	872464
AU	497m NE	Unspecified Commercial/Industrial	1956	796795
AU	499m NE	Unspecified Warehouse	1985 - 1991	945086

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	**80**

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

Features are displayed on the Past land use map on **page 15 >**

ID	Location	Land use	Dates present	Group ID
A	**On site**	**Tanks**	**1986**	**106784**
A	**On site**	**Unspecified Tank**	**1994 - 1995**	**127686**

ID	Location	Land use	Dates present	Group ID
A	**On site**	**Unspecified Tank**	**1986 - 1998**	**129197**
A	**On site**	**Unspecified Tank**	**1977**	**131017**
A	**On site**	**Unspecified Tank**	**1889**	**136012**
A	**On site**	**Unspecified Tank**	**1998**	**139377**
A	**On site**	**Unspecified Tank**	**1985 - 1991**	**147872**
A	12m W	Unspecified Tank	1908 - 1932	126576
A	13m NW	Unspecified Tank	1889	115860
2	53m S	Unspecified Tank	1995	115783
C	71m NW	Unspecified Tank	1889	146095
B	81m NW	Unspecified Tank	1889	128594
B	90m NW	Unspecified Tank	1889	115861
C	107m NW	Tanks	1891	106790
5	143m NW	Tanks	1908	106791
6	166m W	Unspecified Tank	1889	148976
N	211m S	Unspecified Tank	1932	146824
N	213m S	Unspecified Tank	1889 - 1922	141568
C	220m NW	Unspecified Tank	1889 - 1948	131020
L	229m W	Unspecified Tank	1908	115937
S	261m SE	Unspecified Tank	1954	115784
S	263m SE	Unspecified Tank	1965 - 1968	133818
C	264m N	Unspecified Tank	1889 - 1891	148142
16	268m S	Unspecified Tank	1889	143310
C	273m N	Unspecified Tank	1948	139263
C	300m NW	Unspecified Tank	1950	138252
C	300m NW	Unspecified Tank	1952	132557
C	300m NW	Unspecified Tank	1948	148859
C	301m NW	Unspecified Tank	1955	145130
19	326m S	Unspecified Tank	1908	115786

ID	Location	Land use	Dates present	Group ID
Z	328m SE	Tanks	1948 - 1954	149268
Z	328m SE	Tanks	1948	129745
C	330m NW	Unspecified Tank	1950	137983
C	330m NW	Unspecified Tank	1952	145936
C	330m NW	Unspecified Tank	1948	146075
C	331m NW	Unspecified Tank	1955	134554
C	331m NW	Unspecified Tank	1955	139148
T	347m E	Unspecified Tank	1889	147444
C	350m NW	Unspecified Tank	1891	115935
T	351m E	Unspecified Tank	1948	142953
C	351m NW	Unspecified Tank	1891	115936
C	352m NW	Unspecified Tank	1891	115930
C	353m NW	Unspecified Tank	1891	115934
T	354m E	Unspecified Tank	1953	142178
C	357m NW	Unspecified Tank	1889	115910
C	365m NW	Unspecified Tank	1891	115931
C	366m NW	Unspecified Tank	1891	115933
AD	367m NE	Unspecified Tank	1908	115864
AD	371m NE	Unspecified Tank	1889	115865
Z	374m SE	Unspecified Tank	1977	115785
C	382m NW	Unspecified Tank	1891	115929
C	383m NW	Unspecified Tank	1891	115932
22	386m W	Unspecified Tank	1952 - 1955	131015
C	398m NW	Unspecified Tank	1891	115927
W	399m SE	Unspecified Tank	1989 - 1991	148246
C	399m NW	Unspecified Tank	1891	115928
W	400m SE	Unspecified Tank	1993 - 1994	137510
C	410m NW	Unspecified Tank	1891	115920

ID	Location	Land use	Dates present	Group ID
C	413m NW	Unspecified Tank	1891	115919
C	415m NW	Unspecified Tank	1891	115925
C	416m NW	Unspecified Tank	1891	115921
C	423m NW	Unspecified Tank	1891	115926
C	426m NW	Unspecified Tank	1891	115917
C	429m NW	Unspecified Tank	1891	115918
C	430m NW	Unspecified Tank	1891	115923
C	431m NW	Unspecified Tank	1891	115924
C	449m NW	Unspecified Tank	1891	115922
AK	452m N	Unspecified Tank	1889	115863
AM	453m SW	Unspecified Tank	1968	126329
AM	453m SW	Tanks	1984	107104
AK	454m N	Unspecified Tank	1908	115862
AM	454m SW	Unspecified Tank	1970	125809
C	454m NW	Unspecified Tank	1891	115914
AM	457m SW	Unspecified Tank	1968 - 1970	129664
C	457m NW	Unspecified Tank	1891	115911
AI	462m NW	Unspecified Tank	1948 - 1965	147696
AQ	474m W	Unspecified Tank	1952 - 1955	134489
AQ	474m W	Unspecified Tank	1891	115938
C	481m NW	Unspecified Tank	1891	115916
C	483m NW	Unspecified Tank	1891	115915

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	21

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or

succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 15 >**

ID	Location	Land use	Dates present	Group ID
E	70m SW	Electricity Substation	1948	62177
E	96m SW	Electricity Substation	1948 - 1953	79861
E	108m SW	Electricity Substation	1986 - 1998	78252
D	116m W	Electricity Substation	1948 - 1955	83723
F	122m SE	Electricity Substation	1968 - 1986	78617
F	122m SE	Electricity Substation	1969	80908
F	123m SE	Electricity Substation	1995 - 1998	66506
C	177m NW	Electricity Substation	1977 - 1994	69582
8	214m E	Electricity Substation	1986 - 1998	69390
AA	328m SW	Electricity Substation	1968 - 1970	75637
AA	329m SW	Electricity Substation	1984 - 1998	72632
21	363m W	Electricity Substation	1968 - 1998	85157
U	380m NE	Electricity Substation	1985 - 1994	76956
AG	399m S	Electricity Transformer	1968 - 1969	74844
AG	399m S	Electricity Substation	1986	81305
AG	400m S	Electricity Substation	1995 - 1998	75649
U	452m NE	Electricity Substation	1985 - 1994	78122
AP	460m W	Electricity Substation	1970 - 1984	85141
AP	460m W	Electricity Substation	1968 - 1998	81695
AS	486m N	Electricity Substation	1981	62187
AS	493m N	Electricity Substation	1948 - 1978	69011

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m	0

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

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m	32

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

Features are displayed on the Past land use map on **page 15 >**

ID	Location	Land use	Dates present	Group ID
H	135m NE	Garage	1994	20796
H	135m NE	Garage	1963	22547
H	136m NE	Garage	1968	22183
H	136m NE	Garage	1977	23899
H	136m NE	Garage	1965	24941
H	136m NE	Garage	1985 - 1991	24759
J	160m NE	Garage	1963 - 1991	25171
J	160m NE	Garage	1965 - 1968	26504
K	171m W	Garage	1970	26227
K	171m W	Garage	1968	23424
I	194m W	Motor Repair Works	1948	20582
10	237m SW	Garage	1984	20316
R	244m S	Garage	1965	25849
R	245m S	Garage	1960	21337

ID	Location	Land use	Dates present	Group ID
R	247m S	Garage	1953	21434
14	260m NW	Garage	1948	20318
15	268m W	Garage	1954	27186
X	305m SE	Garages	1968	23858
X	305m SE	Garages	1965	26779
X	309m SE	Garages	1948 - 1954	26091
Y	324m S	Garage	1968 - 1986	25652
Y	325m S	Garage	1965	25866
Y	325m S	Garage	1969	22682
Y	325m S	Garage	1960	23311
AH	414m E	Garage	1960	21687
AH	415m E	Garage	1965 - 1968	25325
AN	454m E	Garage	1996	23158
AN	454m E	Garage	1988 - 1994	25880
28	489m E	Garage	1948 - 1968	25188
AV	491m NE	Garage	1996	21966
AV	491m NE	Garage	1994	23944
AN	496m E	Garage	1964 - 1987	27777

This data is sourced from Ordnance Survey / Groundsure.

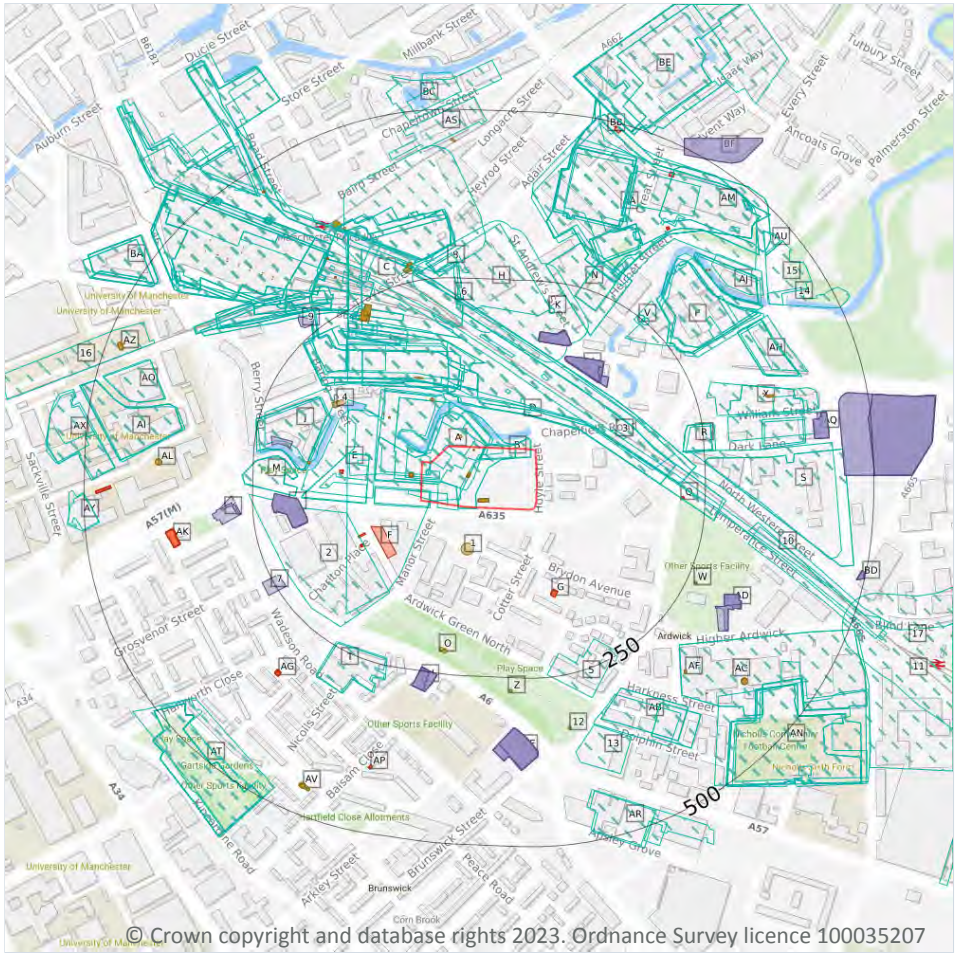
1.6 Historical military land

Records within 500m	**0**

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

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

2 Past land use - un-grouped



Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

Historical garages

2.1 Historical industrial land uses

Records within 500m	272

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

Features are displayed on the Past land use - un-grouped map on **page 29 >**

ID	Location	Land Use	Date	Group ID
A	**On site**	**Unspecified Works**	**1915**	**967647**
A	**On site**	**Unspecified Tank**	**1915**	**968563**
A	**On site**	**Unspecified Works**	**1915**	**979112**

ID	Location	Land Use	Date	Group ID
A	**On site**	**Dye Works**	**1851**	**833959**
A	**On site**	**Unspecified Commercial/Industrial**	**1956**	**930471**
A	**On site**	**Unspecified Works**	**1985**	**854217**
A	**On site**	**Unspecified Works**	**1978**	**980989**
A	**On site**	**Unspecified Station**	**1991**	**843724**
A	**On site**	**Unspecified Works**	**1991**	**854217**
A	**On site**	**Unspecified Works**	**1968**	**976597**
A	**On site**	**Unspecified Works**	**1923**	**967647**
A	**On site**	**Unspecified Tank**	**1923**	**968563**
A	**On site**	**Unspecified Works**	**1923**	**979112**
B	**On site**	**Brewery**	**1915**	**932621**
B	**On site**	**Brewery**	**1923**	**932621**
A	11m W	Unspecified Tank	1923	921963
A	12m W	Unspecified Tank	1915	921963
C	46m NE	Railway Sidings	1923	879517
C	47m NE	Railway Sidings	1938	899923
C	47m NE	Railway Sidings	1934	899923
C	47m NE	Railway Sidings	1915	849007
D	50m NE	Railway Building	1923	820266
D	55m NE	Railway Sidings	1985	932616
D	55m NE	Railway Sidings	1991	932616
D	58m NE	Railway Sidings	1968	889807
D	59m NE	Railway Sidings	1956	950162
D	61m NE	Railway Sidings	1978	900007
D	67m NE	Railway Building	1923	820267
E	69m W	Dye Works	1851	833960
C	75m NE	Railway Sidings	1851	923729
E	78m W	Unspecified Works	1915	858353

ID	Location	Land Use	Date	Group ID
E	79m W	Unspecified Works	1923	968971
C	80m N	Goods Station	1985	980310
C	80m N	Goods Station	1991	980310
D	81m N	Railway Building	1923	820268
C	85m N	Railway Station	1923	871349
C	87m N	Railway Stations	1938	900032
C	87m N	Railway Stations	1934	900032
C	87m N	Railway Stations	1915	887476
C	93m NW	Goods Station	1978	858349
C	100m N	Railway Station	1968	981899
D	104m NE	Railway Building	1923	820269
2	106m SW	Unspecified Commercial/Industrial	1923	847885
3	117m E	Railway Building	1923	820265
H	132m NE	Unspecified Depot	1985	849011
D	136m N	Railway Buildings	1923	833659
C	146m NW	Railway Station	1956	989397
J	147m W	Cotton Mill	1851	797897
J	150m W	Unspecified Mill	1923	919594
C	153m NW	Police Station	1851	832592
J	156m W	Unspecified Mills	1938	979357
J	156m W	Unspecified Mill	1934	945749
J	156m W	Unspecified Mill	1915	857457
J	156m W	Unspecified Mills	1890	989407
C	161m N	Railway Sidings	1905	979002
C	161m N	Railway Sidings	1890	979002
C	166m NW	Railway Building	1938	983618
C	166m NW	Railway Building	1934	983618
C	169m NW	Railway Building	1915	940308

ID	Location	Land Use	Date	Group ID
C	175m NW	Railway Station	1988	979216
C	175m NW	Railway Station	1994	979216
C	176m NW	Railway Station	1956	949532
M	184m W	Unspecified Works	1923	861369
M	184m W	Unspecified Works	1915	861369
N	188m NE	Unspecified Depot	1985	914152
N	188m NE	Unspecified Depot	1991	914152
C	196m NW	Railway Building	1956	855450
C	198m NW	Railway Building	1978	934108
C	198m NW	Railway Building	1968	934108
H	199m N	Goods Yard	1968	811695
C	202m NW	Railway Building	1968	855450
K	204m NE	Chimney	1985	901328
K	204m NE	Chimney	1991	901328
C	210m NW	Railway Building	1923	820449
5	212m SE	Industrial School	1890	833220
P	213m NE	Unspecified Mill	1890	881657
6	216m N	Railway Building	1923	820446
R	219m E	Unspecified Mills	1938	982285
R	219m E	Unspecified Mills	1934	982285
R	219m E	Unspecified Mills	1915	872890
C	221m NW	Railway Building	1978	874711
R	223m E	Unspecified Mills	1923	974027
C	223m NW	Railway Building	1923	865882
N	225m NE	Unspecified Depot	1978	954606
N	225m NE	Unspecified Depot	1968	954606
C	226m NW	Railway Building	1938	865882
C	226m NW	Railway Building	1934	865882

ID	Location	Land Use	Date	Group ID
C	226m NW	Railway Building	1915	865882
C	228m NW	Railway Building	1956	917214
S	228m E	Unspecified Works	1978	877776
T	238m SW	Tyre Works	1915	987255
T	240m SW	Tyre Works	1923	987255
V	245m NE	Unspecified Tank	1938	970730
V	245m NE	Unspecified Tank	1934	970730
V	245m NE	Unspecified Tank	1915	970730
V	245m NE	Unspecified Tank	1923	970730
C	250m NW	Railway Sidings	1971	884730
C	250m NW	Railway Sidings	1988	878187
C	250m NW	Railway Sidings	1978	900007
C	250m NW	Railway Sidings	1985	878187
C	250m NW	Railway Sidings	1994	844263
C	251m NW	Railway Station	1978	851643
C	251m NW	Railway Station	1968	921332
S	251m E	Unspecified Works	1985	987558
S	251m E	Unspecified Works	1991	987558
P	252m NE	Unspecified Mills	1938	957321
P	252m NE	Unspecified Mill	1934	991978
P	252m NE	Unspecified Mill	1915	908517
P	255m NE	Unspecified Mill	1923	974952
C	255m NW	Railway Sidings	1956	950162
8	258m N	Smithy	1923	843313
C	259m N	Unspecified Depot	1991	962321
P	260m NE	Unspecified Mills	1956	957321
C	264m N	Railway Building	1923	820447
P	264m NE	Unspecified Mill	1968	935579

ID	Location	Land Use	Date	Group ID
C	265m NW	Railway Station	1905	959335
C	265m NW	Railway Station	1890	959335
C	265m NW	Railway Station	1923	941202
X	266m E	Brewery	1915	926890
C	266m N	Smithy	1915	843312
C	268m NW	Railway Buildings	1923	833663
C	273m NW	Railway Building	1956	820448
C	273m NW	Railway Station	1971	897274
C	273m NW	Railway Station	1988	890876
C	273m NW	Railway Station	1978	897926
C	273m NW	Railway Station	1985	890876
C	273m NW	Railway Station	1994	890876
AA	274m NE	Railway Sidings	1938	947526
AA	274m NE	Railway Sidings	1934	857332
AA	274m NE	Railway Sidings	1915	905447
AA	274m NE	Railway Sidings	1905	943711
AA	274m NE	Railway Sidings	1923	964887
AA	275m NE	Railway Sidings	1890	860700
C	275m NW	Railway Station	1956	935665
C	278m N	Goods Yard	1923	898838
C	279m N	Goods Yard	1938	929364
C	279m N	Goods Yard	1934	929364
C	279m N	Goods Yard	1915	898838
N	283m NE	Railway Building	1923	954689
N	284m NE	Railway Building	1938	961111
N	284m NE	Railway Building	1934	961111
N	284m NE	Railway Building	1915	879984
X	288m E	Unspecified Works	1978	830482

ID	Location	Land Use	Date	Group ID
AA	288m NE	Goods Station	1956	897884
X	290m E	Brewery	1938	979812
X	290m E	Brewery	1934	979812
N	292m NE	Goods Shed	1938	937484
N	292m NE	Goods Shed	1934	937484
N	292m NE	Goods Shed	1915	875452
C	292m NW	Railway Building	1971	985873
C	292m NW	Railway Building	1988	978063
C	292m NW	Railway Building	1978	955370
C	292m NW	Railway Building	1985	978063
C	292m NW	Railway Building	1994	978063
N	293m NE	Goods Shed	1905	939631
N	293m NE	Goods Shed	1923	948483
AB	296m SE	Unspecified Commercial/Industrial	1978	796807
AB	296m SE	Unspecified Works	1968	977680
AC	296m SE	Unspecified Works	1978	979806
AC	296m SE	Unspecified Works	1968	979806
AB	300m SE	Unspecified Works	1915	873002
AA	301m NE	Goods Station	1968	941668
C	311m NW	Railway Building	1923	820444
10	318m E	Railway Sidings	1934	890601
11	320m E	Railway Sidings	1923	952334
13	333m SE	Unspecified Works	1978	830420
X	337m E	Unspecified Factory	1915	947201
X	339m E	Unspecified Factory	1923	947201
AA	343m NE	Railway Sidings	1956	845148
AA	343m NE	Railway Sidings	1968	845148
AB	345m SE	Unspecified Works	1985	990514

ID	Location	Land Use	Date	Group ID
AB	345m SE	Unspecified Works	1991	990514
AA	346m N	Goods Station	1938	920838
AA	346m N	Goods Station	1934	920838
AA	346m N	Goods Station	1915	920838
AH	347m NE	Pin Mill	1938	932894
AH	347m NE	Pin Mill	1934	932894
AH	347m NE	Pin Mill	1915	878297
AA	348m N	Goods Station	1890	970801
AA	349m N	Goods Station	1905	920838
AA	349m N	Goods Station	1923	920838
AH	350m NE	Pin Mill	1923	845642
AI	355m W	Unspecified Mills	1923	914258
X	358m E	Brewery	1923	926890
AI	359m W	Unspecified Mills	1938	854159
AI	359m W	Unspecified Mills	1934	854159
AI	359m W	Unspecified Mills	1915	967472
AH	362m NE	Unspecified Works	1968	830481
AJ	362m NE	Printing Works	1890	809618
AJ	363m NE	Unspecified Commercial/Industrial	1934	796801
AJ	363m NE	Unspecified Works	1915	989036
AJ	363m NE	Unspecified Works	1923	989036
AJ	375m NE	Unspecified Works	1968	866667
AA	384m NE	Unspecified Ground Workings	1851	800648
AM	389m NE	Unspecified Commercial/Industrial	1985	988506
AM	389m NE	Unspecified Commercial/Industrial	1991	988506
AA	389m NE	Goods Shed	1968	834671
AN	390m SE	Cemetery	1851	851050
C	391m NW	Railway Station	1851	942543

ID	Location	Land Use	Date	Group ID
AO	392m W	Unspecified Works	1923	934829
AO	393m W	Unspecified Works	1915	934829
14	408m NE	Unspecified Factory	1915	881854
15	409m NE	Unspecified Factory	1923	881854
C	415m NW	Railway Buildings	1923	833658
C	418m NW	Railway Building	1915	924355
C	418m NW	Railway Building	1905	924355
C	418m NW	Railway Building	1923	924355
C	418m NW	Railway Building	1938	893266
C	418m NW	Railway Building	1934	893266
AN	424m SE	Cemetery	1938	954544
AN	424m SE	Cemetery	1934	954544
AN	424m SE	Cemetery	1915	954544
AR	424m S	Drill Shed	1915	979855
AN	427m SE	Cemetery	1923	954544
AN	427m SE	Cemetery	1905	954544
AR	428m S	Drill Shed	1923	979855
AN	428m SE	Cemetery	1956	954544
AN	431m SE	Cemetery	1890	925381
AS	433m N	Unspecified Works	1968	830437
16	434m W	Unspecified Commercial/Industrial	1923	796723
AM	435m NE	Railway Building	1923	820445
AT	445m SW	Cemetery	1851	948454
AU	446m NE	Unspecified Works	1923	954396
AU	449m NE	Unspecified Works	1915	954396
AT	450m SW	Cemetery	1956	980504
AX	455m W	Unspecified Works	1923	954702
AX	455m W	Unspecified Works	1915	954702

ID	Location	Land Use	Date	Group ID
C	462m NW	Grain Store	1923	946860
AT	462m SW	Cemetery	1923	877404
AT	462m SW	Cemetery	1938	877404
AT	462m SW	Cemetery	1934	877404
AT	462m SW	Cemetery	1915	877404
AT	462m SW	Cemetery	1905	877404
AT	462m SW	Cemetery	1890	877404
C	464m NW	Railway Building	1938	820435
C	464m NW	Grain Store	1915	946860
AM	474m NE	Railway Building	1938	874386
AM	474m NE	Railway Building	1934	874386
AM	474m NE	Railway Building	1915	935014
BA	474m NW	Fire Station	1971	924791
BA	474m NW	Fire Station	1956	924791
BA	474m NW	Fire Station	1988	864327
BA	474m NW	Fire Station	1978	872224
BA	474m NW	Fire Station	1985	864327
BA	474m NW	Fire Station	1994	864327
AM	475m NE	Railway Building	1923	950526
BA	476m NW	Fire Engine Station	1923	869627
BA	476m NW	Fire Station	1938	857211
BA	476m NW	Fire Station	1934	857211
AY	478m W	Unspecified Works	1923	972915
AY	479m W	Unspecified Works	1915	972915
BB	481m N	Railway Building	1938	820434
BA	482m NW	Fire Engine Station	1915	869627
BC	485m N	Unspecified Works	1923	970752
C	485m NW	Railway Building	1915	893315

ID	Location	Land Use	Date	Group ID
C	485m NW	Railway Building	1905	893315
C	485m NW	Railway Building	1923	893315
C	486m NW	Railway Building	1938	893315
C	486m NW	Railway Building	1934	893315
AX	486m W	Iron Works	1890	822793
17	487m E	Goods Depot and Mineral Yard	1938	917896
BE	490m NE	Vulcan Works	1938	930130
BE	490m NE	Vulcan Works	1934	930130
BE	490m NE	Vulcan Works	1915	918761
AR	491m SE	Unspecified Depot	1978	818418
BB	492m NE	Grain Store	1905	904364
BB	492m NE	Grain Store	1923	849549
BB	493m NE	Grain Store	1915	945610
BC	496m N	Unspecified Works	1968	872464
BE	497m NE	Unspecified Commercial/Industrial	1956	796795
BE	499m NE	Unspecified Warehouse	1985	945086
BE	499m NE	Unspecified Warehouse	1991	945086

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	**126**

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

Features are displayed on the Past land use - un-grouped map on **page 29 >**

ID	Location	Land Use	Date	Group ID
A	**On site**	**Unspecified Tank**	**1889**	**136012**
A	**On site**	**Unspecified Tank**	**1995**	**127686**
A	**On site**	**Unspecified Tank**	**1995**	**129197**

ID	Location	Land Use	Date	Group ID
A	**On site**	**Unspecified Tank**	**1998**	**129197**
A	**On site**	**Unspecified Tank**	**1998**	**139377**
A	**On site**	**Unspecified Tank**	**1889**	**136012**
A	**On site**	**Unspecified Tank**	**1977**	**131017**
A	**On site**	**Unspecified Tank**	**1985**	**147872**
A	**On site**	**Unspecified Tank**	**1986**	**129197**
A	**On site**	**Tanks**	**1986**	**106784**
A	**On site**	**Unspecified Tank**	**1991**	**147872**
A	**On site**	**Unspecified Tank**	**1994**	**127686**
A	12m W	Unspecified Tank	1908	126576
A	12m W	Unspecified Tank	1922	126576
A	12m W	Unspecified Tank	1932	126576
A	13m NW	Unspecified Tank	1889	115860
1	53m S	Unspecified Tank	1995	115783
C	71m NW	Unspecified Tank	1889	146095
C	71m NW	Unspecified Tank	1889	146095
A	81m NW	Unspecified Tank	1889	128594
A	81m NW	Unspecified Tank	1889	128594
A	90m NW	Unspecified Tank	1889	115861
C	107m NW	Tanks	1891	106790
4	143m NW	Tanks	1908	106791
E	166m W	Unspecified Tank	1889	148976
E	166m W	Unspecified Tank	1889	148976
O	211m S	Unspecified Tank	1932	146824
O	213m S	Unspecified Tank	1889	141568
O	213m S	Unspecified Tank	1908	141568
O	213m S	Unspecified Tank	1922	141568
O	213m S	Unspecified Tank	1889	141568

ID	Location	Land Use	Date	Group ID
C	220m NW	Unspecified Tank	1889	131020
C	220m NW	Unspecified Tank	1889	131020
C	222m NW	Unspecified Tank	1908	131020
C	222m NW	Unspecified Tank	1922	131020
C	222m NW	Unspecified Tank	1932	131020
C	222m NW	Unspecified Tank	1891	131020
C	226m NW	Unspecified Tank	1948	131020
C	226m NW	Unspecified Tank	1948	131020
M	229m W	Unspecified Tank	1908	115937
W	261m SE	Unspecified Tank	1954	115784
W	263m SE	Unspecified Tank	1965	133818
W	263m SE	Unspecified Tank	1968	133818
W	263m SE	Unspecified Tank	1965	133818
C	264m N	Unspecified Tank	1889	148142
C	267m N	Unspecified Tank	1891	148142
Z	268m S	Unspecified Tank	1889	143310
Z	268m S	Unspecified Tank	1889	143310
C	273m N	Unspecified Tank	1948	139263
C	273m N	Unspecified Tank	1948	139263
C	300m NW	Unspecified Tank	1950	138252
C	300m NW	Unspecified Tank	1952	132557
C	300m NW	Unspecified Tank	1948	148859
C	301m NW	Unspecified Tank	1955	145130
12	326m S	Unspecified Tank	1908	115786
AF	328m SE	Tanks	1954	149268
AF	328m SE	Tanks	1948	149268
AF	328m SE	Tanks	1948	129745
C	330m NW	Unspecified Tank	1950	137983

ID	Location	Land Use	Date	Group ID
C	330m NW	Unspecified Tank	1952	145936
C	330m NW	Unspecified Tank	1948	146075
C	331m NW	Unspecified Tank	1955	139148
C	331m NW	Unspecified Tank	1955	134554
X	347m E	Unspecified Tank	1889	147444
X	347m E	Unspecified Tank	1889	147444
C	350m NW	Unspecified Tank	1891	115935
X	351m E	Unspecified Tank	1948	142953
C	351m NW	Unspecified Tank	1891	115936
C	352m NW	Unspecified Tank	1891	115930
X	352m E	Unspecified Tank	1948	142953
C	353m NW	Unspecified Tank	1891	115934
X	354m E	Unspecified Tank	1953	142178
C	357m NW	Unspecified Tank	1889	115910
C	365m NW	Unspecified Tank	1891	115931
C	366m NW	Unspecified Tank	1891	115933
AJ	367m NE	Unspecified Tank	1908	115864
AJ	371m NE	Unspecified Tank	1889	115865
AF	374m SE	Unspecified Tank	1977	115785
C	382m NW	Unspecified Tank	1891	115929
C	383m NW	Unspecified Tank	1891	115932
AL	386m W	Unspecified Tank	1955	131015
AL	386m W	Unspecified Tank	1952	131015
C	398m NW	Unspecified Tank	1891	115927
AC	399m SE	Unspecified Tank	1989	148246
AC	399m SE	Unspecified Tank	1991	148246
C	399m NW	Unspecified Tank	1891	115928
AC	400m SE	Unspecified Tank	1994	137510

ID	Location	Land Use	Date	Group ID
AC	400m SE	Unspecified Tank	1993	137510
AC	400m SE	Unspecified Tank	1993	137510
AC	400m SE	Unspecified Tank	1994	137510
C	410m NW	Unspecified Tank	1891	115920
C	413m NW	Unspecified Tank	1891	115919
C	415m NW	Unspecified Tank	1891	115925
C	416m NW	Unspecified Tank	1891	115921
C	423m NW	Unspecified Tank	1891	115926
C	426m NW	Unspecified Tank	1891	115917
C	429m NW	Unspecified Tank	1891	115918
C	430m NW	Unspecified Tank	1891	115923
C	431m NW	Unspecified Tank	1891	115924
C	449m NW	Unspecified Tank	1891	115922
AS	452m N	Unspecified Tank	1889	115863
AV	453m SW	Unspecified Tank	1968	126329
AV	453m SW	Tanks	1984	107104
AS	454m N	Unspecified Tank	1908	115862
AV	454m SW	Unspecified Tank	1970	125809
AV	454m SW	Unspecified Tank	1970	125809
AV	454m SW	Unspecified Tank	1970	125809
C	454m NW	Unspecified Tank	1891	115914
AV	457m SW	Unspecified Tank	1968	129664
C	457m NW	Unspecified Tank	1891	115911
AV	457m SW	Unspecified Tank	1970	129664
AV	457m SW	Unspecified Tank	1970	129664
AV	457m SW	Unspecified Tank	1970	129664
C	462m NW	Unspecified Tank	1950	147696
C	463m NW	Unspecified Tank	1965	147696

ID	Location	Land Use	Date	Group ID
C	463m NW	Unspecified Tank	1965	147696
C	463m NW	Unspecified Tank	1964	147696
C	463m NW	Unspecified Tank	1952	147696
C	463m NW	Unspecified Tank	1948	147696
C	463m NW	Unspecified Tank	1955	147696
AZ	474m W	Unspecified Tank	1955	134489
AZ	474m W	Unspecified Tank	1955	134489
AZ	474m W	Unspecified Tank	1952	134489
AZ	474m W	Unspecified Tank	1891	115938
C	481m NW	Unspecified Tank	1891	115916
C	483m NW	Unspecified Tank	1891	115915

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	**60**

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

Features are displayed on the Past land use - un-grouped map on **page 29 >**

ID	Location	Land Use	Date	Group ID
F	70m SW	Electricity Substation	1948	62177
F	96m SW	Electricity Substation	1953	79861
F	96m SW	Electricity Substation	1948	79861
F	108m SW	Electricity Substation	1995	78252
F	108m SW	Electricity Substation	1998	78252
F	109m SW	Electricity Substation	1986	78252
E	116m W	Electricity Substation	1955	83723
E	116m W	Electricity Substation	1955	83723
E	117m W	Electricity Substation	1952	83723

ID	Location	Land Use	Date	Group ID
E	117m W	Electricity Substation	1948	83723
E	117m W	Electricity Substation	1950	83723
G	122m SE	Electricity Substation	1968	78617
G	122m SE	Electricity Substation	1969	80908
G	123m SE	Electricity Substation	1995	66506
G	123m SE	Electricity Substation	1998	66506
G	123m SE	Electricity Substation	1986	78617
C	177m NW	Electricity Substation	1985	69582
C	177m NW	Electricity Substation	1991	69582
C	177m NW	Electricity Substation	1994	69582
C	178m NW	Electricity Substation	1977	69582
Q	214m E	Electricity Substation	1986	69390
Q	215m E	Electricity Substation	1995	69390
Q	215m E	Electricity Substation	1998	69390
AG	328m SW	Electricity Substation	1968	75637
AG	329m SW	Electricity Substation	1970	75637
AG	329m SW	Electricity Substation	1970	75637
AG	329m SW	Electricity Substation	1970	75637
AG	329m SW	Electricity Substation	1984	72632
AG	331m SW	Electricity Substation	1998	72632
AK	363m W	Electricity Substation	1970	85157
AK	363m W	Electricity Substation	1970	85157
AK	363m W	Electricity Substation	1970	85157
AK	363m W	Electricity Substation	1968	85157
AK	364m W	Electricity Substation	1998	85157
AK	364m W	Electricity Substation	1984	85157
AA	380m NE	Electricity Substation	1985	76956
AA	380m NE	Electricity Substation	1991	76956

ID	Location	Land Use	Date	Group ID
AA	382m NE	Electricity Substation	1994	76956
AP	399m S	Electricity Transformer	1968	74844
AP	399m S	Electricity Substation	1986	81305
AP	399m S	Electricity Transformer	1969	74844
AP	400m S	Electricity Substation	1995	75649
AP	400m S	Electricity Substation	1998	75649
AA	452m NE	Electricity Substation	1994	78122
AA	453m NE	Electricity Substation	1985	78122
AA	453m NE	Electricity Substation	1991	78122
AY	460m W	Electricity Substation	1970	85141
AY	460m W	Electricity Substation	1970	85141
AY	460m W	Electricity Substation	1970	85141
AY	460m W	Electricity Substation	1968	81695
AY	461m W	Electricity Substation	1984	85141
AY	461m W	Electricity Substation	1998	81695
BB	486m N	Electricity Substation	1981	62187
BB	493m N	Electricity Substation	1955	69011
BB	493m N	Electricity Substation	1948	69011
BB	493m N	Electricity Substation	1978	69011
BB	494m N	Electricity Substation	1967	69011
BB	494m N	Electricity Substation	1951	69011
BB	494m N	Electricity Substation	1948	69011
BB	494m N	Electricity Substation	1967	69011

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m	0

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

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m	54

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

Features are displayed on the Past land use - un-grouped map on **page 29 >**

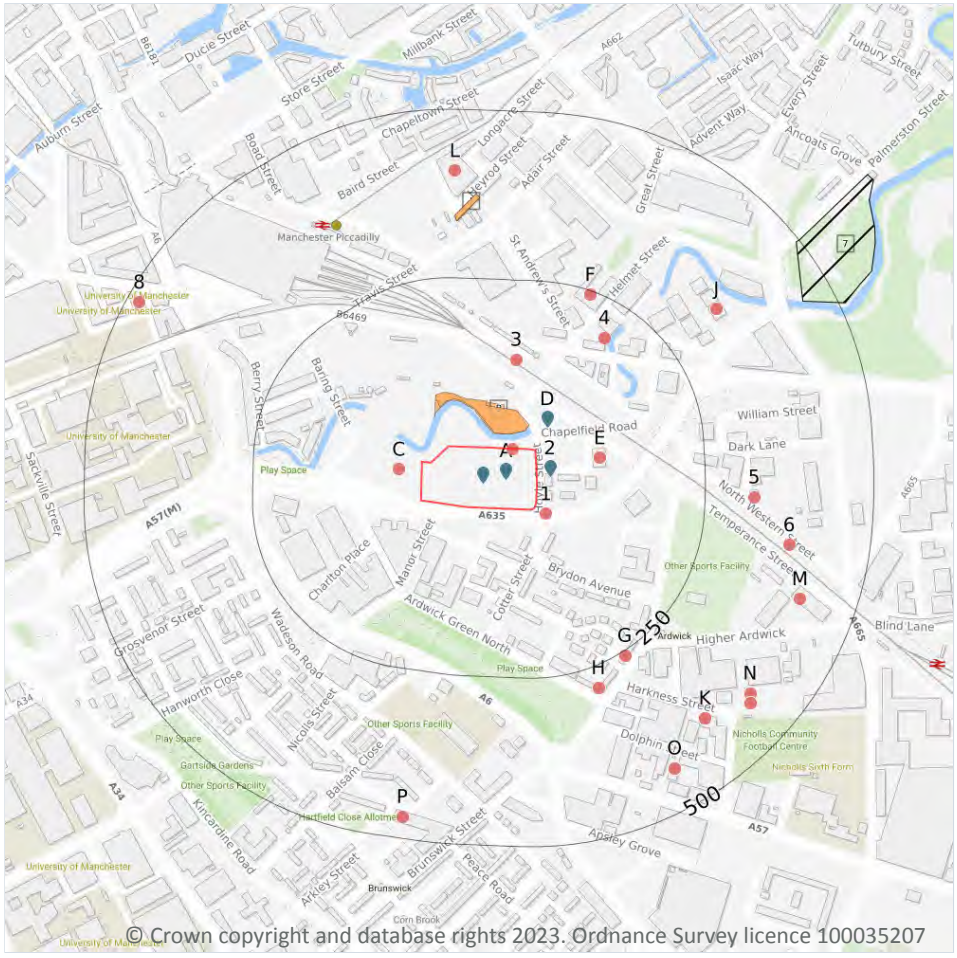
ID	Location	Land Use	Date	Group ID
I	135m NE	Garage	1994	20796
I	135m NE	Garage	1963	22547
I	136m NE	Garage	1968	22183
I	136m NE	Garage	1977	23899
I	136m NE	Garage	1965	24941
I	136m NE	Garage	1965	24941
I	136m NE	Garage	1985	24759
I	136m NE	Garage	1991	24759
K	160m NE	Garage	1977	25171
K	160m NE	Garage	1963	25171
K	160m NE	Garage	1965	26504
K	160m NE	Garage	1965	26504
K	160m NE	Garage	1968	26504
K	160m NE	Garage	1985	25171
K	160m NE	Garage	1991	25171
L	171m W	Garage	1970	26227

ID	Location	Land Use	Date	Group ID
L	171m W	Garage	1970	26227
L	171m W	Garage	1970	26227
L	171m W	Garage	1968	23424
J	194m W	Motor Repair Works	1948	20582
7	237m SW	Garage	1984	20316
U	244m S	Garage	1965	25849
U	244m S	Garage	1965	25849
U	245m S	Garage	1960	21337
U	247m S	Garage	1953	21434
9	260m NW	Garage	1948	20318
Y	268m W	Garage	1954	27186
Y	270m W	Garage	1954	27186
AD	305m SE	Garages	1965	26779
AD	305m SE	Garages	1965	26779
AD	305m SE	Garages	1968	23858
AD	309m SE	Garages	1954	26091
AD	309m SE	Garages	1948	26091
AE	324m S	Garage	1986	25652
AE	324m S	Garage	1968	25652
AE	325m S	Garage	1965	25866
AE	325m S	Garage	1965	25866
AE	325m S	Garage	1969	22682
AE	325m S	Garage	1960	23311
AQ	414m E	Garage	1960	21687
AQ	415m E	Garage	1965	25325
AQ	415m E	Garage	1968	25325
AW	454m E	Garage	1994	25880
AW	454m E	Garage	1996	23158

ID	Location	Land Use	Date	Group ID
BD	489m E	Garage	1954	25188
BD	489m E	Garage	1948	25188
BD	489m E	Garage	1965	25188
BD	489m E	Garage	1965	25188
BD	489m E	Garage	1968	25188
BF	491m NE	Garage	1994	23944
BF	491m NE	Garage	1996	21966
AW	496m E	Garage	1987	27777
AW	496m E	Garage	1964	27777
AW	496m E	Garage	1986	27777

This data is sourced from Ordnance Survey / Groundsure.

3 Waste and landfill



© Crown copyright and database rights 2023. Ordnance Survey licence 100035207

3.1 Active or recent landfill

Records within 500m	0

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

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

3.2 Historical landfill (BGS records)

Records within 500m	0

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

This data is sourced from the British Geological Survey.

3.3 Historical landfill (LA/mapping records)

Records within 500m	0

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

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

3.4 Historical landfill (EA/NRW records)

Records within 500m	1

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

Features are displayed on the Waste and landfill map on **page 50 >**

ID	Location	Details		
7	454m NE	Site Address: Palmerston Street Landfill, Great Ancoats Street, River Medlock, Ardwick, Manchester, Greater Manchester Licence Holder Address: Clarence House, Mellor Road, Cheadle Hulme, Stockport	Waste Licence: Yes Site Reference: RD/LIC/440/86, F046 Waste Type: Inert, Industrial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 20/08/1986 Licence Surrender: 21/07/1988	Operator: - Licence Holder: Peter Birse Limited First Recorded 01/09/1986 Last Recorded: 31/12/1987

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

3.5 Historical waste sites

Records within 500m	4

Waste site records derived from Local Authority planning records and high detail historical mapping.

Features are displayed on the Waste and landfill map on **page 50 >**

ID	Location	Address	Further Details	Date
B	20m N	Site Address: N/A	Type of Site: Scrap Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1994

ID	Location	Address	Further Details	Date
B	21m N	Site Address: N/A	Type of Site: Scrap Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1991
I	334m N	Site Address: N/A	Type of Site: Scrap Metal Works Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1948
I	335m N	Site Address: N/A	Type of Site: Scrap Metal Works Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1948

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

3.6 Licensed waste sites

Records within 500m	**7**

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

Features are displayed on the Waste and landfill map on **page 50 >**

ID	Location	Details		
A	**On site**	**Site Name: Aggregate Recycling Yard** **Site Address: Hoyle Trading Estate, Hoyle Street, Manchester, M12 6HL** **Correspondence Address: -**	**Type of Site: Treatment of waste to produce soil 75,000 tpy** **Size: >= 25000 tonnes 75000 tonnes** **Environmental Permitting Regulations (Waste) Licence Number: DEL043** **EPR reference: EA/EPR/CB3601KL/A001** **Operator: E Delaney Demolition Ltd** **Waste Management licence No: 402157** **Annual Tonnage: 74999**	**Issue Date: 26/02/2015** **Effective Date: -** **Modified: -** **Surrendered Date: -** **Expiry Date: -** **Cancelled Date: -** **Status: Issued**

ID	Location	Details		
A	**On site**	**Site Name: Ardwick Auto Spares Site Address: 2, Hoyle Street, Ardwick, Manchester, M12 6HG Correspondence Address: -**	**Type of Site: Metal Recycling Site (mixed MRS's) Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: ADO001 EPR reference: EA/EPR/AP3092CD/A001 Operator: Donnelly Mr. A. Waste Management licence No: 53582 Annual Tonnage: 310**	**Issue Date: 11/10/1996 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Suspended**
A	**On site**	**Site Name: Aggregate Recycling Yard Site Address: E Delaney Demolition Limited, Hoyle Trading Estate, Hoyle Street, Manchester, Manchester, M12 6HL Correspondence Address: -**	**Type of Site: Treatment of waste to produce soil 75,000 tpy Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: 645680 EPR reference: EA/EPR/CB3601KL Operator: E Delaney Demolition Limited Waste Management licence No: 402157 Annual Tonnage: 0**	**Issue Date: 26/02/2015 Effective Date: 26/02/2015 Modified: - Surrendered Date: 26/02/2015 Expiry Date: - Cancelled Date: 26/02/2015 Status: Surrendered**
A	**On site**	**Site Name: Ardwick Auto Spares Site Address: A Donnelly, 2, Hoyle Street, Ardwick, Manchester, Manchester, M12 6HG Correspondence Address: -**	**Type of Site: Metal Recycling Site (mixed MRS's) Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: 648608 EPR reference: EA/EPR/AP3092CD Operator: A Donnelly Waste Management licence No: 53582 Annual Tonnage: 310**	**Issue Date: 11/10/1996 Effective Date: 11/10/1996 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: 11/10/1996 Status: Expired**
2	19m E	Site Name: Pye Metals Ltd Site Address: Pye Metals Limited, Temperance Street, Ardwick, Manchester, Manchester, M12 6HS Correspondence Address: -	Type of Site: Metal Recycling Site (mixed MRS's) Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: 633257 EPR reference: EA/EPR/AP3992CN Operator: Pye Metals Limited Waste Management licence No: 53583 Annual Tonnage: 1733	Issue Date: 11/10/1996 Effective Date: 11/10/1996 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: 11/10/1996 Status: Expired

ID	Location	Details		
D	48m NE	Site Name: City Excavations Aggregate Yard Site Address: Hoyle Street, Hoyle Trading Estate, Manchester, M12 6JL Correspondence Address: -	Type of Site: Inert & excavation Waste TS + treatment Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: CIT060 EPR reference: EA/EPR/CB3905MR/A001 Operator: City Excavations Ltd Waste Management licence No: 402399 Annual Tonnage: 75000	Issue Date: 01/06/2015 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued
D	48m NE	Site Name: City Excavations Aggregate Yard Site Address: City Excavations Limited, Hoyle Street, Hoyle Trading Estate, Manchester, Manchester, M12 6JL Correspondence Address: -	Type of Site: Inert & excavation Waste TS + treatment Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: 626472 EPR reference: EA/EPR/CB3905MR Operator: City Excavations Limited Waste Management licence No: 402399 Annual Tonnage: 0	Issue Date: 01/06/2015 Effective Date: 01/06/2015 Modified: - Surrendered Date: 01/06/2015 Expiry Date: - Cancelled Date: 01/06/2015 Status: Surrendered

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

3.7 Waste exemptions

Records within 500m **75**

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

Features are displayed on the Waste and landfill map on **page 50 >**

ID	Location	Site	Reference	Category	Sub-Category	Description
A	**On site**	**Hoyle Street Mancunian Way Manchester Manchester M12 6HL**	**EPR/MF0306EV/A001**	**Storing waste exemption**	**Non-Agricultural Waste Only**	**Storage of waste in a secure place**
1	19m SE	-	WEX239223	Treating waste exemption	Not on a farm	Screening and blending of waste
C	34m W	Unit 5, Bond Street, Manchester, M12 6HW	WEX149573	Using waste exemption	Not on a farm	Use of waste in construction

ID	Location	Site	Reference	Category	Sub-Category	Description
C	34m W	Unit 5, Bond Street, Manchester, M12 6HW	WEX149573	Using waste exemption	Not on a farm	Use of waste in the construction of entertainment or educational installations etc
E	95m E	-	WEX104021	Disposing of waste exemption	Not on a farm	Burning waste in the open
E	95m E	-	WEX104021	Storing waste exemption	Not on a farm	Storage of waste in a secure place
E	95m E	-	WEX104021	Treating waste exemption	Not on a farm	Sorting mixed waste
E	95m E	-	WEX104021	Treating waste exemption	Not on a farm	Manual treatment of waste
E	95m E	-	WEX104021	Treating waste exemption	Not on a farm	Crushing and emptying waste vehicle oil filters
E	95m E	-	WEX104021	Treating waste exemption	Not on a farm	Recovery of textiles
E	95m E	-	WEX104021	Treating waste exemption	Not on a farm	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
E	95m E	-	WEX104021	Treating waste exemption	Not on a farm	Mechanical treatment of end-of-life tyres
E	95m E	-	WEX104021	Treating waste exemption	Not on a farm	Recovery of scrap metal
3	132m N	-	WEX363538	Disposing of waste exemption	Not on a farm	Deposit of waste from a railway sanitary convenience
4	195m NE	107 Fairfield Street Manchester Lancashire M1 2WG	EPR/NF0907NV/A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of waste in a secure place
F	243m NE	105, St. Andrews street, Fairfield street & helmet street, Manchester, M1 2NT	WEX258826	Treating waste exemption	Not on a farm	Mechanical treatment of end-of-life tyres
F	243m NE	Cheaper than a skip ltd, Junc St Andrews Street & Fairfield Street, Helmet Street, Manchester, Manchester, M1 2NT	WEX240717	Using waste exemption	Not on a farm	Use of waste in construction

ID	Location	Site	Reference	Category	Sub-Category	Description
F	243m NE	Cheaper than a skip ltd, Junc St Andrews Street & Fairfield Street, Helmet Street, Manchester, Manchester, M1 2NT	WEX240717	Storing waste exemption	Not on a farm	Storage of sludge
F	243m NE	Cheaper than a skip ltd, Junc St Andrews Street & Fairfield Street, Helmet Street, Manchester, Manchester, M1 2NT	WEX240717	Storing waste exemption	Not on a farm	Storage of waste in a secure place
F	243m NE	Cheaper than a skip ltd, Junc St Andrews Street & Fairfield Street, Helmet Street, Manchester, Manchester, M1 2NT	WEX240717	Storing waste exemption	Not on a farm	Storage of waste in secure containers
F	243m NE	Cheaper than a skip ltd, Junc St Andrews Street & Fairfield Street, Helmet Street, Manchester, Manchester, M1 2NT	WEX240717	Disposing of waste exemption	Not on a farm	Burning waste in the open
F	243m NE	Cheaper than a skip ltd, Junc St Andrews Street & Fairfield Street, Helmet Street, Manchester, Manchester, M1 2NT	WEX240717	Treating waste exemption	Not on a farm	Crushing waste fluorescent tubes
F	243m NE	Cheaper than a skip ltd, Junc St Andrews Street & Fairfield Street, Helmet Street, Manchester, Manchester, M1 2NT	WEX240717	Treating waste exemption	Not on a farm	Treatment of waste food
F	243m NE	Cheaper than a skip ltd, Junc St Andrews Street & Fairfield Street, Helmet Street, Manchester, Manchester, M1 2NT	WEX240717	Treating waste exemption	Not on a farm	Manual treatment of waste
F	243m NE	Cheaper than a skip ltd, Junc St Andrews Street & Fairfield Street, Helmet Street, Manchester, Manchester, M1 2NT	WEX240717	Treating waste exemption	Not on a farm	Sorting mixed waste
F	243m NE	Cheaper than a skip ltd, Junc St Andrews Street & Fairfield Street, Helmet Street, Manchester, Manchester, M1 2NT	WEX240717	Treating waste exemption	Not on a farm	Recovery of scrap metal

ID	Location	Site	Reference	Category	Sub-Category	Description
F	243m NE	Cheaper than a skip ltd, Junc St Andrews Street & Fairfield Street, Helmet Street, Manchester, Manchester, M1 2NT	WEX240717	Treating waste exemption	Not on a farm	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
F	243m NE	Cheaper than a skip ltd, Junc St Andrews Street & Fairfield Street, Helmet Street, Manchester, Manchester, M1 2NT	WEX240717	Treating waste exemption	Not on a farm	Recovery of textiles
G	257m SE	1 Higher Ardwick Manchester Lancashire M12 6DB	EPR/RF0533EJ /A001	Using waste exemption	Non-Agricultural Waste Only	Use of waste for a specified purpose
G	257m SE	1 Higher Ardwick Manchester Lancashire M12 6DB	EPR/RF0533EJ /A001	Using waste exemption	Non-Agricultural Waste Only	Use of waste to manufacture finished goods
G	258m SE	1 Higher Ardwick, Higher Ardwick, Manchester, M126DB	WEX119938	Treating waste exemption	Not on a farm	Manual treatment of waste
H	283m SE	-	WEX260967	Treating waste exemption	Not on a farm	Manual treatment of waste
H	283m SE	Scott Pallets, Higher Ardwick, Manchester, M12 6DB	WEX243369	Using waste exemption	Not on a farm	Use of waste for a specified purpose
H	283m SE	Scott Pallets, Higher Ardwick, Manchester, M12 6DB	WEX243369	Using waste exemption	Not on a farm	Use of waste to manufacture finished goods
5	322m E	Corner of Cresbury Street North Western Street Ardwick Lancashire M12 6DX	EPR/CE5252R W/A001	Treating waste exemption	Non-Agricultural Waste Only	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
J	340m NE	Aldow Enterprise Park Unit E Blackett Street MANCHESTER M12 6AE	EPR/ZE5546CN /A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of waste in a secure place
J	340m NE	Aldow Enterprise Park Unit E Blackett Street MANCHESTER M12 6AE	EPR/KE5943LH /A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of waste in a secure place
J	340m NE	UNIT E, ALDOW ENTERPRISE PARK, BLACKETT STREET, MANCHESTER, M12 6AE	WEX252389	Storing waste exemption	Not on a farm	Storage of waste in secure containers

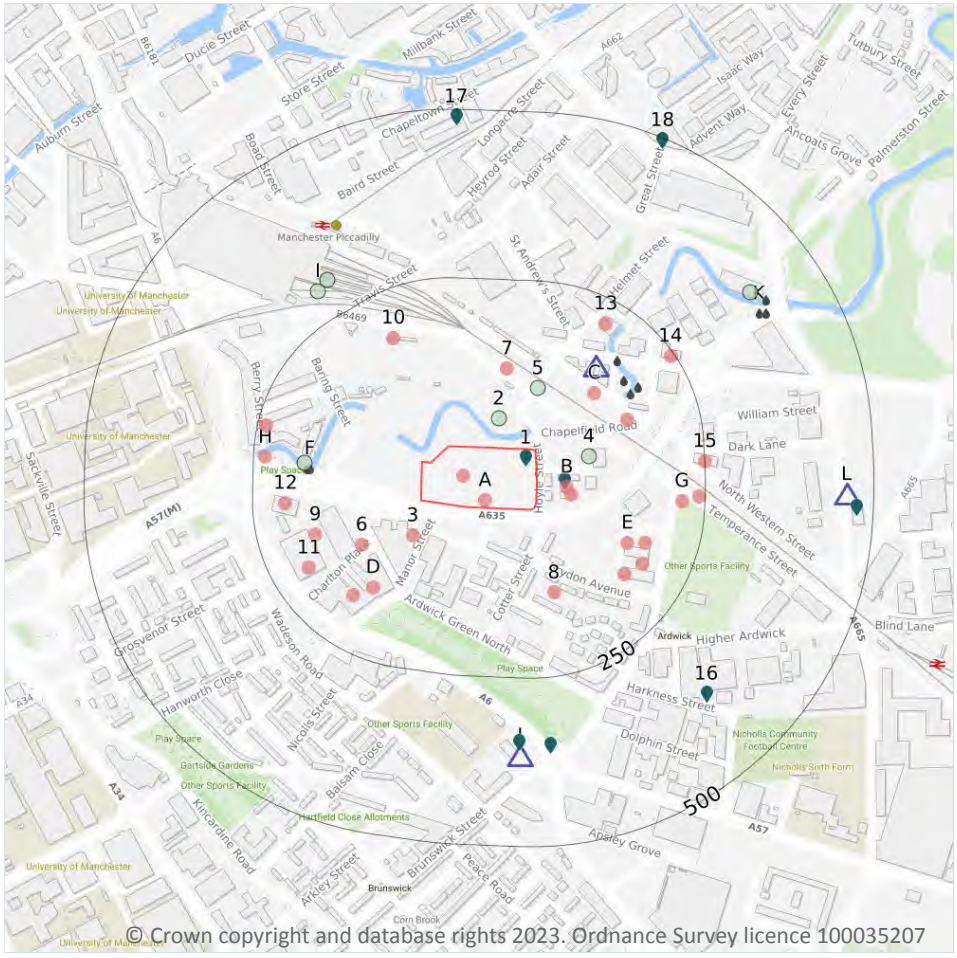
ID	Location	Site	Reference	Category	Sub-Category	Description
J	340m NE	UNIT E, ALDOW ENTERPRISE PARK, BLACKETT STREET, MANCHESTER, M12 6AE	WEX252389	Storing waste exemption	Not on a farm	Storage of waste in a secure place
6	381m E	Corner of Cresbury Street North Western Street Ardwick Lancashire M12 6DX	EPR/WF0137AQ/A001	Treating waste exemption	Non-Agricultural Waste Only	Manual treatment of waste
K	402m SE	33, Harkness Street, Hardwick, Manchester, M12 6BT	WEX126614	Storing waste exemption	Not on a farm	Storage of waste in secure containers
K	402m SE	33, Harkness Street, Hardwick, Manchester, M12 6BT	WEX126614	Storing waste exemption	Not on a farm	Storage of waste in a secure place
K	402m SE	33, Harkness Street, Hardwick, Manchester, M12 6BT	WEX126614	Treating waste exemption	Not on a farm	Preparatory treatments (baling, sorting, shredding etc)
K	402m SE	33, Harkness Street, Hardwick, Manchester, M12 6BT	WEX126614	Treating waste exemption	Not on a farm	Screening and blending of waste
K	402m SE	33, Harkness Street, Hardwick, Manchester, M12 6BT	WEX126614	Treating waste exemption	Not on a farm	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
K	402m SE	33, Harkness Street, Hardwick, Manchester, M12 6BT	WEX126614	Treating waste exemption	Not on a farm	Recovery of scrap metal
K	402m SE	33, Harkness Street, Hardwick, Manchester, M12 6BT	WEX126614	Using waste exemption	Not on a farm	Use of waste in construction
L	408m N	RG Group Project Offices, Portugal Street East, Manchester, M1 2WX	WEX326647	Using waste exemption	Not on a farm	Use of waste in construction
L	408m N	1, PORTUGAL STREET EAST, MANCHESTER, M1 2WX	WEX337872	Using waste exemption	Not on a farm	Use of waste in construction
M	416m E	HIGHER ARDWICK, MANCHESTER, M12 6DB	WEX080086	Using waste exemption	Not on a farm	Use of waste for a specified purpose
M	416m E	HIGHER ARDWICK, MANCHESTER, M12 6DB	WEX080086	Using waste exemption	Not on a farm	Use of waste to manufacture finished goods
N	422m SE	33, HARKNESS STREET, MANCHESTER, M12 6BT	WEX274902	Using waste exemption	Not on a farm	Use of waste in construction

ID	Location	Site	Reference	Category	Sub-Category	Description
N	422m SE	33, HARKNESS STREET, MANCHESTER, M12 6BT	WEX274902	Storing waste exemption	Not on a farm	Storage of waste in a secure place
N	422m SE	33, HARKNESS STREET, MANCHESTER, M12 6BT	WEX274902	Storing waste exemption	Not on a farm	Storage of waste in secure containers
N	422m SE	33, HARKNESS STREET, MANCHESTER, M12 6BT	WEX274902	Treating waste exemption	Not on a farm	Recovery of scrap metal
N	422m SE	33, HARKNESS STREET, MANCHESTER, M12 6BT	WEX274902	Treating waste exemption	Not on a farm	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
N	422m SE	33, HARKNESS STREET, MANCHESTER, M12 6BT	WEX274902	Treating waste exemption	Not on a farm	Screening and blending of waste
N	432m SE	33 Harkness Street MANCHESTER M12 6BT	EPR/TF0700XN/A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of waste in secure containers
N	432m SE	33 Harkness Street MANCHESTER M12 6BT	EPR/TF0700XN/A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of waste in a secure place
N	432m SE	33 Harkness Street MANCHESTER M12 6BT	EPR/TF0700XN/A001	Treating waste exemption	Non-Agricultural Waste Only	Preparatory treatments (baling, sorting, shredding etc)
N	432m SE	33 Harkness Street MANCHESTER M12 6BT	EPR/TF0700XN/A001	Treating waste exemption	Non-Agricultural Waste Only	Screening and blending of waste
N	432m SE	33 Harkness Street MANCHESTER M12 6BT	EPR/TF0700XN/A001	Treating waste exemption	Non-Agricultural Waste Only	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
N	432m SE	33 Harkness Street MANCHESTER M12 6BT	EPR/TF0700XN/A001	Treating waste exemption	Non-Agricultural Waste Only	Recovery of scrap metal
N	432m SE	33 Harkness Street MANCHESTER M12 6BT	EPR/TF0700XN/A001	Using waste exemption	Non-Agricultural Waste Only	Use of waste in construction
O	438m SE	18a Dolphin Street MANCHESTER M12 6BG	EPR/EF0208VL/A001	Treating waste exemption	Agricultural Waste Only	Treatment of waste food
O	438m SE	18a Dolphin Street MANCHESTER M12 6BG	EPR/EF0208VL/A001	Storing waste exemption	Both agricultural and non-agricultural waste	Storage of waste in secure containers

ID	Location	Site	Reference	Category	Sub-Category	Description
O	438m SE	18a Dolphin Street MANCHESTER M12 6BG	EPR/EF0208VL/A001	Treating waste exemption	Both agricultural and non-agricultural waste	Preparatory treatments (baling, sorting, shredding etc)
O	438m SE	18a Dolphin Street MANCHESTER M12 6BG	EPR/EF0208VL/A001	Treating waste exemption	Both agricultural and non-agricultural waste	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
O	438m SE	18a Dolphin Street MANCHESTER M12 6BG	EPR/EF0208VL/A001	Treating waste exemption	Both agricultural and non-agricultural waste	Recovery of scrap metal
O	438m SE	18a Dolphin Street MANCHESTER M12 6BG	EPR/EF0208VL/A001	Using waste exemption	Both agricultural and non-agricultural waste	Use of waste in construction
O	438m SE	16 Dolphin Street Manchester Manchester M12 6BG	EPR/EF0608VF/A001	Treating waste exemption	Non-Agricultural Waste Only	Screening and blending of waste
O	438m SE	16 Dolphin Street Manchester Manchester M12 6BG	EPR/EF0608VF/A001	Using waste exemption	Non-Agricultural Waste Only	Incorporation of ash into soil
P	469m S	Staverton Close Brunswick M13 9TS	EPR/WE5346BX/A001	Treating waste exemption	Non-Agricultural Waste Only	Screening and blending of waste
P	469m S	Staverton Close Brunswick M13 9TS	EPR/WE5346BX/A001	Using waste exemption	Non-Agricultural Waste Only	Use of waste in construction
8	481m NW	Michael Smith Building, Dover Street, Manchester, M13 9PL	WEX086269	Treating waste exemption	Not on a farm	Treatment of kitchen waste in a wormery

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

4 Current industrial land use



4.1 Recent industrial land uses

Records within 250m	27

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 61 >**

ID	Location	Company	Address	Activity	Category
A	**On site**	**Tank**	**Greater Manchester, M12**	**Tanks (Generic)**	**Industrial Features**
A	**On site**	**Tank**	**Greater Manchester, M12**	**Tanks (Generic)**	**Industrial Features**
B	44m E	Hoyle Street Industrial Estate	Greater Manchester, M12	Business Parks and Industrial Estates	Industrial Features

ID	Location	Company	Address	Activity	Category
B	52m E	Manmunian Garage	Unit 6 Hoyle Street Industrial Estate, Hoyle Street, Manchester, Greater Manchester, M12 6HG	Vehicle Repair, Testing and Servicing	Repair and Servicing
3	53m SW	Euro Beds Ltd	Star Suite Next Unit 1, Manor Street, Manchester, Greater Manchester, M12 6HE	Beds and Bedding	Consumer Products
6	110m SW	Electricity Sub Station	Greater Manchester, M12	Electrical Features	Infrastructure and Facilities
7	118m N	Bantuway Manchester Ltd	Arch 105, Temperance Street, Manchester, Greater Manchester, M12 6HR	Fish, Meat and Poultry Products	Foodstuffs
C	122m NE	Wander Beyond Brewing	Arch 98, North Western Street, Ardwick, Manchester, Greater Manchester, M12 6JL	Alcoholic Drinks	Foodstuffs
8	127m SE	Electricity Sub Station	Greater Manchester, M12	Electrical Features	Infrastructure and Facilities
C	144m E	Mast (Telecommunication)	Greater Manchester, M12	Telecommunications Features	Infrastructure and Facilities
D	147m SW	Progress Centre	Progress Centre, Charlton Place, Manchester, Greater Manchester, M12 6HS	Business Parks and Industrial Estates	Industrial Features
E	147m SE	Electricity Sub Station	Greater Manchester, M12	Electrical Features	Infrastructure and Facilities
9	165m W	Industrial Estate	Greater Manchester, M12	Business Parks and Industrial Estates	Industrial Features
E	166m SE	The Works Business Centre	Greater Manchester, M12	Business Parks and Industrial Estates	Industrial Features
D	172m SW	Area Headquarters Duke of Lancaster's Regiment	Army Reserve Centre, Ardwick Green North, Manchester, Greater Manchester, M12 6HD	Armed Services	Central and Local Government
E	173m E	Mast (Telecommunication)	Greater Manchester, M12	Telecommunications Features	Infrastructure and Facilities
E	180m SE	Goodwill Safe Boxes	Ground Floor City View House 5, Union Street, Ardwick, Manchester, Greater Manchester, M12 4JD	Shelving, Storage, Safes and Vaults	Industrial Products
10	181m NW	Electricity Sub Station	Greater Manchester, M1	Electrical Features	Infrastructure and Facilities

ID	Location	Company	Address	Activity	Category
11	194m SW	Speedy Hire Plc	Unit 1-3 Downing Street Industrial Estate, Charlton Place, Ardwick, Manchester, Greater Manchester, M12 6HH	Construction and Tool Hire	Hire Services
12	201m W	Calumet Photographic	Unit 4 Downing Street Industrial Estate, Charlton Place, Manchester, Greater Manchester, M12 6HH	Photographic and Optical Equipment	Household, Office, Leisure and Garden
13	215m NE	Jack Cohen & Sons	107, Fairfield Street, Manchester, Greater Manchester, M1 2WG	Rag Merchants	Recycling Services
G	216m E	Electricity Sub Station	Greater Manchester, M12	Electrical Features	Infrastructure and Facilities
H	232m W	Pump House	Greater Manchester, M1	Water Pumping Stations	Industrial Features
H	238m W	Electricity Sub Station	Greater Manchester, M1	Electrical Features	Infrastructure and Facilities
G	241m E	Al-arabia Cargo Ltd	Arch 82, Temperance Street, Manchester, Greater Manchester, M12 6HU	Distribution and Haulage	Transport, Storage and Delivery
14	244m NE	Works	Greater Manchester, M12	Unspecified Works Or Factories	Industrial Features
15	250m E	Works	Greater Manchester, M12	Unspecified Works Or Factories	Industrial Features

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m **3**

Open, closed, under development and obsolete petrol stations.

Features are displayed on the Current industrial land use map on **page 61 >**

ID	Location	Company	Address	LPG	Status
C	153m NE	UNBRANDED	100, Fairfield Street, Manchester, Greater Manchester, M1 2WR	Not Applicable	Obsolete
J	365m S	ESSO	Ardwick Green South, Manchester, Greater Manchester, M13 9XF	No	Open
L	459m E	BP	Chancellor Lane, Ardwick, Manchester, Greater Manchester, M12 6JZ	No	Open

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m	0

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m	0

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m	0

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

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

Records within 500m	0

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

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m	0

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

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m	0

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

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m	0

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

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

4.10 Licensed industrial activities (Part A(1))

Records within 500m	0

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

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

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

Records within 500m	8

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

Features are displayed on the Current industrial land use map on **page 61 >**

ID	Location	Address	Details	
1	**On site**	**Tj Stafford Ltd, Hoyle Street, Ardwick, M12 6HG**	**Process: Other Mineral Processes** **Status: Historical Permit** **Permit Type: Part B**	**Enforcement: No Enforcement Notified** **Date of enforcement: No Enforcement Notified** **Comment: No Enforcement Notified**
B	41m E	Ardwick Spares, 2 Hoyle Street, Ardwick, M12 6HG	Process: Non-ferrous Metal Foundry Processes Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified

ID	Location	Address	Details	
J	345m S	Tesco Ardwick Green Express, Ardwick Green South, Ardwick, Manchester, M13 9XF	Process: Unloading of Petrol into Storage at Service Stations Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified
J	350m S	Ardwick Green Serv Stn, Ardwick Green, M13 9XF	Process: Petrol Vapour Recovery Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified
16	375m SE	Chartrange Ltd, 33 Harkness Street, Ardwick, M12 6BT	Process: Other Mineral Processes Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified
L	475m E	BP Ardwick Service Station, Chancellor Lane, Ardwick, M12 6JZ	Process: Unloading of Petrol into Storage at Service Stations Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified
17	489m N	Central Taxi Spares Ltd, Chapletown Street, Ancoats, M1 2NN	Process: Waste Oil Burner 0.4 MW Status: New Legislation Applies Permit Type: Part B	Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified
18	496m NE	Advent Manchester, 309 Great Ancoats Street, Manchester M4 7DF	Process: Respraying of Road Vehicles Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m	**0**

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

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

4.13 Licensed Discharges to controlled waters

Records within 500m	**11**

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

Features are displayed on the Current industrial land use map on **page 61 >**

ID	Location	Address	Details	
C	163m NE	MANCUNIAN WAY, MANCHESTER, GREATER MANCHESTER	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0192 Permit Version: 1 Receiving Water: RIVER MEDLOCK	Status: REVOKED - UNSPECIFIED Issue date: - Effective Date: 01/01/1995 Revocation Date: 18/07/1995
F	166m W	MANCUNIAN WAY CSO, MANC WAY SLIP ROAD, MANCHESTER, M12 6HH	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 016982729 Permit Version: 3 Receiving Water: RIVER MEDLOCK VIA SWS	Status: VARIED UNDER EPR 2010 Issue date: 29/03/2021 Effective Date: 29/03/2021 Revocation Date: -
C	166m NE	FAIRFIELD ST/CRANE ST, ARDWICK, MANCHESTER, GREATER MANCHESTER	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 016982727 Permit Version: 1 Receiving Water: RIVER MEDLOCK	Status: CONSENT REVOKED - DISCHARGE CEASED (WRA 91, SCHED 10 & 6) Issue date: - Effective Date: 28/11/1994 Revocation Date: 31/03/1998
F	170m W	MANCUNIAN WAY CSO, MANC WAY SLIP ROAD, MANCHESTER, M12 6HH	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 016982729 Permit Version: 2 Receiving Water: RIVER MEDLOCK	Status: MODIFIED - (WRA 91 SCHED 10 - AS AMENDED BY ENV ACT 1995) Issue date: - Effective Date: 30/11/1999 Revocation Date: 28/03/2021
C	177m NE	FAIRFIELD STREET CSO, FAIRFIELD STREET, MANCUNIAN WAY, MANCHESTER, M12 6EJ	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 016982730 Permit Version: 2 Receiving Water: RIVER MEDLOCK	Status: VARIED UNDER EPR 2010 Issue date: 19/03/2018 Effective Date: 01/04/2018 Revocation Date: -
C	177m NE	FAIRFIELD STREET CSO, FAIRFIELD STREET, MANCUNIAN WAY, MANCHESTER, M12 6EJ	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0309 Permit Version: 1 Receiving Water: RIVER MEDLOCK	Status: CONSENT REVOKED OR REVISED - NEW CONSENT ISSUED (37(1)) Issue date: - Effective Date: 01/01/1995 Revocation Date: 01/01/1995
C	177m NE	FAIRFIELD STREET CSO, FAIRFIELD STREET, MANCUNIAN WAY, MANCHESTER, M12 6EJ	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 016982730 Permit Version: 1 Receiving Water: RIVER MEDLOCK	Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date: - Effective Date: 30/09/1994 Revocation Date: 31/03/2018

ID	Location	Address	Details	
C	179m NE	RAVEN STREET, MANCHESTER, GREATER MANCHESTER	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0198 Permit Version: 1 Receiving Water: RIVER MEDLOCK	Status: REVOKED - UNSPECIFIED Issue date: - Effective Date: 01/01/1995 Revocation Date: 31/03/1998
K	388m NE	BLACKETT STREET, MANCHESTER, GREATER MANCHESTER	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0194 Permit Version: 1 Receiving Water: RIVER MEDLOCK	Status: REVOKED - UNSPECIFIED Issue date: - Effective Date: 01/01/1995 Revocation Date: 18/07/1995
K	396m NE	PIN MILL BROW, MANCHESTER, GREATER MANCHESTER	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0193 Permit Version: 1 Receiving Water: RIVER MEDLOCK	Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date: - Effective Date: 01/01/1995 Revocation Date: 17/08/1999
K	407m NE	GREAT ANCOATS ST, MANCHESTER, GREATER MANCHESTER	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01MAN0257 Permit Version: 1 Receiving Water: RIVER MEDLOCK	Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date: - Effective Date: 01/01/1995 Revocation Date: 13/06/1999

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

4.14 Pollutant release to surface waters (Red List)

Records within 500m	0

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

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

4.15 Pollutant release to public sewer

Records within 500m	0

Discharges of Special Category Effluents to the public sewer.

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

4.16 List 1 Dangerous Substances

Records within 500m	0

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

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

4.17 List 2 Dangerous Substances

Records within 500m	0

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

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

4.18 Pollution Incidents (EA/NRW)

Records within 500m	7

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

Features are displayed on the Current industrial land use map on **page 61 >**

ID	Location	Details	
2	43m N	Incident Date: 31/07/2001 Incident Identification: 20628 Pollutant: Pollutant Not Identified Pollutant Description: Not Identified	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 3 (Minor)
4	78m E	Incident Date: 13/10/2001 Incident Identification: 36400 Pollutant: Pollutant Not Identified Pollutant Description: Not Identified	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
5	91m NE	Incident Date: 30/05/2001 Incident Identification: 7029 Pollutant: Oils and Fuel Pollutant Description: Diesel	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
F	173m W	Incident Date: 17/01/2003 Incident Identification: 131596 Pollutant: Contaminated Water Pollutant Description: Urban Run-Off	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

ID	Location	Details	
I	296m NW	Incident Date: 08/03/2001 Incident Identification: 96 Pollutant: Oils and Fuel Pollutant Description: Diesel	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
I	304m NW	Incident Date: 30/05/2001 Incident Identification: 6998 Pollutant: Oils and Fuel Pollutant Description: Diesel	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
K	395m NE	Incident Date: 16/08/2015 Incident Identification: 1365039 Pollutant: Sewage Materials Pollutant Description: Storm Sewage	Water Impact: Category 2 (Significant) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

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

4.19 Pollution inventory substances

Records within 500m	0

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

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

4.20 Pollution inventory waste transfers

Records within 500m	0

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

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

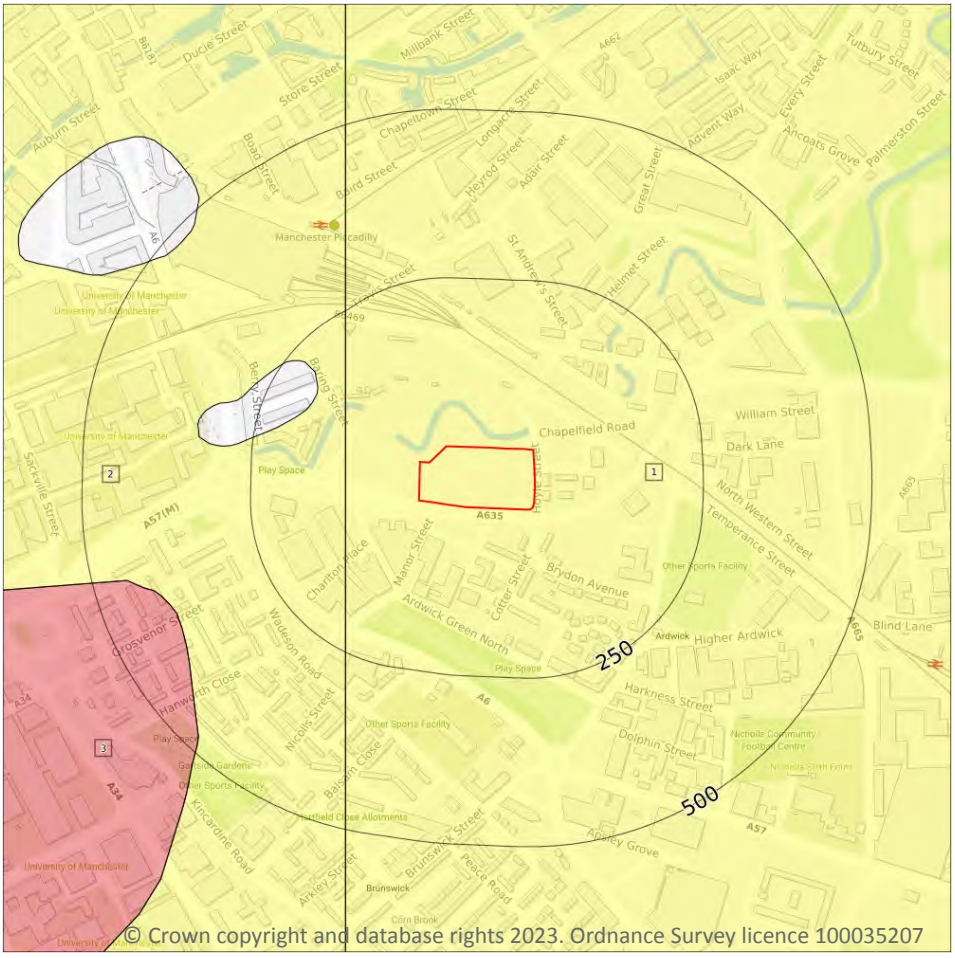
4.21 Pollution inventory radioactive waste

Records within 500m	0

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

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

5 Hydrogeology - Superficial aquifer



5.1 Superficial aquifer

Records within 500m	3

Aquifer status of groundwater held within superficial geology.

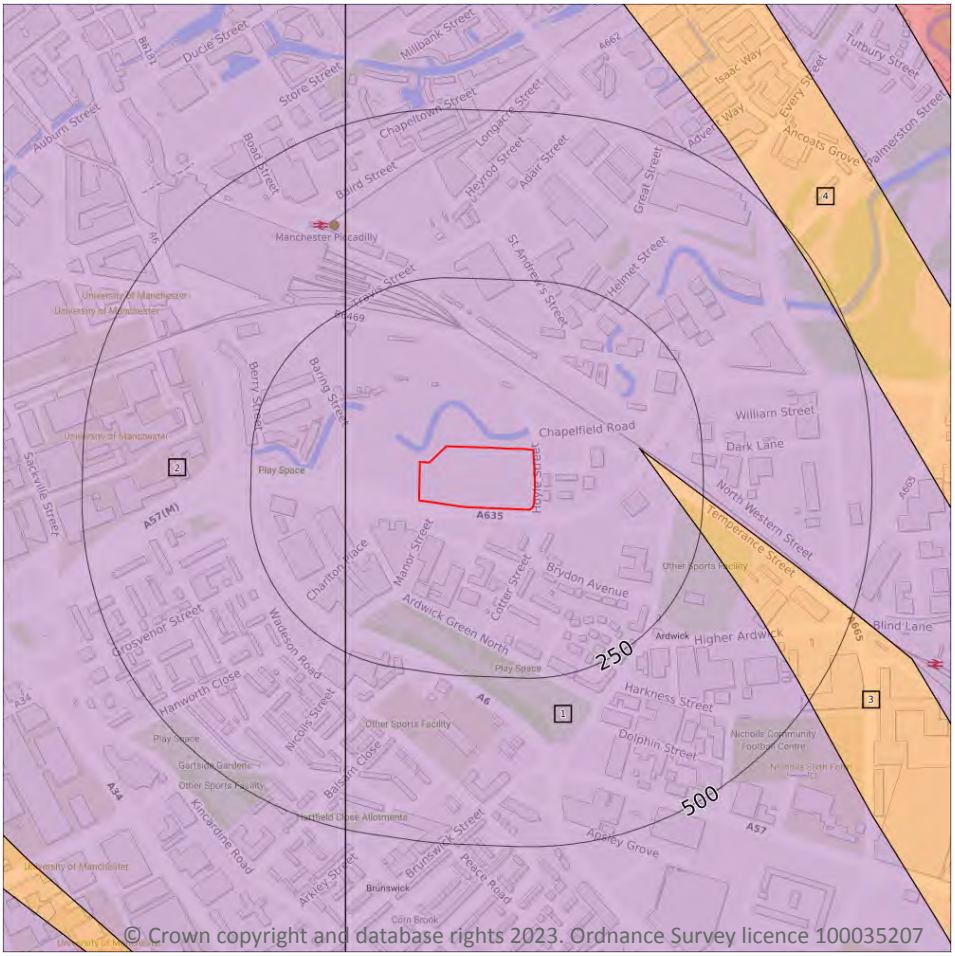
Features are displayed on the Hydrogeology map on **page 71 >**

ID	Location	Designation	Description
1	**On site**	**Secondary Undifferentiated**	**Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type**
2	109m W	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

ID	Location	Designation	Description
3	396m SW	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

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

Bedrock aquifer



5.2 Bedrock aquifer

Records within 500m	4

Aquifer status of groundwater held within bedrock geology.

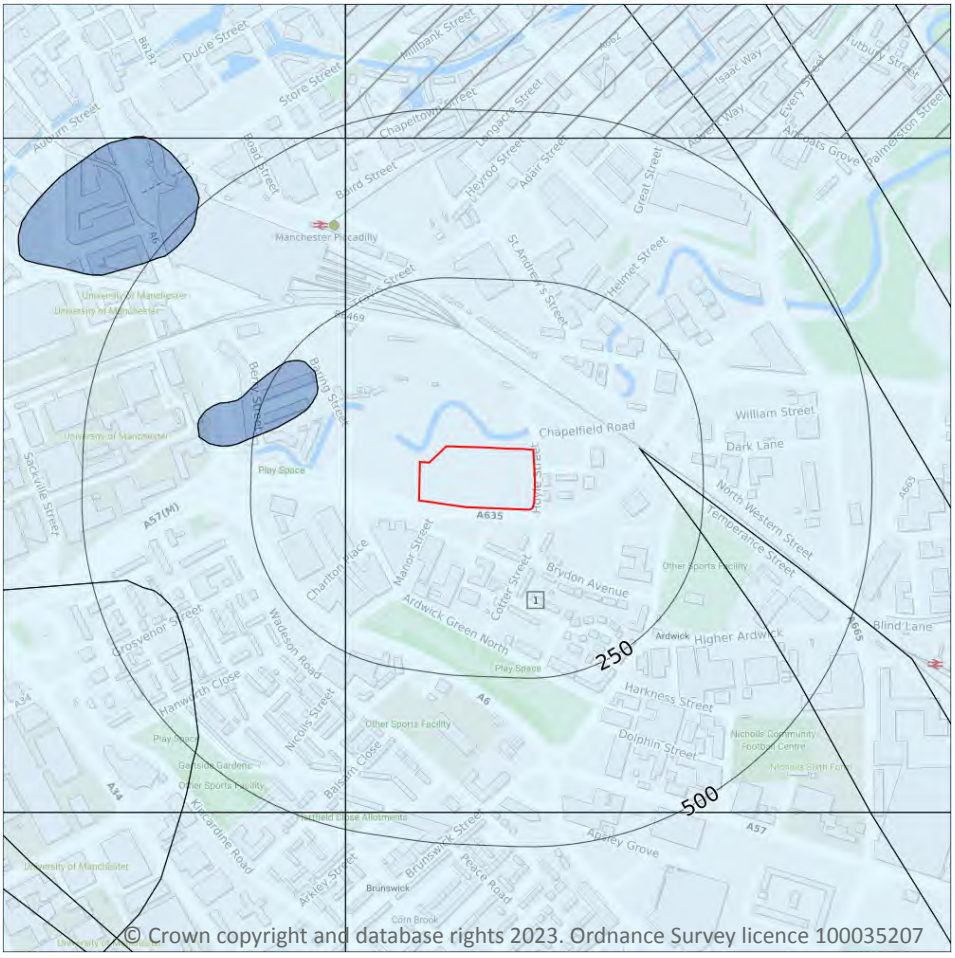
Features are displayed on the Bedrock aquifer map on **page 73 >**

ID	Location	Designation	Description
1	**On site**	**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**
2	109m W	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

ID	Location	Designation	Description
3	158m E	Secondary B	Predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeablehorizons and weathering. These are generally the water-bearing parts of the former non-aquifers
4	491m NE	Secondary B	Predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeablehorizons and weathering. These are generally the water-bearing parts of the former non-aquifers

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

Groundwater vulnerability



Site Outline

Search buffers in metres (m)

Superficial vulnerability

- Principal superficial aquifer, high vulnerability
- Secondary superficial aquifer, high vulnerability
- Principal superficial aquifer, medium vulnerability
- Secondary superficial aquifer, medium vulnerability
- Principal superficial aquifer, low vulnerability
- Secondary superficial aquifer, low vulnerability

Bedrock vulnerability

- Principal bedrock aquifer, high vulnerability
- Secondary bedrock aquifer, high vulnerability
- Principal bedrock aquifer, medium vulnerability
- Secondary bedrock aquifer, medium vulnerability
- Principal bedrock aquifer, low vulnerability
- Secondary bedrock aquifer, low vulnerability

Other information

- Unproductive aquifer
- Soluble rock risk
- Local information

5.3 Groundwater vulnerability

Records within 50m	1

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

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

Features are displayed on the Groundwater vulnerability map on **page 75 >**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	**Summary Classification: Secondary superficial aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer**	**Leaching class: Low Infiltration value: <40% Dilution value: 300-550mm/year**	**Vulnerability: Low Aquifer type: Secondary Thickness: 3-10m Patchiness value: >90% Recharge potential: Low**	**Vulnerability: Low Aquifer type: Principal Flow mechanism: Well connected fractures**

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

5.4 Groundwater vulnerability- soluble rock risk

Records on site	0

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

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

5.5 Groundwater vulnerability- local information

Records on site	0

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

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

Abstractions and Source Protection Zones



© Crown copyright and database rights 2023. Ordnance Survey licence 100035207

- Site Outline

Search buffers in metres (m)

- Source Protection Zone 1 — Inner catchment
- Source Protection Zone 2 — Outer catchment
- Source Protection Zone 3 — Total catchment
- Source Protection Zone 4 — Zone of Special Interest
- Source Protection Zone 1c — Inner catchment - confined aquifer
- Source Protection Zone 2c — Outer catchment - confined aquifer
- Source Protection Zone 3c — Total catchment - confined aquifer
- Drinking water abstraction licences
- Drinking water abstraction licences — Polygon features
- Drinking water abstraction licences — Linear features
- Groundwater abstraction licence (point)
- Groundwater abstraction licence (area)
- Groundwater abstraction licence (linear)
- Surface Water Abstractions (point)
- Surface Water Abstractions (area)
- Surface Water Abstractions (linear)

5.6 Groundwater abstractions

Records within 2000m	34

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

Features are displayed on the Abstractions and Source Protection Zones map on **page 77 >**

ID	Location	Details	
A	**On site**	**Status: Historical** **Licence No: 2569006001** **Details: General Cooling (Existing Licences Only) (Low Loss)** **Direct Source: Ground Water - North West Region** **Point: "BOREHOLE AT PREMISES, BROADIE ST, ARDWICK, MANCHESTER"** **Data Type: Point** **Name: MOSELEY RUBBER CO LTD** **Easting: 385240** **Northing: 397540**	**Annual Volume (m^3): -** **Max Daily Volume (m^3): -** **Original Application No: -** **Original Start Date: 08/02/1966** **Expiry Date: -** **Issue No: 100** **Version Start Date: 08/02/1966** **Version End Date: -**
A	**On site**	**Status: Historical** **Licence No: 2569006001** **Details: General Cooling (Existing Licences Only) (Low Loss)** **Direct Source: Ground Water - North West Region** **Point: BOREHOLE AT PREMISES, BROADIE ST, ARDWICK, MANCHESTER** **Data Type: Point** **Name: MOSELEY RUBBER CO LTD** **Easting: 385240** **Northing: 397540**	**Annual Volume (m^3): 331858** **Max Daily Volume (m^3): 909.2** **Original Application No: -** **Original Start Date: 08/02/1966** **Expiry Date: -** **Issue No: 100** **Version Start Date: 08/02/1966** **Version End Date: -**
-	762m W	Status: Historical Licence No: NW0690006001 Details: Non-Evaporative Cooling Direct Source: Ground Water - North West Region Point: BOREHOLES AT ORIGIN DEVELOPMENTS, MANCHESTER Data Type: Point Name: West Contracting Easting: 384378 Northing: 397733	Annual Volume (m^3): 139128 Max Daily Volume (m^3): 1010 Original Application No: - Original Start Date: 19/01/2009 Expiry Date: 31/03/2015 Issue No: 1 Version Start Date: 19/01/2009 Version End Date: -
-	762m W	Status: Historical Licence No: NW/069/0006/001 Details: Non-Evaporative Cooling Direct Source: Ground Water - North West Region Point: BOREHOLES AT ORIGIN DEVELOPMENTS, MANCHESTER Data Type: Point Name: West Contracting Easting: 384378 Northing: 397733	Annual Volume (m^3): 139128 Max Daily Volume (m^3): 1010 Original Application No: - Original Start Date: 19/01/2009 Expiry Date: 31/03/2015 Issue No: 1 Version Start Date: 19/01/2009 Version End Date: -

ID	Location	Details	
-	811m SE	Status: Historical Licence No: NW/069/0004/005 Details: Heat Pump Direct Source: Ground Water - North West Region Point: AREA OF ABSTRACTION - LOWER CARBONIFEROUS LIMESTONE Data Type: Poly4 Name: G T Energy UK Limited Easting: 385729 Northing: 396778	Annual Volume (m^3): 2049840 Max Daily Volume (m^3): 8640 Original Application No: - Original Start Date: 17/01/2013 Expiry Date: 16/01/2037 Issue No: 2 Version Start Date: 11/06/2013 Version End Date: -
-	1000m W	Status: Active Licence No: NW/069/0006/003 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE 1 AT LOWER CHATHAM STREET Data Type: Point Name: Manchester Metropolitan University Easting: 384180 Northing: 397091	Annual Volume (m^3): 283240 Max Daily Volume (m^3): 1532 Original Application No: NPS/WR/015264 Original Start Date: 04/04/2014 Expiry Date: 31/03/2027 Issue No: 2 Version Start Date: 04/04/2014 Version End Date: -
-	1000m W	Status: Active Licence No: NW/069/0006/003 Details: Heat Pump Direct Source: Ground Water - North West Region Point: BOREHOLE 1 AT LOWER CHATHAM STREET Data Type: Point Name: Manchester Metropolitan University Easting: 384180 Northing: 397091	Annual Volume (m^3): 283240 Max Daily Volume (m^3): 1532 Original Application No: NPS/WR/015264 Original Start Date: 04/04/2014 Expiry Date: 31/03/2027 Issue No: 2 Version Start Date: 04/04/2014 Version End Date: -
-	1118m NW	Status: Historical Licence No: 2569007069 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Ground Water - North West Region Point: "BOREHOLE AT GEORGE ST, MANCHESTER" Data Type: Point Name: BRITISH TELECOM Easting: 384100 Northing: 398000	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 27/01/1971 Expiry Date: - Issue No: 100 Version Start Date: 27/01/1971 Version End Date: -

ID	Location	Details	
-	1118m NW	Status: Historical Licence No: 2569007069 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT GEORGE ST, MANCHESTER Data Type: Point Name: BRITISH TELECOMMUNICATIONS PLC Easting: 384100 Northing: 398000	Annual Volume (m^3): 1100 Max Daily Volume (m^3): 860 Original Application No: - Original Start Date: 01/04/1984 Expiry Date: - Issue No: 100 Version Start Date: 01/04/2007 Version End Date: -
-	1567m SW	Status: Active Licence No: NW/069/0004/003 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT MANCHESTER METROPOLITAN UNIVERSITY Data Type: Point Name: Manchester Metropolitan University Easting: 383715 Northing: 396746	Annual Volume (m^3): 274115 Max Daily Volume (m^3): 751 Original Application No: NPS/WR/008077 Original Start Date: 20/09/2013 Expiry Date: 31/03/2027 Issue No: 1 Version Start Date: 01/01/2015 Version End Date: -
-	1567m SW	Status: Active Licence No: NW/069/0004/003 Details: Heat Pump Direct Source: Ground Water - North West Region Point: BOREHOLE AT MANCHESTER METROPOLITAN UNIVERSITY Data Type: Point Name: Manchester Metropolitan University Easting: 383715 Northing: 396746	Annual Volume (m^3): 274115 Max Daily Volume (m^3): 751 Original Application No: NPS/WR/008077 Original Start Date: 20/09/2013 Expiry Date: 31/03/2027 Issue No: 1 Version Start Date: 01/01/2015 Version End Date: -
-	1839m NW	Status: Active Licence No: 2569007070 Details: General Cooling (Existing Licences Only) (High Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT DIAL HOUSE CHAPEL STREET SALFORD Data Type: Point Name: BRITISH TELECOMMUNICATIONS PLC Easting: 383700 Northing: 398700	Annual Volume (m^3): 45 Max Daily Volume (m^3): 30 Original Application No: 2333 Original Start Date: 27/01/1971 Expiry Date: - Issue No: 101 Version Start Date: 01/04/2007 Version End Date: -

ID	Location	Details	
-	1839m NW	Status: Historical Licence No: 2569007070 Details: General Cooling (Existing Licences Only) (High Loss) Direct Source: Ground Water - North West Region Point: "BOREHOLE AT DIAL HOUSE, CHAPEL ST, SALFORD" Data Type: Point Name: BRITISH TELECOM Easting: 383700 Northing: 398700	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 27/01/1971 Expiry Date: - Issue No: 100 Version Start Date: 27/01/1971 Version End Date: -
-	1839m NW	Status: Historical Licence No: 2569007070 Details: General Cooling (Existing Licences Only) (High Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT DIAL HOUSE, CHAPEL ST, SALFORD Data Type: Point Name: BRITISH TELECOMMUNICATIONS PLC Easting: 383700 Northing: 398700	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 27/01/1971 Expiry Date: - Issue No: 101 Version Start Date: 01/04/1984 Version End Date: -
-	1897m W	Status: Historical Licence No: NW/069/0006/010 Details: Dewatering Direct Source: Ground Water - North West Region Point: BOREHOLE PW9 CHESTER FORMATION AT CROWN STREET Data Type: Point Name: Renaker Build Ltd Easting: 383223 Northing: 397253	Annual Volume (m^3): 260172 Max Daily Volume (m^3): 712.8 Original Application No: NPS/WR/034474 Original Start Date: 24/09/2021 Expiry Date: 31/03/2023 Issue No: 1 Version Start Date: 24/09/2021 Version End Date: -
-	1900m W	Status: Historical Licence No: NW/069/0006/010 Details: Dewatering Direct Source: Ground Water - North West Region Point: BOREHOLE PW8 CHESTER FORMATION AT CROWN STREET Data Type: Point Name: Renaker Build Ltd Easting: 383224 Northing: 397225	Annual Volume (m^3): 260172 Max Daily Volume (m^3): 712.8 Original Application No: NPS/WR/034474 Original Start Date: 24/09/2021 Expiry Date: 31/03/2023 Issue No: 1 Version Start Date: 24/09/2021 Version End Date: -

ID	Location	Details	
-	1907m W	Status: Historical Licence No: NW/069/0006/010 Details: Dewatering Direct Source: Ground Water - North West Region Point: BOREHOLE PW10 CHESTER FORMATION AT CROWN STREET Data Type: Point Name: Renaker Build Ltd Easting: 383211 Northing: 397276	Annual Volume (m^3): 260172 Max Daily Volume (m^3): 712.8 Original Application No: NPS/WR/034474 Original Start Date: 24/09/2021 Expiry Date: 31/03/2023 Issue No: 1 Version Start Date: 24/09/2021 Version End Date: -
-	1912m W	Status: Historical Licence No: NW/069/0006/010 Details: Dewatering Direct Source: Ground Water - North West Region Point: BOREHOLE PW11 CHESTER FORMATION AT CROWN STREET Data Type: Point Name: Renaker Build Ltd Easting: 383204 Northing: 397298	Annual Volume (m^3): 260172 Max Daily Volume (m^3): 712.8 Original Application No: NPS/WR/034474 Original Start Date: 24/09/2021 Expiry Date: 31/03/2023 Issue No: 1 Version Start Date: 24/09/2021 Version End Date: -
-	1930m W	Status: Historical Licence No: NW/069/0006/010 Details: Dewatering Direct Source: Ground Water - North West Region Point: BOREHOLE PW5 CHESTER FORMATION AT CROWN STREET Data Type: Point Name: Renaker Build Ltd Easting: 383193 Northing: 397230	Annual Volume (m^3): 260172 Max Daily Volume (m^3): 712.8 Original Application No: NPS/WR/034474 Original Start Date: 24/09/2021 Expiry Date: 31/03/2023 Issue No: 1 Version Start Date: 24/09/2021 Version End Date: -
-	1935m W	Status: Historical Licence No: 2569007089 Details: Non-Evaporative Cooling Direct Source: Ground Water - North West Region Point: 2 BOREHOLES AT GARTSIDE STREET MANCHESTER Data Type: Line Name: HER MAJESTY'S COURT SERVICE Easting: 383335 Northing: 398310	Annual Volume (m^3): 200000 Max Daily Volume (m^3): 1179 Original Application No: - Original Start Date: 26/01/2005 Expiry Date: 31/03/2011 Issue No: 2 Version Start Date: 10/07/2008 Version End Date: -

ID	Location	Details	
-	1937m W	Status: Active Licence No: NW/069/0004/021 Details: Heat Pump Direct Source: Ground Water - North West Region Point: CHESTER FORMATION AT SCIENCE MUSEUM (A) Data Type: Point Name: Science Museum Group Easting: 383198 Northing: 397829	Annual Volume (m^3): 346000 Max Daily Volume (m^3): 1728 Original Application No: NPS/WR/035329 Original Start Date: 31/03/2023 Expiry Date: 31/03/2024 Issue No: 1 Version Start Date: 31/03/2023 Version End Date: -
-	1942m W	Status: Historical Licence No: NW/069/0006/010 Details: Dewatering Direct Source: Ground Water - North West Region Point: BOREHOLE PW7 CHESTER FORMATION AT CROWN STREET Data Type: Point Name: Renaker Build Ltd Easting: 383184 Northing: 397203	Annual Volume (m^3): 260172 Max Daily Volume (m^3): 712.8 Original Application No: NPS/WR/034474 Original Start Date: 24/09/2021 Expiry Date: 31/03/2023 Issue No: 1 Version Start Date: 24/09/2021 Version End Date: -
-	1947m W	Status: Historical Licence No: NW/069/0006/010 Details: Dewatering Direct Source: Ground Water - North West Region Point: BOREHOLE PW6 CHESTER FORMATION AT CROWN STREET Data Type: Point Name: Renaker Build Ltd Easting: 383171 Northing: 397275	Annual Volume (m^3): 260172 Max Daily Volume (m^3): 712.8 Original Application No: NPS/WR/034474 Original Start Date: 24/09/2021 Expiry Date: 31/03/2023 Issue No: 1 Version Start Date: 24/09/2021 Version End Date: -
-	1966m W	Status: Historical Licence No: NW/069/0006/010 Details: Dewatering Direct Source: Ground Water - North West Region Point: BOREHOLE PW4 CHESTER FORMATION AT CROWN STREET Data Type: Point Name: Renaker Build Ltd Easting: 383159 Northing: 397210	Annual Volume (m^3): 260172 Max Daily Volume (m^3): 712.8 Original Application No: NPS/WR/034474 Original Start Date: 24/09/2021 Expiry Date: 31/03/2023 Issue No: 1 Version Start Date: 24/09/2021 Version End Date: -

ID	Location	Details	
-	1975m SW	Status: Historical Licence No: 2569007007 Details: Process water Direct Source: Ground Water - North West Region Point: "BOREHOLE AT PREMISES, MOSS SIDE, MANCHESTER" Data Type: Point Name: SCOTTISH COURAGE BREWING LTD Easting: 383900 Northing: 395900	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 15/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 16/08/1995 Version End Date: -
-	1975m SW	Status: Historical Licence No: 2569007007 Details: General Cooling (Existing Licences Only) (High Loss) Direct Source: Ground Water - North West Region Point: "BOREHOLE AT PREMISES, MOSS SIDE, MANCHESTER" Data Type: Point Name: SCOTTISH COURAGE BREWING LTD Easting: 383900 Northing: 395900	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 15/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 16/08/1995 Version End Date: -
-	1975m SW	Status: Historical Licence No: 2569007007 Details: General Cooling (Existing Licences Only) (High Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT PREMISES, MOSS SIDE, MANCHESTER Data Type: Point Name: SCOTTISH COURAGE BREWING LTD Easting: 383900 Northing: 395900	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 15/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 31/12/2003 Version End Date: -
-	1975m SW	Status: Historical Licence No: 2569007007 Details: Process water Direct Source: Ground Water - North West Region Point: BOREHOLE AT PREMISES, MOSS SIDE, MANCHESTER Data Type: Point Name: SCOTTISH COURAGE BREWING LTD Easting: 383900 Northing: 395900	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 15/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 31/12/2003 Version End Date: -

ID	Location	Details	
-	1975m SW	Status: Historical Licence No: 2569007007 Details: General Cooling (Existing Licences Only) (High Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT PREMISES MOSS SIDE MANCHESTER Data Type: Point Name: Heineken UK Ltd Easting: 383900 Northing: 395900	Annual Volume (m^3): 227000 Max Daily Volume (m^3): 900 Original Application No: - Original Start Date: 15/02/1966 Expiry Date: - Issue No: 102 Version Start Date: 23/11/2009 Version End Date: -
-	1975m SW	Status: Historical Licence No: 2569007007 Details: Process Water Direct Source: Ground Water - North West Region Point: BOREHOLE AT PREMISES MOSS SIDE MANCHESTER Data Type: Point Name: Heineken UK Ltd Easting: 383900 Northing: 395900	Annual Volume (m^3): 227000 Max Daily Volume (m^3): 900 Original Application No: - Original Start Date: 15/02/1966 Expiry Date: - Issue No: 102 Version Start Date: 23/11/2009 Version End Date: -
-	1984m W	Status: Historical Licence No: NW/069/0006/010 Details: Dewatering Direct Source: Ground Water - North West Region Point: BOREHOLE PW3 CHESTER FORMATION AT CROWN STREET Data Type: Point Name: Renaker Build Ltd Easting: 383140 Northing: 397217	Annual Volume (m^3): 260172 Max Daily Volume (m^3): 712.8 Original Application No: NPS/WR/034474 Original Start Date: 24/09/2021 Expiry Date: 31/03/2023 Issue No: 1 Version Start Date: 24/09/2021 Version End Date: -
-	1990m SW	Status: Active Licence No: 2569007007 Details: General Cooling (Existing Licences Only) (High Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT PREMISES MOSS SIDE MANCHESTER Data Type: Point Name: Heineken UK Ltd Easting: 383865 Northing: 395909	Annual Volume (m^3): 227000 Max Daily Volume (m^3): 900 Original Application No: NPS/WR/015793 Original Start Date: 15/02/1966 Expiry Date: - Issue No: 103 Version Start Date: 08/05/2014 Version End Date: -

ID	Location	Details	
-	1990m SW	Status: Active Licence No: 2569007007 Details: Process Water Direct Source: Ground Water - North West Region Point: BOREHOLE AT PREMISES MOSS SIDE MANCHESTER Data Type: Point Name: Heineken UK Ltd Easting: 383865 Northing: 395909	Annual Volume (m^3): 227000 Max Daily Volume (m^3): 900 Original Application No: NPS/WR/015793 Original Start Date: 15/02/1966 Expiry Date: - Issue No: 103 Version Start Date: 08/05/2014 Version End Date: -
-	1994m W	Status: Active Licence No: NW/069/0004/021 Details: Heat Pump Direct Source: Ground Water - North West Region Point: CHESTER FORMATION AT SCIENCE MUSEUM (B) Data Type: Point Name: Science Museum Group Easting: 383143 Northing: 397845	Annual Volume (m^3): 346000 Max Daily Volume (m^3): 1728 Original Application No: NPS/WR/035329 Original Start Date: 31/03/2023 Expiry Date: 31/03/2024 Issue No: 1 Version Start Date: 31/03/2023 Version End Date: -

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

5.7 Surface water abstractions

Records within 2000m	**0**

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

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

5.8 Potable abstractions

Records within 2000m	**0**

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

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

5.9 Source Protection Zones

Records within 500m	0

Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination.

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

5.10 Source Protection Zones (confined aquifer)

Records within 500m	0

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

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

6 Hydrology



© Crown copyright and database rights 2023. Ordnance Survey licence 100035207

Site Outline

Search buffers in metres (m)

Water Network (OS MasterMap)

Surface water features (wider than 5m)

Surface water features (narrower than 5m)

WFD River, canal and surface water transfer water bodies

WFD Lake water bodies

WFD Transitional and coastal water bodies

WFD Surface water body catchments boundaries

WFD Groundwater body boundaries

6.1 Water Network (OS MasterMap)

Records within 250m **4**

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

Features are displayed on the Hydrology map on **page 88 >**

ID	Location	Type of water feature	Ground level	Permanence	Name
4	17m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	River Medlock

ID	Location	Type of water feature	Ground level	Permanence	Name
6	30m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	River Medlock
A	154m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	River Medlock
10	248m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	River Medlock

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m	**4**

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

Features are displayed on the Hydrology map on **page 88 >**

This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site	**1**

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

Features are displayed on the Hydrology map on **page 88 >**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
1	**On site**	**River**	**Medlock (Lumb Brook to Irwell)**	**GB112069061152**	**Roch Irk Medlock**	**Irwell**

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

6.4 WFD Surface water bodies

Records identified	1

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

Features are displayed on the Hydrology map on **page 88 >**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
5	18m N	River	Medlock (Lumb Brook to Irwell)	GB112069061152 ↗	Moderate	Fail	Moderate	2019

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

6.5 WFD Groundwater bodies

Records on site	1

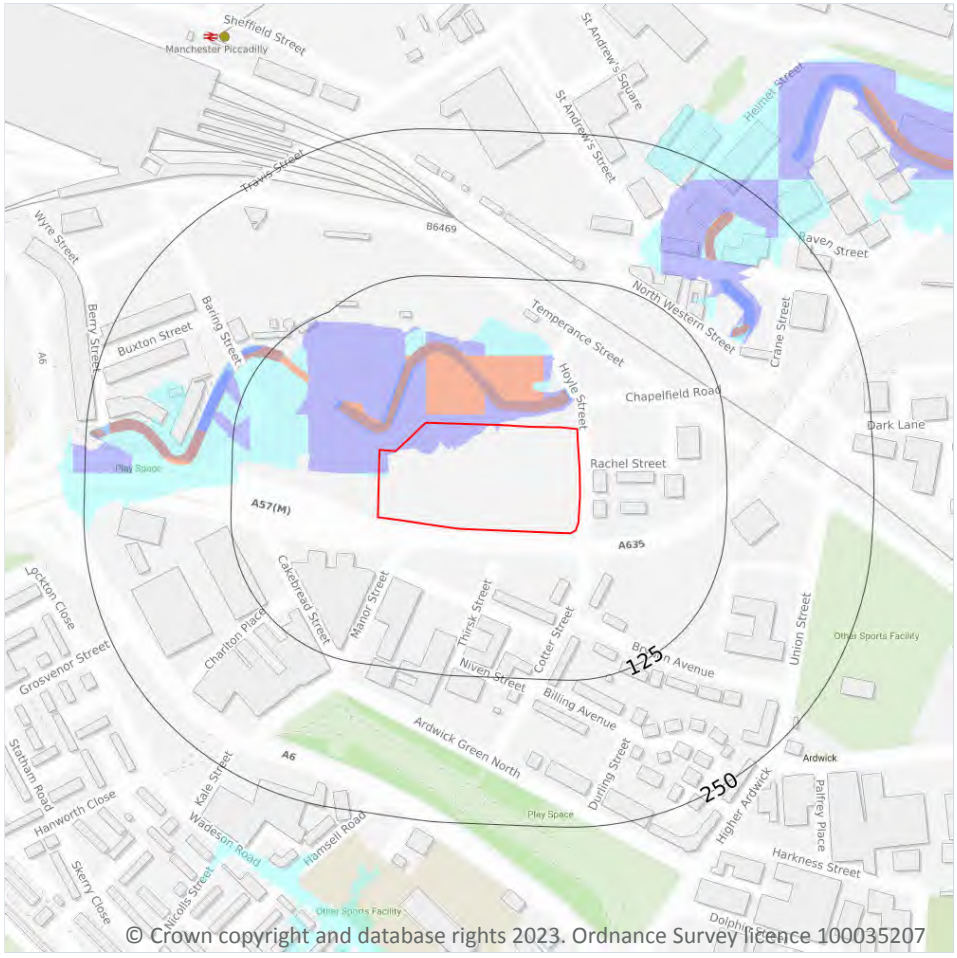
Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each groundwater body listed.

Features are displayed on the Hydrology map on **page 88 >**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
2	**On site**	**Manchester and East Cheshire Permo-Triassic Sandstone Aquifers**	**GB41201G101100 ↗**	**Poor**	**Poor**	**Poor**	**2019**

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

7 River and coastal flooding



Site Outline

Search buffers in metres (m)

River and coastal flooding:

- High
- Medium
- Low
- Very Low
- Historical Flood Events
- Areas Used for Flood Storage
- Areas Benefiting from Flood Defences
- Flood Defences

7.1 Risk of flooding from rivers and the sea

Records within 50m	13

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

Features are displayed on the River and coastal flooding map on **page 91 >**

Distance	Flood risk category
On site	**Medium**
0 - 50m	High

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

7.2 Historical Flood Events

Records within 250m	**0**

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

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

7.3 Flood Defences

Records within 250m	**0**

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

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

7.4 Areas Benefiting from Flood Defences

Records within 250m	**0**

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

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

7.5 Flood Storage Areas

Records within 250m	**0**

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

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

River and coastal flooding - Flood Zones



Site Outline

Search buffers in metres (m)

Flood zone 2

Flood zone 3

7.6 Flood Zone 2

Records within 50m	1

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

Features are displayed on the River and coastal flooding map on **page 91 >**

Location	Type
On site	**Zone 2 - (Fluvial /Tidal Models)**

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

7.7 Flood Zone 3

Records within 50m	1

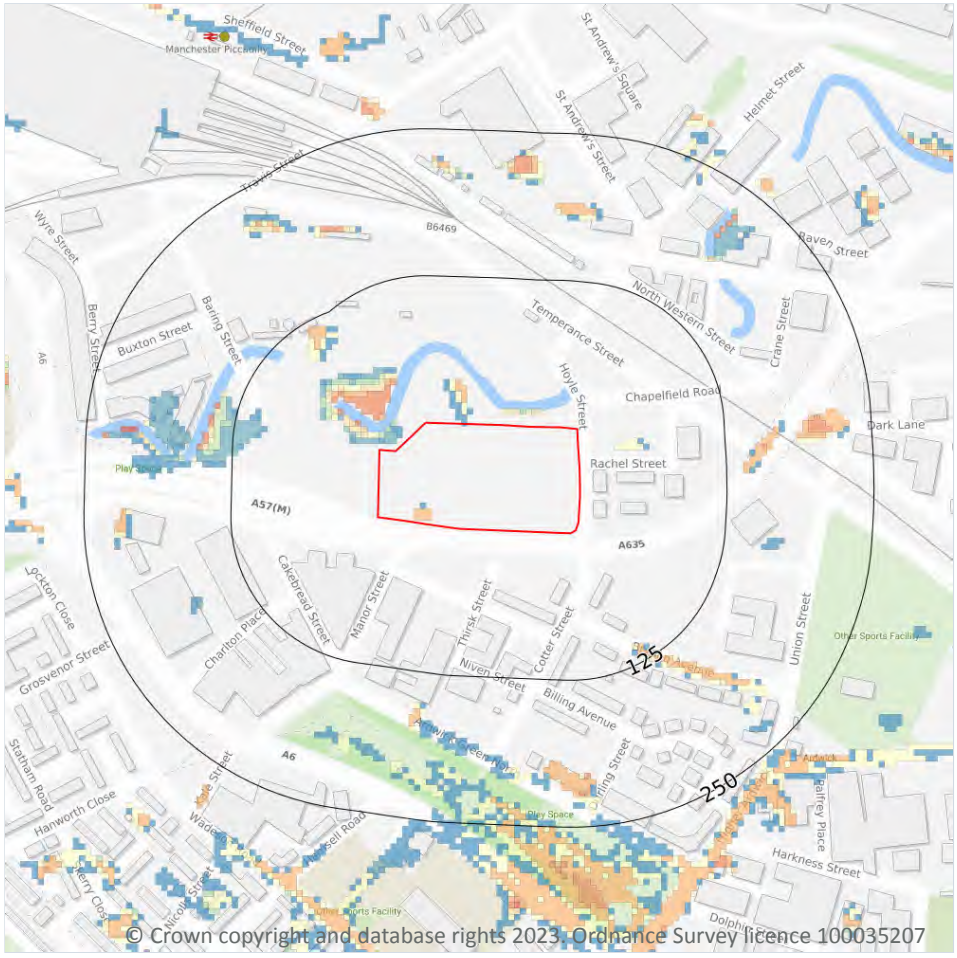
Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land with a 1 in 100 (1%) or greater chance of flooding each year from rivers or a 1 in 200 (0.5%) or greater chance of flooding each year from the sea.

Features are displayed on the River and coastal flooding map on **page 91 >**

Location	Type
On site	**Zone 3 - (Fluvial Models)**

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

8 Surface water flooding



Site Outline

Search buffers in metres (m)

1 in 1000 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 250 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 100 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 30 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

8.1 Surface water flooding

Highest risk on site	**1 in 30 year, 0.1m - 0.3m**
Highest risk within 50m	**1 in 30 year, 0.3m - 1.0m**

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

Features are displayed on the Surface water flooding map on **page 95 >**

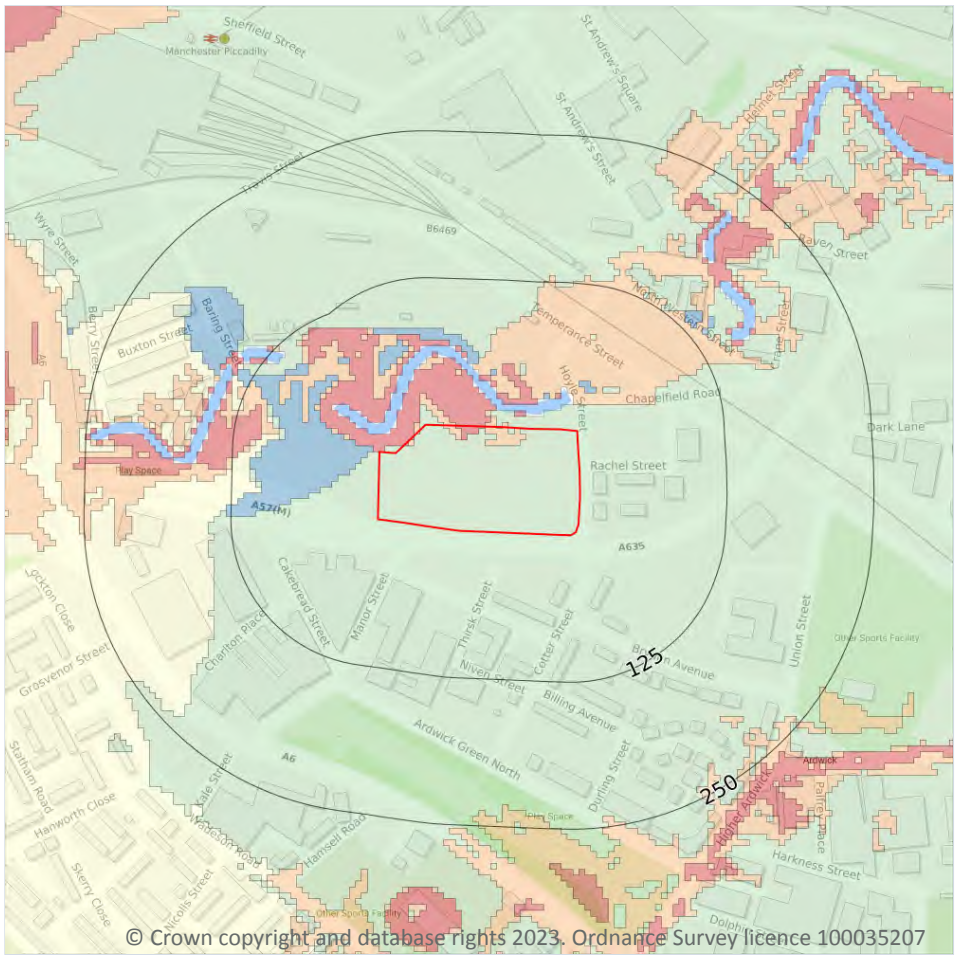
The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.

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

Return period	Maximum modelled depth
1 in 1000 year	Between 0.1m and 0.3m
1 in 250 year	Between 0.1m and 0.3m
1 in 100 year	Between 0.1m and 0.3m
1 in 30 year	Between 0.1m and 0.3m

This data is sourced from Ambiental Risk Analytics.

9 Groundwater flooding



Site Outline

Search buffers in metres (m)

- High
- Moderate - High
- Moderate
- Low
- Negligible

9.1 Groundwater flooding

Highest risk on site	**High**
Highest risk within 50m	**High**

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

Features are displayed on the Groundwater flooding map on **page 97 >**

This data is sourced from Ambiental Risk Analytics.

10 Environmental designations

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m	0

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

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

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m	0

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

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

10.3 Special Areas of Conservation (SAC)

Records within 2000m	0

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

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

10.4 Special Protection Areas (SPA)

Records within 2000m	0

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

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

10.5 National Nature Reserves (NNR)

Records within 2000m	0

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

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

10.6 Local Nature Reserves (LNR)

Records within 2000m	0

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

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

10.7 Designated Ancient Woodland

Records within 2000m	0

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

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

10.8 Biosphere Reserves

Records within 2000m	0

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

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

10.9 Forest Parks

Records within 2000m	0

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

This data is sourced from the Forestry Commission.

10.10 Marine Conservation Zones

Records within 2000m	0

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

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

10.11 Green Belt

Records within 2000m	0

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

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

10.12 Proposed Ramsar sites

Records within 2000m	0

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

This data is sourced from Natural England.

10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m	0

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

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

10.14 Potential Special Protection Areas (pSPA)

Records within 2000m	0

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

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m	0

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

This data is sourced from Natural England.

10.16 Nitrate Vulnerable Zones

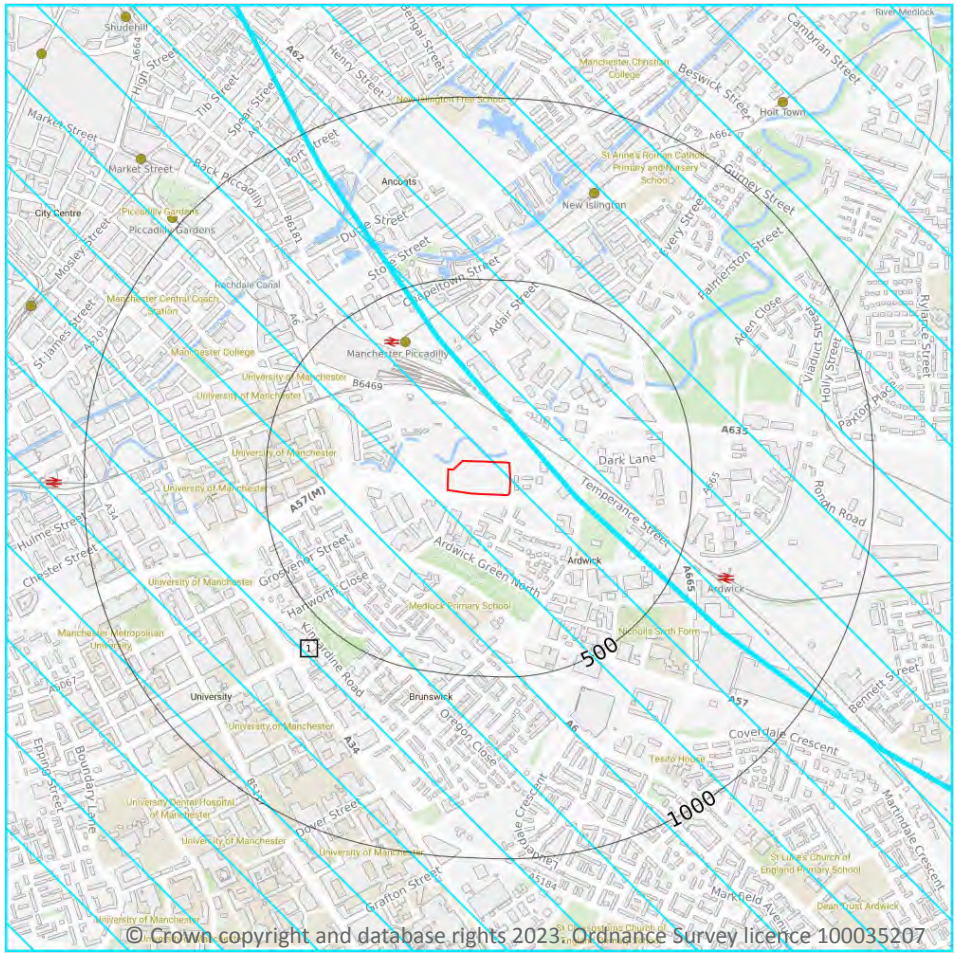
Records within 2000m	3

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

Location	Name	Type	NVZ ID	Status
1104m NW	River Irk (Moston Brook to River Irwell) NVZ	Surface Water	638	Existing
1485m NW	River Irk (Moston Brook to River Irwell) NVZ	Surface Water	638	Existing
1903m NW	Irwell / Man. Ship Canal (Kearsley to Irlam Locks) NVZ	Surface Water	643	Existing

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

SSSI Impact Zones and Units



© Crown copyright and database rights 2023. Ordnance Survey licence 100035207

10.17 SSSI Impact Risk Zones

Records on site	1

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

Features are displayed on the SSSI Impact Zones and Units map on **page 102 >**

ID	Location	Type of developments requiring consultation
1	On site	**Air pollution - Livestock & poultry units with floorspace > 500m², slurry lagoons & digestate stores > 4000m². Combustion - General combustion processes >50MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion**

This data is sourced from Natural England.

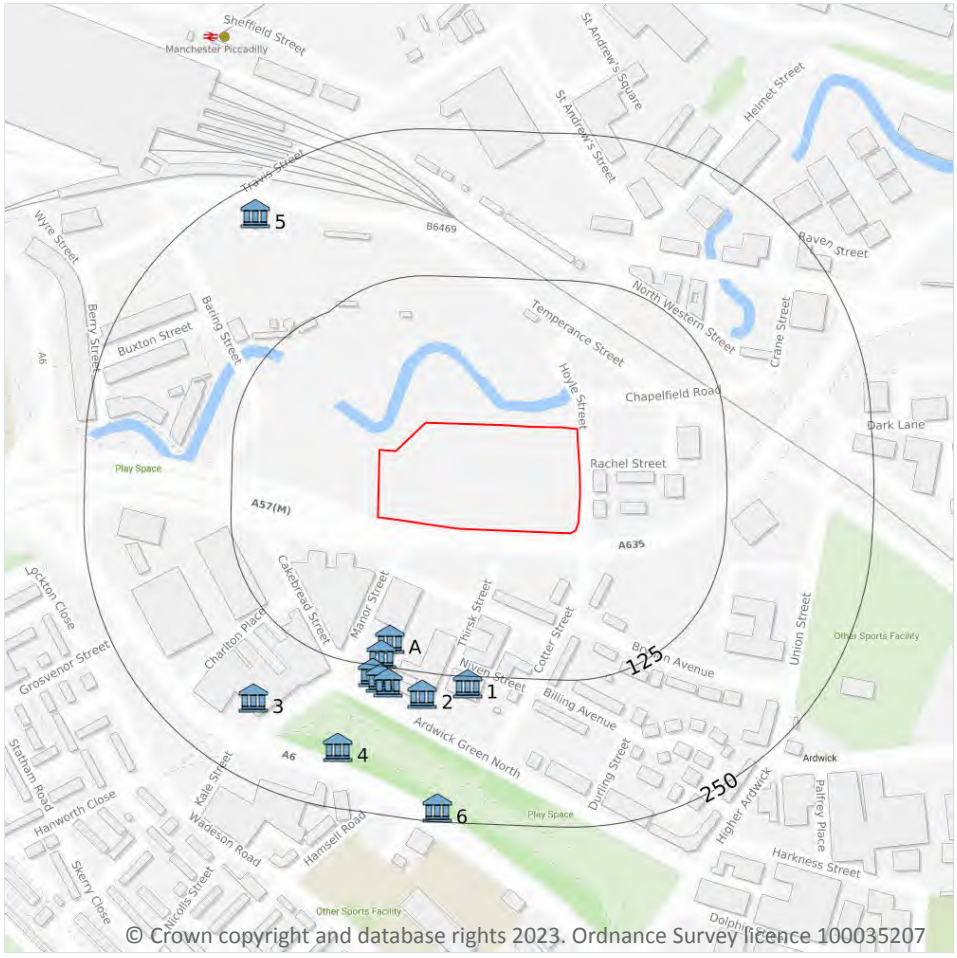
10.18 SSSI Units

Records within 2000m	0

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

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

11 Visual and cultural designations



© Crown copyright and database rights 2023. Ordnance Survey licence 100035207

Site Outline

Search buffers in metres (m)

- Listed buildings
- Conservation areas
- Conservation areas - no data
- National Parks
- Areas of Outstanding Natural Beauty
- Registered parks and gardens
- Scheduled Monuments
- World Heritage Sites

11.1 World Heritage Sites

Records within 250m	0

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

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

11.2 Area of Outstanding Natural Beauty

Records within 250m	0

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

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

11.3 National Parks

Records within 250m	0

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

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

11.4 Listed Buildings

Records within 250m	11

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

Features are displayed on the Visual and cultural designations map on **page 104 >**

ID	Location	Name	Grade	Reference Number	Listed date
A	101m SW	21 And 23, Manor Street	II	1219791	03/10/1974
A	115m SW	25, Manor Street	II	1283018	03/10/1974
1	131m S	Former Church Of St Thomas	II	1197828	03/10/1974
A	131m SW	27, Manor Street	II	1219817	03/10/1974
A	135m SW	27, Ardwick Green North	II	1207536	03/10/1974
A	138m SW	Milford House	II	1283046	03/10/1974

ID	Location	Name	Grade	Reference Number	Listed date
2	144m S	31, Ardwick Green North	II	1207566	06/06/1994
3	187m SW	Drill Hall	II	1207590	03/10/1974
4	199m SW	War Memorial	II	1283047	06/06/1994
5	227m NW	Star And Garter Public House	II	1200827	20/06/1988
6	238m S	Milepost Beside Railings Of Ardwick Park	II	1207607	06/06/1994

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

11.5 Conservation Areas

Records within 250m	0

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

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

11.6 Scheduled Ancient Monuments

Records within 250m	0

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

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

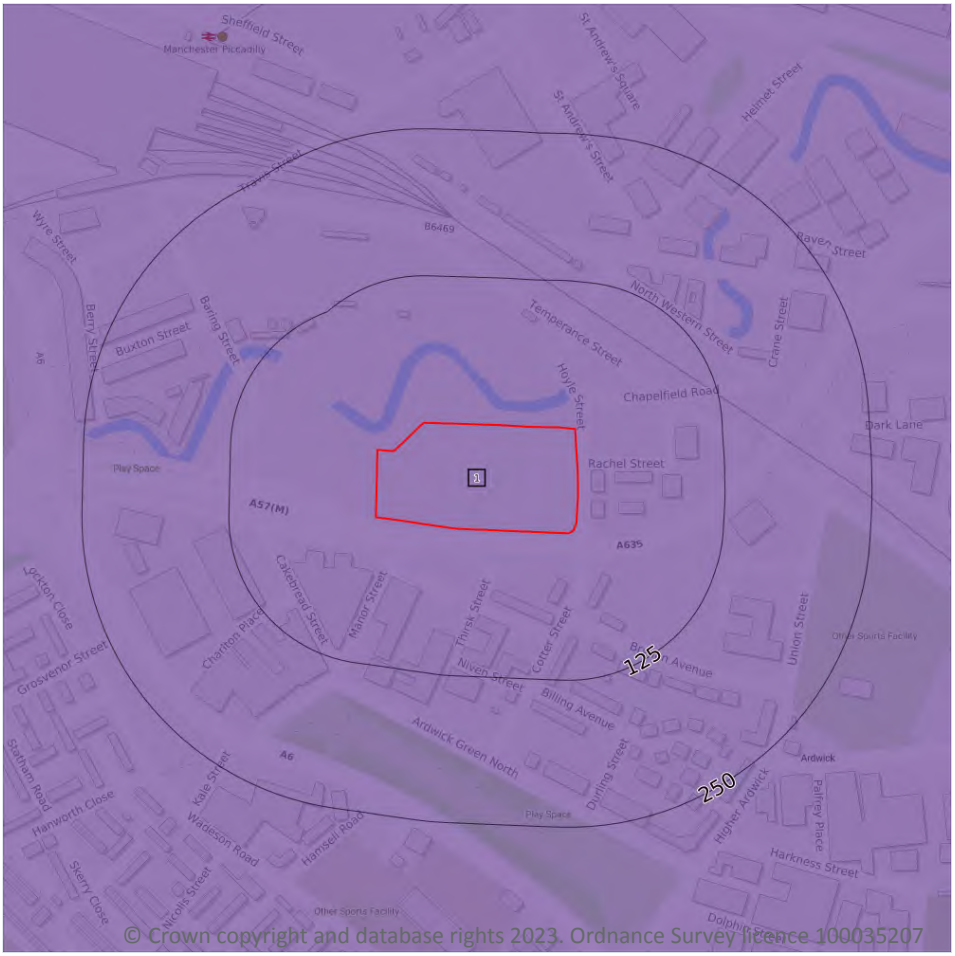
11.7 Registered Parks and Gardens

Records within 250m	0

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

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

12 Agricultural designations



Site Outline

Search buffers in metres (m)

- Grade 1 - excellent quality
- Grade 2 - very good quality
- Grade 3 - good to moderate quality
- Grade 3a - good quality
- Grade 3b - moderate quality
- Grade 4 - poor quality
- Grade 5 - very poor quality
- Non-agricultural land
- Urban land
- Exclusion land
- Tree felling licences
- Open Access land

12.1 Agricultural Land Classification

Records within 250m	1

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

Features are displayed on the Agricultural designations map on **page 107 >**

ID	Location	Classification	Description
1	**On site**	**Urban**	-

This data is sourced from Natural England.

12.2 Open Access Land

Records within 250m	0

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

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

12.3 Tree Felling Licences

Records within 250m	0

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

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m	0

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

This data is sourced from Natural England.

12.5 Countryside Stewardship Schemes

Records within 250m	0

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

This data is sourced from Natural England.

13 Habitat designations



© Crown copyright and database rights 2023. Ordnance Survey licence 100035207

Site Outline

Search buffers in metres (m)

- Priority Habitat Inventory
- Open Mosaic Habitat
- Limestone Pavement Orders

Habitat Networks

- Primary Habitat
- Restorable Habitat
- Associated Habitats
- Habitat Restoration-Creation
- Network Enhancement Zone 1
- Network Enhancement Zone 2

13.1 Priority Habitat Inventory

Records within 250m	1

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

Features are displayed on the Habitat designations map on **page 109 >**

ID	Location	Main Habitat	Other habitats
1	244m S	Deciduous woodland	Main habitat: DWOOD (INV > 50%)

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m	0

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

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m	0

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

This data is sourced from Natural England.

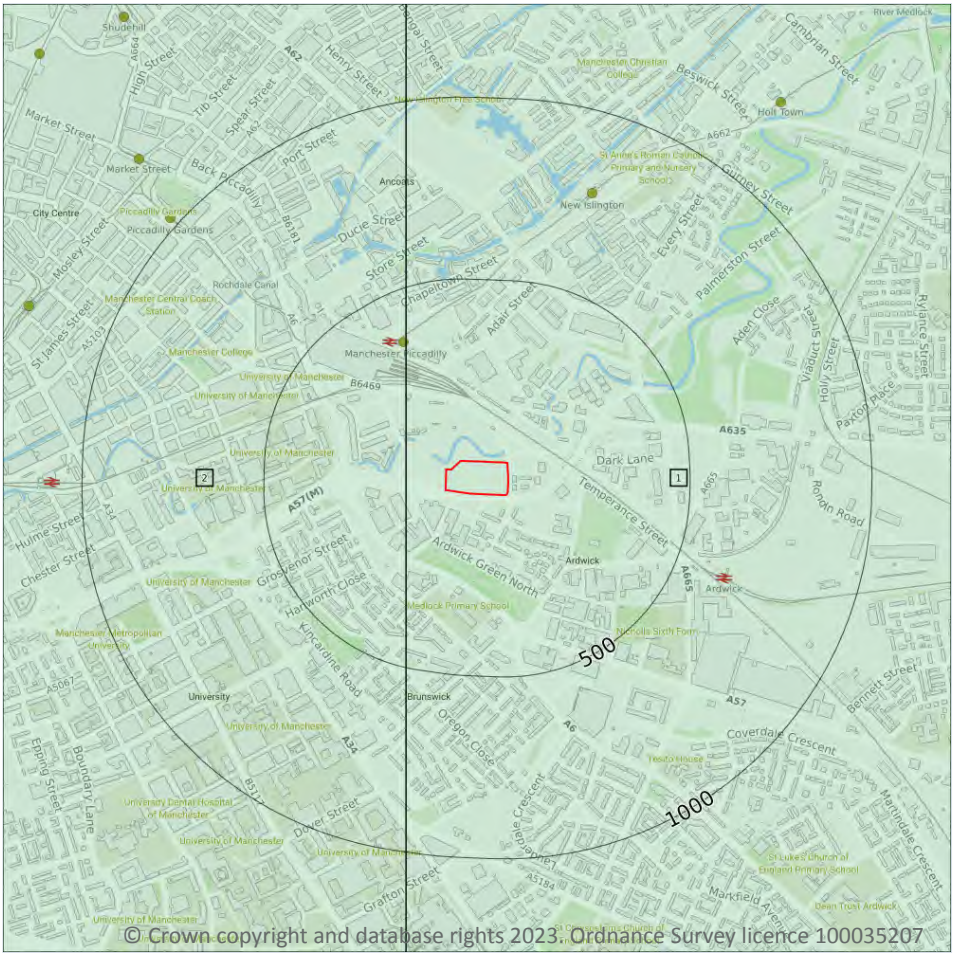
13.4 Limestone Pavement Orders

Records within 250m	0

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

This data is sourced from Natural England.

14 Geology 1:10,000 scale - Availability



Site Outline

Search buffers in metres (m)

Full coverage

Partial coverage

No coverage

14.1 10k Availability

Records within 500m **2**

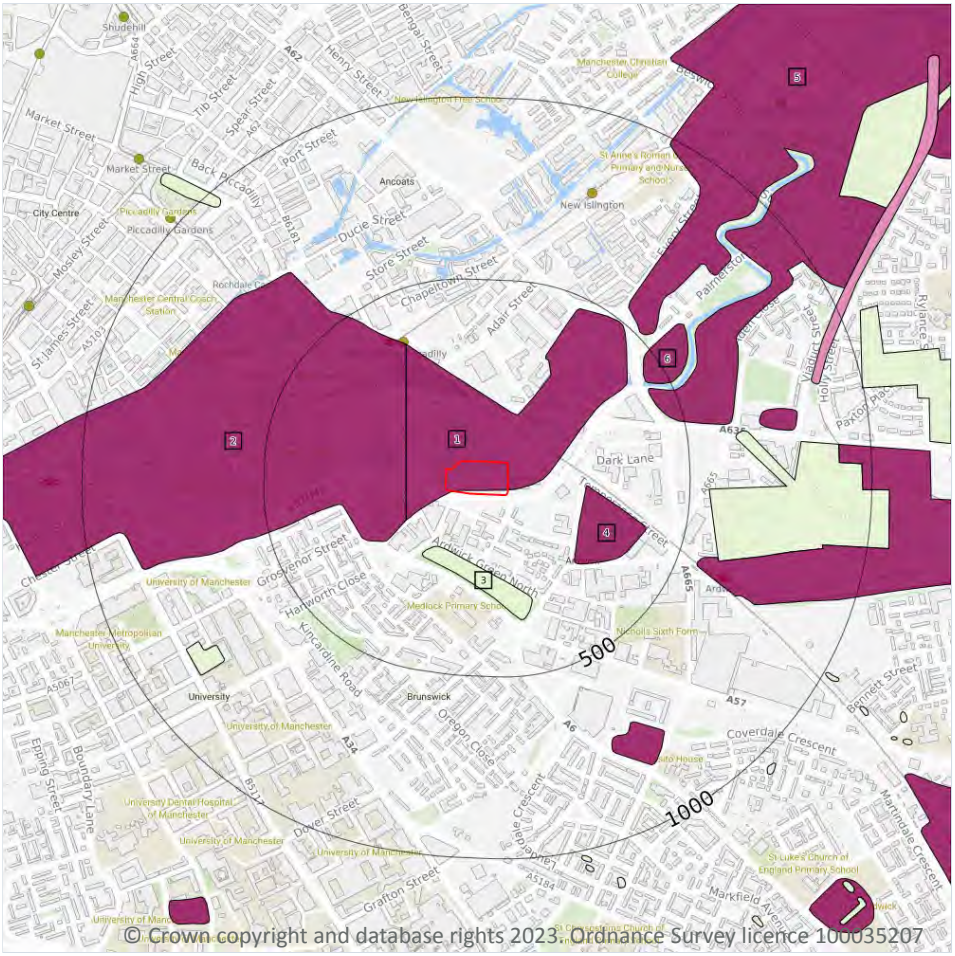
An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 111 >**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**Full**	**SJ89NE**
2	109m W	Full	Full	Full	No coverage	SJ89NW

This data is sourced from the British Geological Survey.

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



14.2 Artificial and made ground (10k)

Records within 500m	6

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

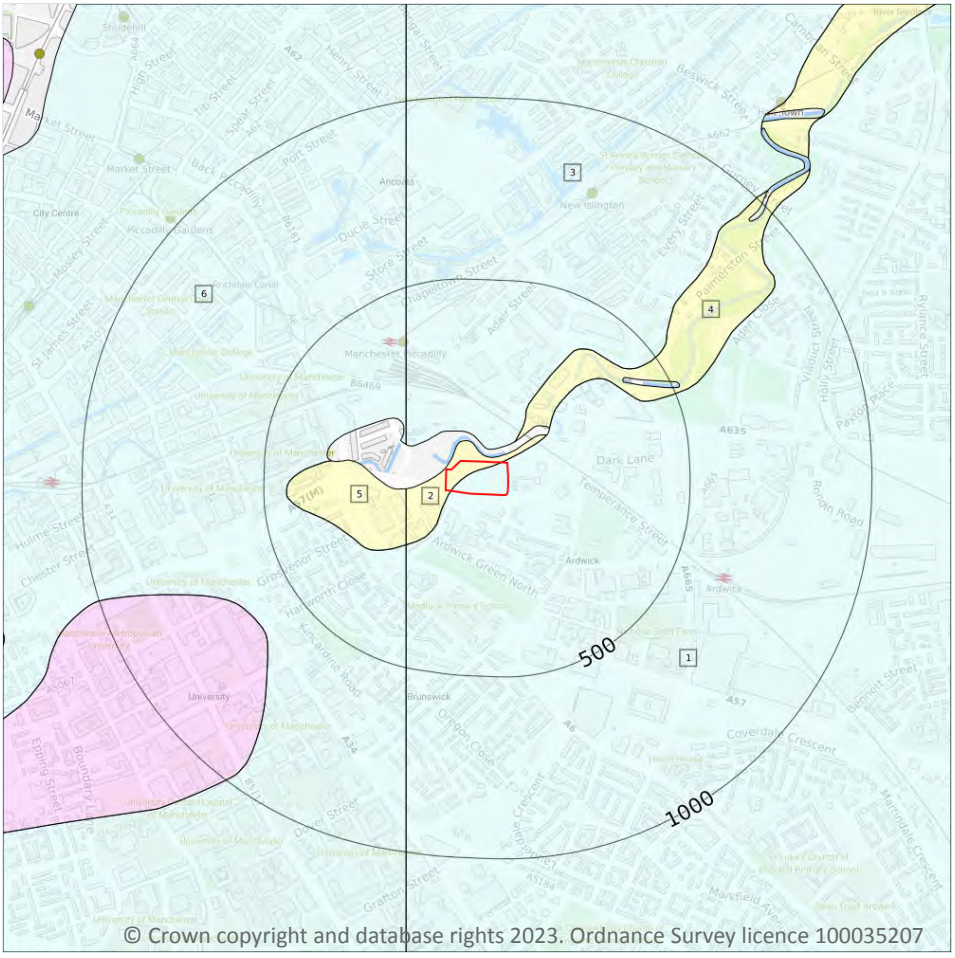
Features are displayed on the Geology 1:10,000 scale - Artificial and made ground map on **page 112 >**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**MGR-ARTDP**	**Made Ground (Undivided)**	**Artificial Deposit**
2	109m W	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
3	156m SW	WMGR-ARTDP	Infilled Ground	Artificial Deposit
4	209m E	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit

ID	Location	LEX Code	Description	Rock description
5	434m NE	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
6	441m NE	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (10k)

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

14.3 Superficial geology (10k)

Records within 500m **6**

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

Features are displayed on the Geology 1:10,000 scale - Superficial map on **page 114 >**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**TILLD-DMTN**	**Till, Devensian - Diamicton**	**Diamicton**
2	**On site**	**ALV-XCZSV**	**Alluvium - Clay, Silt, Sand And Gravel**	**Clay, Silt, Sand And Gravel**
3	35m N	TILLD-DMTN	Till, Devensian - Diamicton	Diamicton

ID	Location	LEX Code	Description	Rock description
4	63m NE	ALV-XCZSV	Alluvium - Clay, Silt, Sand And Gravel	Clay, Silt, Sand And Gravel
5	109m W	ALV-XCZSV	Alluvium - Clay, Silt, Sand And Gravel	Clay, Silt, Sand And Gravel
6	130m NW	TILLD-DMTN	Till, Devensian - Diamicton	Diamicton

This data is sourced from the British Geological Survey.

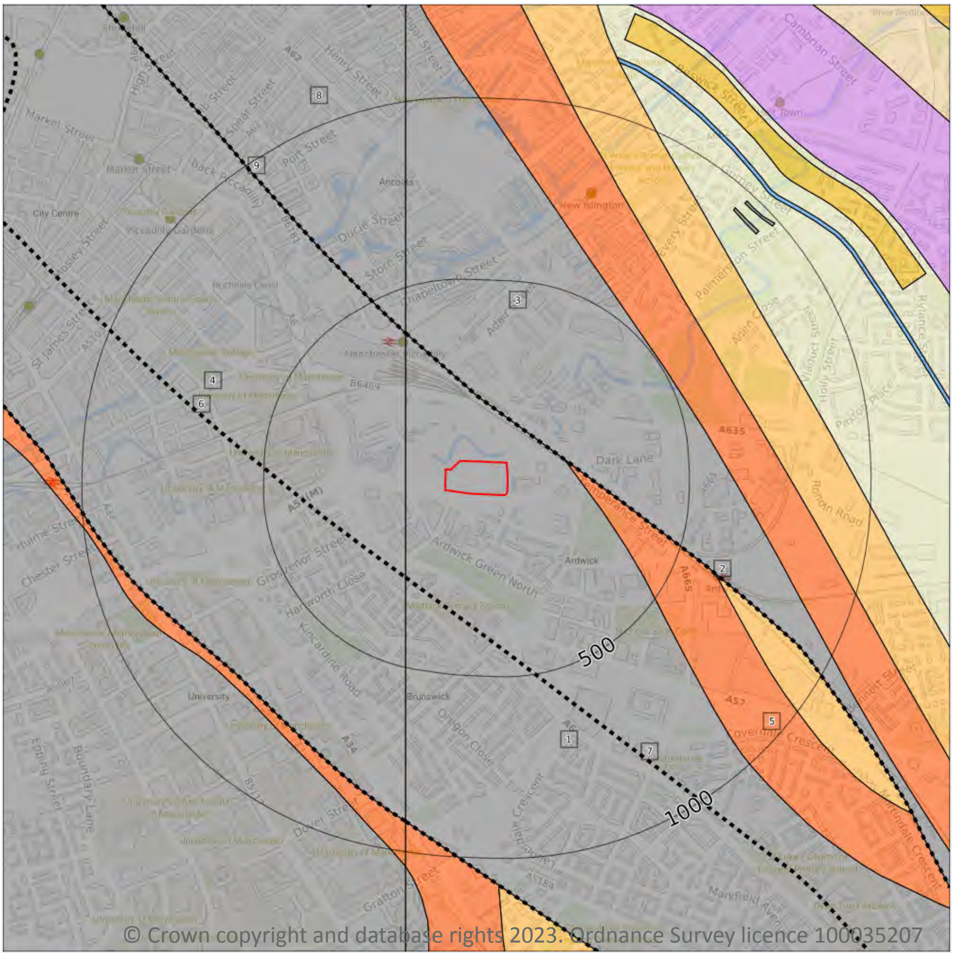
14.4 Landslip (10k)

Records within 500m	**0**

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

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (10k)

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

14.5 Bedrock geology (10k)

Records within 500m	5

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

Features are displayed on the Geology 1:10,000 scale - Bedrock map on page 116 >

ID	Location	LEX Code	Description	Rock age
1	**On site**	**CPB-SDST**	**Chester Pebble Beds Formation - Sandstone**	**Early Triassic Epoch**
3	101m NE	CPB-SDST	Chester Pebble Beds Formation - Sandstone	Early Triassic Epoch
4	109m W	CPB-SDST	Chester Pebble Beds Formation - Sandstone	Early Triassic Epoch

ID	Location	LEX Code	Description	Rock age
5	158m E	MM-MDST	Manchester Marls Formation - Mudstone	Late Permian Epoch [Obsolete name]
8	382m NW	CPB-SDST	Chester Pebble Beds Formation - Sandstone	Early Triassic Epoch

This data is sourced from the British Geological Survey.

14.6 Bedrock faults and other linear features (10k)

Records within 500m	**4**

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

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 116 >**

ID	Location	Category	Description
2	101m NE	FAULT	Normal fault, inferred; crossmarks on downthrow side
6	259m SW	FAULT	Normal fault, inferred; crossmarks on downthrow side
7	264m SW	FAULT	Normal fault, inferred; crossmarks on downthrow side
9	382m NW	FAULT	Normal fault, inferred; crossmarks on downthrow side

This data is sourced from the British Geological Survey.

15 Geology 1:50,000 scale - Availability



© Crown copyright and database rights 2023. Ordnance Survey licence 100035207

Site Outline

Search buffers in metres (m)

Geological map tile

15.1 50k Availability

Records within 500m	1

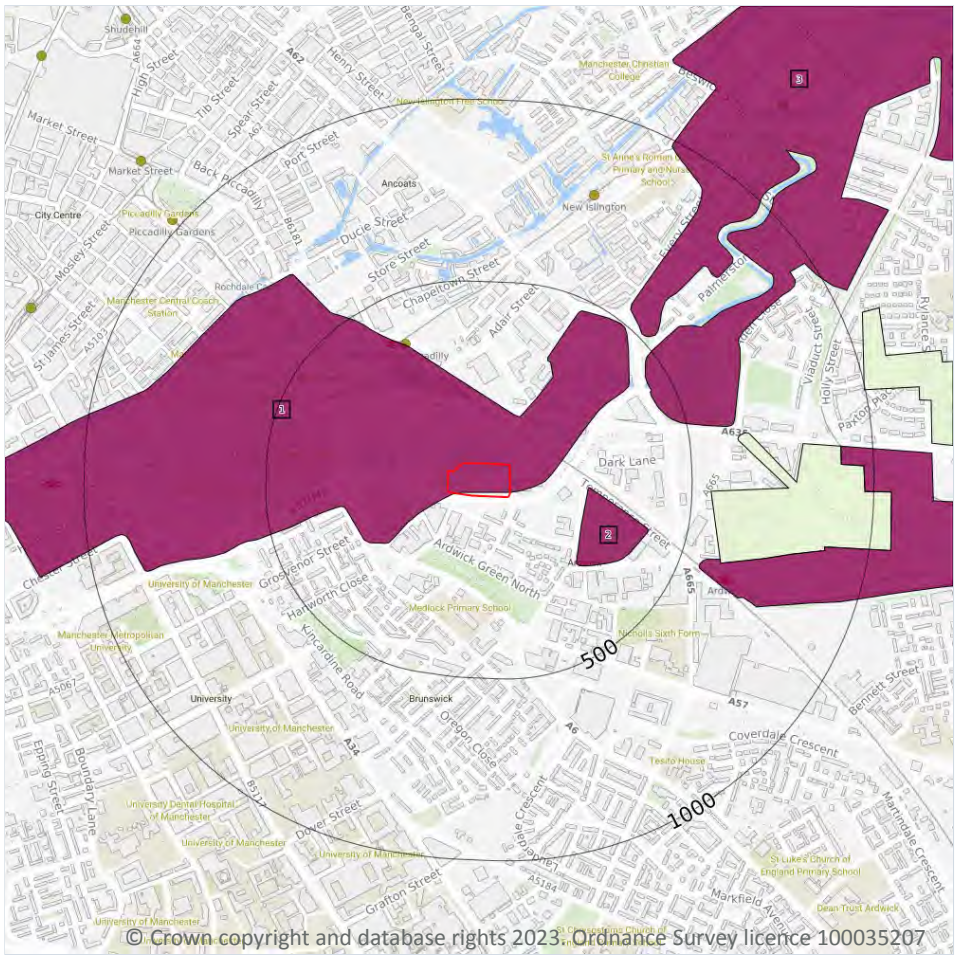
An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:50,000 scale - Availability map on **page 118 >**

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

This data is sourced from the British Geological Survey.

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



15.2 Artificial and made ground (50k)

Records within 500m	3

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

Features are displayed on the Geology 1:50,000 scale - Artificial and made ground map on **page 119 >**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**MGR-ARTDP**	**MADE GROUND (UNDIVIDED)**	**ARTIFICIAL DEPOSIT**
2	209m E	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
3	433m NE	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

This data is sourced from the British Geological Survey.

15.3 Artificial ground permeability (50k)

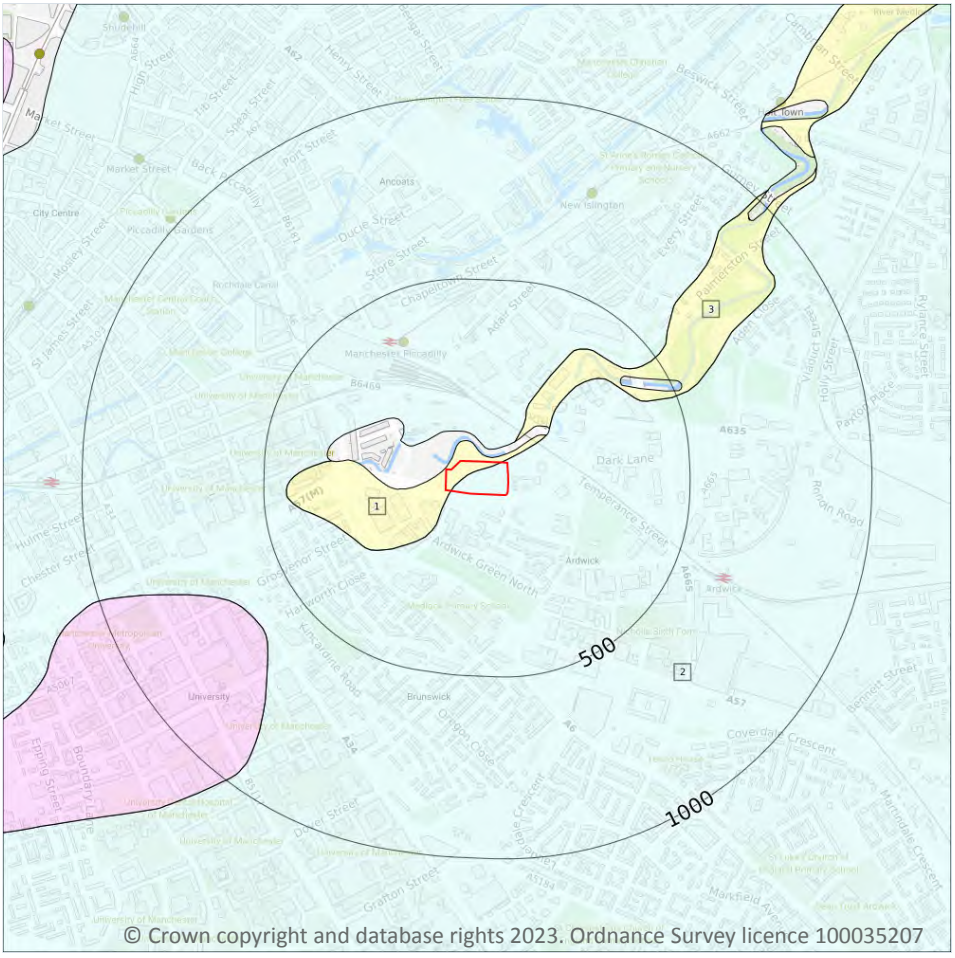
Records within 50m	1

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

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

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (50k)

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

15.4 Superficial geology (50k)

Records within 500m **3**

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

Features are displayed on the Geology 1:50,000 scale - Superficial map on **page 121 >**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**ALV-XCZSV**	**ALLUVIUM**	**CLAY, SILT, SAND AND GRAVEL**
2	**On site**	**TILLD-DMTN**	**TILL, DEVENSIAN**	**DIAMICTON**
3	62m NE	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m	**3**

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

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Intergranular**	**High**	**Very Low**
On site	**Mixed**	**High**	**Low**
35m N	Mixed	High	Low

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m	**0**

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

This data is sourced from the British Geological Survey.

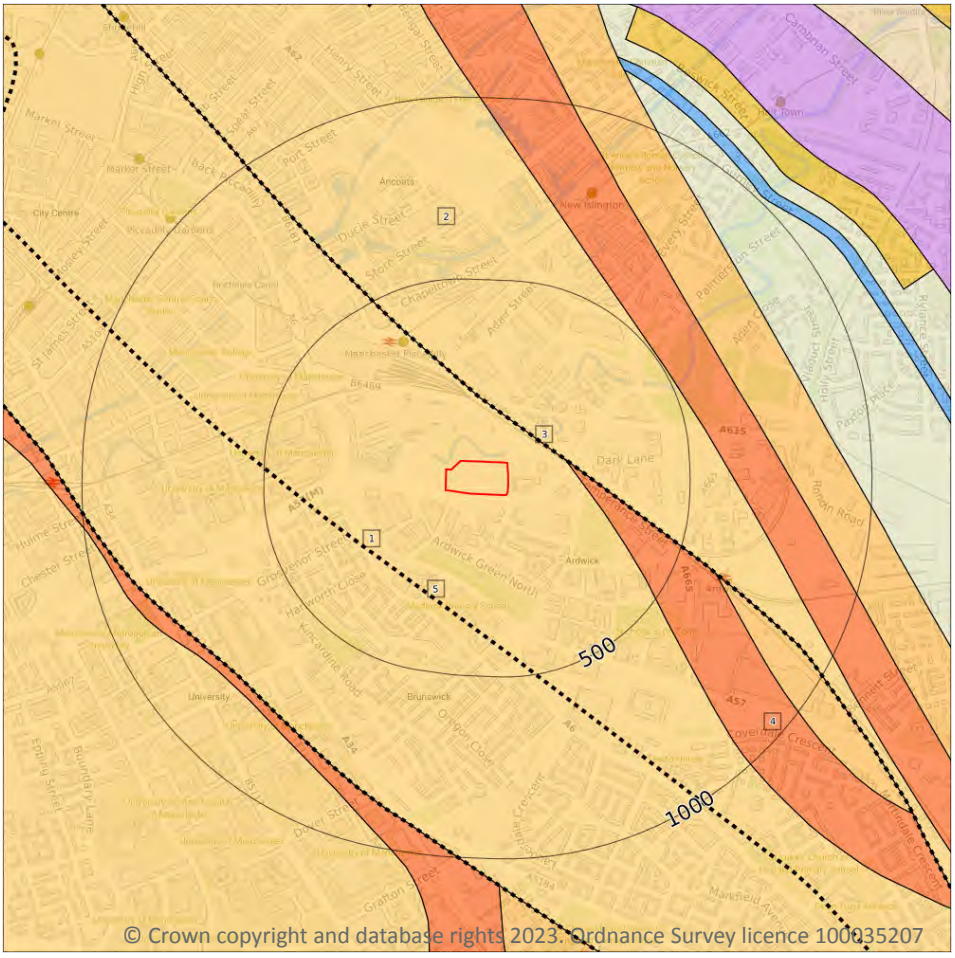
15.7 Landslip permeability (50k)

Records within 50m	**0**

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

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (50k)

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

15.8 Bedrock geology (50k)

Records within 500m **3**

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

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 123 >**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**CHES-SDST**	**CHESTER FORMATION - SANDSTONE**	**OLENEKIAN**
2	101m NE	CHES-SDST	CHESTER FORMATION - SANDSTONE	OLENEKIAN
4	159m E	MM-MDST	MANCHESTER MARLS FORMATION - MUDSTONE	-

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m	**1**

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

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Mixed**	**High**	**Moderate**

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m	**2**

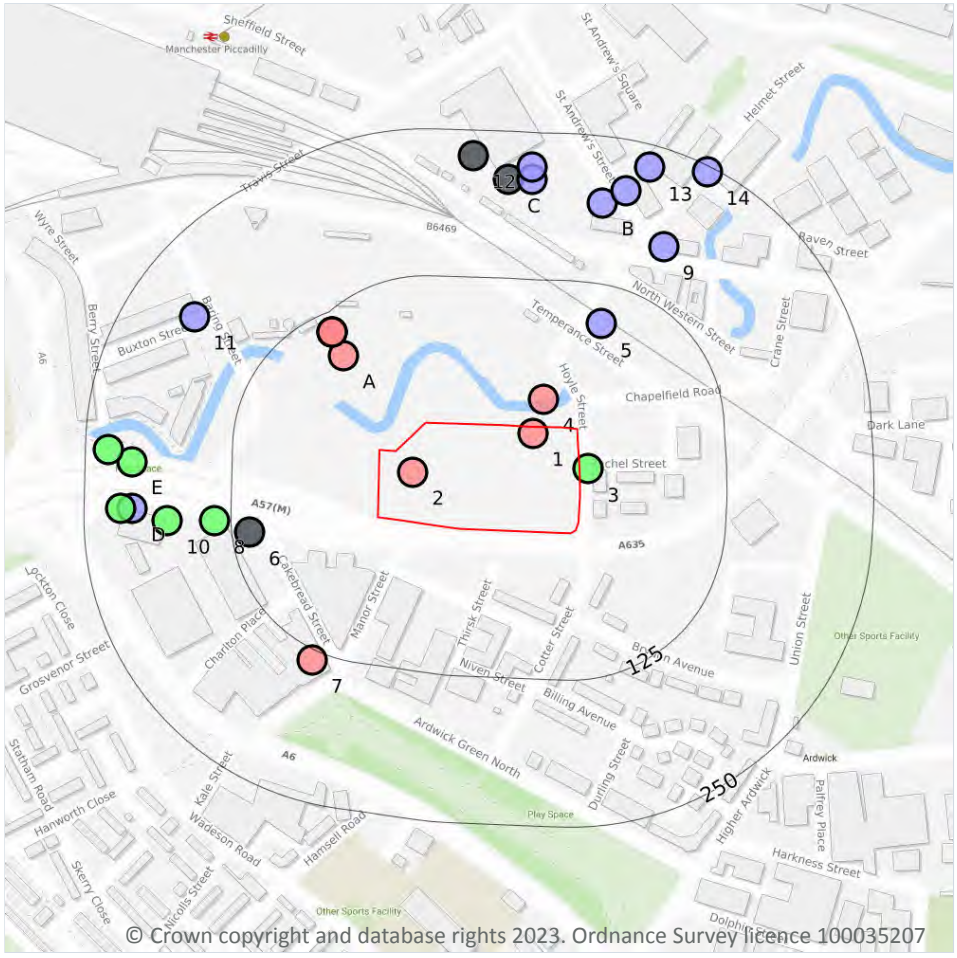
Linear features at the ground or bedrock surface at 1:50,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 123 >**

ID	Location	Category	Description
3	101m NE	FAULT	Fault, inferred
5	258m SW	FAULT	Fault, inferred

This data is sourced from the British Geological Survey.

16 Boreholes



© Crown copyright and database rights 2023. Ordnance Survey licence 100035207

Site Outline

Search buffers in metres (m)

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

16.1 BGS Boreholes

Records within 250m	27

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

Features are displayed on the Boreholes map on **page 125 >**

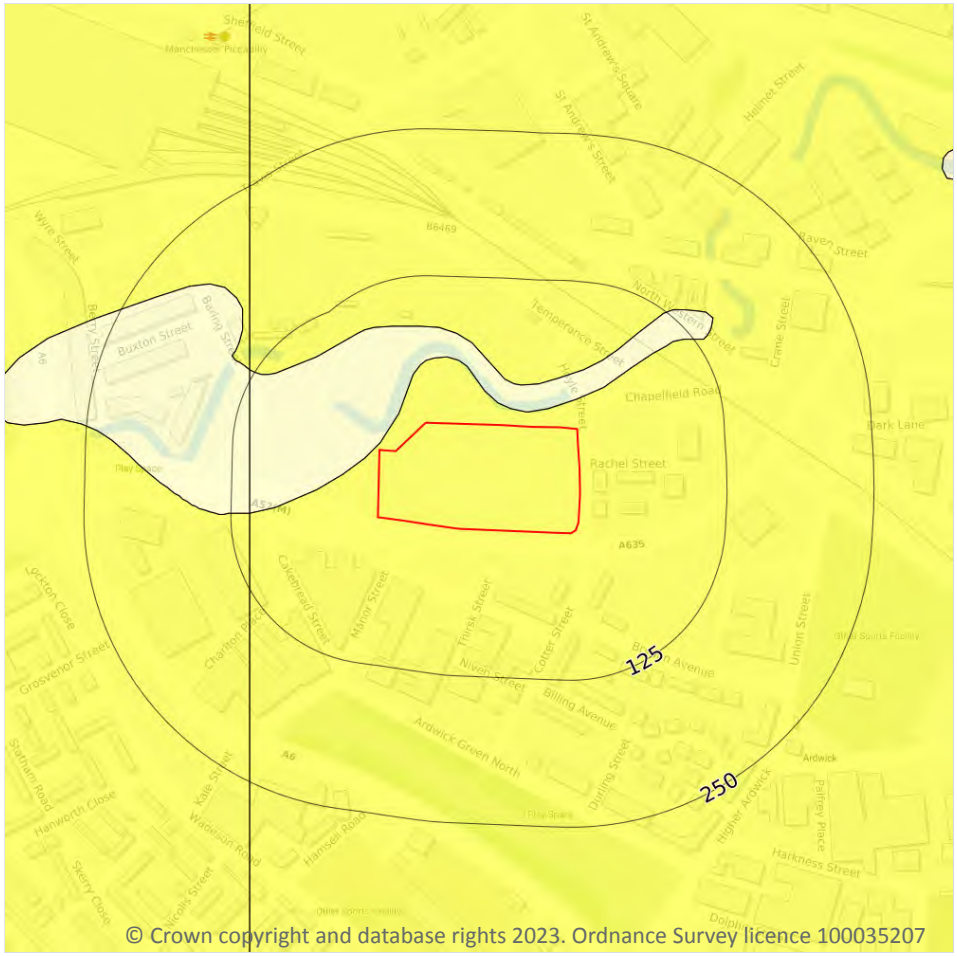
ID	Location	Grid reference	Name	Length	Confidential	Web link
1	On site	385241 397534	BROADIE STREET ANDWICH	152.4	N	936584 ↗
2	On site	385139 397501	MOSELEY & SONS, CHAPELFIELD RUBBER WORKS	141.12	N	936518 ↗

ID	Location	Grid reference	Name	Length	Confidential	Web link
3	7m E	385288 397504	MANCHESTER CORP. NEW YORK STREET	11.58	N	936415 ↗
4	24m NE	385250 397563	DEAKINS BREWERY, BROADIE STREET	149.35	N	936517 ↗
A	86m NW	385080 397600	HOYLE MAYFIELD PRINT WORKS	108.64	N	937808 ↗
5	92m NE	385299 397627	MANCHESTER CORP. TEMPERANCE STREET UNDER RAILWAY	8.23	N	936416 ↗
A	108m NW	385070 397620	HOYLE MAYFIELD PRINT WORKS	73.15	N	937807 ↗
A	108m NW	385070 397620	HOYLE MAYFIELD PRINT WORKS	53.04	N	937806 ↗
A	108m NW	385070 397620	HOYLE MAYFIELD PRINT WORKS	160.27	N	937805 ↗
6	110m W	385000 397450	LOWER MEDLOCK ECSO'S C/1 SITE 0308 525B	-	Y	N/A
7	134m SW	385053 397341	JEWSBURY & BROWNS ANDWICH GREEN	124.05	N	936521 ↗
8	139m W	384970 397460	LOWER MEDLOCK UCSO'S C/1 SITE 0308 525A	25.4	N	1044225 ↗
9	172m NE	385352 397693	MANCHESTER CORP. FAIRFIELD STREET	9.3	N	936417 ↗
10	179m W	384930 397460	LOWER MEDLOCK UCSO'S C/1 SITE 0308 523	25.2	N	1044223 ↗
B	194m NE	385300 397730	MANCHESTER PARCELS OFFICE 7	4.42	N	937001 ↗
11	194m NW	384953 397633	MANCHESTER CORP. L SEWER	7.62	N	1042157 ↗
B	207m NE	385320 397740	MANCHESTER PARCELS OFFICE	4.88	N	937342 ↗
C	209m N	385220 397750	MANCHESTER PARCELS OFFICE 8	-	Y	N/A
D	209m W	384900 397470	LOWER MEDLOCK UCSO'S C/1 SITE 0308 522	1.9	N	1044222 ↗
E	210m W	384900 397510	LOWER MEDLOCK UCSO'S C/1 SITE 0308 520	25.47	N	1044221 ↗
C	210m N	385240 397750	MANCHESTER PARCELS OFFICE 1	7.32	N	936995 ↗
D	219m W	384890 397470	LOWER MEDLOCK UCSO'S C/1 SITE 0308 227	12.0	N	1044220 ↗
C	220m N	385240 397760	MANCHESTER PARCELS OFFICE	7.32	N	937339 ↗
12	228m N	385190 397770	MANCHESTER PARCELS OFFICE 9	-	Y	N/A
E	230m W	384880 397520	LOWER MEDLOCK UCSO'S C/1 SITE 0308 525	12.4	N	1044224 ↗
13	231m NE	385340 397760	MANCHESTER PARCELS OFFICE 4	4.88	N	936998 ↗

ID	Location	Grid reference	Name	Length	Confidential	Web link
14	245m NE	385389 397756	MANCHESTER CORP. HELME STREET	9.45	N	936419 ↗

This data is sourced from the British Geological Survey.

17 Natural ground subsidence - Shrink swell clays



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.1 Shrink swell clays

Records within 50m	2

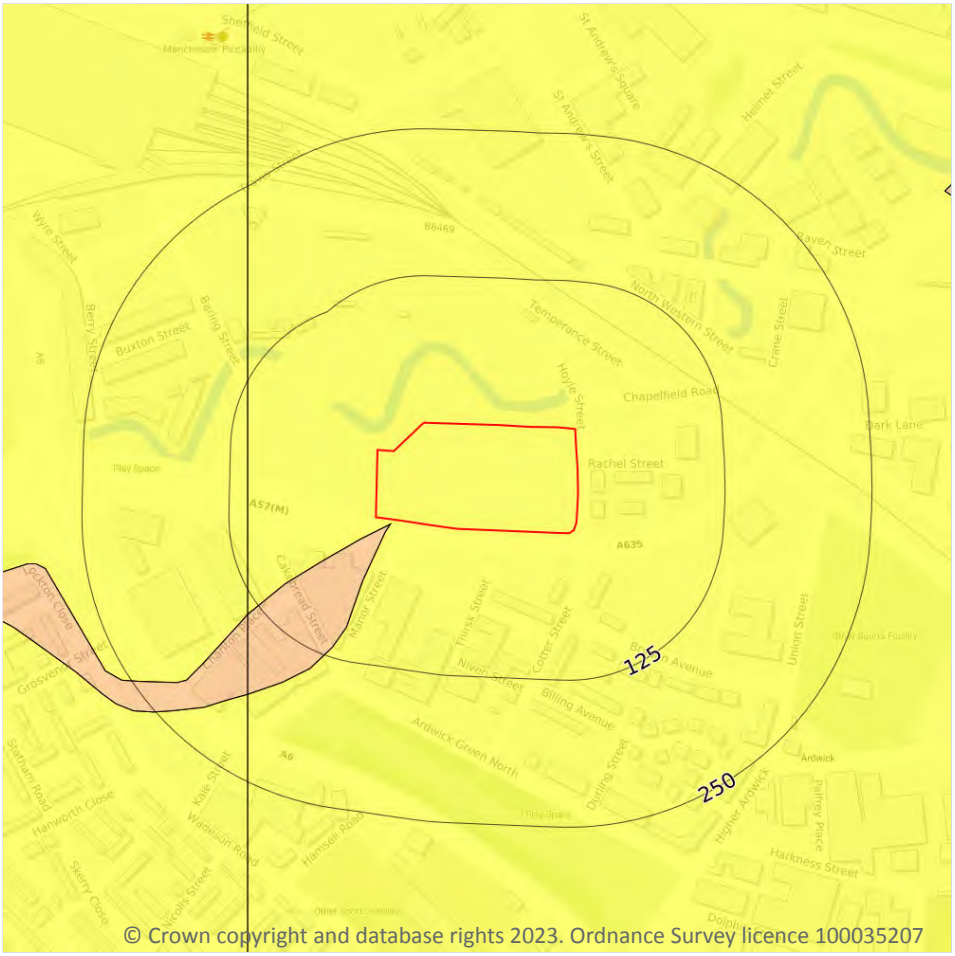
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and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

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 128 >**

Location	Hazard rating	Details
On site	**Very low**	**Ground conditions predominantly low plasticity.**
4m W	Negligible	Ground conditions predominantly non-plastic.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Running sands



© Crown copyright and database rights 2023. Ordnance Survey licence 100035207

17.2 Running sands

Records within 50m	2

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

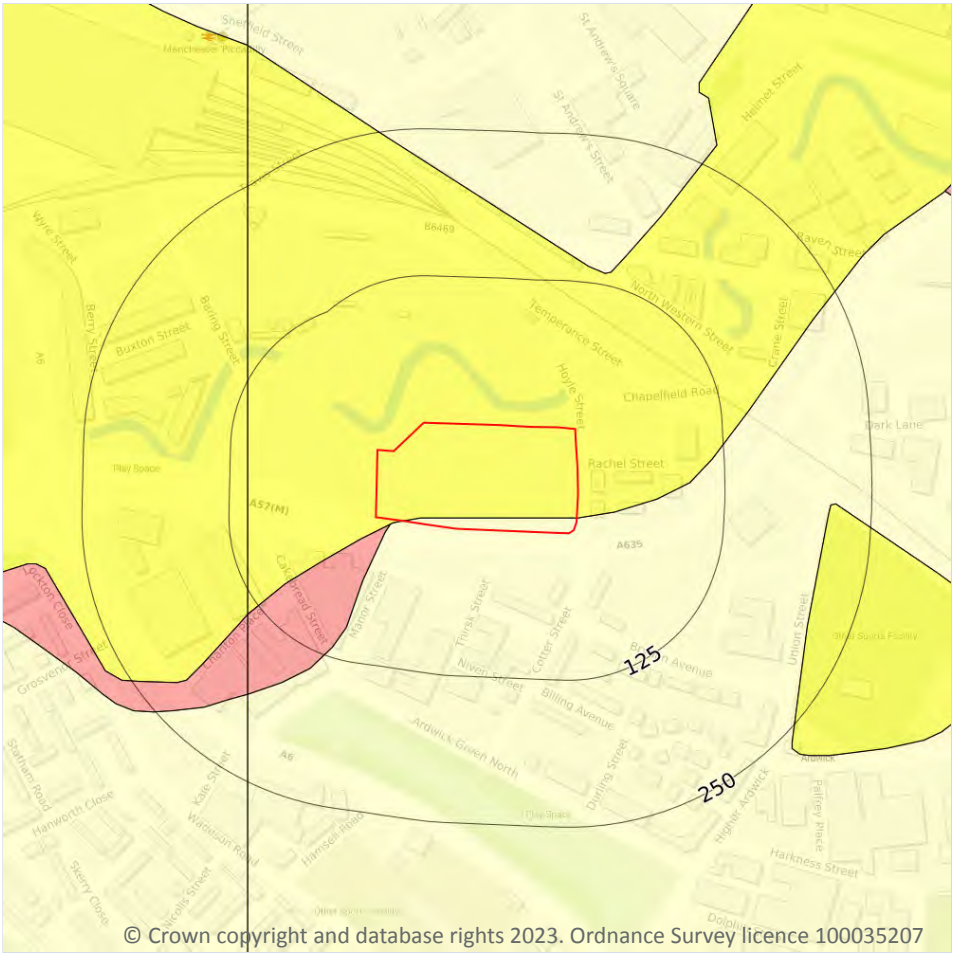
Features are displayed on the Natural ground subsidence - Running sands map on **page 129 >**

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

Location	Hazard rating	Details
4m SW	Low	Running sand conditions may be present. Constraints may apply to land uses involving excavation or the addition or removal of water.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Compressible deposits



17.3 Compressible deposits

Records within 50m	3

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

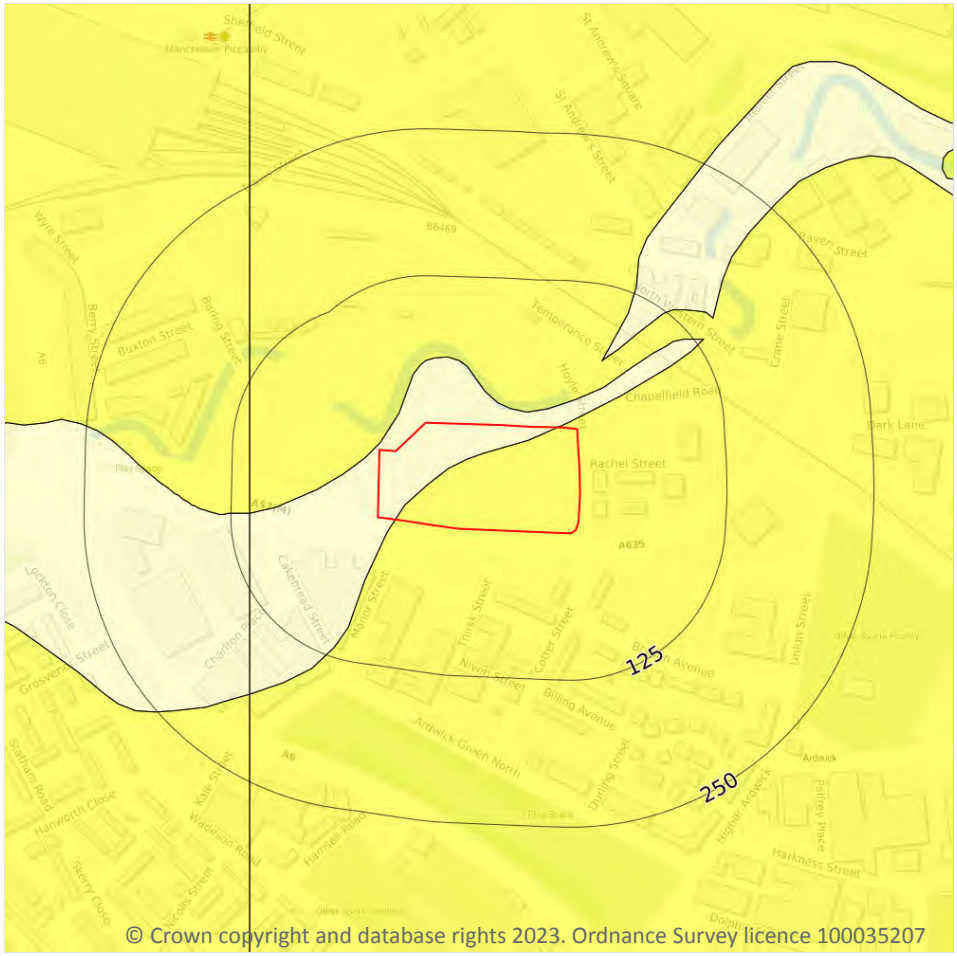
Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 131 >**

Location	Hazard rating	Details
On site	**Negligible**	**Compressible strata are not thought to occur.**
On site	**Very low**	**Compressibility and uneven settlement problems are not likely to be significant on the site for most land uses.**

Location	Hazard rating	Details
4m SW	Moderate	Compressibility and uneven settlement hazards are probably present. Land use should consider specifically the compressibility and variability of the site.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Collapsible deposits



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.4 Collapsible deposits

Records within 50m	2

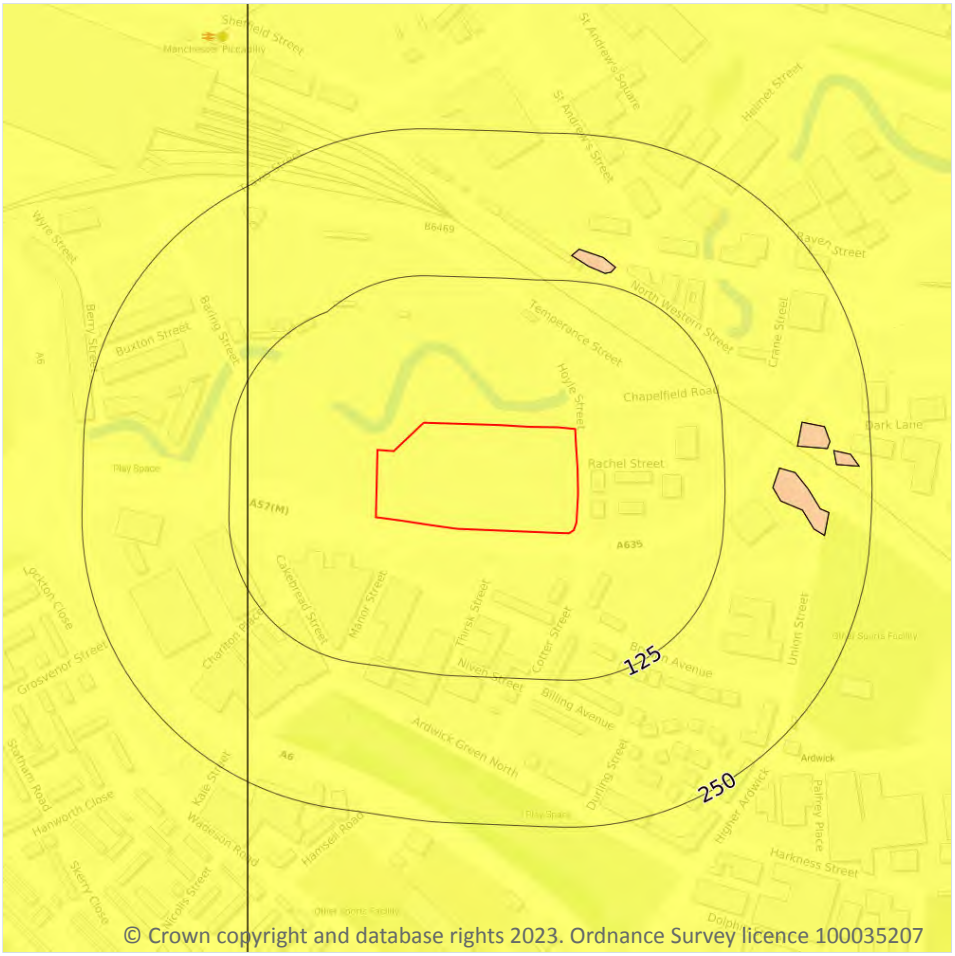
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 133 >**

Location	Hazard rating	Details
On site	**Negligible**	**Deposits with potential to collapse when loaded and saturated are believed not to be present.**
On site	**Very low**	**Deposits with potential to collapse when loaded and saturated are unlikely to be present.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Landslides



© Crown copyright and database rights 2023. Ordnance Survey licence 100035207

17.5 Landslides

Records within 50m	1

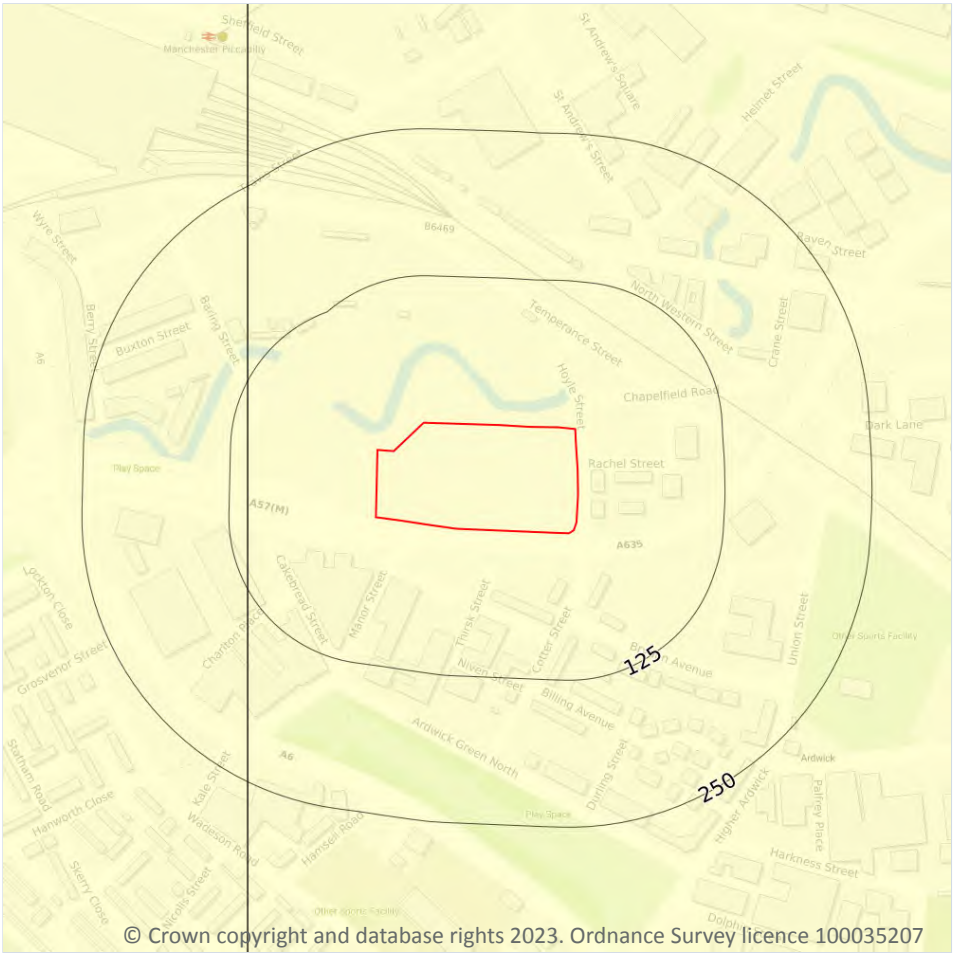
The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

Features are displayed on the Natural ground subsidence - Landslides map on **page 134 >**

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

This data is sourced from the British Geological Survey.

Natural ground subsidence - Ground dissolution of soluble rocks



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.6 Ground dissolution of soluble rocks

Records within 50m	1

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

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 135 >**

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

This data is sourced from the British Geological Survey.

18 Mining and ground workings



18.1 BritPits

Records within 500m	0

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

This data is sourced from the British Geological Survey.

18.2 Surface ground workings

Records within 250m	4

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

Features are displayed on the Mining and ground workings map on **page 137 >**

ID	Location	Land Use	Year of mapping	Mapping scale
1	**On site**	**Pond**	**1851**	**1:10560**
A	81m NW	Ponds	1851	1:10560
A	89m N	Ponds	1890	1:10560
2	164m SW	Pond	1851	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.3 Underground workings

Records within 1000m	0

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

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground mining extents

Records within 500m	0

This data identifies underground mine workings that could present a potential risk, including adits and seam workings. These features have been identified from BGS Geological mapping and mine plans sourced from the BGS and various collections and sources.

This data is sourced from Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m	0

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

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m	2

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

Features are displayed on the Mining and ground workings map on **page 137 >**

ID	Location	Name	Commodity	Class	Likelihood
13	751m NE	Not available	Building stone (zone of influence)	NA	Zone of influence only
-	801m NE	Ardwick	Limestone - Ardwick	D	Underground mining is considered likely to have occurred within or close to the area. The location, extent and nature of mining should be considered in any site investigation. Potential for difficult ground conditions should be considered.

This data is sourced from the British Geological Survey.

18.7 JPB mining areas

Records on site	1

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

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

This data is sourced from Johnson Poole and Bloomer.

18.8 The Coal Authority non-coal mining

Records within 500m	0

This data provides an indication of the potential zone of influence of recorded underground non-coal mining workings. Any and all analysis and interpretation of Coal Authority Data in this report is made by Groundsure, and is in no way supported, endorsed or authorised by the Coal Authority. The use of the data is restricted to the terms and provisions contained in this report. Data reproduced in this report may be the copyright of the Coal Authority and permission should be sought from Groundsure prior to any re-use.

This data is sourced from The Coal Authority.

18.9 Researched mining

Records within 500m	0

This data indicates areas of potential mining identified from alternative or archival sources, including; BGS Geological paper maps, Lidar data, aerial photographs (from World War II onwards), archaeological data services, websites, Tithe maps, and various text/plans from collected books and reports. Some of this data is approximate and Groundsure have interpreted the resultant risk area and, where possible, specific areas of risk have been captured.

This data is sourced from Groundsure.

18.10 Mining record office plans

Records within 500m	0

This dataset is representative of Mining Record Office and/or plan extents held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

This data is sourced from Groundsure.

18.11 BGS mine plans

Records within 500m	0

This dataset is representative of BGS mine plans held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

This data is sourced from Groundsure.

18.12 Coal mining

Records on site	1

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

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

This data is sourced from the Coal Authority.

18.13 Brine areas

Records on site	0

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

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

18.14 Gypsum areas

Records on site	0

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.15 Tin mining

Records on site	0

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

18.16 Clay mining

Records on site	0

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

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

19 Ground cavities and sinkholes



19.1 Natural cavities

Records within 500m	0

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

This data is sourced from Stantec UK Ltd.

19.2 Mining cavities

Records within 1000m	1

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

Features are displayed on the Ground cavities and sinkholes map on **page 142 >**

ID	Location	Mine Address	Mineral	Data source	Publisher
2	419m SW	Manchester, Greater Manchester	Firestone, Freestone, Hearthstone, Honestone, Ragstone, Sandstone, Scythestone, Silver Sand, Whetstone	'Underground Manchester - Secrets of the city revealed'	Willow Publishing

This data is sourced from Stantec UK Ltd.

19.3 Reported recent incidents

Records within 500m	1

This data identifies sinkhole information gathered from media reports and Groundsure's own records. This data goes back to 2014 and includes relative accuracy ratings for each event and links to the original data sources. The data is updated on a regular basis and should not be considered a comprehensive catalogue of all sinkhole events. The absence of data in this database does not mean a sinkhole definitely has not occurred during this time.

Features are displayed on the Ground cavities and sinkholes map on **page 142 >**

ID	Location	Name	Date	Cause	Estimated diameter	Description	Accuracy
1	2m S	Mancunian Way, Ardwick ↗	01/08/2016	Unclassified	12m	Opened in torrential downpours. Possible former culvert collapse.	10m

This data is sourced from Groundsure.

19.4 Historical incidents

Records within 500m	0

This dataset comprises an extract of 1:10,560, 1:10,000, 1:2,500 and 1:1,250 scale historical Ordnance Survey maps held by Groundsure, dating back to the 1840s. It shows shakeholes, deneholes and other 'holes' as noted on these maps. Dene holes are medieval chalk extraction pits, usually comprising a narrow shaft with a number of chambers at the base of the shaft. Shakeholes are an alternative name for suffusion sinkholes, most commonly found in the limestone landscapes of North Yorkshire but also extensively noted around the Brecon Beacons National Park.

Not all 'holes' noted on Ordnance Survey mapping will necessarily be present within this dataset.

This data is sourced from Groundsure.

19.5 National karst database

Records within 500m	0

This is a comprehensive database of national karst information gathered from a wide range of sources. BGS have collected data on five main types of karst feature: Sinkholes, stream links, caves, springs, and incidences of associated damage to buildings, roads, bridges and other engineered works.

Since the database was set up in 2002 data covering most of the evaporite karst areas of the UK have now been added, along with data covering about 60% of the Chalk, and 35% of the Carboniferous Limestone outcrops. Many of the classic upland karst areas have yet to be included. Recorded so far are: Over 800 caves, 1300 stream sinks, 5600 springs, 10,000 sinkholes.

The database is not yet complete, and not all records have been verified. The absence of data does not mean that karst features are not present at a site. A reliability rating is included with each record.

This data is sourced from the British Geological Survey.

20 Radon



20.1 Radon

Records on site	1

The Radon Potential data classifies areas based on their likelihood of a property having a radon level at or above the Action Level in Great Britain. The dataset is intended for use at 1:50,000 scale and was derived from both geological assessments and indoor radon measurements (more than 560,000 records). A minimum 50m buffer should be considered when searching the maps, as the smallest detectable feature at this scale is 50m. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain (1:100,000 scale).

Features are displayed on the Radon map on **page 145 >**

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

This data is sourced from the British Geological Survey and UK Health Security Agency.

21 Soil chemistry

21.1 BGS Estimated Background Soil Chemistry

Records within 50m	2

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

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	**15 - 25 mg/kg**	**No data**	**100 - 200 mg/kg**	**60 - 120 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**30 - 45 mg/kg**
On site	**15 - 25 mg/kg**	**No data**	**100 - 200 mg/kg**	**60 - 120 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**30 - 45 mg/kg**

This data is sourced from the British Geological Survey.

21.2 BGS Estimated Urban Soil Chemistry

Records within 50m	9

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km^2).

Location	Arsenic (mg/kg)	Bioaccessible Arsenic (mg/kg)	Lead (mg/kg)	Bioaccessible Lead (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Copper (mg/kg)	Nickel (mg/kg)	Tin (mg/kg)
On site	**19**	**3.3**	**45**	**31**	**0.4**	**58**	**25**	**18**	**4**
On site	**22**	**3.8**	**48**	**33**	**0.3**	**68**	**21**	**21**	**4**
On site	**23**	**4**	**51**	**35**	**0.4**	**66**	**24**	**23**	**4**
On site	**26**	**4.6**	**47**	**32**	**0.3**	**72**	**20**	**25**	**4**
9m W	25	4.4	58	40	0.3	76	22	25	4
10m W	24	4.2	47	32	0.3	75	20	23	4

Location	Arsenic (mg/kg)	Bioaccessible Arsenic (mg/kg)	Lead (mg/kg)	Bioaccessible Lead (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Copper (mg/kg)	Nickel (mg/kg)	Tin (mg/kg)
19m E	19	3.3	103	71	0.8	59	23	19	4
19m E	16	2.8	109	75	0.8	50	24	15	4
49m SE	31	5.4	51	35	0.3	76	23	29	4

This data is sourced from the British Geological Survey.

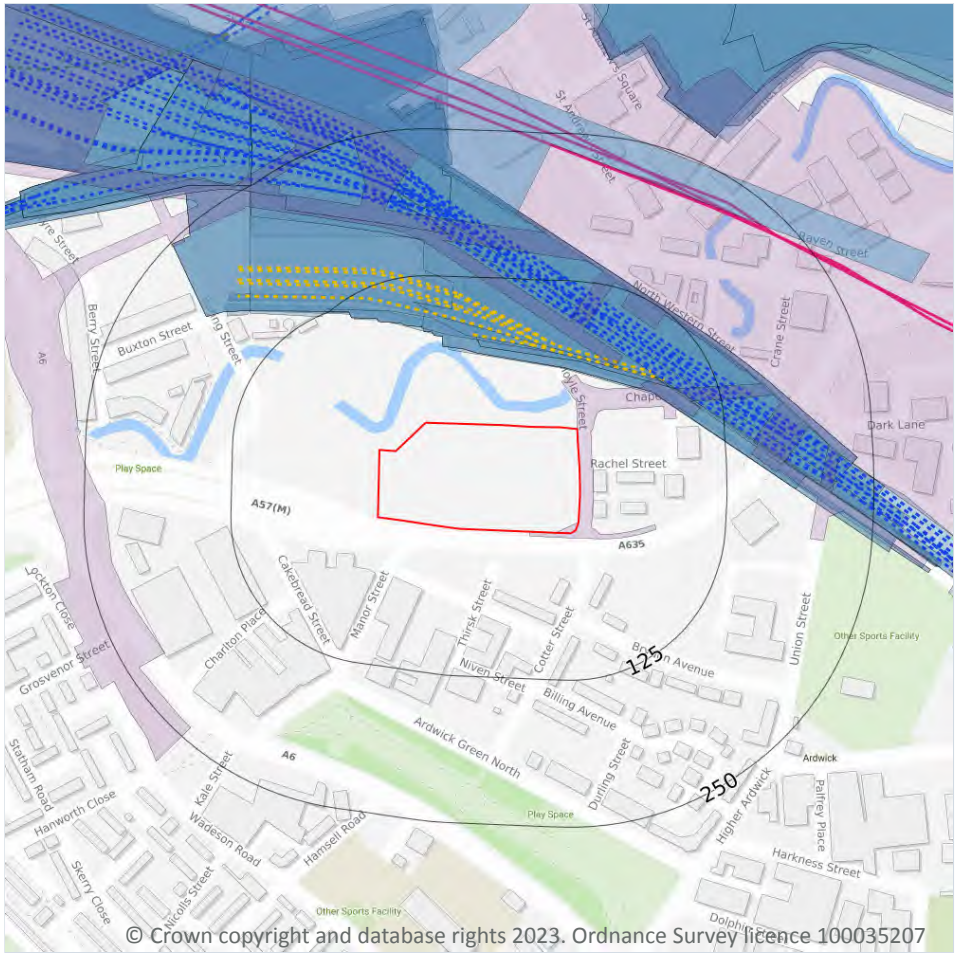
21.3 BGS Measured Urban Soil Chemistry

Records within 50m	**0**

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km^2.

This data is sourced from the British Geological Survey.

22 Railway infrastructure and projects



22.1 Underground railways (London)

Records within 250m	0

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

This data is sourced from publicly available information by Groundsure.

22.2 Underground railways (Non-London)

Records within 250m	0

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

This data is sourced from publicly available information by Groundsure.

22.3 Railway tunnels

Records within 250m	0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

22.4 Historical railway and tunnel features

Records within 250m	53

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

Features are displayed on the Railway infrastructure and projects map on **page 149 >**

Location	Land Use	Year of mapping	Mapping scale
46m NE	Railway Sidings	1923	10560
47m NE	Railway Sidings	1938	10560
47m NE	Railway Sidings	1934	10560
47m NE	Railway Sidings	1915	10560
52m NE	Railway Sidings	1922	2500
52m NE	Railway Sidings	1932	2500
55m NE	Railway Sidings	1985	10000
55m NE	Railway Sidings	1991	10000
58m NE	Railway Sidings	1968	10560
59m NE	Railway Sidings	1956	10560
60m NE	Railway Sidings	1968	2500
60m NE	Railway Sidings	1965	2500
61m NE	Railway Sidings	1948	1250
61m NE	Railway Sidings	1978	10000
63m NE	Railway Sidings	1977	1250
66m NE	Railway Sidings	1963	1250
75m NE	Railway Sidings	1851	10560

Location	Land Use	Year of mapping	Mapping scale
82m N	Railway Sidings	1948	2500
82m N	Railway Sidings	1985	1250
90m NE	Railway Sidings	1948	2500
101m NE	Railway Sidings	1948	2500
110m NE	Railway Sidings	1977	1250
112m NE	Railway Sidings	1985	1250
146m N	Railway Sidings	1948	2500
157m N	Railway	1889	-
159m N	Railway Sidings	1889	2500
159m N	Railway Sidings	1908	2500
159m N	Railway Sidings	1922	2500
159m N	Railway Sidings	1932	2500
161m N	Railway Sidings	1905	10560
161m N	Railway Sidings	1890	10560
163m N	Railway Sidings	1891	500
168m NW	Railway Sidings	1971	1250
168m NW	Railway Sidings	1948	1250
168m NW	Railway Sidings	1964	1250
168m NW	Railway Sidings	1952	1250
169m NW	Railway Sidings	1950	2500
170m NW	Railway Sidings	1984	1250
184m N	Railway Sidings	1891	500
216m N	Railway Sidings	1963	1250
219m E	Railway Sidings	1954	1250
219m E	Railway Sidings	1977	1250
219m E	Railway Sidings	1948	1250
219m E	Railway Sidings	1989	1250
224m N	Railway Sidings	1963	1250

Location	Land Use	Year of mapping	Mapping scale
237m NW	Railway Sidings	1891	500
237m N	Railway Sidings	1891	500
249m NW	Railway Sidings	1891	500
250m NW	Railway Sidings	1971	10000
250m NW	Railway Sidings	1988	10000
250m NW	Railway Sidings	1978	10000
250m NW	Railway Sidings	1985	10000
250m NW	Railway Sidings	1994	10000

This data is sourced from Ordnance Survey/Groundsure.

22.5 Royal Mail tunnels

Records within 250m	**0**

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

This data is sourced from Groundsure/the Postal Museum.

22.6 Historical railways

Records within 250m	**12**

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

Features are displayed on the Railway infrastructure and projects map on **page 149 >**

Location	Description
60m NE	Abandoned
64m NE	Abandoned
65m NE	Abandoned
65m NE	Abandoned
69m NE	Abandoned

Location	Description
70m N	Abandoned
72m N	Abandoned
74m NE	Abandoned
97m N	Abandoned
100m N	Abandoned
108m N	Abandoned
110m N	Abandoned

This data is sourced from OpenStreetMap.

22.7 Railways

Records within 250m	**91**

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

Features are displayed on the Railway infrastructure and projects map on **page 149 >**

Location	Name	Type
77m NE	Mayfield Goods Loop	rail
79m NE	Manchester-Crewe Line	rail
79m NE	Crewe and Manchester Piccadilly Line	rail
82m NE	Manchester-Crewe Line	rail
83m NE	Crewe and Manchester Piccadilly Line	rail
83m NE	Manchester and Ordsall Lane Junction Branch	rail
86m NE	Engine Siding	rail
88m NE	Crewe and Manchester Piccadilly Line	rail
88m NE	Crewe and Manchester Piccadilly Line	rail
90m NE	Manchester-Crewe Line	rail
91m NE	Not given	Multi Track
93m NE	Crewe and Manchester Piccadilly Line	rail
93m NE	Manchester-Crewe Line	rail
94m NE	Crewe and Manchester Piccadilly Line	rail

Location	Name	Type
95m NE	Crewe and Manchester Piccadilly Line	rail
95m NE	Crewe and Manchester Piccadilly Line	rail
97m NE	Crewe and Manchester Piccadilly Line	rail
97m NE	Crewe and Manchester Piccadilly Line	rail
99m NE	Crewe and Manchester Piccadilly Line	rail
102m NE	Crewe and Manchester Piccadilly Line	rail
103m NE	Hope Valley Line	rail
110m NE	Hope Valley Line	rail
111m N	Crewe and Manchester Piccadilly Line	rail
113m NE	Crewe and Manchester Piccadilly Line	rail
113m NE		rail
115m NE	Crewe and Manchester Piccadilly Line	rail
123m N	Crewe and Manchester Piccadilly Line	rail
123m N	Crewe and Manchester Piccadilly Line	rail
125m N		rail
125m N	Manchester and Ordsall Lane Junction Branch	rail
130m E	Crewe and Manchester Piccadilly Line	rail
130m E	Crewe and Manchester Piccadilly Line	rail
146m N	Crewe and Manchester Piccadilly Line	rail
148m N	Manchester and Ordsall Lane Junction Branch	rail
152m N	Crewe and Manchester Piccadilly Line	rail
152m N	Crewe and Manchester Piccadilly Line	rail
152m N	Manchester and Ordsall Lane Junction Branch	rail
153m N		rail
153m N	Crewe and Manchester Piccadilly Line	rail
168m N		rail
168m N	Crewe and Manchester Piccadilly Line	rail
168m E	Crewe and Manchester Piccadilly Line	rail

Location	Name	Type
168m N	Not given	Multi Track
168m E	Not given	Multi Track
169m N		rail
169m N	Crewe and Manchester Piccadilly Line	rail
171m N	Manchester and Ordsall Lane Junction Branch	rail
173m E	Manchester-Crewe Line	rail
174m E	Crewe and Manchester Piccadilly Line	rail
175m N	Not given	Multi Track
175m N	Not given	Multi Track
175m N	Not given	Multi Track
175m N	Not given	Multi Track
177m N	Not given	Multi Track
178m N	Crewe and Manchester Piccadilly Line	rail
182m N	Hope Valley Line	rail
182m N	Manchester and Ordsall Lane Junction Branch	rail
182m N	Manchester and Ordsall Lane Junction Branch	rail
184m N		rail
184m N	Crewe and Manchester Piccadilly Line	rail
185m N	Crewe and Manchester Piccadilly Line	rail
185m N	Crewe and Manchester Piccadilly Line	rail
186m N	Not given	Multi Track
187m N	Not given	Single Track
188m N	Not given	Multi Track
194m N	Crewe and Manchester Piccadilly Line	rail
194m N	Not given	Multi Track
195m N	Crewe and Manchester Piccadilly Line	rail
198m N	Holding Siding	rail
198m N	Hope Valley Line	rail

Location	Name	Type
199m N	Not given	Multi Track
203m NW	Manchester and Ordsall Lane Junction Branch	rail
205m E	Crewe and Manchester Piccadilly Line	rail
206m N	Not given	Single Track
211m NW	Manchester and Ordsall Lane Junction Branch	rail
213m N	Crewe and Manchester Piccadilly Line	rail
217m N	Crewe and Manchester Piccadilly Line	rail
217m N	Hope Valley Line	rail
219m NW	Manchester and Ordsall Lane Junction Branch	rail
220m N	Not given	Multi Track
221m E	Manchester-Crewe Line	rail
222m E	Manchester-Crewe Line	rail
228m NW	Crewe and Manchester Piccadilly Line	rail
228m NW	Crewe and Manchester Piccadilly Line	rail
230m N	Not given	Multi Track
238m E	Not given	Multi Track
240m NW	Manchester and Ordsall Lane Junction Branch	rail
240m E	Manchester-Crewe Line	rail
240m E	Manchester-Crewe Line	rail
247m NW	Crewe and Manchester Piccadilly Line	rail
247m NW	Crewe and Manchester Piccadilly Line	rail

This data is sourced from Ordnance Survey and OpenStreetMap.

22.8 Crossrail 1

Records within 500m	**0**

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

This data is sourced from publicly available information by Groundsure.

22.9 Crossrail 2

Records within 500m	0

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

This data is sourced from publicly available information by Groundsure.

22.10 HS2

Records within 500m	4

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

Features are displayed on the Railway infrastructure and projects map on **page 149 >**

Location	Track Type	Speed (mph)	Speed (km/h)	Status
217m NE	Bridge/Viaduct	50mph	80kph	Current preferred consultation route
219m NE	Bridge/Viaduct	50mph	80kph	Current preferred consultation route
222m NE	Bridge/Viaduct	50mph	80kph	Current preferred consultation route
226m NE	Bridge/Viaduct	50mph	80kph	Current preferred consultation route

This data is sourced from HS2 ltd.

Data providers

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

Terms and conditions

Groundsure's Terms and Conditions can be accessed at this link: https://www.groundsure.com/terms-and-conditions-april-2023/ ↗.

Appendix D
Detailed UXO Risk Assessment



BRIMSTONE

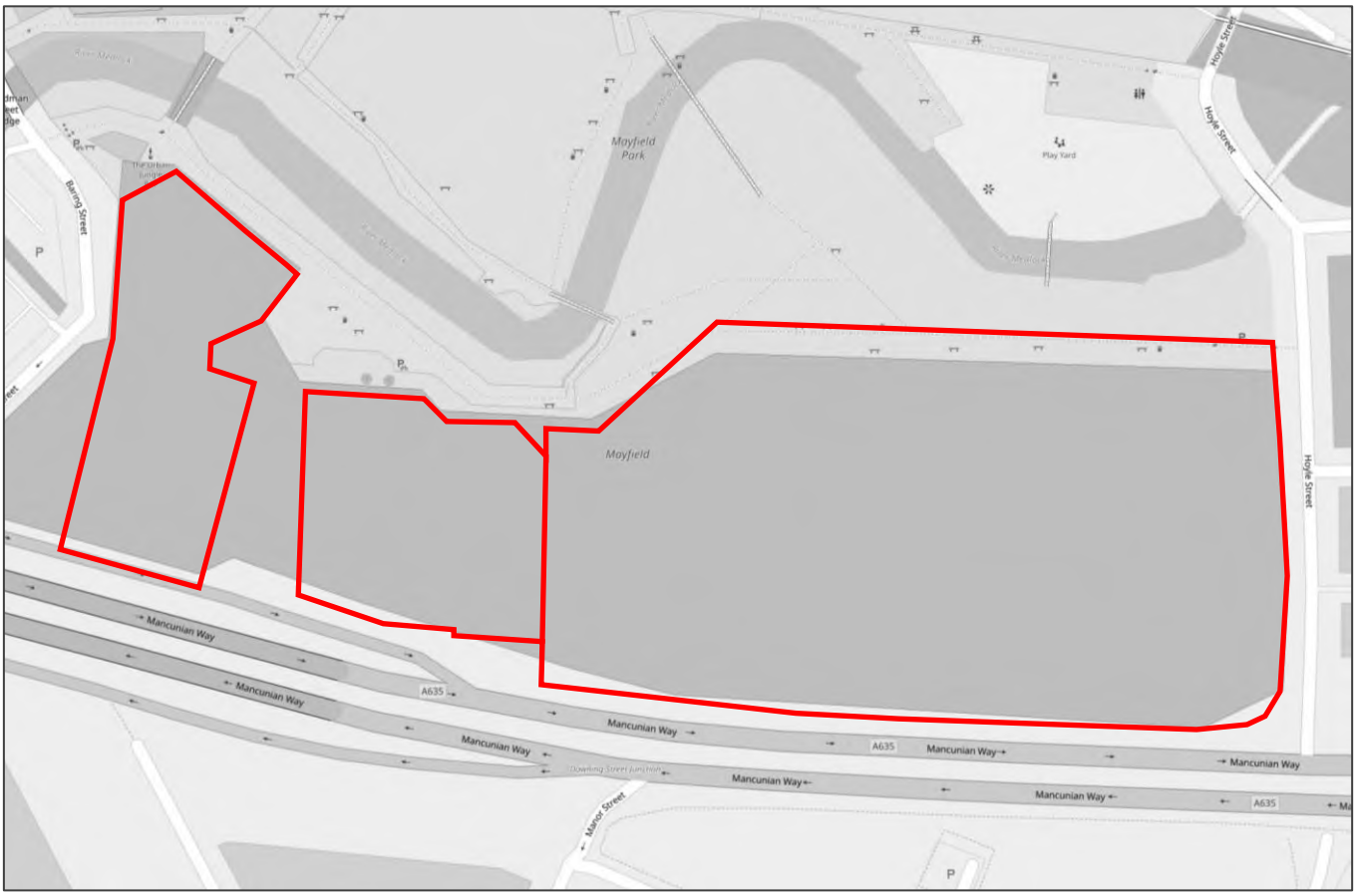
DETAILED
UXO RISK ASSESSMENT

INTEGRITY PROFESSIONALISM KNOWLEDGE

STAGE 2 DETAILED UXO RISK ASSESSMENT

Client:	Civic Earth
Project Ref:	CIVE01R
Site:	Phase 1A and Phase 1B, Mayfield
Report Ref:	DRA-23-1612-CIVE01R-Phase1AandPhase1B,Mayfield
Revision:	0
Status:	Final
Release Date:	3rd November 2023

Author:	Alfie Hanford	Project Researcher	alfie.hanford@brimstoneuxo.com
Reviewed By:	Will Hunnisett	Research Supervisor	will.hunnisett@brimstoneuxo.com
Authorised By:	Aaron Florence	Managing Director	



EXECUTIVE SUMMARY

RESULT: Brimstone concludes that UXO poses a **LOW** and **MODERATE RISK** to the proposed works. See below and **FIGURE 7** for risk mapping.

THE SITE: The Site comprises two separate areas of land (approximately centred on the National Grid Refs: SJ 85026 97539 and SJ 85168 97501) and is located within Mayfield in Manchester. The separate western area of the Site, coupled with the westernmost section of the other area, comprise the Phase 1A Site. The remaining area of land in the east of the Site comprises the Phase 1B Site. Manchester Piccadilly railway station is situated approximately 220m to the north-west of the Phase 1A Site.

The Site largely comprises disused brownfield land, although the majority of the made ground previously present within the three areas of the Site which make up Phase 1A is likely to have been removed (see ***Section 8.3*** for additional information regarding ground works on Site). Recent aerial imagery (7th July 2023) displays visual evidence of made ground within both Phase 1A and 1B. Besides the presence of made ground and foundations on Site, no other features of note are visible. Mature vegetation lines the inside of the Site boundary in several areas, while small areas of hardstanding ground associated with Mancunian Way (A57(M)/A635) lie within the south.

A hard-surfaced pedestrian walkway and Mancunian Way form the northern and southern borders of both the Phase 1A and 1B Sites, respectively. The Phase 1A Site is separated by undeveloped open ground, which also lies to the west of the western parcel, alongside Baring Street – the Phase 1B Site lies immediately to the east. Hoyle Street lies to the east of the Phase 1B Site.

THE PROPOSED WORKS: Within the footprint of the Phase 1A Site, 15 cable-percussion boreholes are planned to depths between approximately 4m and 8m, terminating on the top of the sandstone bedrock. The Client has not indicated that any SI works are currently planned within the Phase 1B Site; however, depending on a data review for this area, SI may be recommended in the future.

Brimstone were not made aware of any planned development works on Site. However, online sources indicate that a mix of commercial residential properties are planned at the proposed Baring Street Campus and Hoyle Street West.[1] Note, since proposed works may have been altered since 2018 when this information is dated, Brimstone will not utilise it during this assessment.

UXO RISK ASSESSMENT:

German UXO:

- Greater Manchester was the 11th most heavily bombed British conurbation during WWII. Like today, the Site occupied an area on the periphery of the city centre during the Blitz. However, an analysis of Luftwaffe target mapping indicates that a large area comprising both London Road and Mayfield railway stations and the surrounding infrastructure, located approximately 45m to the north of the Site at its closest point, and an iron works approximately 85m to the west of the Site, were bombing targets during WWII.
- A comparison of all available sources which record or display bomb damage indicates that the vast majority of the Site may have been damaged during WWII. Official bomb damage mapping records the majority of structures in the western and central sections as sustaining moderate or severe damage as a result of a parachute mine. While no damage is recorded to residential housing in the south-west and east of the Site, most of these houses were cleared by at least 1944, likely earlier. This may be indicative of bomb damage, as no evidence of planned clearance has been uncovered. The only structures where damage has not been evidenced within any of the available sources are the water meter works in the south of the Site and several structures associated with the Chapelfield Works in the north.

[1] https://www.manchester.gov.uk/downloads/download/6851/mayfield_srf_february_2018

- Following bombing and associated damage within the centre and west of the Site, coupled with evidenced damage in the east and south, access levels likely ceased for an indeterminate time and areas of debris were likely present. Evidence of UXBs dropped during the same or subsequent raids may have been less likely to have been noticed as a result. Indeed, as all air raids in the immediate vicinity likely occurred during the hours of darkness, there is a greater probability that any UXB strike would have occurred unobserved since residents /workers in the local area were inside / sheltering. UXBs which may have penetrated the ground could come to rest beneath undamaged areas of the Site due to the J-Curve effect, whereby a UXB may travel laterally from its point of entry.
- In summary, the risk on Site varies – see **FIGURE 7** for risk mapping. Recorded and evidenced damage across the majority of the Site may have created conditions unconducive to the detection of a UXB strike, increasing the likelihood that a UXB could have fallen unnoticed, subsequently becoming obscured. As a result, there is an assessed **Moderate Risk** of German UXO contamination in this area, including a buffer zone to account for the risk of the J-Curve Effect. Please note that the assessed risk applies to WWII-era ground, and therefore ground works taking place within the engineered fill in the Phase 1A section of the Site are not considered to be at risk of a UXO encounter.
- However, the water meter works in the south of the Site does not appear to have sustained damage. As a result, UXBs are more likely to have been noticed and dealt with at the time; a **Low Risk** of German UXO contamination has therefore been assessed at the works' former footprint. Note, while several other structures appeared undamaged throughout WWII, they have been included within the Moderate Risk zone due to the risk of a UXB coming to contaminate the ground beneath as a result of the J-Curve Effect, after penetrating the ground in areas of damage.

British / Allied UXO:

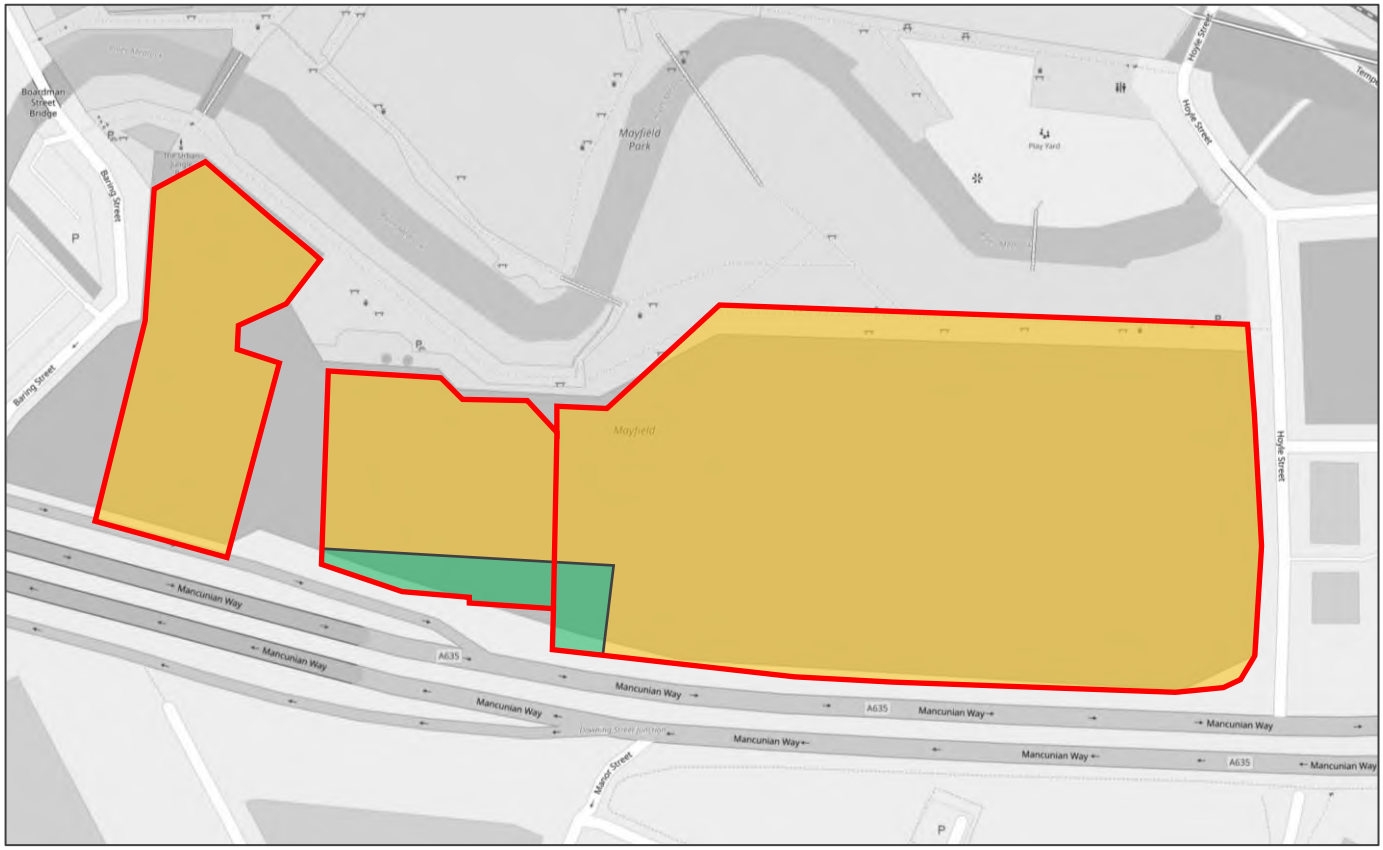
- There is no evidence of historical military activity on Site, and none is likely to have occurred. As a result of this, there is an assessed **Low Risk** from British/Allied UXO.
- Numerous (>30) permanent HAA batteries were active within range of the Site during WWII. LAA guns likely defended Vulnerable Points within the borough. Luftwaffe activity was relatively infrequent throughout WWII, but somewhat intense over the wider area and therefore these guns would have expended a vast quantity of ammunition at times. Consequently, there is an elevated likelihood of unexploded AA shells striking the Site. However, please note that given that the penetration depths of HAA shells are approximately 1-2m bgl maximum, post-WWII ground works (***Section 8.4***) are anticipated to have mitigated the risk of such items of UXO remaining across most of the Phase 1A section of the Site.

Likelihood of UXO Remaining and UXO Encounter:

- Following WWII, a large warehouse-type structure was constructed in the east of the Site, alongside additional minor structures. An additional structure was also built in the western parcel. These developments likely required shallow ground works (1-2m bgl). The structures in the east appear to have been the first cleared from the Site by April 2013, followed by the structure in the western parcel of the Site by May 2019. A structure in the centre of the Site was demolished by April 2020, with the last remaining structure cleared by March 2021. The clearance of the WWII-era structures in the centre of the Site will have disturbed the soil to the depths of their foundations, likely shallow although potentially deep (>2m bgl) in some areas. The Phase 1B section of the Site has not been subject to any significant ground works since March 2021, with the remnants of made ground and hardstanding visible in aerial imagery. Large-scale ground works have taken place in the Phase 1A section of the Site. Finishing in July 2022, the brief followed by the contractor was to remove all made ground from the Phase 1A section of the Site, down to the natural soils. However, the Client has stated that there is the potential for residual made ground to remain in these areas. The alluvium deposits in the centre of the Site were not disturbed.

- The construction of post-WWII structures in the east of the Site likely largely mitigated the risk from shallow buried UXO in these areas; however, given the lack of deep ground works in the Phase 1B area of the Site, the risk from deep buried UXBs has not been mitigated. Whilst ground works took place in the Phase 1A area of the Site by July 2022, there is still the potential for residual made ground to remain. The section sketches provided by the Client indicate that Plots O and N both contain either alluvium deposits or made ground above the sandstone bedrock, except for a small section in the centre. In contrast, Plot M contains a smaller proportion of made ground, with most of the engineered fill sitting above the sandstone bedrock. However, as the precise locations of the made ground, alluvium, and where the engineered fill rests immediately above the bedrock cannot be discerned from the section sketches provided, it has not proved possible to 'zone' the Site into areas of risk based on the previous works. If a plan of the whole Site, indicating where the ground above the sandstone bedrock has been entirely replaced with the engineered fill, a reassessment can be made.
- Please note, the risk of a UXO encounter can be considered mitigated in the exact locations and down to the exact depths of any post-WWII intrusive works. As such, the risk to the planned boreholes in the Phase 1A section of the Site is only present within ground undisturbed since WWII (i.e., made ground, alluvium, sandstone). As such, the risk from very shallow (<1m bgl) or shallow buried HAA shells has likely been mitigated across the vast majority Phase 1A.

RISK MAP:



Low Risk from UXO

Moderate Risk from German UXO and HAA Shells

RECOMMENDED RISK MITIGATION MEASURES: The measures detailed below are recommended to mitigate the risk to ALARP level.

Risk Mitigation Measure	Recommendation
UXO Safety Awareness Briefings	Prior to all intrusive works commencing.
Intrusive Magnetometer Probe Survey	Of any pile positions within the **Moderate Risk** zone.
EOD Engineer - On Site Supervision	Watching brief of all open excavations and magnetometer survey of all borehole locations within the **Moderate Risk** zone.

CONTENTS

Executive Summary ..... **ii**
Quality Management **2**
1 Introduction **3**
1.1 Background 3
1.2 Legislation 3
1.2.1 Construction Design and Management Regulations (CDM) 2015 3
1.2.2 The Health and Safety at Work Act 1974 3
1.3 Commercial Contractor and the Authorities 3
1.3.1 Commercial Contractors 3
1.3.2 UK Authorities 4
1.4 UXO Risk in the UK 4
1.5 UXO Detonations 4
2 Assessment Methodology **5**
2.1 Introduction 5
2.2 SPRC Risk Model 5
2.3 Assessment Structure 5
2.4 Information Sources 6
2.5 ALARP Principle 6
2.6 Risk Tolerances 6
2.7 Reliance and Limitations 6
3 The Project **7**
3.1 The Site 7
3.2 The Proposed Works 7
4 Site History **8**
4.1 Site Introduction 8
4.2 Mapping 8
4.3 Photography/Aerial Photography 9
4.4 Additional Site-Specific History 9
5 UXO Risk - German Bombing **9**
5.1 WWII Bombing History of the Site 9
5.1.1 London ..... **Error! Bookmark not defined.**
5.1.2 Site Specific 10
5.1.3 Bombing Decoy Sites 10
5.2 WWII Bombing Records 10
5.2.1 Introduction 10
5.2.2 Bombing Density Statistics 10
5.2.3 Bomb Census Maps ..... **Error! Bookmark not defined.**
5.2.4 V Weapons ..... **Error! Bookmark not defined.**

5.2.5 Bomb Damage Map ..... **Error! Bookmark not defined.**
5.2.6 Abandoned Bomb Register 11
5.2.7 Secondary Source / Anecdotal Evidence 11
5.3 Likelihood of UXB Contamination 12
5.4 Likelihood of Subsequent UXB Detection 13
5.5 Bombing During WWI 14
6 WWII German Bombs 14
6.1 Bombs Dropped on the UK 14
6.2 Bomb Failures 15
6.3 Bomb Ground Penetration 15
6.3.1 Introduction 15
6.3.2 The J-Curve Effect 16
6.3.3 Site Specific Geology 16
6.3.4 Site Specific Maximum Bomb Penetration Depth 16
7 UXO Risk - British/Allied Activity 17
7.1 Introduction 17
7.2 Potential Sources of UXO 17
7.2.1 Introduction 17
7.2.2 WWII Anti-Aircraft Fire 17
8 UXO Risk Mitigating Circumstances 18
8.1 Introduction 18
8.2 Explosive Ordnance Clearance Tasks 18
8.3 Ground Works 18
8.4 Deductions 19
9 Conclusion 19
9.1 Accuracy of Historical Records 19
9.2 The Risk of UXO Contamination on Site 19
9.2.1 Key Findings – German UXO Risk 19
9.2.2 Key Findings - British UXO Risk 20
9.3 Site-Specific UXO Hazards 20
9.4 The Likelihood of UXO Encounter 21
9.4.1 Introduction 21
9.4.2 German UXBs 21
9.4.3 British / Allied UXO 21
9.4.4 Deductions 21
10 Overall Risk Rating 22
11 Risk Mitigation Recommendations 23

FIGURES

FIGURE 1: Site Location Maps

FIGURE 2: Recent Aerial Photograph

FIGURE 3: Current Site Plan

FIGURE 4: Historical OS Mapping

FIGURE 5: Historical Aerial Photography

FIGURE 6: Manchester Bomb Plot & Damage Mapping

FIGURE 7: Risk Mapping

APPENDICES

APPENDIX 1: Recent UXO Incidents and Historical Analysis

APPENDIX 2: Data Sheets - German WWII Air-Delivered Munitions

APPENDIX 3: Data Sheet - British WWII Anti-Aircraft Munitions

APPENDIX 4: Glossary

APPENDIX 5: Bibliography

QUALITY MANAGEMENT

Brimstone is committed to the provision of UXO risk mitigation services, including the safe removal and disposal, in the UK and overseas. Since our inception in 2016 it has been our goal to provide unsurpassed UXO risk mitigation services. Brimstone is a client-driven organisation, we aim to provide the client the services they need, to the agreed requirement, in accordance with national and international standards.

We are committed to providing a safe, cost-effective and quality service, underpinned by our three core values;

- Integrity in advice, information and the manner in which we conduct ourselves and our operations,
- Professionalism in the way we handle our operations, people and processes, and
- Knowledge in new skills and information, to ensure we remain at the forefront of innovation and strategy.

We are committed to the applicable requirements of the ISO 9001 standards. We set and review quality monitoring objectives to measure the performance of our quality management system. Brimstone wholly endorses the ethos of 'continual improvement efforts' and allocates resources to meet this requirement.

This policy applies to the whole of the Brimstone services and affects roles from the managing director down. All staff are responsible for helping manage quality, seeking improvement through constant review, and by encouraging supplier and subcontractor involvement. We are committed to achieving customer satisfaction using quality procedures, which will be operated to meet or exceed the applicable requirements of ISO 9001.



Aaron Florence
Founder and Managing Director
Brimstone

COPYRIGHT © BRIMSTONE

The contents of this report are confidential. This report has been prepared for the use of the client and shall not be distributed or made available to any other company or person without the knowledge and written consent of either the client or Brimstone.

1 INTRODUCTION

1.1 Background

Civic Earth (the Client) has commissioned Brimstone to carry out a Stage 2 Detailed Unexploded Ordnance Risk Assessment (DRA) of the proposed redevelopment works at the Phase 1A and Phase 1B, Mayfield site (the Site).

1.2 Legislation

There are no regulations that specifically govern the UXO risk mitigation industry in the UK. There are however two pieces of legislation that require consideration. It is industry best practice (and common sense) to frame your site in the context of UXO, and to put in place measures to protect people from risks. In 2009, CIRIA published Unexploded Ordnance (UXO) - A Guide for the Construction Industry C681. This publication, though not legally binding, provides the gold-standard framework to which UXO and construction companies operate.

1.2.1 Construction Design and Management Regulations (CDM) 2015

The regulations identify the client, the CDM coordinator, the designer, and the principal contractor as responsible parties. Under the regulations, responsible parties are held accountable for the way a construction project is managed and for the health and safety of workers. Responsible parties must:

- Provide an appropriate assessment of potential UXO risks, or ensure an assessment is completed by another party.
- Put in place appropriate risk mitigation measures if necessary.
- Supply all parties with information relevant to the risks.
- Ensure the preparation of an emergency response plan.

1.2.2 The Health and Safety at Work Act 1974

The Health and Safety at Work Act 1974 had a transformative impact on health and safety, saving thousands of lives since its enactment. Employers must consider their employees, workers not in their employment, and members of the public. The act places a duty on every employer 'as far as is reasonably practicable' to protect workers from risks. It also says that information must be provided about aspects of health and safety that affect their role.

1.3 Commercial Contractor and the Authorities

1.3.1 Commercial Contractors

If your site has been given a moderate or high-risk rating, then control measures will be recommended. The measures will be specific to the scope of works on site, usually in relation to the depth and extent of excavations, piling and similar activities. There are a range of different methods at Brimstone's disposal, including:

- Non-intrusive surveying (including drone surveying)
- Intrusive surveying
- Search and clear
- Watching brief
- Support to geotechnical investigations
- Target investigation
- Site-specific training packages
- Site safety briefings

Our UXO Engineers can assess suspicious items on site when they are found. This will avoid unnecessary site evacuations. If our engineer(s) decide the item is UXO, they will coordinate with the authorities, manage disruptions, and advise on control measures, such as evacuations and a cordon.

1.3.2 UK Authorities

If Brimstone is not on site and a suspicious item is found, the local police must be immediately called on the non-emergency number. Police will visit the site. They will then inform the Joint Services Explosive Ordnance Disposal (JSEOD) office, which will coordinate the callout of an army or navy response team.

A precautionary cordon will initially be put into effect, with possible evacuation of homes and businesses, road and rail closures. The cordon may be extended following the advice from JSEOD's response team.

To manage their resources, JSEOD triages incidents. A consideration of the type, size and location of the UXO is made. If an incident is not given a high priority rating, a team may not be available for up to two days following the initial report.

The use of JSEOD is under the Military Aid to Civil Authorities (MACA) framework, therefore the budget and personnel is limited, and there are no statutory obligations made of the MOD. Often the MOD will recommend involvement of a commercial UXO contractor to manage the ongoing risk – this is especially true of former airfields and training areas where contact with land service ammunition can be frequent.

1.4 UXO Risk in the UK

Fortunately, to the best of our knowledge, there has not been a single post-war incident in the UK where a construction worker has been killed or injured because of an item of UXO exploding. There have been cases in mainland Europe where UXO had been struck and then exploded, killing workers. In 2019 a WWII general purpose bomb spontaneously detonating in a field north of Frankfurt, Germany.

However, the incident in Frankfurt is not comparable to the UK, due to the way different countries manufactured ordnance. Bombs made in different countries have different associated hazards. British WWII bombs, for example, have a fuzing system which uses chemicals which makes them very unsafe. Please see **APPENDIX 1** for recent examples of UK UXO incidents.

Between 2013 and 2016 JSEOD responded to 7,500 callouts. These callouts range from falsely identified objects, inert objects, small items of UXO and large WWII German unexploded bombs (UXBs). Each year the construction industry inadvertently unearths UXO; often this goes unreported. UXO contamination comes from three main sources:

- **Enemy action:** during WWI and WWII the air forces of Germany, and to a lesser extent Italy, bombed targets throughout the UK. The German navy bombarded several coastal targets in eastern England during WWI and then in WWII German long-range artillery on the French coast bombarded parts of Kent.
- **Allied military activity:** during WWI and WWII several Allied nations used the UK as a staging area for military action in the European Theatre; predominantly the US and Canada.
- **UK military activity:** domestic British Army, Royal Air Force (RAF) and Royal Navy (RN) training activities during peacetime and conflict as well as anti-aircraft gun and rocket batteries during WWI and WWII.

1.5 UXO Detonations

A detonation is a violent chemical reaction which creates a huge volume of gas. This reaction appears to happen instantaneously – the velocity of the shockwave moving is up to 9000m per second. This chemical reaction is started using a small amount of very sensitive explosives called primary explosives. These types of explosives are highly sensitive to shock, friction, heat, and spark. As the explosive charge undergoes high order decomposition (detonation), the brisance, or shattering effect, causes the casing to splinter, projecting razor-sharp shrapnel across long distances.

The blast wave effect and the shrapnel effect can cause significant damage. Calculating safety distances is a complex process. As a rule of thumb, in open ground, a 250kg explosive charge (as would be found inside a typical 500kg bomb) would require an omnidirectional safety distance of at least 1.6km.

Bombs work by amplifying the explosive charge from the sensitive primary explosive through to the main charge or fill of the item. This process is called an explosive train, if any link in that chain is broken, the item will fail to function as intended. This can be due to mechanical, electrical, or manufacturing tolerances or faults. Amongst other reasons, detonation of UXO could occur under the following circumstances:

- **UXO body impact:** A substantial impact onto the main body of a UXO; borehole rigs, piling rigs, jack hammers and mechanical excavator buckets.
- **Fuse impact:** Environmental conditions during decades of burial can result in the primary explosives located in the fuse pocket to crystallise and become shock sensitive. It would then take a relatively small impact or friction impact to cause the fuse to function and detonate the UXO.
- **Re-starting a timer:** A small proportion of German WWII bombs used clockwork fuses. In 2002 an Army EOD Engineer reported that the clockwork fuse in a UXB re-started. Decades of burial cause substantial corrosion in WWII German UXBs and therefore an incident such as this is extremely rare.

2 ASSESSMENT METHODOLOGY

2.1 Introduction

This assessment has been produced in accordance with the relevant CIRIA guidelines; *Unexploded Ordnance (UXO) - A Guide for the Construction Industry C681* (published in 2009). CIRIA C681 is a publication which originated from round table best practice discussions from industry leaders.

2.2 SPRC Risk Model

The Source, Pathway, Receptor, Consequence (SPRC) risk model can be applied to buried UXO as follows:

- **Sources:** UK and allied UXO sources include military firing ranges, bases, storage depots, munitions factories, anti-aircraft batteries, amongst others. There are many wartime causes of UXO contamination. The source for enemy contamination is overwhelmingly from WWII German air raids.
- **Pathways:** the pathway describes how the UXO reaches receptors. Usually UXO is buried and therefore pathways can be any activity which involve breaking ground. Examples include ground investigation works, site enabling works and excavations.
- **Receptors:** receptors are the people, assets and infrastructure that can be adversely affected by UXO exposure. This includes site personnel, plant, equipment, buildings, the general public, , and the environment.
- **Consequence:** the consequences of an inadvertent UXO detonation are catastrophic. They include injury and loss or life, as well as damage to property. Fortunately, the likelihood of UXO detonating is low, even when it is uncovered during works. Another consequence to consider however is delays to works, which itself can be a risk.

2.3 Assessment Structure

In accordance with CIRIA C681 this assessment addresses the following considerations in the appropriate order:

- The likelihood that the site was contaminated with UXO.
- The type of UXO that could have contaminated the site, and their associated hazards.
- The likelihood that UXO remains on the site.
- Theoretical bomb penetration depths.
- The likelihood that UXO will be uncovered during the proposed works.
- Risk rating and risk mapping (as appropriate).
- Risk mitigation recommendations.

2.4 Information Sources

To complete this risk assessment Brimstone has gathered information from a wide range of sources. Brimstone's research team has completed detailed historical research, including access of original archived records. The following is a general list of information sources that are consulted during the research process:

- The National Archives,
- Local archive centres,
- Ministry of Defence,
- The Council for British Archaeology,
- Groundsure mapping services,
- Historical aerial photography (Historic England, Britain From Above, Bluesky),
- Google open-source mapping,
- The British Geological Society,
- Open sources; published book, articles, web resources,
- Site specific information supplied by the Client,
- Brimstone's library and historical database, and
- Brimstone's former armed forces employees.

2.5 ALARP Principle

The ALARP (as low as reasonably practicable) principle corresponds to the actions that should be taken to reduce risks. The term 'ALARP' is in the Health and Safety at Work Act 1974, which says that risks must be controlled in a reasonable way.

Infinite time, effort and money could be spent trying to eliminate risk entirely. HSE uses the example that spending £1m to prevent five employees bruising their knees is disproportionate, whereas spending the same amount to prevent an explosion which could kill 150 people is proportionate.

Using this principle, Brimstone aims to reduce client costs by recommending strategies that are proportionate to the assessed risks, if any elevated risk is found at all.

2.6 Risk Tolerances

The Brimstone risk assessment process divides UXO risk into two tolerances:

- **Tolerable:** negligible risk or low risk ratings are tolerable. Where the risk cannot be completely discounted, it may be a useful strategy to opt for a low-cost measure, such as a UXO safety briefing from a qualified UXO engineer.
- **Intolerable:** moderate risk or high-risk ratings are intolerable. Proactive risk mitigation measures should be put in place. Various strategies are at Brimstone's disposal to meet your project-specific needs.

2.7 Reliance and Limitations

This report has been prepared using published information and information provided by the Client. Brimstone is not liable for any information which has become available following the publication of this report. No third-party liability or duty of care is extended. Any third-party using information contained in this assessment do so at their own risk.

3 THE PROJECT

3.1 The Site

The Site comprises two separate areas of land (approximately centred on the National Grid Refs: SJ 85026 97539 and SJ 85168 97501) and is located within Mayfield in Manchester. The separate western area of the Site, coupled with the westernmost section of the other area, comprise the Phase 1A Site. The remaining area of land in the east of the Site comprises the Phase 1B Site. Manchester Piccadilly railway station is situated approximately 220m to the north-west of the Phase 1A Site.

The Site largely comprises disused brownfield land, although the majority of the made ground previously present within the three areas of the Site which make up Phase 1A is likely to have been removed (see ***Section 8.3*** for additional information regarding ground works on Site). Recent aerial imagery (7th July 2023) displays visual evidence of made ground within both Phase 1A and 1B. Besides the presence of made ground and foundations on Site, no other features of note are visible. Mature vegetation lines the inside of the Site boundary in several areas, while small areas of hardstanding ground associated with Mancunian Way (A57(M)/A635) lie within the south.

A hard-surfaced pedestrian walkway and Mancunian Way form the northern and southern borders of both the Phase 1A and 1B Sites, respectively. The Phase 1A Site is separated by undeveloped open ground, which also lies to the west of the western parcel, alongside Baring Street – the Phase 1B Site lies immediately to the east. Hoyle Street lies to the east of the Phase 1B Site.

FIGURE 1: Site Location Maps **FIGURE 2:** Recent Aerial Photograph

3.2 The Proposed Works

Within the footprint of the Phase 1A Site, 15 cable-percussion boreholes are planned to depths between approximately 4m and 8m, terminating on the top of the sandstone bedrock. The Client has not indicated that any SI works are currently planned within the Phase 1B Site; however, depending on a data review for this area, SI may be recommended in the future.

Brimstone were not made aware of any planned development works on Site. However, online sources indicate that a mix of commercial residential properties are planned at the proposed Baring Street Campus and Hoyle Street West.[2] Note, since proposed works may have been altered since 2018 when this information is dated, Brimstone will not utilise it during this assessment.

FIGURE 3: Current Site Plan

[2] https://www.manchester.gov.uk/downloads/download/6851/mayfield_srf_february_2018

4 SITE HISTORY

4.1 Site Introduction

Site-specific history can be assessed by reviewing historical mapping, historical aerial photography and by carrying out additional Site-specific research where appropriate. Below are descriptions of a selection of records relevant to the Site:

4.2 Mapping

Period	Map Date	Map Scale	Review
Pre-WWI	1888-1890	1:10,560	The Site is mainly occupied by various structures and unlabelled roadways. Based on subsequent OS map editions, the structures on Site likely vary between commercial/industrial and residential developments. 'Baths' lie within the north of the westernmost parcel of the Site. The River Medlock lies approximately 15m to the north of the Site at its closest point.
WWI / Post-WWI	1915-1921	1:10,560	The structural layout of the Site appears largely similar to the previous map edition; however, several areas of structural change, mainly involving the extension or clearance of structures within the central section of the Site, are recorded. Several 'Works' are now recorded within the Site boundary, with the remainder of the Site thought to comprise residential housing. A 'Brewery' lies partially within the north-eastern section of the Site. The formerly unlabelled roadways are now recorded as – from west to east – Howard Street, Nether Street, Bond Street, Chapelfield Lane, Selby Street, Broadie Street, Ashton Place, Charlie Street and Egerton Place.
Pre-WWII	1932	1:2,500	**FIGURE 4.1:** This large-scale OS map edition records far greater detail within the Site boundary. The north of the westernmost parcel of the Site comprises the 'Mayfield Public Baths', with a section of an 'Ice Factory' and various residential properties on Howard Street and Nether Street located in the south. The remainder of the Phase 1A Site, in the eastern parcel, partially comprises a 'Water Meter Works' in the south, a section of the 'Chapelfield Works (India rubber)' in the north, with Bond Street dividing these two sections in a west-east orientation. The Phase 1B Site also comprises a mixture of industrial/commercial structures and residential housing. The Chapelfield Works lies in the west of the Phase 1B Site, while the majority of the eastern half comprises residential housing with the exception of the 'Britannia Brewery (Disused)' in the north-east.
	1938	1:10,560	This OS map edition largely records no changes throughout the Site boundary; however, structural clearance appears to have taken place to the west of Nether Street in the west of the Site, and south of Broadie Street in the east of the Site.
Post-WWII	1951-1952	1:2,500	**FIGURE 4.2 & 4.3:** Evidence of potential bomb damage is recorded both within the Site boundary and its surrounds – see **FIGURE 4.3** for an overlay highlighting structural clearance, ruins, structural change and prefabricated housing in the vicinity. The Mayfield Public Baths in the north-west of the Site, as well as the Brewery partially within the north-east, are both recorded as 'Ruins'. Almost all the residential housing present before WWII has been cleared, most notably in the eastern half of the Phase 1B Site and south-west of the Phase 1A Site. Various small structures associated with the Chapelfield Works have been cleared and the main larger structure extended into their place. Similarly, the Mayfield Ice Factory in the west of the Site has been extended eastwards into the position of former residential properties.

4.3 Photography/Aerial Photography

Period	Photo Date	Review
WWII	30th May 1944	**FIGURE 5.1:** This photograph, taken approximately a year and a half prior to the end of WWII, provides a low-resolution view of the Site and its surrounds during wartime. The clearance highlighted in the 1951-1952 OS map edition (**FIGURE 4.3**) is clearly observable in 1944 as well, most notably in the east and south-west of the Site. Widespread clearance is also visible in the vicinity, suggesting either extensive bomb damage or planned clearance; note, no positive evidence of planned slum clearance in Mayfield during this period has been uncovered. The brewery formally located in the north-east of the Site appears to have been cleared, although possible ruined structures are present within the west of its plot. Possible repair works have been identified at the location of the public baths in the north-west of the Site; however, given its clearance by 1948 (see below), this may instead represent damage. The majority of the industrial structures within the centre of the Site boundary appear undamaged, although the low resolution of the photograph prevents certainty, especially given the damage recorded in this area by Manchester damage mapping (**FIGURE 6**).
Post-WWII	16th May 1948	**FIGURE 5.2:** This photography, taken approximately two and a half years after the end of WWII, provides a slightly higher-resolution view of the Site, visually confirming clearance in the south-west and east of the Site. The public baths has also been cleared by this date. No additional evidence of bomb damage, not already identified within the above-discussed photograph, has been observed.

4.4 Additional Site-Specific History

Some sites will have been occupied by landmarks or significant buildings historically and in such cases specific written histories including significant wartime details are occasionally available in the public domain. No such information was available.

5 UXO RISK - GERMAN BOMBING

5.1 WWII Bombing History of the Site

5.1.1 Greater Manchester

Greater Manchester was home to a number of vital wartime industries during WWII, many of which were located in Trafford Park. Infrastructure of strategic importance was also present in the form of Manchester Docks and the Manchester Ship Canal.

Between 29th July 1940 and 30th July 1942, Greater Manchester experienced 41 air raids, most of which were small in scale, often executed by a solitary bomber. At least nine relatively insignificant raids were carried out during the autumn of 1940, with the first medium-scale raid, affecting a wide area, occurring on 28th August. On 1st October, a medium to heavy raid was executed.

The Luftwaffe mounted consecutive major attacks on the nights of 22nd/23rd and 23rd/24th December 1940 (the 'Christmas Blitz'); a major attack was a Luftwaffe designation for a raid delivering >100 tonnes of HE (in addition to incendiaries) to a target area. These left large areas of Manchester, Salford and Stretford devastated.

In total, these two attacks involved 441 German bombers dropping 272 tonnes of HE on the first night and 195 tonnes of HE on the second night. Seven conflagrations and 600 smaller fires were reported, the result of tens of thousands of small incendiary bombs (IBs). The Christmas Blitz caused the total destruction of >4,000 houses as well as serious damage to a further 12,000. 805 HE bombs were reported across Manchester, Salford, Stretford, and Manchester Docks, including 134 UXBs.

During 1941, two additional major* raids was launched on 9th January and 1st June. Although each involved half as many aircraft as the 22nd of December 1940 raid, they still delivered a further 208 tonnes of HE bombs and numerous IBs onto the city and surrounding area. Three medium-scale raids were also mounted in 1941, during the spring.

*The fourth and final major raid actually only delivered 97 tonnes of HE. However, it is close enough to 100 tonnes to be considered 'major'.

5.1.2 Site Specific

Luftwaffe target mapping identifies a large area comprising both London Road and Mayfield railway stations and the surrounding infrastructure, located approximately 45m to the north of the Site at its closest point, and an iron works approximately 85m to the west of the Site, as bombing targets during WWII. The industrial structures within the Site boundary and immediately adjacent to the north would have provided viable targets of opportunity during enemy air raids.

5.1.3 Bombing Decoy Sites

In mid-1940 bombing decoys were introduced. The decoys used either;

- A system of lighting to simulate an urban area or a military airfield's runway
- Deliberately started fires to simulate a previously bombed target
- Dummy buildings and vehicles to simulate a military facility

792 static decoy sites were built at 593 locations in Britain. They were estimated to have drawn at least 5% of the total weight of bombs away from their intended targets. No bombing decoys were operational within a significant radius of the Site during WWII. The closest was located approximately 6.9km to the south-east.

5.2 WWII Bombing Records

5.2.1 Introduction

The bomb census recorded the location and type of bomb strikes to help with intelligence gathering and planning. It was compiled using information recorded by ARP wardens. These records were gathered by the Ministry of Home Security to calculate bombing density within administrative areas.

The bomb census was unreliable in the early stages of the war, though by 1941 procedures had been standardised. The quality of the census records also depended on where in the UK the records were produced. Some records are held at the National Archives and some are held at local borough archives.

Relevant records held at the National Archives and Manchester City Archives were obtained for this risk assessment.

5.2.2 Bombing Density Statistics

The table below records the Ministry of Home Security's bombing density calculation for the County Borough of Manchester. It gives a breakdown of the types of large German bombs reported and is understood to not include UXBs.

Admin Area	**Manchester**
Area Acreage	27,255
High Explosive Bombs (all types/weights)	712
High Explosive Parachute Mines	18
Flam (Oil) Bombs	7
40kg Phosphorus Incendiary Bombs (IBs)	0
40kg 'Fire Pot' IBs	0
V1 Flying Bomb	1
V2 Long Range Rocket	0
Total (excluding V-Weapons and 1kg / 2kg IBs)	737
Bombs Per 1,000 Acres	**27.0**

1kg / 2kg incendiary bombs (IBs) and 2kg anti-personnel (AP) bombs were often too numerous to record accurately and therefore are not included in the above figures.

5.2.3 Manchester Bomb Plot & Damage Map: 1940 - 1941

Brimstone has reviewed an original bomb plot and damage map for the wider study area. This map was produced by Manchester City Council's Architect's Department (Building Surveyor's Division) during the war and was updated from 1940 to 1941 to reflect all raids on the city, the last of which occurred on 1st June 1941. Despite this, evidence indicates that the map may not be comprehensive, with areas of damage visible in historical aerial imagery where no damage or bombs are recorded.

No original legend / key accompanies this map; however, a contemporary description does confirm some symbols. No symbol for UXBs was identified and any IB strike symbol with a number written within it represents the number of individual IBs falling at that location. Three categories of damage are illustrated on this map: solid red, hatched red and red outline. These are likely to represent 'total destruction or severe damage', 'moderate damage' and 'minor blast damage', respectively.

The section of the map covering the study area is presented at **FIGURE 6** and described below.

- A parachute mine is recorded approximately 15m to the north of the Site. The structure which was struck by the mine and several smaller adjacent buildings are recorded as severely or totally damaged. A structure further to the east is also recorded as severely or totally damaged. The public baths, ice factory and residential properties in the west, as well as industrial structures in the centre, are recorded as sustaining moderate damage.
- An additional parachute mine, two HE bombs and 17 incendiary bombs are recorded within an approximate 300m radius. The whole of Mayfield Station, approximately 85m to the north, is recorded as moderately damaged.

5.2.4 Manchester Civilian Fatalities Map

A contemporary digital map of Greater Manchester recording the locations of every Christmas Blitz bombing incident that resulted in at least one fatality, was reviewed. This map (published by the Manchester Evening News) was compiled using data from the Commonwealth War Graves Commission; however, it only covers the two heaviest air raids on the city. Although a potentially significant source of bombing incident locations, many bombs did not cause a fatality and therefore this map should not be viewed as comprehensive.

No fatalities are recorded within the Site boundary or in the immediate vicinity. The closest fatality is recorded approximately 340m to the south-west.

5.2.5 Manchester Bomb Plot Tracings

Brimstone has reviewed a collection of bomb plot tracings for the wider study area. These tracings, utilising OS maps to plot bomb strikes, simply use dots to represent all types of bomb and therefore the specific type cannot be identified. No bomb tracings covering the Site or its immediate surrounds have been identified.

5.2.6 Abandoned Bomb Register

Due to the overstretched bomb disposal units during WW2, many bombs were intentionally left undisturbed. UXBs were triaged based on where they were and how big they were. If they didn't pose a significant risk, they were 'abandoned'. The locations of these bombs were recorded on the abandoned bomb register.

The abandoned bomb register is a public record document held at the Parliamentary Archives of the House of Commons, from which Brimstone has obtained a copy. The register should not be relied on for completeness or accuracy. The closest abandoned bomb is recorded approximately 4.1km west of the Site.

5.2.7 Secondary Source / Anecdotal Evidence

A search of online resources, as well as a review of local history publications was carried out with the intention of locating any eyewitness accounts of local bombing incidents.

A news source covering a team of archaeologists who excavated the Mayfield Public Baths in the north-west of the Site noted that the baths 'suffered bomb damage during World War II and was subsequently demolished'.[3]

5.3 Likelihood of UXB Contamination

Where detailed bombing records exist, it is possible to predict whether any UXBs could be found on a site. This likelihood is discussed in the following table:

Density of Bombing	
Number of Air Raids in the Vicinity:	A comparison of the available records confirms that at least four air raids affected an approximately 300m radius of the Site.
Intensity of these Air Raids:	Bombs dropped during the 31/08/1940 and 01/10/1940 air raids were likely a part of small-scale bombing raids. In contrast, all bombs dropped locally during the Christmas Blitz (22-24th December 1940) were a part of large-scale indiscriminate carpet-bombing raids carried out at night.
Bomb Strike Positions	
Closest Bomb Strikes	Parachute mines: 15m north. HE bombs: 180m north. 1kg / 2kg IBs: 40m south.
Alignment of recorded Bomb Strikes:	Two clear bomb sticks have been identified in the wider vicinity of the Site, although neither aligns with the boundary. However, given widespread evidence of damage in the area, it is conceivable that additional bomb strikes (unrecorded) occurred, and therefore an aircraft may have flown over the Site while dropping its bombload. Note, there is no positive evidence of this. For most small IB spreads (covering a wide area) it is impossible to correctly identify the aircraft's flightpath and thus bomb-stick alignment. Furthermore, such bombs were significantly affected by the wind, further hampering analysis.
Bomb Failure Rate	
Evidence to suggest that the generally accepted failure rate of 10% differs in the vicinity of the site:	None.
UXBs recorded in close proximity to the site:	None.

[3] https://ilovemanchester.com/mayfield-baths-remains-uncovered

5.4 Likelihood of Subsequent UXB Detection

A range of circumstances determine whether a UXB strike location would have been identified, during and after the war. This is discussed in the following table.

Historic Access
A UXB falling on a site which was frequently accessed would have had a better chance of being found. ARP Wardens actively searched for UXBs in heavily bombed residential areas. The importance of a site or nearby buildings and infrastructure was also a factor. Many industrial facilities had fire watchers tasked with extinguishing incendiary bombs and reporting UXBs.
As all air raids in the immediate vicinity likely occurred during the hours of darkness, there is a greater probability that any UXB strike on Site would have occurred unobserved since residents were inside and the industrial buildings were likely closed. While access on Site is typically likely to have been frequent at the onset of WWII, given its comprisal of residential/industrial structures and roadways, following recorded bomb damage, production at the works will likely have ceased, with access reducing for a time. Indeed, while no damage or bomb strikes are attributed to the residential properties in the east and south-west of the Site, WWII-era clearance (confirmed by 1944 aerial imagery) indicates that damage may have occurred in these areas as well. As a result, access to the residential properties will also have ceased. Even if the clearance was planned and not associated with bombing, the empty plots will not have been accessed frequently. Evidence of UXBs dropped during the same or subsequent raids as when the damage occurred may have been less likely to have been noticed as a result. In contrast, the undamaged water meter works in the south of the Site is likely to have been accessed throughout WWII, except for a period of evacuation following the extensive damage to its north and east.
Bomb Damage
As the bombing campaign continued, damaged areas became vulnerable to unreported UXBs. Bomb site wreckage or soil disturbance at a bomb crater could obscure evidence of a subsequent UXB strike.
A comparison of all available sources which record or display bomb damage indicates that the vast majority of the Site may have been damaged during WWII. Official bomb damage mapping records the majority of structures in the western and central sections as sustaining moderate or severe damage. While no damage is recorded to residential housing in the south-west and east of the Site, most of these houses were cleared by at least 1944, likely earlier. This may be indicative of bomb damage, and no evidence of planned clearance has been uncovered. Similarly, the brewery in the north-east is recorded as a 'Ruins' by the 1951-1952 OS map edition. While this may have been due to disrepair, bomb damage cannot be ruled out given the extensive damage recorded or evidenced in the immediate vicinity. While the majority of the industrial structures within the centre of the Site boundary appear undamaged in historical aerial imagery, given the time elapsed since the heaviest air raids on Manchester, which also affected the Site (3.5 years), it is conceivable and likely that repair works will have taken place. The only structures where damage has not been evidenced within any of the available sources are the water meter works in the south of the Site and several structures associated with the Chapelfield Works in the north.
Ground Cover Type
A UXB which falls on open field could easily go unnoticed, whereas a UXB dropped on a hard-surfaced car park would have been easily observed.
Prior to bomb damage occurring on Site, any UXB strike to the structures or roadways on Site would have caused incontrovertible evidence of its incidence as it passed the structures and into the ground beneath. This will have remained the case for undamaged structures and roadways on Site. However, following recorded and evidenced bomb damage across the Site, many of the structures are likely to have been ruined, with debris present. Any UXB strike to the ruins on Site may have occurred unnoticed, its entry hole obscured in rubble/debris from previous raids. Any such UXB could feasibly have never been recovered and could remain in situ in between or beneath previous post-WWII intrusions or in previously undisturbed areas. Furthermore, the bomb damage may have obscured prior evidence of a UXB strike which occurred during the same air raid.

5.5 Bombing During WWI

During WWI, an estimated 9,000 German bombs were dropped on London, Eastern England and South-Eastern England during some 51 Zeppelin airship raids and 52 fixed-wing aircraft raids. London suffered the worst of the bombing with an estimated 250 tonnes of HE and incendiary bombs recorded across the Capital, over half of which fell on the City of London district.

The WWI bombing campaign waged by Germany was on a far smaller scale than the WWII campaign, in terms of the number of raids, the weight of ordnance dropped during each attack and the size of the bombs used. When coupled with the fact that most WWI bombed locations have since been redeveloped, German WWI UXB finds are extremely rare. Furthermore, most air raids took place during daylight hours and as it was the first time Britain had experienced strategic aerial bombardment, the raids often attracted public interest and even spectators, increasing the chances of any UXBs being reported.

A complete collection of written air raid reports for the region was reviewed.[4] These confirm that Manchester did not experience any bombing raids during WWI. Consequently, there is no risk associated with WWI German UXO and it will not be discussed further.

6 WWII GERMAN BOMBS

6.1 Bombs Dropped on the UK

Nazi Germany used different types of ordnance against the UK for different effects. Some types were designed to cause fires, others for their destructive blast effect and other for their penetration capability. Each type of ordnance was fitted with at least one fuze. For some bombs multiple fuzes were used. Many different types of fuzes were available for use – each with its own set of associated hazards.

Data sheets on those bombs most likely to be encountered today are included at **APPENDIX 2**.

- **HE bombs – moderate NEQ (net explosive quantity):** the most common types of HE bombs dropped were the SC (general purpose - GP) and SD (semi-armour piercing - SAP) series of bombs. The NEQ is between 30-50%. SAP bombs are engineered to attack light fortifications, whereas GP bombs are used in a mixed destructive blast and anti-personnel fragmentation role. 70% of bombs dropped on the UK were the 50kg type.
- **HE bombs – high NEQ:** blast bombs and parachute mines have bodies made of thin steel, allowing for larger HE charges. These were designed to detonate above ground, maximising the blast effect. Parachute mines were weapons slowed by parachutes and designed to detonate without penetrating the ground. Although, in some marshland areas, partially buried parachute mines have been observed. Consequently, it is highly unlikely that any unexploded blast bombs remain buried in the UK today.
- **HE bombs – low NEQ:** The PC series were armour piercing bombs used against heavy fortifications and reinforced bunkers. They were not commonly used over the UK.
- **Small incendiary bombs:** The 1kg and 2kg incendiaries were the most dropped bomb. Up to 620 x 1kg incendiaries could be packed into the largest container unit, which opened at a pre-determined height scattering its payload over a wide area. These small bombs could fully penetrate soft ground due to their small diameter. Variants of the 1kg and 2kg incendiary bombs contained a small HE charge designed for an anti-personnel role, and to increase its incendiary effect.
- **Large incendiary bombs - Thick skinned:** The C50 has a thick body and contained a mixture of incendiary liquids and white phosphorus. Another version of the C50 had a white phosphorus fill. The C50 ‘firepot’ contained thermite incendiary containers (aka firepots) and a small HE charge.

[4] https://www.iancastlezeppelin.co.uk/

- **Large incendiary bombs - Thin skinned:** The Flam 250 and Flam 500 models had thin steel bodies designed to break up on impact, spreading their oil-incendiary mixture, which was ignited by a small HE charge. Consequently, it is highly unlikely that any unexploded Flam bombs remain buried in the UK today. Their unreliability meant withdrawal from frontline use by January 1941.
- **Submunitions:** The SD2 'butterfly' bomb was a 2kg submunition dropped on several British cities and towns. It contained a 225gram HE charge. SD2s had no ground penetration ability so the vast majority were recovered at the time. However, SD2s are still found across Britain today.
- **V1 flying bombs and V2 rockets:** In the final year of WWII Germany began using pilotless weapons against England. Both V Weapons had 1,000kg HE warheads. Due to their light-body construction, they had no penetration ability and any impact left a noticeable debris field. As such, there is negligible risk from unexploded V weapons today.

6.2 Bomb Failures

Records from September 1940 to July 1941 show that an average of 84 UXBs were dropped on civilian targets each day. Around 8% of these were time delay bombs – designed to strike the ground and start a predetermined countdown which could last days.

There is a generally accepted 10% failure rate for WWII German HE bombs. This is estimated from records gathered by bomb disposal units. These statistics do not account for UXBs that went by unnoticed.

Failures can happen for different reasons, including:

- Equipment or human error in arming the bombs before release,
- Failure of a mechanism within the fuze (out of tolerance),
- Jettisoning payloads if the bomber was under attack or crashing, or
- Partially functioned bombs (e.g. cracks in the cast TNT)

6.3 Bomb Ground Penetration

6.3.1 Introduction

Using data gathered during WWII by the Ministry of Home Security, estimations can be made about how deep a bomb is likely to penetrate the ground. Over one thousand incidents were reported by the bomb disposal units to support this research. Further tests were carried out, dropping bombs of different sizes into chalk and measuring the depths they reached. This research is held at the National Archives. The estimates are:

Bomb weight (kg)	Ground Type (m)							
	Sand		Gravel		Chalk		Clay	
	Average	Max.	Average	Max.	Average	Max.	Average	Max.
50	2.8	7.8	2.8	7.8	3.5	7.7	4.0	9.1
250	4.8	13.7	4.8	13.7	6.0	13.1	6.8	15.8
500	6.0	17.3	6.0	17.3	7.6	16.4	8.7	19.8
1,000	7.6	21.9	7.6	21.9	9.6	20.7	10.9	24.9

Different layers of geology affect penetration depths. For example, 1m of made ground, then 1m of gravel before reaching clay – as is many areas of London – is not easily calculated from the data above.

When calculating how deep a bomb could have reached, we must make three assumptions:

- **Impact velocity:** German bombing raids were carried out at altitudes in excess of 5,000m. The velocity of impact is roughly 313ms^{-1} (not accounting for resistance). It is the same velocity regardless of mass.
- **Impact angle:** strike angles of 10 to 15 degrees to the vertical. It must be assumed that the bomb was stable at the moment of ground penetration.

- **Bomb design:** Some larger German bombs were occasionally fitted with 'kopfrings' - a metal ring, triangular in cross section, fitted around the nose of the bomb to help prevent penetration. It must be assumed that no 'kopfrings' were fitted.

6.3.2 The J-Curve Effect

During WWII BDUs reported that most buried UXBs were found horizontal or upturned. This observation confirmed the 'J-curve effect'. As an HE bomb penetrates the ground, slightly offset from the vertical, its passage underground creates a 'J' shape.

This is relevant because the J-curve effect results in a horizontal offset between the buried UXB and its point of entry. This is distance is estimated to be one third of the theoretical penetration depth. A low altitude attack, meaning a low impact angle, could produce an even greater offset, of up to 15m.

6.3.3 Site Specific Geology

BGS Mapping	**Superficial Deposits:** Centre of the Site: Alluvium – Clay, Silt, Sand & Gravel East of the Site: Till, Devensian – Diamicton	**Bedrock Deposits:** Chester Formation - Sandstone
SI Data	Recent SI data was provided by the Client. This SI (October 2019) encountered the following ground conditions: - 1.50m of made ground - 2.60m of reworked clay - 16.90m of sandstone	

6.3.4 Site Specific Maximum Bomb Penetration Depth

During WWII the Luftwaffe dropped many different types of HE bomb. The SC (general purpose) series was by far the most numerous and of this series, the SC 500 model (weighing 500kg) was the largest of the most commonly deployed and therefore this will be used as the benchmark weapon for the Site-specific bomb penetration depth calculations.

To calculate an accurate maximum bomb penetration depth, Brimstone has taken the average of the averages of the figure for the predominant Site-specific geology in the table above. However, due to the presence of sandstone, this has not proved possible. Despite this, the presence of sandstone, which is high in hardness, is anticipated to impose a greater effect on reducing the kinetic energy of a UXB than the geologies listed in the table in ***Section 6.3.1***. Furthermore, the Client has indicated that the made ground on Site could have been down to 8m below ground level. As such, it is possible that the combination of this, with the sandstone below, may have created conditions whereby a UXB could come to a halt once it struck the bedrock geology, thus remaining within made ground. Additionally, any UXB striking the structures on Site will have first passed through multiple stories, increasing the loss of kinetic energy prior to ground penetration. The combination of these factors makes calculating an accurate depth impossible.

NB: theoretically penetration depths could be greater if the UXB was larger, however, War Office statistics confirm that between October 1940 and May 1941 the majority of HE UXBs (>90%) were either 50kg or 250kg, with the 500kg bombs making up most of the remaining 10%.

7 UXO RISK - BRITISH/ALLIED ACTIVITY

7.1 Introduction

The table below lists potential sources of UXO (excluding enemy action). Those which are potentially relevant to the Site are discussed in the subsequent section(s).

Potential UXO Source	Potentially Significant
Army or RAF training areas / ranges	✗
Military bases and other installations	✗
Munitions and explosives factories	✗
Military storage depots	✗
Defensive fortifications	✗
Wartime site requisitions	✗
WWII defensive mining (landmines)	✗
WWII Home Guard activity	✗
Wartime anti-aircraft fire	✓

7.2 Potential Sources of UXO

7.2.1 Introduction

Research has not located any evidence of significant British or Allied army, RAF or Royal Navy activity specifically on Site and none is likely to have occurred historically. The only likely potential source of British UXO contamination is therefore WWII AA artillery fire.

7.2.2 WWII Anti-Aircraft Fire

Anti-Aircraft (AA) Command was a British Army command established in 1939 to defend the UK during the anticipated German bombing campaign. It controlled the Territorial Army AA artillery and searchlight units. From 1940 to 1945 BDUs dealt with 7,000 unexploded AA shells in Britain. There were three main types of AA battery used for home defence (see below). Data sheets on these AA defences are included at **APPENDIX 3**.

- **Heavy Anti-Aircraft (HAA):** large calibre guns (3.7" and 4.5") for engaging high altitude bomber formations. Hundreds of permanent batteries were constructed in and around major cities and military bases during the 1930s. Some 2,000 of these guns were available during the Blitz. Each gun could fire between 10 and 20 rounds per minute and consequently HAA batteries could expend large quantities of shells during each engagement.

  British time fuses were poorly manufactured during WWII and this led to high failure rate for HAA shells, up to 30%. Unexploded HAA shells had the potential to land up to 27km from their battery, although more typically landed within a 15km radius.

- **Light Anti-Aircraft (LAA):** smaller calibre guns for engaging dive bombers and low altitude intruders. As such they were mostly used to defend specific industrial and military targets which were subject to precision bomber attack. LAA guns were either .303" calibre machine guns or 20mm and 40mm calibre cannon. The latter were fitted with simply impact fuses and small incendiary or HE bursting charges.

  The 40mm Bofors gun could fire 120 x HE shells / minute to a ceiling of 1,800m. Each shell was designed to self-destruct if it didn't strike an aircraft, however, inevitably some failed and fell back to earth.

- **Z (Rocket) Batteries**: a Z-Battery comprised a grid formation of 64 rocket projectors which fired 2" and later 3" Unrotated Projectile (UP) rockets to a maximum altitude of 5,800m; a ground range of some 9,000m. They were deployed in cities all around the UK from 1941 and proved to be an effective addition to the existing AA guns.

The rockets measured 0.9m (2") and 1.8m (3") in length with four stabilising fins at the base and were fitted with 3.5kg or 8.2kg HE warheads. The larger warhead had an effective airborne blast radius of up to 20m. Some variants deployed a form of aerial mine described as a "small yellow bomb" which was designed to detach from the rocket at height and descend on a parachute with the objective of becoming snagged on target aircraft and then detonating.

Unlike bombs which were designed to strike the ground, AA projectiles and rockets were designed to function in the air. Due to their shape, and centre of gravity they would often not strike the ground nose first. This coupled with the lower mass of AA UXO resulted in shallower ground penetration depths, compared to UXBs. Although, in very soft conditions, unexploded AA projectiles have been found deeper than 1.5m bgl.

Numerous (>30) permanent HAA batteries were active within range of the Site during WWII. LAA guns likely defended Vulnerable Points within the borough. Luftwaffe activity was relatively infrequent throughout WWII, but somewhat intense over the wider area and therefore these guns would have expended a vast quantity of ammunition at times. Consequently, there is an elevated likelihood of unexploded AA shells striking the Site.

8 UXO RISK MITIGATING CIRCUMSTANCES

8.1 Introduction

Works on a UXO contaminated site could result in the partial or complete removal of UXO risk. Construction or earthworks may have uncovered any UXO contamination, which would then have been reported and removed by the authorities. A site may have been subject to an explosive ordnance clearance (EOC) task conducted by the armed forces. EOC tasks involve surveying, subsequent target investigation and removal of UXO. Although the effectiveness of historic EOC tasks will have often been unsatisfactory.

8.2 Explosive Ordnance Clearance Tasks

The division of EOD tasks has been complex throughout British military history. It used to be the case that anything under the water level would be dealt with by navy units, and anything on land would be dealt with by army units. In recent years RAF EOD capability has been discontinued, and now only the Royal Navy and the British Army have EOD units. In the army, the Royal Logistics Corps and Royal Engineer EOD units have been amalgamated to form 29 EOD & Search Group. Often taskings are assigned to either the naval or army elements based on where in the country the threat is and the nature of the threat.

Brimstone has access to a database of historic EOC tasks. This database is only complete up until the early 2000s and therefore does not include recent EOC tasks. No such database for the RAF and Royal Navy EOD units is easily accessible. A search of this database has not resulted in any Army EOC tasks in the vicinity of the Site.

UXO encounters on civilian land are often reported in the media and therefore a web search of local media outlets was also carried out. No recent incidents within close proximity to the Site were identified.

8.3 Ground Works

Following WWII, a large warehouse-type structure was constructed in the east of the Site, alongside additional minor structures. An additional structure was also built in the western parcel. These developments likely required shallow ground works (1-2m bgl). The structures in the east appear to have been the first cleared from the Site by April 2013, followed by the structure in the western parcel of the Site by May 2019. A structure in the centre of the Site was demolished by April 2020, with the last remaining structure cleared by March 2021. The clearance of the WWII-era structures in the centre of the Site will have disturbed the soil to the depths of their foundations, likely shallow although potentially deep (>2m bgl) in some areas. The Phase 1B section of the Site has not been subject to any significant ground works since March 2021, with the remnants of made ground and hardstanding visible in aerial imagery. Large-scale ground works have taken place in the Phase 1A section of the Site. Finishing in July 2022, the brief followed by the contractor was to remove all made ground from the Phase 1A section of the Site, down to the natural soils. However, the Client has stated that there is the potential for residual made ground to remain in these areas. The alluvium deposits in the centre of the Site were not disturbed.

8.4 Deductions

The construction of post-WWII structures in the east of the Site likely largely mitigated the risk from shallow buried UXO in these areas; however, given the lack of deep ground works in the Phase 1B area of the Site, the risk from deep buried UXBs has not been mitigated. Whilst ground works took place in the Phase 1A area of the Site by July 2022, there is still the potential for residual made ground to remain. The section sketches provided by the Client indicate that Plots O and N both contain either alluvium deposits or made ground above the sandstone bedrock, except for a small section in the centre. In contrast, Plot M contains a smaller proportion of made ground, with most of the engineered fill sitting above the sandstone bedrock. However, as the precise locations of the made ground, alluvium, and where the engineered fill rests immediately above the bedrock cannot be discerned from the section sketches provided, it has not proved possible to 'zone' the Site into areas of risk based on the previous works. If a plan of the whole Site, indicating where the ground above the sandstone bedrock has been entirely replaced with the engineered fill, a reassessment can be made.

Please note, the risk of a UXO encounter can be considered mitigated in the exact locations and down to the exact depths of any post-WWII intrusive works. As such, the risk to the planned boreholes in the Phase 1A section of the Site is only present within ground undisturbed since WWII (i.e., made ground, alluvium, sandstone). As such, the risk from very shallow (<1m bgl) or shallow buried HAA shells has likely been mitigated across the vast majority Phase 1A.

9 CONCLUSION

9.1 Accuracy of Historical Records

Occasionally, the accuracy of some historical records can prove to be poor when compared with other sources of information. One significant consequence of this can be the possibility of unrecorded German bomb strikes in the study area. Although a relatively low number of HE bombs are recorded in the vicinity of the Site, there is evidence of widespread damage throughout the area. While it is conceivable that many of the residential houses were cleared as part of planned slum clearances, there is no evidence of this occurring during WWII and bomb damage is an equally likely scenario. There is therefore the possibility that bomb strikes in the vicinity went unrecorded.

9.2 The Risk of UXO Contamination on Site

9.2.1 Key Findings – German UXO Risk

- Greater Manchester was the 11th most heavily bombed British conurbation during WWII. Like today, the Site occupied an area on the periphery of the city centre during the Blitz. However, an analysis of Luftwaffe target mapping indicates that a large area comprising both London Road and Mayfield railway stations and the surrounding infrastructure, located approximately 45m to the north of the Site at its closest point, and an iron works approximately 85m to the west of the Site, were bombing targets during WWII.
- A comparison of all available sources which record or display bomb damage indicates that the vast majority of the Site may have been damaged during WWII. Official bomb damage mapping records the majority of structures in the western and central sections as sustaining moderate or severe damage as a result of a parachute mine. While no damage is recorded to residential housing in the south-west and east of the Site, most of these houses were cleared by at least 1944, likely earlier. This may be indicative of bomb damage, as no evidence of planned clearance has been uncovered. The only structures where damage has not been evidenced within any of the available sources are the water meter works in the south of the Site and several structures associated with the Chapelfield Works in the north.
- Following bombing and associated damage within the centre and west of the Site, coupled with evidenced damage in the east and south, access levels likely ceased for an indeterminate time and areas of debris were likely present. Evidence of UXBs dropped during the same or subsequent raids may have been less likely to have been noticed as a result. Indeed, as all air raids in the immediate vicinity likely occurred during the hours of darkness, there is a greater probability that any UXB strike would have occurred unobserved since residents /workers in the local area were inside / sheltering. UXBs which may have penetrated the ground could come to rest beneath undamaged areas of the Site due to the J-Curve effect, whereby a UXB may travel laterally from its point of entry.

- In summary, the risk on Site varies – see **FIGURE 7** for risk mapping. Recorded and evidenced damage across the majority of the Site may have created conditions unconducive to the detection of a UXB strike, increasing the likelihood that a UXB could have fallen unnoticed, subsequently becoming obscured. As a result, there is an assessed **Moderate Risk** of German UXO contamination in this area, including a buffer zone to account for the risk of the J-Curve Effect. Please note that the assessed risk applies to WWII-era ground, and therefore ground works taking place within the engineered fill in the Phase 1A section of the Site are not considered to be at risk of a UXO encounter.
- However, the water meter works in the south of the Site does not appear to have sustained damage. As a result, UXBs are more likely to have been noticed and dealt with at the time; a **Low Risk** of German UXO contamination has therefore been assessed at the works' former footprint. Note, while several other structures appeared undamaged throughout WWII, they have been included within the Moderate Risk zone due to the risk of a UXB coming to contaminate the ground beneath as a result of the J-Curve Effect, after penetrating the ground in areas of damage.

9.2.2 Key Findings - British UXO Risk

- There is no evidence of historical military activity on Site, and none is likely to have occurred. As a result of this, there is an assessed **Low Risk** from British/Allied UXO.
- Numerous (>30) permanent HAA batteries were active within range of the Site during WWII. LAA guns likely defended Vulnerable Points within the borough. Luftwaffe activity was relatively infrequent throughout WWII, but somewhat intense over the wider area and therefore these guns would have expended a vast quantity of ammunition at times. Consequently, there is an elevated likelihood of unexploded AA shells striking the Site. However, please note that given that the penetration depths of HAA shells are approximately 1-2m bgl maximum, post-WWII ground works (***Section 8.4***) are anticipated to have mitigated the risk of such items of UXO remaining across most of the Phase 1A section of the Site.

9.3 Site-Specific UXO Hazards

Different types of UXO pose differing types of hazard, depending on their structural design, Net Explosive Quantity (NEQ), fill type and likely contamination depth. The table below lists the main types of UXO most often encountered on urban UK sites and their relative hazard levels.

UXO Type	NEQ (NEQ Range)	Likely Burial Depth	Hazard Posed
WWII German General Purpose HE Bombs	25kg - 220kg (most commonly deployed bomb weights)	Likely deep burial (>2m)	HIGH RISK
WWII British Heavy Anti-Aircraft Shells	1.1kg - 1.7kg	Shallow burial (1-2m)	MODERATE-HIGH RISK
WWII British Land Service Ammunition	<2kg	Shallow burial (1-2m)	
WWII German 2kg Incendiary / HE Bombs	680g incendiary hazard + ~500g explosive hazard	Shallow burial (1-2m)	
WWII German 1kg IBs	680g (incendiary, not explosive hazard)	Shallow burial (1-2m)	MODERATE RISK
WWII British Light Anti-Aircraft Shells	4g - 70g	Very shallow burial (<1m)	LOW-MODERATE RISK
Small Arms Ammunition	<1g	Very shallow burial (<1m)	LOW RISK
Inert/Practise Item	0g	Very shallow burial (<1m)	

9.4 The Likelihood of UXO Encounter

9.4.1 Introduction

This report assesses the risk of UXO in relation to the proposed works, not simply the risk that UXO remains buried on site. The likelihood of UXO encounter during intrusive ground works will vary depending on the type of UXO and the type of construction methods employed during the project. With increased soil disturbance i.e. more excavations, the likelihood of encountering UXO increases.

Within an area of elevated UXO contamination likelihood, the sub-surface volume of potential UXO contamination will comprise the natural soil / geology in between WWII ground level and the maximum bomb penetration depth. Therefore, any intrusions into this layer will be at risk of UXO encounter.

Any post-WWII fill material deposited on a site is unlikely to be contaminated with UXO and therefore the risk of encountering UXO on such a site could vary with depth.

In the wake of the initial nine-month Blitz, many cities and towns were left with vast quantities of bomb site rubble that required removal and relocation. This material was put to use for in a variety of ways, for example >750,000 tons of London's rubble was used to build runways for new RAF and USAAF airfields and much of Liverpool's rubble was used to create and maintain sea / flood defences throughout Merseyside.

It is quite possible that unexploded British AA projectiles and German 1kg incendiaries were overlooked during removal, resulting in UXO contaminated fill material ending up on otherwise low UXO risk sites, possibly many miles from any high bombing density areas.

9.4.2 German UXBs

Although most German UXBs came to rest several metres below WWII ground level, these weapons can be found at any level between just below WWII ground level and the maximum bomb penetration depth. There are a number of reasons why these heavy bombs might be found at surprisingly shallow depths.

- **Tip and run:** When enemy aircraft had to take evasive action to escape RAF fighter intercepts or AA defences, they often dropped their bomb loads from a reduced height, potentially resulting in extreme J-curve effect.
- **Deflection:** the shape of German bomb nose sections meant they were susceptible to deflection when striking surface or shallow sub-surface obstacles, occasionally resulting in shallow burial or even UXBs skidding across hardstanding.
- **Aircraft Crash Site:** if an aircraft was unable to dump its bomb load before impacting the ground, due to mechanical fault, any externally fitted bombs could have become buried on impact.

German 1kg / 2kg incendiaries were cylindrical and approximately 50mm in diameter. They had tail sections, and so landed nose first. Within soft ground this could result in full penetration of the bomb below the surface. Such UXBs are usually found close to the surface.

9.4.3 British / Allied UXO

The nature of British/Allied military activity involving LSA and SAA and the smaller size of these munitions (in relation to German HE bombs) indicates that any resulting UXO contamination on a site will be limited to shallow depths, usually within 1.5m of the surface, notwithstanding added material to raise the ground level.

Domestic military LSA and SAA contamination will either be the result of expending blinds (dud ammunition) which bury into the ground on impact or munitions purposefully buried, for a number of reasons. Either way, these types of UXO are all found at shallow depth.

9.4.4 Deductions

An elevated likelihood of UXO contamination (German) and likelihood of that UXO remaining up to the present day has been identified across the majority of the Site. Therefore, all the proposed works are considered to be exposed to a UXO encounter. However, the assessed risk applies to WWII-era ground, and therefore ground works taking place within the engineered fill in the Phase 1A section of the Site are not considered to be at risk of a UXO encounter.

10 OVERALL RISK RATING

Ratings for the likelihood of UXO contaminating the Site, remaining within the Site up to the present day and being encountered during the proposed works, inform the overall risk rating. The UXO risk to the proposed works varies. **Low** and **Moderate Risk** zones have been identified. These are illustrated within the risk map displayed at **FIGURE 7.**

Risk Table: Low Risk				
UXO TYPE (ASSOCIATED HAZARD)	LIKELIHOOD OF UXO CONTAMINATION	LIKELIHOOD OF UXO REMAINING	LIKELIHOOD OF ENCOUNTER	OVERALL RISK RATING
WWII German 'Iron' Bombs	Low	n/a		LOW
WWII British Heavy Anti-Aircraft Shells	Low	n/a		
WWII British Land Service Ammunition	Low	n/a		
WWII German 2kg Incendiary / HE Bombs	Low	n/a		
WWII German 1kg Incendiary Bombs	Low	n/a		
WWII British Light Anti-Aircraft Shells	Low	n/a		
WWII British Small Arms Ammunition	Low	n/a		

Risk Table: Moderate Risk				
UXO TYPE (ASSOCIATED HAZARD)	LIKELIHOOD OF UXO CONTAMINATION	LIKELIHOOD OF UXO REMAINING	LIKELIHOOD OF ENCOUNTER	OVERALL RISK RATING
WWII German 'Iron' Bombs	Moderate	Moderate	Moderate	MODERATE
WWII British Heavy Anti-Aircraft Shells	Moderate	Moderate	Moderate	
WWII British Land Service Ammunition	Low	n/a		LOW
WWII German 2kg Incendiary / HE Bombs	Low	n/a		
WWII German 1kg Incendiary Bombs	Low	n/a		
WWII British Light Anti-Aircraft Shells	Low	n/a		
WWII British Small Arms Ammunition	Low	n/a		

11 RISK MITIGATION RECOMMENDATIONS

Brimstone has identified an elevated UXO risk to the majority of the proposed works. The measures detailed below are recommended to mitigate the risk to ALARP level.

Risk Mitigation Measure	Recommendation
UXO Safety Awareness Briefings: To all personnel conducting intrusive works on Site. An essential part of the Health & Safety Plan for a site. Conforms to the requirements of CDM2015.	Prior to all intrusive works commencing.
EOD Engineer - On Site Supervision: Watching brief for open excavations below WWII ground level. Portable magnetometer instruments for clearing ground ahead of borehole positions and shallow excavations (where / when appropriate). Positive identification of suspicious (non UXO) objects. Liaison during confirmed UXO incidents. Provision of additional UXO Safety Awareness Briefings.	Watching brief of all open excavations and magnetometer survey of borehole locations in the **Moderate Risk** zone.
Intrusive Magnetometer Probe Survey: A range of intrusive magnetometer methodologies can be deployed to survey the ground (down to the maximum bomb penetration depth) prior to deep intrusive works; pile foundations. The appropriate technique is governed by a number of factors, the most important being the site-specific ground conditions.	Of any pile positions in the **Moderate Risk** zone.

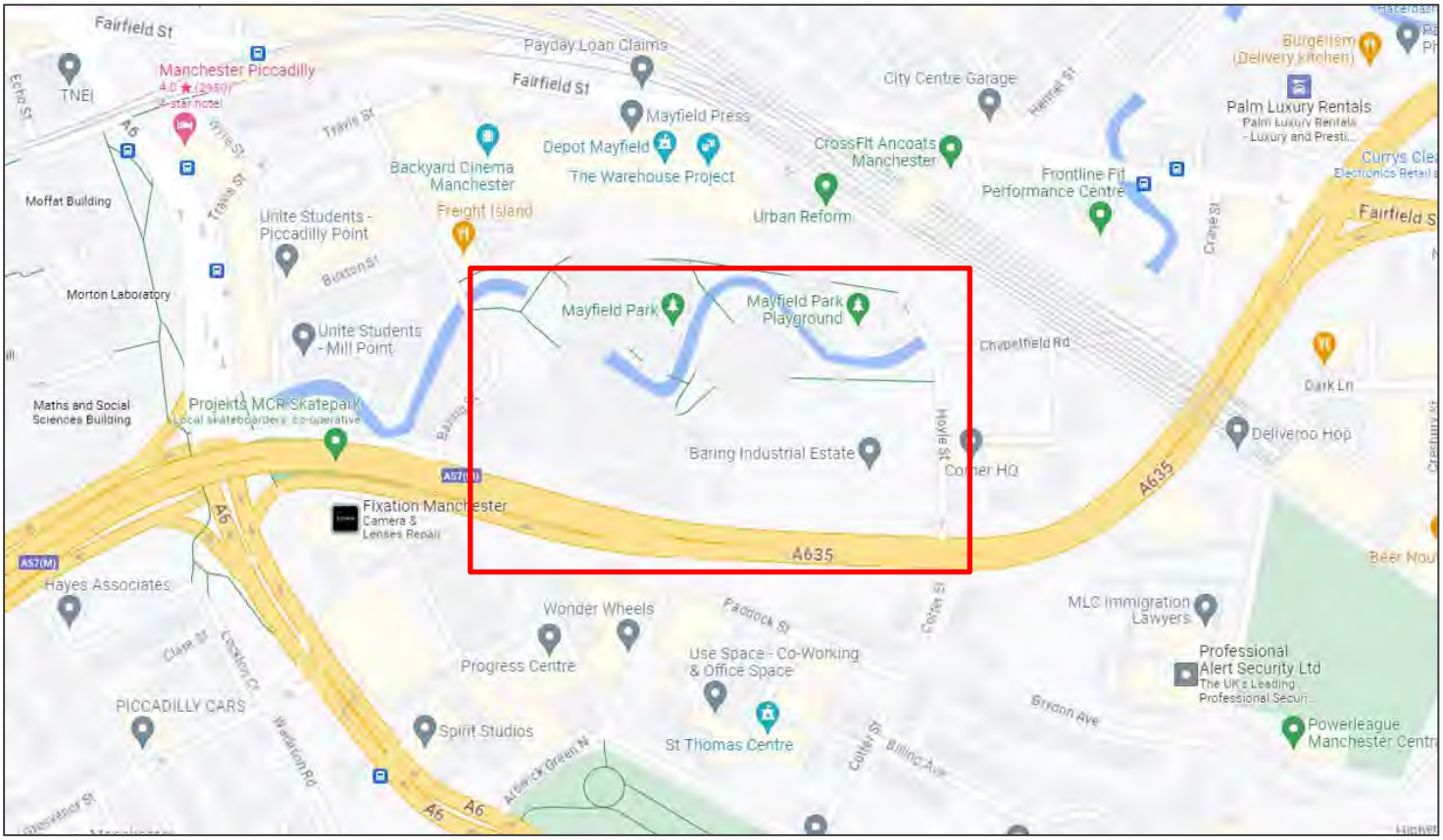
FIGURES: 1 - 7

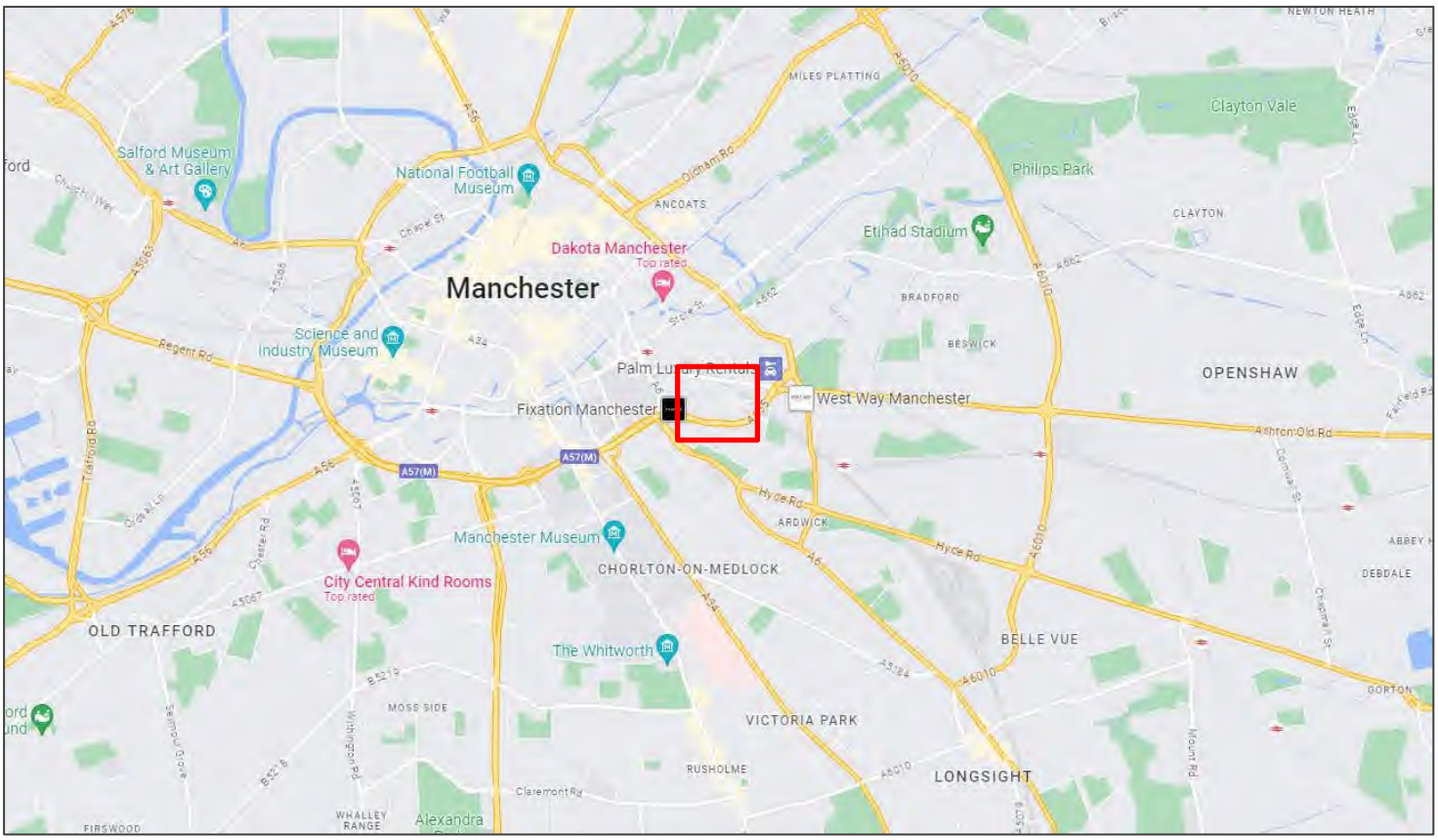
BRIMSTONE
Innovation Centre Medway
Maidstone Road
Chatham
ME5 9FD
+44 (0) 207 117 2492
www.brimstoneuxo.com
enquire@brimstoneuxo.com

N

Title: Site Location Maps

FIGURE: 1





Project:	**Phase 1A and Phase 1B, Mayfield**
Client:	**Civic Earth**
Report Ref:	**DRA-23-1612**
General Site Location:	Info Source: Google (open-source)

BRIMSTONE
Innovation Centre Medway
Maidstone Road
Chatham
ME5 9FD
+44 (0) 207 117 2492
www.brimstoneuxo.com
enquire@brimstoneuxo.com

	Title:	Recent Aerial Photograph	FIGURE: 2



Project:	**Phase 1A and Phase 1B, Mayfield**	Report Ref:	**DRA-23-1612**
Client:	**Civic Earth**	Info Source:	Google (open-source)

Approx. Site Boundary

BRIMSTONE
Innovation Centre Medway
Maidstone Road
Chatham
ME5 9FD
+44 (0) 207 117 2492
www.brimstoneuxo.com
enquire@brimstoneuxo.com

N	Title:	Current Site Plan	FIGURE: 3

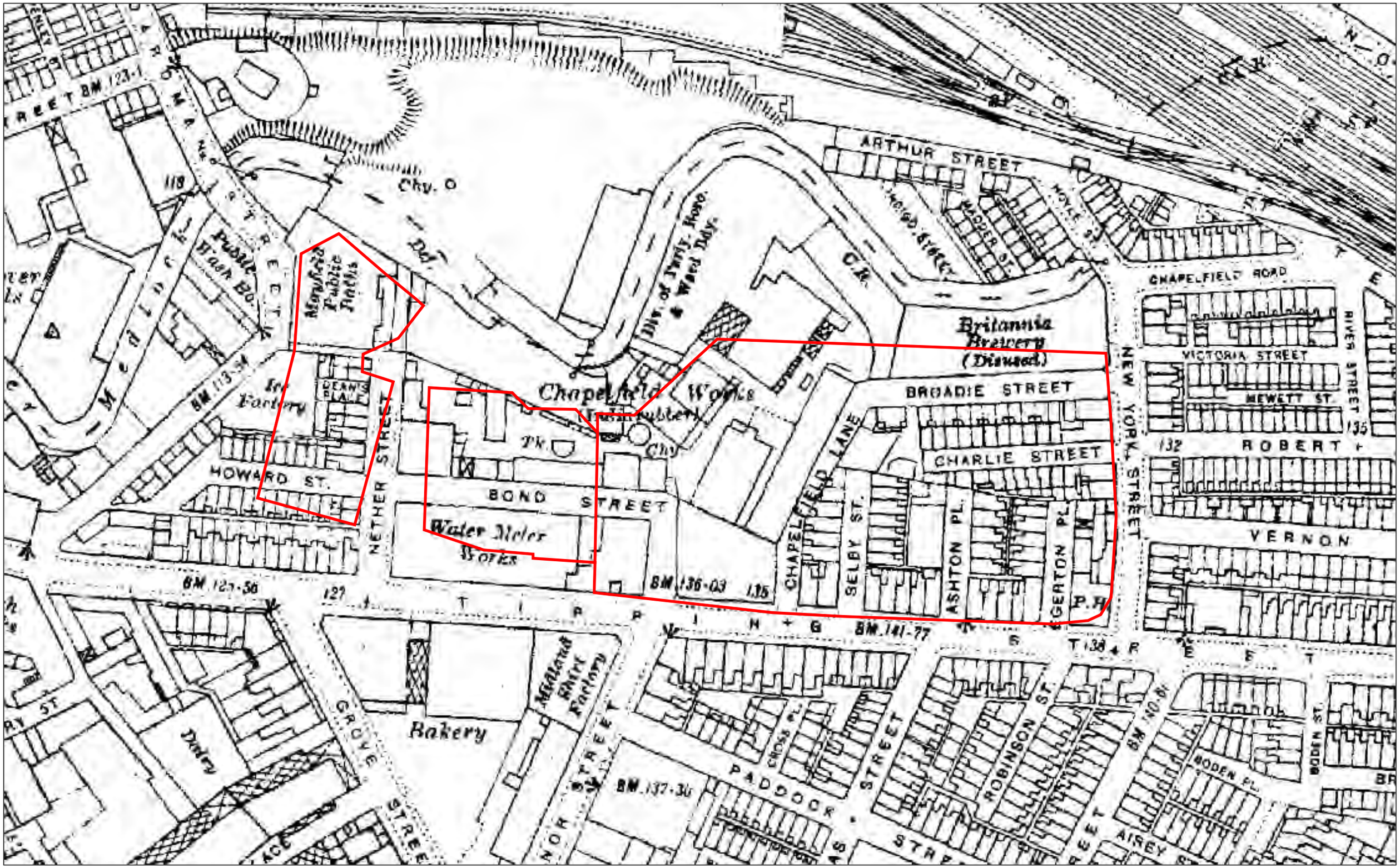




Project:	Phase 1A and Phase 1B, Mayfield
Client:	Civic Earth
Report Ref:	DRA-23-1612
Site Boundary:	Info Source: Civic Earth

BRIMSTONE
Innovation Centre Medway
Maidstone Road
Chatham
ME5 9FD
+44 (0) 207 117 2492
www.brimstoneuxo.com
enquire@brimstoneuxo.com

Title: Historical OS Mapping - 1932 | FIGURE: 4.1



Project:	Phase 1A and Phase 1B, Mayfield	Report Ref:	DRA-23-1612
Client:	Civic Earth	Info Source:	Landmark Maps

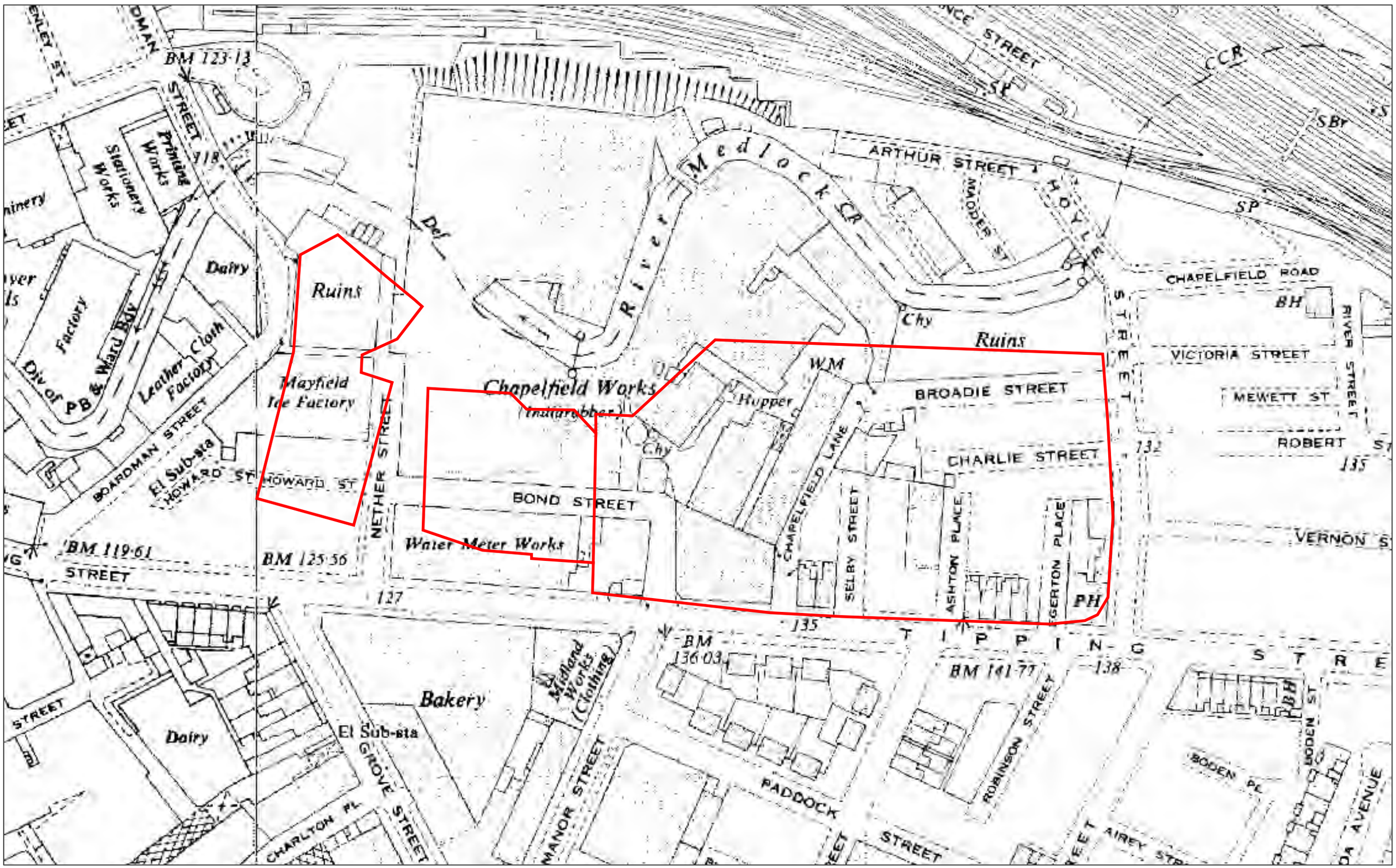
Approx. Site Boundary

BRIMSTONE
Innovation Centre Medway
Maidstone Road
Chatham
ME5 9FD
+44 (0) 207 117 2492
www.brimstoneuxo.com
enquire@brimstoneuxo.com

N

Title: Historical OS Mapping – 1951-1952

FIGURE: 4.2



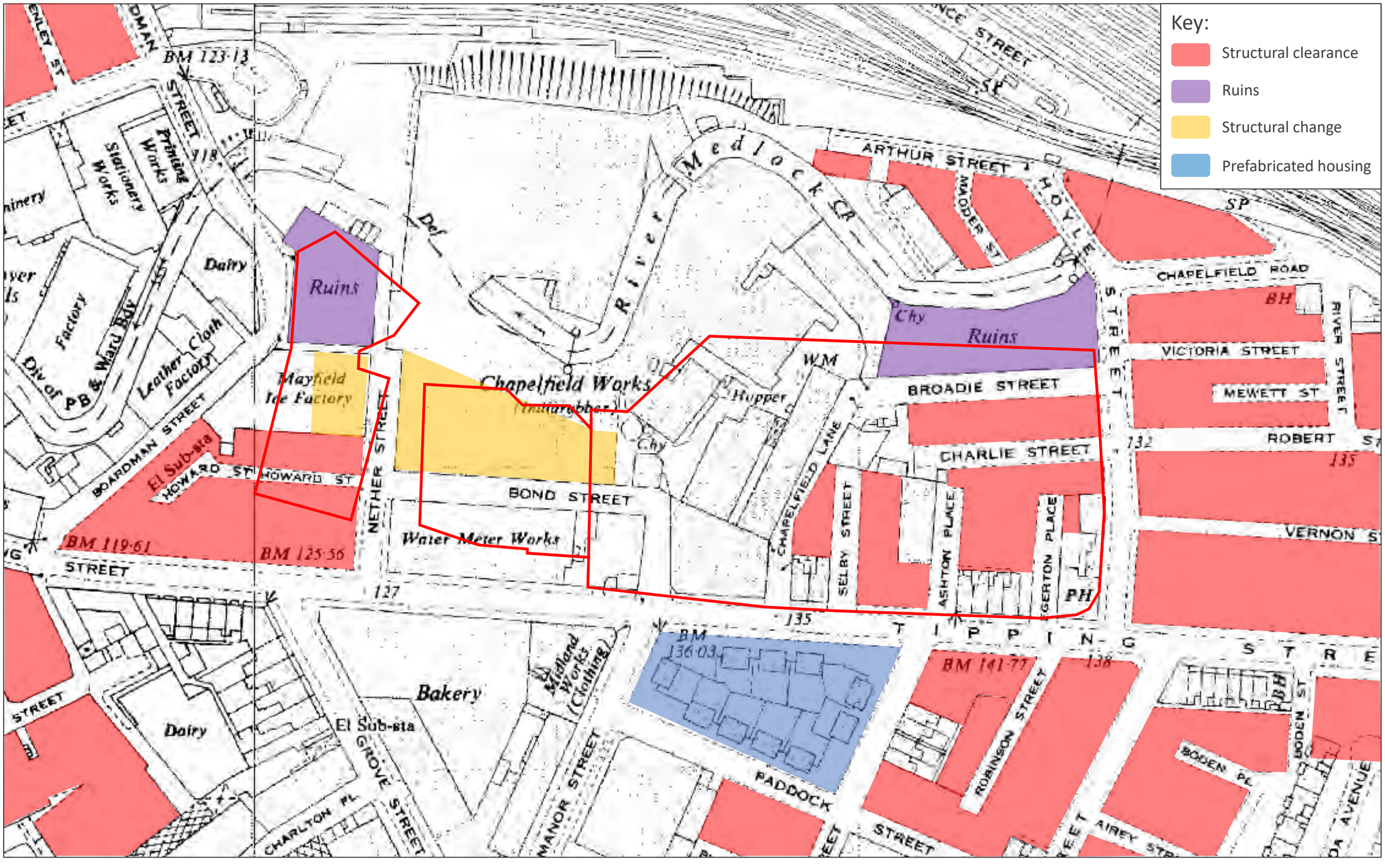
Project:	Phase 1A and Phase 1B, Mayfield	Report Ref:	DRA-23-1612	Approx. Site Boundary	
Client:	Civic Earth	Info Source:	Landmark Maps		

BRIMSTONE
Innovation Centre Medway
Maidstone Road
Chatham
ME5 9FD
+44 (0) 207 117 2492
www.brimstoneuxo.com
enquire@brimstoneuxo.com

N

Title: Historical OS Mapping – Possible Bomb-Related Clearance/Damage Overlay

FIGURE: 4.3



Project:	**Phase 1A and Phase 1B, Mayfield**	Report Ref:	**DRA-23-1612**	Approx. Site Boundary	
Client:	**Civic Earth**	Info Source:		Landmark Maps	

BRIMSTONE
Innovation Centre Medway
Maidstone Road
Chatham
ME5 9FD
+44 (0) 207 117 2492
www.brimstoneuxo.com
enquire@brimstoneuxo.com

Title:	Historical Aerial Photography – 30th May 1944	FIGURE: 5.1



Project:	Phase 1A and Phase 1B, Mayfield	Report Ref:	DRA-23-1612
Client:	Civic Earth	Info Source:	Historic England

Approx. Site Boundary

BRIMSTONE
Innovation Centre Medway
Maidstone Road
Chatham
ME5 9FD
+44 (0) 207 117 2492
www.brimstoneuxo.com
enquire@brimstoneuxo.com

Title:	Historical Aerial Photography – 16th May 1948	FIGURE: 5.2



Project:	Phase 1A and Phase 1B, Mayfield	Report Ref: DRA-23-1612	Approx. Site Boundary
Client:	Civic Earth	Info Source:	Historic England

BRIMSTONE
Innovation Centre Medway
Maidstone Road
Chatham
ME5 9FD
+44 (0) 207 117 2492
www.brimstoneuxo.com
enquire@brimstoneuxo.com

Title: Manchester Bomb Plot & Damage Mapping **FIGURE: 6.1**



Project:	**Phase 1A and Phase 1B, Mayfield**	Report Ref:	**DRA-23-1612**	Approx. Site Boundary	
Client:	**Civic Earth**	Info Source:	Manchester City Archives		

BRIMSTONE
Innovation Centre Medway
Maidstone Road
Chatham
ME5 9FD
+44 (0) 207 117 2492
www.brimstoneuxo.com
enquire@brimstoneuxo.com

N

Title: Manchester Bomb Plot & Damage Mapping

FIGURE: 6.2



Project:	**Phase 1A and Phase 1B, Mayfield**	Report Ref:	**DRA-23-1612**
Client:	**Civic Earth**	Info Source:	Manchester City Archives

Approx. Site Boundary

BRIMSTONE
Innovation Centre Medway
Maidstone Road
Chatham
ME5 9FD
+44 (0) 207 117 2492
www.brimstoneuxo.com
enquire@brimstoneuxo.com

N	**Title:**	**Risk Map – Recent Aerial Photograph**	**FIGURE: 7.1**



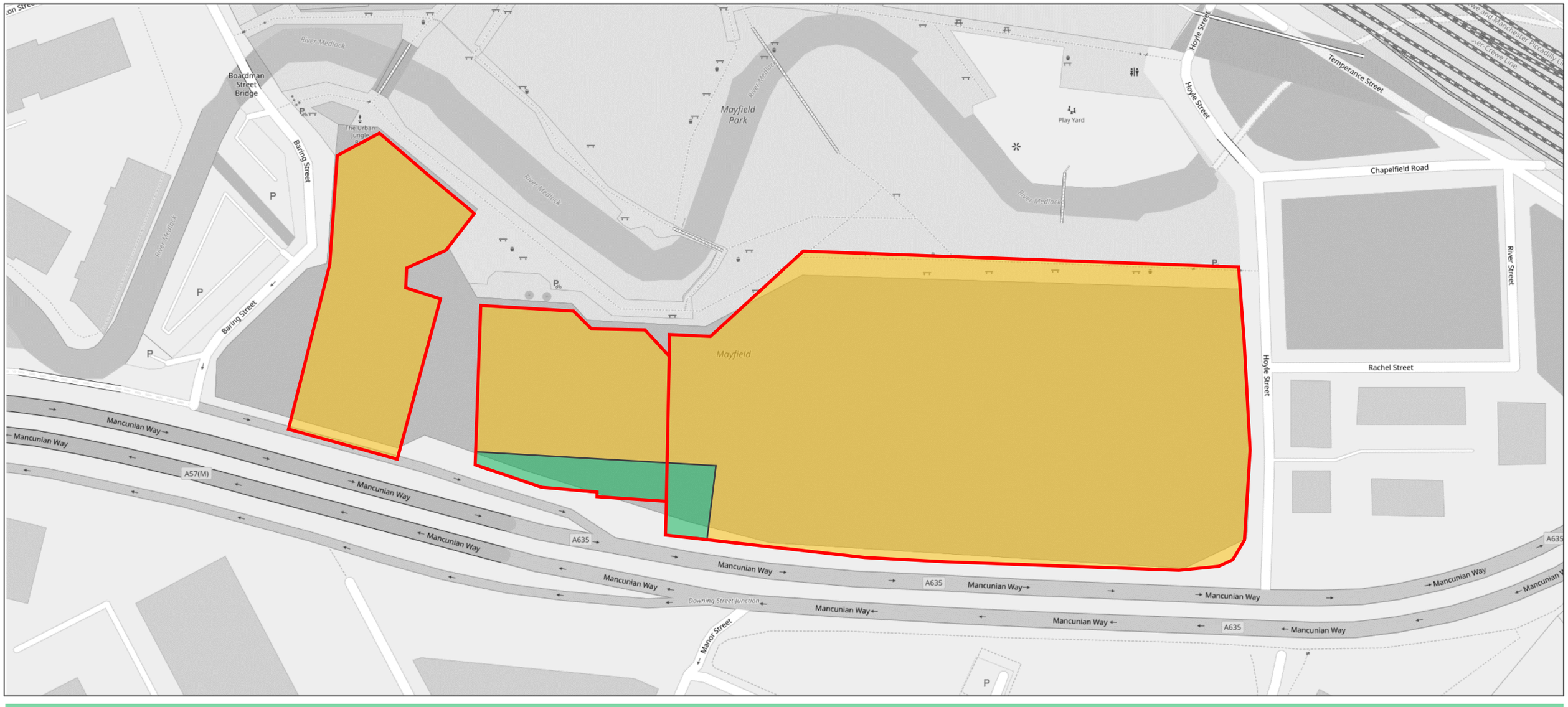
Low Risk from German UXO

Moderate Risk from German UXO and HAA Shells

Project:	**Phase 1A and Phase 1B, Mayfield**	Report Ref: **DRA-23-1612**	Approx. Site Boundary
Client:	**Civic Earth**	Info Source:	Google Earth (open-source)

BRIMSTONE
Innovation Centre Medway
Maidstone Road
Chatham
ME5 9FD
+44 (0) 207 117 2492
www.brimstoneuxo.com
enquire@brimstoneuxo.com

Title:	Risk Map – OpenStreetMap	FIGURE: 7.2



Low Risk from UXO

Moderate Risk from German UXO and HAA Shells

Project:	**Phase 1A and Phase 1B, Mayfield**	Report Ref: **DRA-23-1612**	Approx. Site Boundary
Client:	**Civic Earth**	Info Source: OpenStreetMap	

BRIMSTONE
Innovation Centre Medway
Maidstone Road
Chatham
ME5 9FD
+44 (0) 207 117 2492
www.brimstoneuxo.com
enquire@brimstoneuxo.com

APPENDICES: 1 - 5

BRIMSTONE
Innovation Centre Medway
Maidstone Road
Chatham
ME5 9FD
+44 (0) 207 117 2492
www.brimstoneuxo.com
enquire@brimstoneuxo.com

Recent German UXB Finds in the UK + Historical Analysis

- ***23rd May 2019*** - An SC250 (standard 250kg HE bomb) was found during shallow excavations at a building site in Kingston upon Thames, London. *Historical Analysis: The UXB landed in a small residential back garden belonging to an undamaged terraced house. It came to rest approximately 3 to 4m bgl.*
- ***15th May 2017 -*** An SC250 (standard 250kg HE bomb) was found during shallow excavations at a building site in Aston, Birmingham. *Historical Analysis: The UXB landed in a small back garden belonging to a terraced house, part of a row. It J-Curved under a neighbouring garden and came to rest at just 1.4m bgl. NB: These houses had not sustained bomb damage.*
- ***2nd March 2017 -*** A 250kg HE bomb was found during deep excavations at a building site in Brondesbury Park, London. *Historical Analysis: UXB landed in a large residential back garden. A single storey building was built on top of the UXB post-WWII.*
- ***19th January 2017 -*** An SD50 (semi-armour piercing 50kg HE bomb) was dredged from the Thames during barge dredging works near Westminster Bridge, London.
- ***12th May 2016 -*** A 500kg HE bomb was found buried just 1m below the playground of the former Royal High Junior School in Bath. *Historical Analysis: The UXB landed in a plot of neglected, unmaintained vegetation in between the school gym and main school building.*
- ***23rd September 2015 -*** A 1,000kg HE bomb was encountered by a mechanical excavator on a building site in Paradise Street, Coventry. *Historical Analysis: the UXB landed in a large residential back garden occupied by dense vegetation. A two storey building was built on top of the UXB post-WWII.*
- ***10th August 2015 -*** A 250kg HE bomb was found immediately beneath a basement floor during refurbishment works in Temple Street, Bethnal Green (London). *Historical Analysis: The UXB struck a house that had been damaged beyond repair during a previous air raid. The existing house was then built on top of UXB post-WWII.*
- ***21st May 2015 -*** An SC50 (general purpose 50kg HE bomb) was found during deep excavations at a construction site in Wembley, London. *Historical Analysis: UXB landed in a large residential back garden.*
- ***23rd March 2015 -*** A 250kg HE bomb was found during deep excavations at a building site in Grange Walk, Bermondsey (London). *Historical Analysis: inconclusive - reported UXB position is likely inaccurate.*

NB: Domestic UXO finds in the UK are too numerous to list. Between 2006 and 2009, over 15,000 items of British / Allied UXO (excluding small arms ammunition) were found on UK construction sites (CIRIA).

Initiation of WWII Allied Bombs

- ***6th January 2014 -*** Mechanical excavator stuck a WWII bomb in Euskirchen (Germany) causing it to explode, killing the operator and injuring 13 more, two critically. The explosion was so large it damaged buildings 400m away.
- ***1st March 2013 -*** During piling at a construction site in Ludwigshafen (Germany) a small buried WWII bomb exploded, injuring one worker.
- ***2nd June 2010 -*** A British 500kg bomb detonated whilst being defused, killing three EOD engineers in Goettingen, Germany. The bomb was found as builders dug the foundations for a new sports hall. Several houses had their fronts blown off by the blast.
- ***19th September 2008 -*** Seventeen people were injured and buildings were damaged when an excavator apparently drove over and set off a 250kg American bomb at a construction site in Hattingen, Germany.
- ***23rd October 2006 -*** A construction worker breaking up tarmac at the side of a highway near the south-western German town of Aschaffenburg was killed when his machine struck and detonated a WWII bomb. In addition, the blast injured several motorists who were driving past.
- ***2006 -*** A piling rig and dump truck were destroyed when a piling rig struck an Allied bomb on a construction site in Austria.
- ***2003 -*** In the Austrian city of Salzburg, two people were killed while attempting to defuse a 250kg Allied bomb.
- ***1994 -*** At a central Berlin construction site a piling rig struck a large WWII Allied bomb. 3 were killed and 14 more were injured. Dozens of cars in a 250m radius were wrecked, the top 10 floors of neighbouring office building collapsed and human remains were found 100m away.
- ***1990*** - In Wetzlar (Germany) two EOD engineers were blown up as they removed the detonator of an allied WWII UXB.

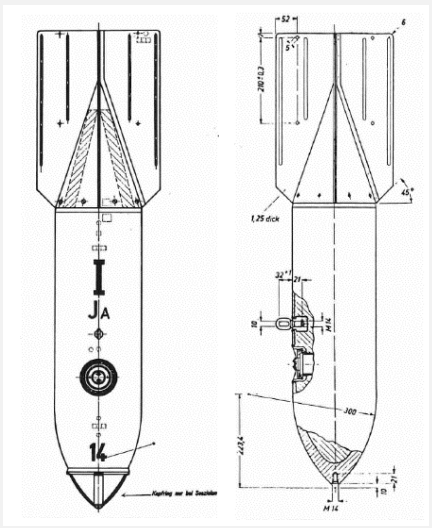
BRIMSTONE
Innovation Centre Medway
Maidstone Road
Chatham
ME5 9FD
+44 (0) 207 117 2492
www.brimstoneuxo.com
enquire@brimstoneuxo.com

Title: German WWII Air-Delivered Munitions - Most Commonly Deployed High Explosive

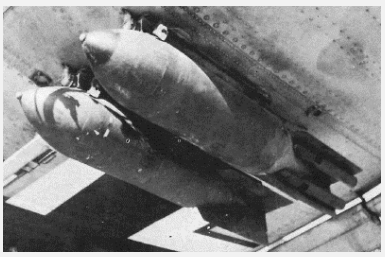
APPENDIX: 2.1

SC 50

Bomb Weight:	40-54kg (110-119lb)
Explosive Weight:	25kg (55lb)
Filling:	TNT, Amatol or Trialen
Charge/Weight Ratio:	46%
Fuse Type:	Electrical impact fuse or mechanical delayed action fuse
Body Dimensions:	1,100mm length x 200mm diameter
Appearance:	Bomb body and tail painted grey/green with a yellow stripe on the tail unit. Steel construction.
Variants:	8 x variants. Additional fittings: Kopfring nose for limited penetration and Stabbo nose for dive-bombing.

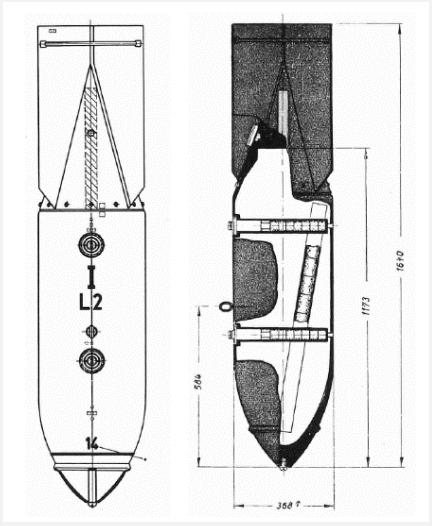






SC 250

Bomb Weight:	245-256kg (540-564lb)
Explosive Weight:	125-130kg (276-287lb)
Filling:	TNT, Amatol and Trialen mix
Charge/Weight Ratio:	44%
Fuse Type:	1 or 2 electrical impact fuse(s) or mechanical delayed action fuse(s)
Body Dimensions:	1,173mm length x 368mm diameter
Appearance:	Bomb body and tail painted grey/green with a yellow stripe on the tail unit. Steel construction.
Variants:	8 x variants. Kopfring nose for limited penetration. Stabbo nose for dive-bombing.

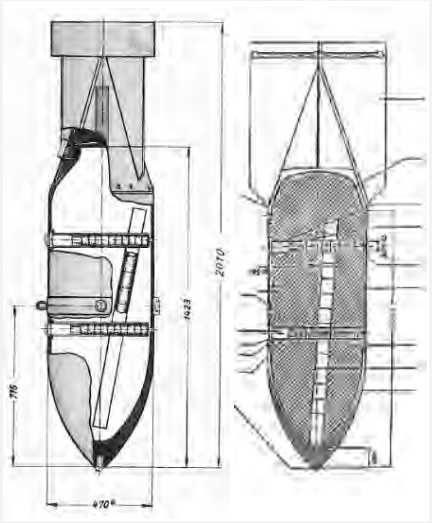






SC 500

Bomb Weight:	480-520kg (1,058-1,146lb)
Explosive Weight:	220kg (485lb)
Filling:	TNT, Amatol and Trialen mix
Charge/Weight Ratio:	44%
Fuse Type:	2 electrical impact fuses or mechanical delayed action fuses
Body Dimensions:	1,423mm length x 470mm diameter
Appearance:	Bomb body and tail painted grey/green or buff with a yellow stripe on the tail unit. Steel construction.
Variants:	3 x variants. Kopfring nose for limited penetration.





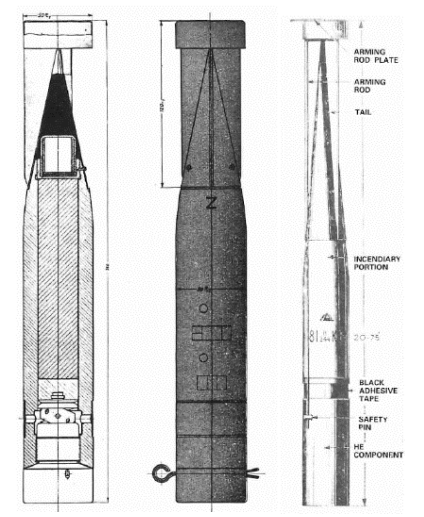


Project:	**Phase 1A and Phase 1B, Mayfield**
Client:	**Civic Earth**
Report Ref:	**DRA-23-1612**
Info Source:	*W, Ramsey.1988 / various news sources*

BRIMSTONE
Innovation Centre Medway
Maidstone Road
Chatham
ME5 9FD
+44 (0) 207 117 2492
www.brimstoneuxo.com
enquire@brimstoneuxo.com

B-1E Sub-Munition

Bomb Weight:	1-1.3kg (2.2-2.87lb)
Incendiary Weight:	680g (1.4lb)
Filling:	Thermite
Fuse Type:	Simple impact fuse
Body Dimensions:	247mm length x 50mm diameter
Appearance:	Grey body and dark green painted tail unit. Magnesium alloy case.
Operation:	Small percussion charge ignites Thermite (>1,000°C burn).
Variants:	Most common variant: B 2EZ (2kg) included a small HE charge
Remarks:	Drop containers varied in size. The smallest cluster bomb held 36 x B-1Es and the largest 620 x B-1Es.

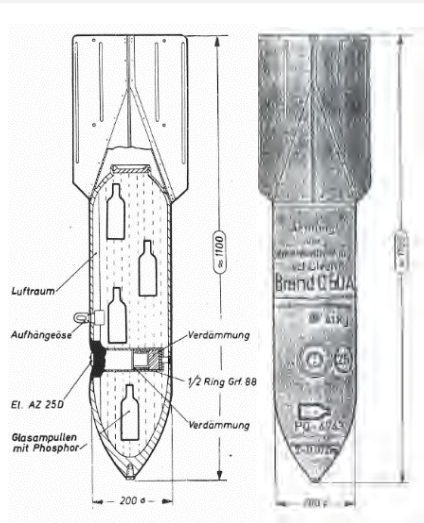






Brand C50

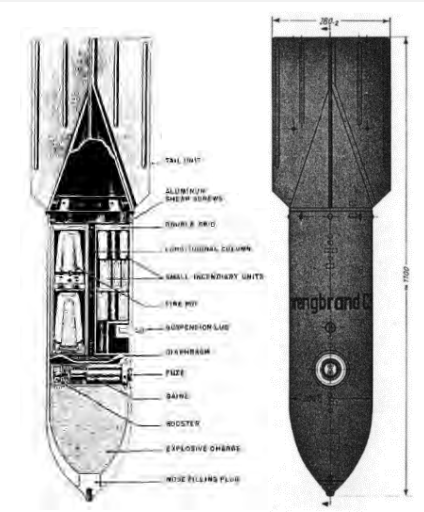
Bomb Weight:	41kg (90.4lb)
Incendiary Weight:	13kg (30lb)
Filling:	Main fill (86% Benzine, 10% Rubber) plus 4% Phosphorus in glass bottles
Fuse Type:	1 x electrical impact fuse
Bomb Dimensions:	762mm length x 203mm diameter
Appearance:	bomb body and tail painted grey or green with the rear of the bomb painted red and a red band around the centre of the body.
Variants:	C 50 B: 77% White Phos fill C 250 A: 87.7% Petroleum, 11.7% Polystyrene, 0.5% White Phos (185kg version)

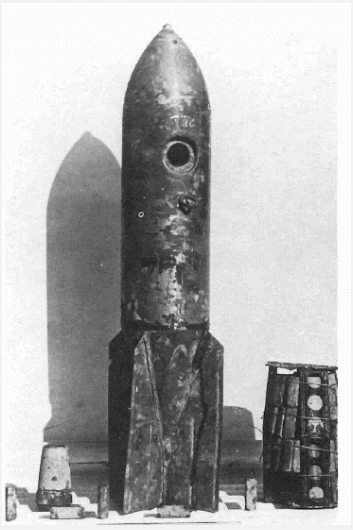




Spreng-Brand C50 - *Fire Pot*

Bomb Weight:	34kg (75lb)
Explosive Weight:	9kg (20lb)
Filling:	TNT burster charge, 6 x Thermite containers (fire pots) and 67 x small triangular incendiary elements.
Fuse Type:	1 x electrical impact fuses or aerial burst fuse
Bomb Dimensions:	711mm length x 203mm diameter
Appearance:	Bomb body and tail painted grey/green or pale blue with red base plug and red or green incendiary markings. Steel construction.
Operation:	A charge blows off the base plate, firing a plume of incendiary mixture 100 yds. Approx 1 second later the HE charge detonates.



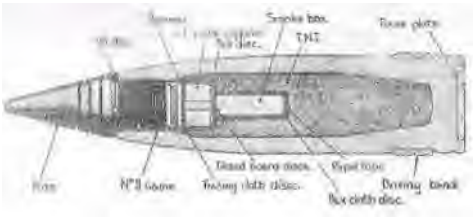


Project:	**Phase 1A and Phase 1B, Mayfield**
Client:	**Civic Earth**
Report Ref:	**DRA-23-1612**
Info Source:	*W, Ramsey.1988 / various news sources*

BRIMSTONE
Innovation Centre Medway
Maidstone Road
Chatham
ME5 9FD
+44 (0) 207 117 2492
www.brimstoneuxo.com
enquire@brimstoneuxo.com

HAA Battery - 3.7" QF Shell

Shell Weight:	12.7kg
Shell Dimensions:	94mm x 438mm
Fill Weight:	1.1kg
Fill Type:	TNT
Fuse Type:	Mechanical Time Delay fuse
Appearance:	Grey body, copper driving bands, brass neck
Rate of Fire:	10 - 20 rpm
Ceiling:	9,000 - 18,000m
Variants:	HE or shrapnel shells. Note, the 4.5" gun was also used in an HAA role throughout the UK.







LAA Battery - 40mm Bofors Shell

Shell Weight:	0.84kg
Shell Dimensions:	40mm x 180mm
Fill Weight:	70g
Fill Type:	TNT
Fuse Type:	Impact fuse
Appearance:	Grey body, copper driving bands, brass neck
Rate of Fire:	120 rpm
Ceiling:	7,000m
Variants:	HE or AP shells. Both with rear tracer compartment



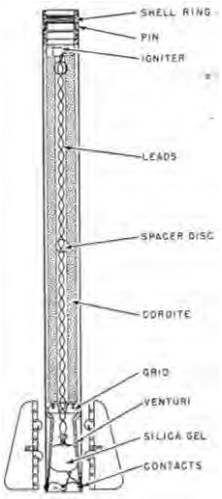






Z Battery - 3" U.P Rocket

Rocket Weight:	24.5kg
Warhead Weight:	1.94kg
Filling:	TNT warhead. Black Powder solid fuel rocket motor.
Fuse Type:	Mechanical Time Delay fuse
Rocket Dimensions:	1,930mm x 76mm
Ceiling:	6,770m
Operation:	Fired from single, tandem and (later) 36 x rail launchers (Z Batteries). Limited use throughout the UK.





BRIMSTONE
Innovation Centre Medway
Maidstone Road
Chatham
ME5 9FD
+44 (0) 207 117 2492
www.brimstoneuxo.com
enquire@brimstoneuxo.com

AA	*Anti-Aircraft (defences)*
AFS	*Auxiliary Fire Service*
AP	*Anti-Personnel*
ARP	*Air Raid Precautions*
ASW	*Anti-Submarine Warfare*
BDU	*Bomb Disposal Unit (historic term for EOD)*
Bgl	*Below Ground Level*
EOC	*Explosive Ordnance Clearance*
EOD	*Explosive Ordnance Disposal*
FP	*Fire Pot (German bomb)*
GI	*Ground Investigation*
HAA	*Heavy Anti-Air (gun battery)*
Ha	*Hectare (10,000m2)*
HE	*High Explosive*
IB	*Incendiary Bomb*
Kg	*Kilogram*
LAA	*Light Anti Air (gun battery)*
LCC	*London County Council*
LRRB	*Long Range Rocket Bomb (V2)*
LSA	*Land Service Ammunition*
Luftwaffe	*German Air Force*
OB	*Oil Bomb (German bomb)*
PM	*Parachute Mine (German bomb)*
RAF	*Royal Air Force*
RFC	*Royal Flying Corps*
RN	*Royal Navy (British)*
RNAS	*Royal Naval Air Service*
ROF	*Royal Ordnance Factory*
SAA	*Small Arms Ammunition*
SD2	*2kg AP bomb (German bomb)*
SI	*Site Investigation*
U/C	*Unclassified (German) bomb*
UP	*Unrotating Projectile (British 3" AA rocket)*
USAAF	*United States Army Air Force*
UX	*Unexploded*
UXB	*Unexploded Bomb*
UXO	*Unexploded Ordnance*
V1	*German Flying (pilotless) bomb - "Doodlebug"*
V2	*German LRRB - "Big Ben"*
WAAF	*Women's Auxiliary Air Force*
WWI	*World War One*
WWII	*World War Two*

BRIMSTONE
Innovation Centre Medway
Maidstone Road
Chatham
ME5 9FD
+44 (0) 207 117 2492
www.brimstoneuxo.com
enquire@brimstoneuxo.com

- ***Bates. H. E***, Flying Bombs Over England, Frogletts Publications Ltd, 1994.
- ***Bulloch. G***, Steeds J E, Green K, Sainsbury M G, Brockwell J S & Slade N J, Land Contamination: Technical Guidance on Special Sites: MoD Land, Environment Agency, 2001.
- ***Castle. I,*** London 1914-17: The Zeppelin Menace, Osprey Publishing Ltd, 2008.
- ***Castle. I,*** London 1917-18: The Bomber Blitz, Osprey Publishing Ltd, 2010.
- ***CIRIA***, C681: Unexploded Ordnance (UXO), A Guide for the Construction Industry, 2009.
- ***Clarke. N. J***, Luftwaffe Target Reconnaissance, German Aerial Photography 1939-1942, 1996.
- ***Clarke. N. J***, Adolf's British Holiday Snaps: Luftwaffe Aerial Reconnaissance Photographs of England, Scotland and Wales, 2012.
- ***Cocroft. W. D***, Dangerous Energy, Historic England, 2000.
- ***Dobinson. C. S,*** AA Command: Britain's Anti-Aircraft Defences of the Second World War, Methuen Publishing Ltd, 2001.
- ***Dobinson. C. S***, Fields of Deception - Britain's Bombing Decoys of World War II, Methuen Publishing Ltd, 2013.
- ***Fleischer. W***, German Air-Dropped Weapons to 1945, Midland Publishing. 2004.
- ***Jappy. M. J,*** Danger UXB: The Remarkable Story of the Disposal of Unexploded Bombs during the Second World War. Channel 4 Books, 2001.
- ***Morris. J***, German Air Raids on Britain: 1914-1918, Nonsuch Publishing, 2007.
- ***Price. A***, Blitz on Britain 1939-45, Sutton Publishing Ltd, 2000.
- ***Ramsey. W,*** The Blitz Then and Now: Vol 1, Battle of Britain Prints International Limited, 1987.
- ***Ramsey. W,*** The Blitz Then and Now: Vol 2, Battle of Britain Prints International Limited, 1988.
- ***Ramsey. W,*** The Blitz Then and Now: Vol 3, Battle of Britain Prints International Limited, 1990.
- ***Whiting. C***, Britain Under Fire: The Bombing of Britain's Cities 1940-1945, Pen & Sword Books Ltd, 1999.

BRIMSTONE
Innovation Centre Medway
Maidstone Road
Chatham
ME5 9FD
+44 (0) 207 117 2492
www.brimstoneuxo.com
enquire@brimstoneuxo.com



BRIMSTONE

Innovation Centre Medway, Maidstone Road, Chatham, ME5 9FD

Brimstone Site Investigations Ltd, Registered in England and Wales under company number 10253758

www.brimstoneuxo.com 0207 117 2492 enquire@brimstoneuxo.com

Appendix E

BGS Borehole Records

(1)

RECORD OF WELL

For Survey use only Licence No. L/11/43

N. N.N.

85/SJ89/75A

27

SJ 8525 9752.

At BRODIE STREET

ARDWICK

Town or Village MANCHESTER

County LANCS.

EXACT SITE OF WELL

Six-inch sheet 104 SE/20 Six-inch National Grid sheet SJ 8597 N.W.

For David Moseley & Sons Ltd. State whether owner, tenant, builder, contractor, consultant, etc.:—

Address (if different from above)

* DELETE WHICHEVER IS INAPPLICABLE

Level of ground surface above sea level (O.D.) 150-ft. If well top is not at ground level, state how far } above:* / below;* ft.

SHAFT 58' 6" ft.; diameter 4 - ft.; HEADINGS (please attach details—dimensions and directions)

BORE 500 ft.; diameter of bore: at top 10 in.; at bottom 10 in.

Full details of permanent lining tubes (position, length, diameter, plain, slotted etc.)

50-ft. @ 12" Dia. 93-ft. @ 10" Dia. Plain.

Water struck at depths of Not known. See below. ft. below well top.

TEST CONDITIONS

Rest level of water 46 ft. above*/below well top. Suction at 260 ft. Yield on 7.2 hours'*/days' test pumping at 12,000 galls. per hour with depression to 162 ft. below well top.

Recovery to rest level in 5 mins.*/hours Capacity of pump 12,000 g.p.h. Date of measurements March 1964.

DESCRIPTION OF PERMANENT PUMPING EQUIPMENT:

NORMAL CONDITIONS

Make and/or type British Pleuger Motive power Electric.

Capacity 15,000 galls. per hour. Suction at 300 ft. below well top.

Amount pumped 200,000 galls. per day. Estimated consumption 1,000,000 galls. per week.

Well made by (Not known.) Date of sinking 1881

Information from Thomas Mathews Ltd., Pendleton, Manchester, 6.

ADDITIONAL NOTES ANALYSIS (please attach copy if available)

Old borehole re-opened & brought into service 1964. Pre-act.

Well Information from Hickling 1918

DRIFT	15	15
BUNTER	136	157
PERMIAN MARL	168	319
& SANDSTONE	184	503
COAL MEASURE	6' 9"	509' 9"
TOTAL DEPTH	509' 9"	

For Survey use only

Date Received 17.2.65

Section 6 21/1/65

Pumping test

Observ. well

Recorder

E.R. log

Site marked on

1" map O 16

6" map O 12 k 65 (use symbol)

Record forwarded to Manchester D.G.

date 10.8.65

GEOLOGICAL SURVEY, WATER DIVISION, SOUTH KENSINGTON, LONDON, S.W.7.

LOG OF STRATA OVERLEAF.

23/11/59 (3697) W1.54188—P.S.47 10M 1/60 M.P.Ltd. G.722

167 No. 24. Drawn up.

(621) W.[illegible]599[illegible]—S.33 2000 6/22 **Gp. 147** M.R.Co.Ltd.

SECTION OF Borehole at Messrs. David Moseley & Sons, Chapelfield Rubber Works, Mayfield, Manchester.

about 60 yds from Tippingst.

SJ89NE 13

Maps: One-inch 85. Six-inch [illegible] County Lancashire

Height above O.D. 125ft 37.35m Latitude Longitude

Communicated by Professor George Hickling Date of sinking 4th Oct 1878

Made by Record supplied to Hickling by Messrs Holt & Platt. Dip of Strata

Hickling's No. 80 In Published section not Appx. to.
Trans. Inst. Min. Eng. Vol. LIV. 1918.

M/c 107

(45/10 SE 24)

Borehole 12" diam. to 300ft. 10° and 9° below.

	Thickness.			Depth from Surface.		
	METRES.			METRES.		
Well. no record.	12·95	42	6	12·95	42	6
Red sandstone	3·81	12	6	16·76	55	–
Red marl	0·08	–	3	16·84	55	3
Red sandstone	5·41	17	9	22·25	73	–
Red marl	0·23	–	9	22·48	73	9
Red sandstone	10·74	35	3	33·22	109	–
Hard coarse red sandstone with pebbles	8·23	27	–	41·45	136	–
Hard coarse red sandstone.	1·83	6	–	43·28	142	–
Hard red sandstone	5·64	18	6	48·92	160	6
Red sandstone, a little soft.	12·65	41	6	61·57	202	–
Coarse red sandstone	1·83	6	–	63·40	208	–
Red sandstone	0·61	2	–	64·01	210	–
Hard fine red sandstone.	0·91	3	–	64·92	213	–
Hard coarse light sandstone	2·44	8	–	67·36	221	–
Hard coarse red sandstone	0·61	2	–	67·97	223	–
Hard red marl	0·15	–	6	68·12	223	6
Hard red sandstone	0·31	1	–	68·43	224	6
Hard red marl	0·31	1	–	68·73	225	6
Hard coarse red sandstone	0·76	2	6	69·49	228	–
Hard red marl	0·23	–	9	69·72	228	9
Hard red sandstone.	0·23	–	9	69·95	229	6
Hard red marl.	0·15	–	6	70·10	230	–
Hard red sandstone	0·31	1	–	70·41	231	–
Hard red marl	0·08	–	3	70·49	231	3
Hard red sandstone	0·38	1	3	70·87	232	6
Hard red marl	1·83	6	–	72·70	238	6

Nos. 26–40. 35

No vertical sections.

(B10068) Wt. 5086—8111—2,000 6/25 Gp. 160. O.A.

SECTION OF Manholes in M. Sewer **at** Manchester

Maps: One-inch 85 Six-inch 104 N.W. S.E. County Lancashire

Height above O.D. Latitude Longitude

Communicated by Manchester Corporation. Date of Sinking

Made by Dip of Strata

SJ 8NE 16-20/1

	Thickness.		Depth from Surface.	
1. 16 In York St. opposite Robert St.				
No. 26. Made ground SJ 8529 9751	1	52	1	52
	5	–	5	–
Soft red sand rock.	2	44	3	96
	8	–	13	–
New red sandstone.	7	62	11	58
	25	–	38	–
3. 17 In Temperance St. under railway.				
Made ground SJ 8530 9762	2	74	2	74
	9	–	9	–
No. 27 Loamy sand	1	83	4	57
	6	–	15	–
Sharp sand & fine ballast.	0	61	5	18
	2	–	17	–
Sharp sand & rough ballast.	0	61	3	79
	2	–	19	–
New red sandstone.	2	144	8	23
	8	–	27	–
4. 18 In Fairfield St. near St. Andrews St.				
Made ground SJ 8535 9769	0	61	0	61
	2		2	–
Stiff clay	0	31	0	91
	1	–	3	–
No. 28 Yellow sand & clay	1	52	2	44
	5	–	8	–
Gravel & clay	0	31	2	74
	1	–	9	–
Red sand	0	61	3	35
	2	–	11	–
New red sandstone	5	94	9	30
	19	6	30	6
5. 6. 7. 8. 19 In Helme St. SJ 8530 9776				
5. Made ground 8ft, 2.44	1	37	1	37
6. Made ground	4	6	4	6
No. 29. New red sandstone 9.45 to 31ft.	0	61	1	98
No. 30. Rough ballast	2	–	6	6
	7	32	9	30
New red sandstone	24	–	30	6
SJ 8551 9704				
No. 31 7. Made ground 21ft. 6.40				
20 Loamy sand & soil 10ft. 3.05 9.45 to 31ft.				
No. 32. 8. Made ground 22ft. 6.71				
21 New red sandstone 5ft to 27ft. 1.52 8.23				

(D11857) Wt. 17852—S154—5,000 12/26 Gp. 160. O.A.

SECTION OF Borehole **at** Messrs. Deakin's Brewery, Broadie St. Ardwick, Manchester

SJ 89 NE 12

Maps: One-inch 85 Six-inch 104 S.E." County Lancs

Height above O.D. Abt 150 ft. Latitude , Longitude

Communicated by Dr. Rance. B.A. Report 1890. p. 360. Date of Sinking

Made by Dip of Strata M/C 101

(85/10 SE 3)

Left 11' see attached obly

		Thickness.			Depth from Surface.		
		Metres.			Metres.		
Bunter	Well sandstone	10·67	35	-	10·67	35	-
	Soft red sandstone	7·77	25	6	18·44	60	6
	Fine red clay	0·31	1	-	18·75	61	6
	Soft fine loamy red sandstone	20·12	66	0	38·86	127	6
	Very coarse red gritty sand.	1·22	4	-	40·08	131	6
Manchester Marls.	Red clay	10·89	35	6	50·90	167	-
	Loamy red sandstone	0·31	1	-	51·21	168	-
	Red clay & conglomerate.	4·57	15	-	55·78	183	-
	Loamy red sandstone	4·88	16	-	60·66	199	-
	Red clay	1·52	5	-	62·18	204	-
	Red sandstone	0·91	3	-	63·09	207	-
	Red clay	7·47	24	6	70·56	231	6
	Red white clay mixed	7·93	26	-	78·49	257	6
	Conglomerate thin bed of ironstone	0·31	1	-	78·79	258	6
	Red clay	7·01	23	-	85·80	281	6
	Conglomerate with pebbles	0·91	3	-	86·72	284	6
	Soft red clay	4·45	14	6	91·14	299	-
Collyhurst Sandstone	Very fine loamy red sandstone.	19·50	63	-	110·34	362	-
	Coarse gritty red sandstone	0·61	2	-	110·95	364	-
	Fine bright soft sandstone	4·42	14	6	115·37	378	6
	Very coarse red sandstone	1·52	5	-	116·89	383	6
	Soft fine red sandstone	30·33	99	6	147·22	483	-
Coal measures	Hard red clay with haematite bands	1·88 Ret.	6	2	149·10	489	2
	Red white clay	0·18	-	7	149·28	489	9

Yield 40,000 g/day.

(621) W 3993—S.33 2000 6/22 Gp. 147 M.R.Co.Ltd.

162 No. 23 Noted on map. No Vertical section

SECTION OF Borehole **at** Messrs. Thos. Hoyle, Mayfield Print Works.

1391

SJ89NE 14

Maps: One-inch 85. Six-inch [illegible] County [illegible]

Height above O.D. 120. Latitude Longitude

Communicated by Professor George Hickling Date of sinking 1825.

Made by Dip of Strata

Hickling's No. 79A.
Trans. Inst. Min. Eng. Vol. LIV. 1918.

Binney. Mems. Lit. Phil. xii. 1855 p. 219.

	Thickness.			Depth from Surface.		
	METRES			METRES.		
Upper New Red Sandstone (Trias)	43·69	143	4	43·69	143	4
Red & variegated marls with beds of limestone & impure sandstone (Permian)	45·72	150	–	89·41	293	4
Conglomerate (Permian)	0·36	1	2	89·76	294	6
Red saddle with lenticular markings (Permian)	0·19	2	7	90·55	297	1
Lower New Red Sandstone (Permian)	18·09	59	4	108·64	356	5

For full journal of bore, see paper & vertical section.

Details given to Binney by Heller of Ardwick Limeworks.

There is apparently no certainty as to the thickness of the Trias at these works (which exist no longer). 240 ft. given in Hickling's 79 which he got from Boyd Dawkins, 312 ft given by Binney in Trans. Manch. Geol. Soc. Vol. 1 p. 42. and 143 ft. in the above.

The above hole is the only one of which a detailed record is given & in default of any evidence to help in deciding which record is to be taken as correct for the Bunter depth, the most detailed record is taken for this locality.

Nos. 26–40. 35

No vertical sections.

(B10068) Wt. 5086—8111—2,000 6/25 Gp. 160. O.A.

SECTION OF Manholes in M. Sewer **at** Manchester

Maps: One-inch 85 Six-inch 104 N.W. S.E. County Lancashire

Height above O.D. Latitude Longitude

Communicated by Manchester Corporation. Date of Sinking

Made by Dip of Strata

SJ 8NE 16-20/1

	Thickness.		Depth from Surface.	
1. 16 In York St. opposite Robert St.				
No. 26. Made ground SJ 8529 9751	1	52	1	52
	5	–	5	–
Soft red sand rock.	2	44	3	96
	8	–	13	–
New red sandstone.	7	62	11	58
	25	–	38	–
3. 17 In Temperance St. under railway.				
Made ground SJ 8530 9762	2	74	2	74
	9	–	9	–
No. 27 Loamy sand	1	83	4	57
	6	–	15	–
Sharp sand & fine ballast.	0	61	5	18
	2	–	17	–
Sharp sand & rough ballast.	0	61	3	79
	2	–	19	–
New red sandstone.	2	144	8	23
	8	–	27	–
4. 18 In Fairfield St. near St. Andrews St.				
Made ground SJ 8535 9769	0	61	0	61
	2		2	–
Stiff clay	0	31	0	91
	1	–	3	–
No. 28 Yellow sand & clay	1	52	2	44
	5	–	8	–
Gravel & clay	0	31	2	74
	1	–	9	–
Red sand	0	61	3	35
	2	–	11	–
New red sandstone	5	94	9	30
	19	6	30	6
5. 6. 7. 8. 19 In Helme St. SJ 8530 9776				
5. Made ground 8ft, 2.44	1	37	1	37
6. Made ground	4	6	4	6
No. 29. New red sandstone 9.45 to 31ft.	0	61	1	98
No. 30. Rough ballast	2	–	6	6
	7	32	9	30
New red sandstone	24	–	30	6
SJ 8551 9704				
No. 31 7. Made ground 21ft. 6.40				
20 Loamy sand & soil 10ft. 3.05 9.45 to 31ft.				
No. 32. 8. Made ground 22ft. 6.71				
21 New red sandstone 5ft to 27ft. 1.52 8.23				

(621) W[illegible]5990—S.33 2000 6/22 Gp. 147 M.R.Co.Ltd.

164

23

SECTION OF ~~Wells~~ Borings at Mayfield Print Works, Manchester.

SJ89NE 1389-1390

Maps: One-inch 85 Six-inch [illegible] County [illegible]

Height above O.D. 120 Latitude Longitude

Communicated by Sir Wm. Boyd Dawkins. Date of sinking

Made by Dip of Strata

	Thickness.			Depth from Surface.		
111B						
1. Sandstone nearly at surface. Water found about 30 feet from surface.						
Red sandstone.	51·51	169	–	51·52	169	–
Sand & pebbles	1·22	4	–	52·73	173	–
Red clay	0·31	1	–	53·04	174	–
111C						
2. No. 79. Hickling: Trans. Inst. Min. Eng. Vol. LIV. 1918.						
Red sandstone	51·82	170	–	51·82	170	–
Sand & pebbles.	1·22	4	–	53·04	174	–
Red sandstone	20·12	66	–	73·15	240	–
Red clay at bottom.						

Hickling gives this as Bunter Sst. App. III Permian & marls as "proved"

(621) W[illegible]5990—S.33 2000 6/22 Gp. 147 M.R.Co.Ltd.

164

23

SECTION OF ~~Wells~~ Borings at Mayfield Print Works, Manchester.

SJ89NE 1389-1390

Maps: One-inch 85 Six-inch [illegible] County [illegible]

Height above O.D. 120 Latitude Longitude

Communicated by Sir Wm. Boyd Dawkins. Date of sinking

Made by Dip of Strata

	Thickness.			Depth from Surface.		
111B						
1. Sandstone nearly at surface. Water found about 30 feet from surface.						
Red sandstone.	51·51	169	–	51·52	169	–
Sand & pebbles	1·22	4	–	52·73	173	–
Red clay	0·31	1	–	53·04	174	–
111C						
2. No. 79. Hickling: Trans. Inst. Min. Eng. Vol. LIV. 1918.						
Red sandstone	51·82	170	–	51·82	170	–
Sand & pebbles.	1·22	4	–	53·04	174	–
Red sandstone	20·12	66	–	73·15	240	–
Red clay at bottom.						

Hickling gives this as Bunter Sst. App. III Permian & marls as "proved"

(621) W. 3990—S.33 2000 6/22 Gp. 147 M.R.Co.,Ltd.

163 23

SECTION OF Boring **at** Messrs. Thomas Hoyles Sons, Mayfield

1388

SJ89NE [redacted]

Maps: One-inch 85 Six-inch [illegible] County [illegible]

Height above O.D. 120 Latitude Longitude

Communicated by Professor George Hickling Date of sinking

Made by Dip of Strata

	Thickness.			Depth from Surface.		
Bromsgrove: Manch. Geol. Soc. Vol. 1. pp. 42. 45. 47. Hickling's record clothed with original notes in Bromsgrove's paper.						
Trias	95·10	312	–	95·10	312	–
Red marls with 10 beds of hard rock, probably Keuper	46·89	153	10	141·99	465	10.
Permian Sandstone	18·89	60	–	160·27	525	10.

Hickling notes: ? Drift 15ft.

"Position of works obtained from Hoyle, who formerly worked there.

"There is a well shown on ordnance plan at point shown".

Note: there is a discrepancy between this thickness of Trias & that at the other three borholes given for Mayfield Print Works.

(621) Wt. 5990—S.33 2000 6/22 Gp. 147 M.R.Co.Ltd.

173 W. grid 8505 - 9734

No. 54 Drawing

SECTION OF Borehole at Messrs Jeavons & Bros's Mineral Water Manufactory, Adwick Green (Corner of Grove St. & Adwick Gate) Manchester

SJ89NE 116

Maps: One-inch 85 Six-inch 104SE County Yorkshire

Height above O.D. 134ft. 408 Latitude Longitude

Communicated by Professor George Hickling Date of sinking 6th Oct 1896

Made by Mather & Platt Ltd.

Hickling's No. 78.

Trans. Inst. Min. Eng. Vol. LIV. 1918.

M/c105.

SJ/104SE 5 4

No well.

Measurements taken from 2' above ground.

	Thickness. Metres			Depth from Surface. Metres		
Gravel	1·83	6	-	1·83	6	-
Clay	3·96	13	-	5·79	19	-
Red sandstone	22·86	75	-	28·65	94	-
*Red sandstone mixed with marl	63·09	207	-	91·75	301	-
Pebble bed	5·18	17	-	96·93	318	-
Very coarse sandstone	19·05	62	6	115·98	380	6
P B Red sandstone	4·72	15	6	120·70	396	-
Red marl	0·08	-	3	120·78	396	3
Red sandstone	1·45	4	9	122·23	401	-
M M Red marl	1·83	6	-	124·05	407	-

i.e. 405 below ground level.

*Hickling notes MS.: "i.e. Marly sandstone – there are no marl beds recorded".

Information from Mr. J.W. Kirkby:

"The water contains H_2S sufficient to cause offensive smell & becomes opalescent on standing. Water at High St. Bath was similar at depth of 400ft. So also was Threlfall's at about the same depth."

Hickling's Synopsis. App. III

Drift. 19ft.

Bunter. 380ft.

Permian. 6ft.

SJ 89 NW / 2031
NGR 8497 9746

STRATA SURVEYS LIMITED

Job No.: **9069/63**

Location **Lower Medlock UCSO's C/1 Site 0308**

Client: **BeWT** Project Ref.: **9-00-00-910**

Borehole No. **BH525A**

Equipment and methods **Light cable percussion**

Start Date:	End Date:	Final Depth:	Casing Diameter	Casing Depth
24/02/1998	25/02/1998	6.30m	150mm	5.00m

FIELD RECORDS	Casing (Water) Depth (m)	Samples / Tests: Depth (m) from	to	SAMPLE Type & No	SPT (N) (Cu)	Description	Strata: Depth & Thickness m	Reduced Level (m)	Legend
		0.50		D 1		MADE GROUND (300mm of tarmac over hardcore)	(0.60)		
							0.60	36.61	
		1.00		D 2		MADE GROUND (500mm of sandstone and rubble over concrete)	(0.65)		
							1.25	35.96	
						MADE GROUND (50mm of hardcore and gravel over concrete)	(0.45)		
							1.70	35.51	
						MADE GROUND (setts)	(0.30)		
2, 1 -{24/02/1998}-		2.00	2.45	B 1	(9)		2.00	35.21	
2, 3, 2, 2		2.00		S 1		MADE GROUND (loose brown fine to coarse sand and gravel with some brick rubble)			
							(1.00)		
4, 5	3.00	3.00	3.45	B 2	(21)		3.00	34.21	
4, 5, 6, 6		3.00		S 2		Medium dense brown fine to coarse sandy GRAVEL			
							(1.00)		
18, 25	4.00	4.00	4.10	B 3	((200))		4.00	33.21	
50 /75mm		4.00		S 3		Red/brown highly weathered SANDSTONE			
T1 M1 4.50 4.50									
39, 50	5.00	5.00	5.10	B 4	((600))				
50 /25mm		5.00		S 4			(2.30)		
		6.00	6.10	S 5					
-{25/02/1998}-						**Borehole Completed**	6.30	30.91	

Remarks 1) Service pit dug 1.0m x 0.6m x 1.2m 23/02/98
2) 3 cables encountered 2m from kerb - moved over 0.5m to continue pit, 1.1m x 1.0m x 2.0m
3) No water encountered 24/02/98
4) Water met at 4.5m with no rise
5) Borehole continued by rotary drilling

Logged by **LW** Drilled by **CB**

Ground level **37.21mAD**

Co-ordinates:

SSL - cable per - 08/96 Rev 01

Nos. 26–40. 35

No vertical sections.

(B10068) Wt. 5086—8111—2,000 6/25 Gp. 160. O.A.

SECTION OF Manholes in M. Sewer **at** Manchester

Maps: One-inch 85 Six-inch 104 N.W. S.E. County Lancashire

Height above O.D. Latitude Longitude

Communicated by Manchester Corporation. Date of Sinking

Made by Dip of Strata

SJ 8NE 16-20/1

	Thickness.		Depth from Surface.	
1. 16 In York St. opposite Robert St.				
No. 26. Made ground SJ 8529 9751	1	52	1	52
	5	–	5	–
Soft red sand rock.	2	44	3	96
	8	–	13	–
New red sandstone.	7	62	11	58
	25	–	38	–
3. 17 In Temperance St. under railway.				
Made ground SJ 8530 9762	2	74	2	74
	9	–	9	–
No. 27 Loamy sand	1	83	4	57
	6	–	15	–
Sharp sand & fine ballast.	0	61	5	18
	2	–	17	–
Sharp sand & rough ballast.	0	61	3	79
	2	–	19	–
New red sandstone.	2	144	8	23
	8	–	27	–
4. 18 In Fairfield St. near St. Andrews St.				
Made ground SJ 8535 9769	0	61	0	61
	2		2	–
Stiff clay	0	31	0	91
	1	–	3	–
No. 28 Yellow sand & clay	1	52	2	44
	5	–	8	–
Gravel & clay	0	31	2	74
	1	–	9	–
Red sand	0	61	3	35
	2	–	11	–
New red sandstone	5	94	9	30
	19	6	30	6
5. 6. 7. 8. 19 In Helme St. SJ 8530 9776				
5. Made ground 8ft, 2.44	1	37	1	37
6. Made ground	4	6	4	6
No. 29. New red sandstone 9.45 to 31ft.	0	61	1	98
No. 30. Rough ballast	2	–	6	6
	7	32	9	30
New red sandstone	24	–	30	6
SJ 8551 9704				
No. 31 7. Made ground 21ft. 6.40				
20 Loamy sand & soil 10ft. 3.05 9.45 to 31ft.				
No. 32. 8. Made ground 22ft. 6.71				
21 New red sandstone 5ft to 27ft. 1.52 8.23				

SJ 89 NW/2029
NGR 8493 9746

STRATA SURVEYS LIMITED

Location **Lower Medlock UCSO's C/1 Site 0308**

Client: **BeWT** Project Ref.: **9-00-00-910**

Borehole No. **R523**

Job No.: **9069/63**

Equipment and methods **Rotary Cored air/water flush**

Start Date:	End Date:	Final Depth:	Casing Diameter	Casing Depth
15/02/1998	15/02/1998	25.20m	113mm	3.80m

Field Records	Drilling Records (Casing/Core Dia. mm)	Depth (m)	RUN No	TCR %	SCR %	RQD %	Mechanical Log If mm	Description	Strata Depth & Thickness m	Strata Reduced Level (m)	Strata Legend
	Casing Installed							For detailed description of strata to 3.80m see Light Cable Percussion Logs.	(3.80)		
		3.80							3.80	32.20	
	90mm			29	0	0		Red/brown, fine to medium grained SAND (completely to highly weathered sandstone) with occasional sub angular siliceous clasts, and clasts of dark red/brown laminated mudstone.	(2.26)		
		5.20							6.06	29.94	
	90mm			91	79	70	138	Red/brown, highly weathered to slightly weathered, fine to medium grained SANDSTONE very weak to weak, improving to moderately weak with depth, with occasional sub-angular siliceous clasts, clastsof dark red/brown laminated mudstone, thinly bedded in areas, and thin beds of mudstone. *Sub horizontal, partially open slightly rough fractures. Occasionally infilled with up to 20mm of sand or up to 5mm of clay.*			
		8.50					0	*Highly fractured area between 8.62m and 9.68m.*			
							87				

Remarks 1) Slight water ingress below 8.50m rising to 7.48m.
2) Water ingress increasing with depth.
3) Water standing level 7.68m.
4) Piezometer installed with tip at 24.80m.
5) Water level before installation 7.59m, and after 7.65m.
6) Readings 17/02- 7.71m,18/02- restricted access to well, 19/02- 7.64m, 20/02- 7.55m.

Logged by **EJ** Drilled by **GD**

Ground level **36.00mAD**

Co-ordinates:

(621) WT. 1[illegible] S.33 2000 6/22 Gp. 147 M.R.Co.Ltd.

SJ 39 "A" 12 - 15

SECTION OF Manholes in Dover, cont.

Maps: One-inch ..... Six-inch 104 S.E.W County Lancashire.

Height above O.D. ..... Latitude ..... Longitude .....

Communicated by ..... Date of sinking .....

Made by ..... Dip of Strata .....

		Thickness.			Depth from Surface.		
		METRES.			METRES		
12 No. 6.	Corner of Jackson St. & Temple St.						
	Soil	0·61	2	-	0·61	2	-
	Coloured sandy silt.	2·44	8	-	3·05	10	-
	Red sand rock.	3·05	10	-	6·10	20	-
13 No. 7.	Near Jackson Street Bridge.						
	Filling	0·91	3	-	0·91	3	-
	Clayey Marl.	1·98	6	6	2·90	9	6
	Ballast.	0·61	2	-	3·51	11	6
	Red sand rock.	1·98	6	6	5·49	18	-
14 No. 8.	Near London Road – Buxton St. corner.						
	Filling	2·13	7	-	2·13	7	-
	Old roadway.	0·61	2	-	2·74	9	-
	Red sand rock.	3·96	13	-	6·71	22	-
15 No. 10.	Corner of Boardman Road & Buxton St.						
	Filling	1·52	5	-	1·52	5	-
	Red sand rock.	6·10	20	-	7·62	25	-

ST 89 NW/2027

NGR 8490 9751

STRATA SURVEYS LIMITED

Location **Lower Medlock UCSO's C/1 Site 0308**

Client: **BeWT** Project Ref.: **9-00-00-910**

Borehole No. **BH520**

Job No.: **9069/63**

Equipment and methods **Light cable percussion**

Start Date:	End Date:	Final Depth:	Casing Diameter	Casing Depth
26/02/1998	27/02/1998	4.60m	150mm	3.50m

FIELD RECORDS	Samples / Tests: Casing (Water) Depth (m)	Depth (m) from	to	SAMPLE Type & No	SPT (N) (Cu)	Description	Strata: Depth & Thickness m	Reduced Level (m)	Legend
						MADE GROUND (330mm of tarmac over limestone hardcore)	(0.53)		
							0.53	33.94	
						MADE GROUND (brick rubble)	(0.67)		
							1.20	33.27	
						MADE GROUND (sandstone)	(0.20)	33.07	
							1.40		
						MADE GROUND (concrete)	(0.60)		
30, 39 -{26/02/1998}- -46 ,50 /50mm		2.00	2.20	B 1	((230))		2.00	32.47	
T1 M1 2.50 2.50		2.00		S 1		Red/brown completely weathered SANDSTONE			
38, 50 ,50 /50mm	3.00	3.00	3.20	B 2	((300))				
		3.00		S 2			(2.60)		
50, /25mm -50 /25mm -{27/02/1998}-	3.50	4.50	4.60	S 3	((600))	**Borehole Completed**	4.60	29.87	

Remarks 1) Service pit dug 1.0m x 1.0m x 1.2m
2) Borehole dry 26/02/98
3) Water met at 2.5m with no rise after 20 mins
4) Shelling for 2hrs from 2.0m to 4.6m
5) Borehole continued by rotary drilling

Logged by **LW** Drilled by **CB**

Ground level **34.47mAD**

Co-ordinates:

SSL -cable.pm -08/96 Rev 4.1

SJ 89 NW / 2026

NGR 8489 9747

STRATA SURVEYS LIMITED

Location **Lower Medlock UCSO's C/1 Site 0308**

Client: **BeWT** Project Ref.: **9-00-00-910**

Borehole No. **BH227**

Job No.: **9069/63**

Equipment and methods **Light cable percussion**

Start Date:	End Date:	Final Depth:	Casing Diameter	Casing Depth
25/02/1998	26/02/1998	7.90m	150mm	5.50m

FIELD RECORDS	Samples / Tests: Casing (Water) Depth (m)	Depth (m) from	Depth (m) to	SAMPLE Type & No	SPT (N) (Cu)	Description	Strata: Depth & Thickness m	Reduced Level (m)	Legend
						MADE GROUND (topsoil)	(0.30)	✓	
							0.30	34.91	
						MADE GROUND (limestone hardcore)	(0.30)		
							0.60	34.61	
						MADE GROUND (200mm of tarmac over concrete)	(0.30)		
							0.90	34.31	
						MADE GROUND (100mm of ash and gravel over concrete)	(0.35)		
		1.30	1.30	B 1			1.25	33.96	
		1.30		S 1		MADE GROUND (loose brown clayey very sandy brick and rubble)			
4, 2 1 ,2 ,4 ,3	2.50	2.50	2.50	B 2	(10)				
		2.50		S 2			(3.35)		
		3.50	3.60	B 3					
		3.50		S 3					
6, 6 -7 ,5 ,6 ,7	4.50	4.60	5.05	B 4	(25)		4.60	30.61	
		4.60		S 4		Medium dense brown clayey fine to coarse SAND and GRAVEL	(0.30)		
12, 16 -20 ,24 ,39 ,50 **T1** **M1** **5.50** **5.50**	4.50	5.00	5.45	B 5	(133)		4.90	30.31	
-(25/02/1998)-		5.00		S 5		Red/brown highly weathered SANDSTONE			
19, 25 -39 ,50 /75mm	5.50	6.00	6.20	B 6	((178))				
		6.00		S 6			(3.00)		
25, 39 -40 ,50 /75mm	5.50	7.50	7.70	S 7	((180))				
-(26/02/1998)-						**Borehole Completed**	7.90	27.31	

Remarks 1) Service pit dug 0.5m x 0.5m x 0.7m 19/02/98 hit obstruction TP abandoned moved position
2) 2nd pit dug 1.0m x 1.0m x 1.3m
3) No water encountered 25/02/98
4) Chiselling from 5.0m to 7.9m for 2hrs
5) Water met at 5.5m with no rise
6) Borehole continued by rotary drilling

Logged by **LW** Drilled by **CB**

Ground level **35.21mAD**

Co-ordinates:

SSL - cable perc (4R59) Rev 4.1

SJ 89 NW/2030

NGR 8488 9752

STRATA SURVEYS LIMITED

Location **Lower Medlock UCSO's C/1 Site 0308**

Client: **BeWT**

Project Ref.: **9-00-00-910**

Borehole No. **BH525**

Job No.: **9069/63**

Equipment and methods **Light cable percussion**

Start Date:	End Date:	Final Depth:	Casing Diameter	Casing Depth
11/02/1998	11/02/1998	6.50m	150mm	6.00m

FIELD RECORDS	Samples / Tests: Casing (Water) Depth (m)	Depth (m) from	Depth (m) to	SAMPLE Type & No	SPT (N) (Cu)	Description	Strata: Depth & Thickness m	Reduced Level (m)	Legend
		0.50		D 1		MADE GROUND (loose and medium dense dark grey topsoily brick rubble)			
4, 2 -2 ,3 ,2 ,4		1.20 1.20	1.65	B 1 S 1	(11)				
T1 M1 1.80 1.80							(4.20)		
		2.50		B 2					
2, 1 -1 ,2 ,2 ,2	3.00	3.00	3.00	S 2	(7)				
							4.20	30.76	
1, 1 -2 ,1 ,2 ,2	4.30	4.30 4.30	4.75	B 3 S 3	(7)	Loose brown slightly clayey silty fine to coarse SAND with some fine to coarse gravel	(0.80)		
6, 5 -5 ,6 ,7 ,8	5.00	5.00 5.00	5.45	B 4 S 4	(26)	Medium dense brown slightly clayey very sandy fine to coarse GRAVEL	5.00	29.96	
							(1.00)		
19, 27 -42 ,50 /25mm	6.00 (5.50)	6.00	6.20	S 5	((276))	Red/brown highly weathered SANDSTONE	6.00	28.96	
							(0.50)		
-[11/02/1998]-						**Borehole Completed**	6.50	28.46	

Remarks 1) Service pit dug 1.0m x 1.0m x 1.2m
2) Water met at 1.8m with no rise
3) Water added below 5.00m
4) Chiselling from 6.00m to 6.50m for 1 hour
5) Borehole continued by rotary drilling

Logged by **LW**

Drilled by **CB**

Ground level **34.96mAD**

Co-ordinates:

SSL - abbs.pm/.0896.Rev.1

Appendix F
Risk Assessment Methodology

Civic Earth

Civic Earth Risk Assessment Methodology

Civic Earth's risk assessment methodology is based on the CIRIA C552 (2001) Contaminated Land Risk Assessment – A Guide to Good Practice[1].

The assessment approach is to quantify the potential risk at Phase 1 Stage via risk estimation and risk evaluation. This defines the overall risk category that can be used to identify likely actions to address the potential risk or undertake further risk evaluation.

The methodology is a qualitative approach and is undertaken for each identified potential contaminant linkage (source-pathway-receptor) identified for the site in accordance with the October 2020 Land Contamination Risk Management Guidance (LCRM)[2].

The methodology requires the classification of the following:

- The magnitude of the consequence (severity) of a risk occurring; and
- The magnitude of the probability (likelihood) of a risk occurring.

The potential consequences of contamination risks occurring at a site are classified in accordance with Table 1 below, which is based on CIRIA guidance[1].

Table 1: Classification of Consequence Ratings

Classification	Definition of Consequence	Examples
Severe	Short-term (acute) risks to human health. Short-term (acute) risk of pollution of sensitive water resource or ecosystem Catastrophic damage to crops/building/property/infrastructure, including off-site soils	High concentration of cyanide on the surface of an informal recreation area Major spillage of contaminants from site into controlled waters Explosion causing building collapse
Medium	Long-term (chronic) risks to human health Long-term (chronic) pollution of sensitive water resource Significant change in an ecosystem/contamination of off-site soils	Concentrations of a contaminant on site exceeding the generic or site specific assessment criteria Leaching of contaminants from a site into a major or minor aquifer Death of species within a designated nature reserve
Mild	Pollution of non-sensitive water resource Significant damage to crops/buildings/property/infrastructure Damage to an ecosystem or sensitive buildings/structures/services	Pollution of a non-classified groundwater Damage to a building rendering it unsafe to occupy (e.g. foundation damage resulting in instability)
Minor	Easily preventable non-permanent effects Harm, although not necessarily significant harm, which may result in financial loss or expenditure resolve Easily repairable effects of damage to	Presence of contamination at concentrations which require the use of personal protective equipment during site work Loss of plants in a landscaping scheme/discolouration of concrete

[1] CIRIA, (2001). Contaminated Land Risk Assessment. A Guide to Good Practice. CIRIA C552.

[2] Environment Agency (2020). *Land Contamination Risk Management (LCRM).*

	building/structures/services	

The potential probability of the risks being realised are classified in accordance with the ratings set out in Table 2, which are based on CIRIA guidance[1]. It should be noted that where a potential contaminant linkage has not been identified the likelihood is considered to be negligible.

Table 2: Classification of Probability Ratings

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

In accordance with C552, the risk classification for each potential contaminant linkage are classified in accordance with the matrix of consequence and probability set out in Table 3. The definition for the risk classifications are presented in Table 4.

Table 3: Risk Classification Matrix

		Consequence			
		Severe	Medium	Mild	Minor
Probability	High Likelihood	Very High	High	Moderate	Moderate/Low
	Likely	High	Moderate	Moderate/Low	Low
	Low Likelihood	Moderate	Moderate/Low	Low	Very Low
	Unlikely	Moderate/Low	Low	Very Low	Very Low

Table 4: Risk Classification Definitions

Classification	Definition
Very High	There is a high probability that severe harm could arise to a designated receptor from the identified hazard or there is evidence that severe harm is currently happening. This risk, if realised, is likely to result in substantial liability. Urgent investigation (if not already undertaken) and remediation are likely to be required.
High	Harm is likely to arise to a designated receptor from the identified hazard. Realisation of the risk is likely to result in substantial liability. Urgent investigation (if not already undertaken) and remediation are likely to be required.
Moderate	It is possible that harm could arise to a designated receptor from the identified hazard. However, it is either relatively unlikely that such harm would be severe or if any harm were to occur it is more than likely that the harm would be relatively mild. Urgent investigation (if not already undertaken) is normally required to clarify the potential risk and to determine the potential liability. Some remedial works may be required in the longer term.
Low	It is possible that harm could arise to a designated receptor from the identified hazard, but it is considered likely

	that this harm, if realised, would at worse normally be mild.
Very Low	There is a low possibility that harm could arise to a designated receptor from the identified hazard. In the event of such harm being realised it is not likely to be severe.

Civic Earth

Manchester

Carver's Warehouse
77 Dale Street
Manchester M1 2HG

+44 (0)161 228 6757

London

Reeds Wharf
33 Mill Street
London SE1 2AX

+44 (0)20 7253 2977

Leeds

1 Saw Mill Street
Water Lane
Leeds, LS11 5WE

+44 (0)113 2025 130

Glasgow

35 Virginia Street
Glasgow G1 2TN

+44 (0)141 370 1829

civicearth.com

Appendix 13.2 - Supplementary Site Investigation Report. Civic Earth. 2024

Job Title
Mayfield Phase 1B

Prepared for
LandsecU+I

Report Type
Supplementary Site Investigation Report

Date
21 March 2024



Contents

Executive Summary 5
1. Introduction 7
2. Site Context 8
2.1 Site Location 8
2.2 Site Description 8
2.3 Proposed Development 9
3. Summary of Desk Study and Data Review 10
3.1 Introduction 10
3.2 Site History 10
3.3 Published Geology 10
3.4 Hydrology and Hydrogeology 10
3.5 Previous ROC Investigation 11
3.6 Conceptual Site Model 13
4. Supplementary Phase 2 Site Investigation 15
4.1 Introduction 15
4.2 Ground Gas and Groundwater Monitoring 16
4.3 Chemical Laboratory 17
4.4 Geotechnical Laboratory Analysis 18
5. Ground and Groundwater Conditions 20
5.1 Summary of Ground Model 20
5.2 Made Ground 20
5.3 Glacial Till 22
5.4 Chester Sandstone Formation 24
5.5 Visual and Olfactory Potential Contamination 25
5.6 Groundwater 25
5.7 Ground Gas 27
5.8 Foundation Inspection Trial Pits 27
6. Ground Model Summary 29
7. Contamination Assessment 32
7.1 Introduction 32
7.2 Risks to Human Health from Soil Contaminants 32
7.3 Risks to Human Health from Dissolved Contaminants 33
7.4 Risks to Human Health and Buildings/Structures from Ground Gas 34
7.5 Risks to Controlled Waters 34
7.6 Risks to Plants and Vegetation 38
7.7 Risks to Buried Water Supply Pipes 38
7.8 Preliminary Waste Characterisation 38
7.9 Revised Qualitative Risk Assessment 39
8. Geoenvironmental Recommendations 45
8.1 Introduction 45

8.2 Watching Brief and Discovery Strategy 45
8.3 Tannery Watching Brief 45
8.4 Borehole Decommissioning 45
8.5 Ground Gas Protection Measures 45
8.6 Hotspot Removal 45
8.7 Capping Layers 46
8.8 Material Management 46
8.9 Mitigation of Risks to Controlled Waters during Construction Works 47
8.10 Buried Water Supply Pipes 47
8.11 Health, Safety and Environmental Controls 47
9. Geotechnical Recommendations 49
9.1 Introduction 49
9.2 Geotechnical Design Parameters 49
9.3 Foundation Design 49
9.4 Floor Slabs and Pavement Design 50
9.5 Excavation Works 50
9.6 Buried Concrete Design 50

Plates

Plate 1: Approximate Site Location Plan (©OpenStreetMap Contributors) 8
Plate 2: Conceptual Sketch for Proposed Redevelopment (Shedkm Architects Limited Stage 01 Report) 9
Plate 3: ROC 2020 Ground Investigation Exploratory Hole Location Plan for "Zone 5" (Approximate Site Boundary in Red) 11
Plate 4. Extract of Exploratory Hole Location Plan 16
Plate 5. SPT N60 versus Level (mOD) – Made Ground 21
Plate 6. SPT N60 versus Level (mOD) – Glacial Till 23
Plate 7. Undrained Shear Strength versus Level (mOD) – Glacial Till 23
Plate 8. SPT N60 versus Level (mOD) – Weathered Chester Sandstone Formation 24
Plate 9. Indicative Contour Plot of Level (mOD) to Top of Sandstone Bedrock 29
Plate 10. Plot J Illustrative Ground Model Cross Section 30
Plate 11. Plot K Illustrative Ground Model Cross Section 31
Plate 12. Summary of Made Ground Soil Contaminant Exceedances from Supplementary Site Investigation 33
Plate 13. Illustrative Conceptual Site Model (Not to Scale) 44

Appendices

Appendix A: Exploratory Hole Records
Appendix B: Exploratory Hole Location Plan
Appendix C: Ground Gas and Groundwater Monitoring Records
Appendix D: Chemical Laboratory Analysis Results
Appendix E: Geotechnical Laboratory Analysis Results
Appendix F: Contamination Assessment
Appendix G: HazWaste Online Classification Reports
Appendix H: Risk Assessment Methodology

Supplementary Site Investigation Report

Prepared by	**Kirsty Poore MSc MSci (Hons) CGeol FGS ARSM ROGEP**
Reviewed by	Hal Godwin MSc BSc (Hons) CGeol DIC FGS
Approved by	Dan Matthews BEng CSci CEnv MIEnvSc
Report Ref.	51001-CE-02-XX-R-G-1002
Issued	21/03/2024
Status	P01 – First Issue

This report is the copyright of Civic Earth and is for the sole use of the person/organisation to whom it is addressed. It may not be used or referred to in whole or in part by anyone else without the express agreement of Civic Earth. Civic Earth do not accept liability for any loss or damage arising from any unauthorised use of this report. Civic Earth is a trading name of Civic Earth Ltd (registered number 14897633), which is a limited company registered in England, registered address Carver's Warehouse, 77 Dale Street, Manchester M1 2HG.

Executive Summary

Site Description	The site occupies a roughly rectangular, undeveloped plot of land within the wider Mayfield Development area. The site is bound to the east by Hoyle Street, to the north by Mayfield Park, to the south by Mancunian Way and to the west by the Phase 1A Mayfield development area. Current ground level ranges from approximately +37.5m above ordnance Datum (mOD) in the western third of the site to approximately +42mOD (approximate street level) in the east of the site, with a gentle slope down towards the northern site boundary from the access route off Hoyle Street. Two brick retaining walls extend into the west of the site and an electrical substation is located towards the centre of the site.
Proposed Development	Current proposals for the redevelopment of the site include the construction of two high-rise, predominantly residential plots (Plot J and K) with partial lower ground floor beneath each plot. Lower ground level is currently proposed at approximately +39mOD for Plot J and +36mOD for Plot K.
Historical Development	Earliest available historical mapping indicates that the northern and western areas of the site were predominantly occupied by industrial activities (*Reservoir, Ardwick Dye Works, Ardwick Tannery, Chapelfield Works (Indiarubber)* and *Britannia Brewery*) whilst the eastern and southern areas of the site were predominantly occupied by residential properties. By 1948, the majority of structures in the eastern area of the site were no longer indicated and two large industrial buildings were also indicated in the southwest and central areas of the site. A *Works* was subsequently constructed in the northeast of the site c.1964 and a *Rubber & Plastic Works* in the southeast of the site c.1968. By 1986, the structures in the west of the site were demolished and *Tanks* were recorded in the middle of the site and adjacent to the Works in the southeast of the site. The site remained predominantly unchanged in layout, with aerial photography indicating areas of the site as car parking, until c.2015 when the on-site structures were demolished. The site was used as a stockpiling and remediation storage area during the recent enabling works for the Mayfield Park and Phase 1A development areas.
Published Geology	Published BGS mapping indicates that the site is underlain by Alluvium across the northwest half of the site and Till (Diamicton) across the southeast half of the site. The superficial deposits are indicated to overly the Chester Formation (Sandstone). Deposits of artificial Made Ground are also indicated across the majority of the site.
Hydrology and Hydrogeological Setting	The superficial deposits of Alluvium and Till are designated as Secondary Undifferentiated aquifers. The underlying Chester Formation sandstone bedrock is designated as a Principal aquifer. The site is not located within a groundwater Source Protection Zone (SPZ) and an abstraction point is located in the far north of the site which was fitted with a manhole during the Mayfield Park and Phase 1A enabling works.
Previous ROC Site Investigation	Previous site investigation has been carried out by ROC (2020) within the site which included 3 cable percussion boreholes, 8 window sample boreholes and 11 trial pits. A large stockpile of material was present across approximately half of the site which limited the extent of the investigation. The ground conditions encountered comprised a variable thickness of Made Ground (between 0.70m and 4.80m) beneath thin layers of hardstanding and topsoil. Superficial deposits of Alluvium were recorded between 0.80mbgl and 3.50mbgl in four locations in the west of the site. Deposits of Glacial Till were recorded in three locations towards the middle of the site between 1.00mbgl and 1.80mbgl. The superficial deposits ranged between 0.80m and 2.10m in thickness. The weathered sandstone bedrock was recorded between 1.10mbgl and 5.00mbgl. Visual and olfactory signs of contamination were observed by ROC during the site investigation including a strong chemical odour in WS401, black water with hydrocarbon odour in WS404 and hydrocarbon odours in TP409 and TP410. Chemical assessment of soils (against a "Public Open Space" end use) indicated elevated concentrations of lead in the Made Ground at WS408. Elevated concentrations of TPH were also recorded (but at concentrations below the assessment criteria) in six locations; "Hydrocarbon Hotspot #2" was defined by ROC at WS401, WS404 and TP409. Asbestos was recorded at seven locations between <0.001% and 0.465%.
Supplementary Site Investigation	The current supplementary site investigation was undertaken in January 2024 and included 5 cable/rotary boreholes up to 25.0mbgl, 9 window sample boreholes up to 2.5mbgl, 12 trial pits up to 3.5mbgl and 4 foundation inspection trial pits up to a depth of 1.5mbgl. Three ground gas and groundwater monitoring rounds were subsequently carried out on 30 January, 12 February and 20 February 2024. The ground conditions were recorded to comprise a variable thickness of Made Ground (between 0.50m and 4.10m) overlying superficial deposits of Glacial Till. The deposits of Glacial Till were recorded in some locations between 0.50mbgl and 2.70mbgl and ranged between 0.80m and 2.40m in thickness. The bedrock of the Chester Sandstone Formation was encountered between 2.40mbgl and 4.70mbgl. Olfactory signs of potential hydrocarbon contamination were noted within TP1009 within the Made Ground at 1.90mbgl. Perched water was encountered in the Made Ground and Glacial Till which is variable in level and appears to be limited in nature, confined by surrounding cohesive deposits. The Principal aquifer was recorded in the Chester Sandstone Formation between approximately +30.65mOD and +29.70mOD.
Contamination Assessment	**Human Health:** A total of 40 soil samples were submitted for chemical analysis and the results compared against human health GAC for a "residential without home grown produce" end use. Assessment of the Made Ground indicated that contaminant concentrations are generally below their respective assessment thresholds with the exception of heavy metals and PAHs. In addition, asbestos was detected in 8 of the Made Ground soil samples. The results of the assessment of the natural soils indicate that the contaminant concentrations recorded are below their respective GAC. Assessment of contaminant concentrations from a total of 8 perched water and Principal aquifer groundwater samples indicates a low risk to human health via vapour intrusion.

	Ground Gases: Ground gas monitoring recorded methane and carbon dioxide concentrations below 1%v/v and 5%v/v respectively with negligible flow rate (<0.1l/h) recorded. The calculated GSVs correlate to CS1. **Controlled Waters**: A total of 5 Made Ground leachate samples, 3 perched water samples (plus 3 for total and free cyanide analysis only) and 5 Principal aquifer samples were analysed. The results of the Made Ground leachate assessment against freshwater EQS indicate that concentrations of heavy metals, total cyanide and pH have the potential to leachate at elevated concentrations. The results of the perched water analysis also reflect elevated concentrations of these contaminants, as well as elevated concentrations of total phenols, total TPH, PAHs and ammoniacal nitrogen in WS1007. The results of the Principal aquifer EQS assessment indicate that the contaminant concentrations are below their respective assessment thresholds. Elevated concentrations were recorded against the DWV assessment criteria in the perched water; however, the perched water is not considered to be a likely supply of drinking water. Elevated sulphate concentrations were recorded in the Principal Aquifer against the DWV; however, sulphate is considered unlikely to be a driver for remediation and concentrations are approximately three times lower in the Principal aquifer than the perched water. **Plants and Vegetation:** Localised elevated concentrations of zinc were recorded at WS1002 and WS1006 within the Made Ground which are considered to present a risk to proposed plant and vegetation growth. In addition, it is likely that the composition of the Made Ground is unlikely to be a suitable growth medium with high proportions of brick and concrete gravel and cobbles observed during the site investigation.
Preliminary Waste Characterisation	The preliminary waste assessment (carried out using the HazWaste Online Toolkit) indicates that the majority of the material tested would be characterised as non-hazardous material and therefore considered to be acceptable to a non-hazardous waste facility; some material may be acceptable at an inert waste facility (subject to WAC testing). However, 3 out of the 40 soil samples were characterised as hazardous material (BH1003 due to asbestos at >0.1% by weight, and BH1004 and TP1010 due to elevated TPH).
Revised Conceptual Site Model	There is considered to be a potential risk to future site users and construction workers from the Made Ground soils due to the elevated concentrations of heavy metals, PAHs and asbestos. Elevated concentrations of zinc within the Made Ground are considered to be a potential risk to plants and vegetation. The recorded ground gas concentrations and ground conditions encountered indicate a low risk from ground gases. The risks to controlled waters from the Made Ground and perched water are considered to be low to moderate and delineation and removal of gross contamination at WS1007, TP1010, BH1004 and "Hotspot #2" is recommended. The risks to controlled waters from foundation activities i.e. piling are considered to be low assuming appropriate piling techniques are adopted. Due to the recorded concentrations of contaminants at the site, it is anticipated that barrier pipes will be required for new buried water supply pipes. Buried concrete will need to be designed as appropriate for the ground conditions.
Geoenvironmental Recommendations	A remediation strategy and verification plan is to be produced by Civic Earth under a separate cover to outline the remediation requirements for the site in consideration of the recommendations outlined in this report. It is recommended that a watching brief is carried out by the Contractor during the enabling works, earthworks and construction works and the regulatory approved tannery watching brief, outlined in the ROC Remediation Strategy for Mayfield Park, is implemented during the construction phase. Existing monitoring wells should be decommissioned prior to commencement of significant earthworks and measures implemented to mitigate the potential impact to controlled waters during construction works. The Contractor should be responsible for the material management and waste classification at the site and the "waste hierarchy" should be used to rank waste management options. It is recommended that the gross TPH contamination identified at "Hydrocarbon Hotspot #2", BH1004 and TP1010, and hazardous concentrations of asbestos, are also removed and treated for re-use and/or removed from site. A clean capping layer will be required in areas of proposed soft landscaping to mitigate the risks to future site users and plants and vegetation. It is recommended that a Piling Works Risk Assessment is completed to demonstrate that the selected piling methodology will not lead to the creation of new pathways for contaminant migration. Due to the recorded concentrations of contaminants at the site, it is anticipated that barrier pipes will be required for new buried water supply pipes. Completion of a United Utilities Risk Assessment including sampling of soils at depth and location of proposed water supply pipes will be required.
Geotechnical Recommendations	Based on proposed finished floor levels, formation levels are likely to be within Made Ground, superficial deposits and/or sandstone bedrock. Given the variability of the shallow ground conditions, it is recommended that foundations are founded within the Chester Sandstone Formation. An allowable bearing capacity of 500kPa could be adopted for the sandstone bedrock (representative of a very dense sand). Pavements/roadways founded on the Made Ground or superficial deposits should be designed to a conservative CBR of 2.5%. Floor slab design will need to take account of the potential variability in ground conditions at the formation level, and suspended slabs will need to be utilised where there is insufficient bearing capacity or potential for an unacceptable level of differential settlement. Excavations during the development should not pose difficulties for conventional excavators or earth moving equipment for the identified strata including some excavation in the upper sandstone horizons. Localised groundwater control may be required to managed perched water ingress; however, excavations are not currently anticipated to extend below the Principal aquifer level. Buried concrete design classes for the Made Ground and natural Glacial Till and sandstone bedrock have been calculated as DS-2 (AC-2) and DS-1 (AC-1) respectively.

1. Introduction

Civic Earth Limited was appointed on 26 November 2023 by Civic Engineers on behalf of LandsecU+I (the Client) to undertake a supplementary site investigation for the proposed redevelopment of the Mayfield Phase 1B development area (herein referred to as "the site"). The Phase 1B development area forms part of the wider Mayfield Development.

A desk study was previously carried out for the wider Mayfield Development by BuroHappold Engineering (BuroHappold) in 2017[1], which included the site. A ground investigation was subsequently carried out across the wider Mayfield Development, including the site, by ROC Consulting (ROC) in 2020[2] and a site specific Phase 1 Desk Study and Data Review report was produced by Civic Earth in November 2023[3].

The above reports have been used as supporting documentation in the preparation of this site investigation report, and reference should be made to the reports for full details of the investigations and assessments completed for the site.

The aim of this report is to provide:

- A brief summary of the site history, anticipated geology and historical ground investigation data, hydrogeological setting and preliminary risk assessment and conceptual site model;
- A summary of the ground and groundwater conditions encountered during the supplementary Phase 2 site investigation, and analysis and interpretation of chemical and geotechnical laboratory testing carried out as part of the site investigation; and
- Recommendations with respect to the potential risks identified to receptors associated with potential contamination beneath the site, waste disposal and the geotechnical design of the project.

It is recommended that this report is submitted to the Local Authority to support the Planning Applications made in relation to the site.

[1] BuroHappold (2017) *Mayfield Regeneration. Geoenvironmental and Geotechnical Desk Study Report*. Reference 035548 Revision 0. 10 August 2017.
[2] ROC (2020) *Mayfield Park. Phase 2 Site Investigation.* Reference 4153-ROC-XX-XX-RP-ES-P2SI1 Revision R1. 22 December 2020.
[3] Civic Earth (2023) *Mayfield Phase 1B. Phase 1 Desk Study and Data Review.* Reference 51001-CE-02-XX-R-G-1001. Revision P02. 16 November 2023.

2. Site Context

2.1 Site Location

The site is located off Hoyle Street in Manchester. The approximate postcode for the site is M12 6HW. The National Grid coordinates for the approximate centre of the site are 385200E, 397499N and the site is approximately 1.43 ha in size. The site location is illustrated in Plate 1.

Plate 1: Approximate Site Location Plan (©OpenStreetMap Contributors)



2.2 Site Description

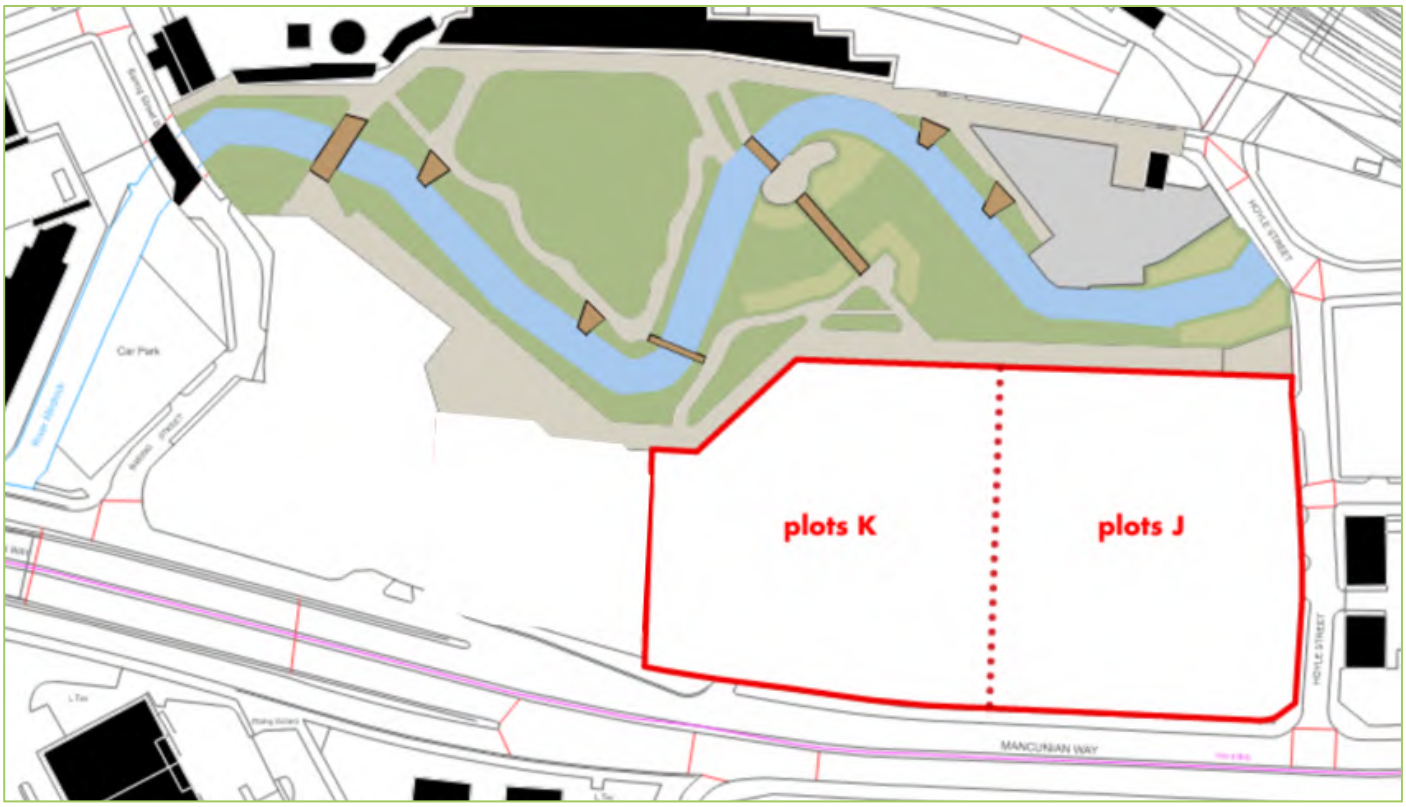
The site is roughly rectangular is shape and bounded to the north by Mayfield Park, to the east by Hoyle Street, to the south by Mancunian Way (A635) and to the west by the Phase 1A area of the Mayfield Development. The site is currently an unoccupied parcel of land following the recent completion of earthworks across the wider Mayfield Development. It is understood from Civic Engineers that the site was used as a stockpiling and soil remediation area during the works; earthworks were carried out across Mayfield Park to the north and the Phase 1A area to the west, however, it is understood that no earthworks were carried out within the site. Dense vegetation was previously located along the southern and eastern site boundaries which has been recently cleared during vegetation clearance works . Evidence of the previous site buildings' ground slabs and cobblestone roads were also observed.

Current ground level ranges from approximately +37.5m above ordnance Datum (mOD) in the western third of the site to approximately +42mOD (approximate street level) in the east of the site, with a gentle slope down towards the northern site boundary from the access route off Hoyle Street. A brick retaining wall, orientated north-south, separates the lower western area of the site and extends two thirds of the way into the site from the south boundary. A structural engineer from Civic Engineers Limited advised that the retaining wall is likely to have been a basement retaining wall given the presence of a cobbled access route to the east of the wall, and likely to be of brick and mortar construction. An electrical substation is located towards the northern end of the retaining wall. A second, smaller retaining wall was observed to the west of the main retaining wall, with a historical access route from Mancunian Way to the east of this second wall at a higher ground level.

2.3 Proposed Development

It is understood that the current proposals for the redevelopment of the site include the construction of two high-rise, predominantly residential plots (Plot J and K) with partial lower ground floor beneath each plot. The locations of the plots within the site are illustrated in Plate 2.

Plate 2: Conceptual Sketch for Proposed Redevelopment (Shedkm Architects Limited Stage 01 Report)



3. Summary of Desk Study and Data Review

3.1 Introduction

As outlined in Section 1, a desk study was previously carried out for the wider Mayfield Development by BuroHappold Engineering (BuroHappold) in 2017[1] which included the site (referred to by BuroHappold as "Zone 5". A site investigation was subsequently carried out across the wider Mayfield Development by ROC Consulting (ROC) in September 2020[2]. A site specific Phase 1 desk study report, which includes a review of the BuroHappold desk study and ROC site investigation data, was produced by Civic Earth in 2023[3].

The following sections provide a summary of the Civic Earth Phase 1 desk study and data review; for full details the original report should be referred to.

3.2 Site History

Earliest available historical mapping of the site indicates that the northern and western areas of the site were predominantly occupied by industrial activities (*Reservoir, Ardwick Dye Works, Ardwick Tannery, Chapelfield Works (Indiarubber)* and *Britannia Brewery*) whilst the eastern and southern areas of the site were predominantly occupied by residential properties. By 1948, the majority of structures in the eastern area of the site (residential properties and the brewery) were no longer indicated and it was considered possible that they may have been demolished due to bomb damage during the Second World War. Two large industrial buildings were also indicated in the southwest and central areas of the site during this time, and it was considered likely that the current brick retaining wall that extends into the site was constructed at this time.

A *Works* was subsequently constructed in the northeast of the site c.1964 and a *Rubber & Plastic Works* in the southeast of the site c.1968. By 1986, the structures in the west of the site were demolished and *Tanks* were recorded in the middle of the site and adjacent to the (Rubber & Plastic) *Works* in the southeast of the site. The site remained predominantly unchanged in layout, with aerial photography indicating areas of the site as car parking, until c.2015 when the on-site structures were demolished.

3.3 Published Geology

With reference to the British Geological Survey (BGS)[4] website, BGS Sheet 85[5] and the Groundsure Enviro + Geo Insight report obtained as part of the Civic Earth desk study[3], the site is anticipated to be underlain by Alluvium across the northwest half of the site and Till (Diamicton) across the southeast half of the site. The superficial deposits are indicated to overly the Chester Formation (Sandstone). Deposits of artificial Made Ground are also indicated across the majority of the site. Two northwest-southeast trending faults in the bedrock are located approximately 200m to 300m northeast and southwest of the site.

3.4 Hydrology and Hydrogeology

The Environment Agency (EA) has produced an aquifer designation system consistent with the requirements of the Water Framework Directive. The designations have been set for superficial and bedrock geologies and are based on the importance of aquifers for potable water supply and their role in supporting surface water bodies and wetland ecosystems.

The superficial deposits of Alluvium and Till are designated as Secondary Undifferentiated aquifers. The underlying Chester Formation sandstone bedrock is designated as a Principal aquifer.

The site is not located within a groundwater Source Protection Zone (SPZ). The Civic Earth desk study highlighted two records for a historical on-site groundwater abstraction point for Moseley Rubber Co. Limited for 'general cooling (low loss)' dated 1966. It is understood that the abstraction point is located in the far north of the site and was fitted with a manhole during the wider site enabling works[3].

A further five records for historical groundwater abstraction were identified approximately 760m west (two records

[4] British Geological Survey (BGS), www.bgs.ac.uk (06 November 2023)
[5] BGS (2011) *Manchester, Sheet 85. Solid and Drift.* 1:50,000.

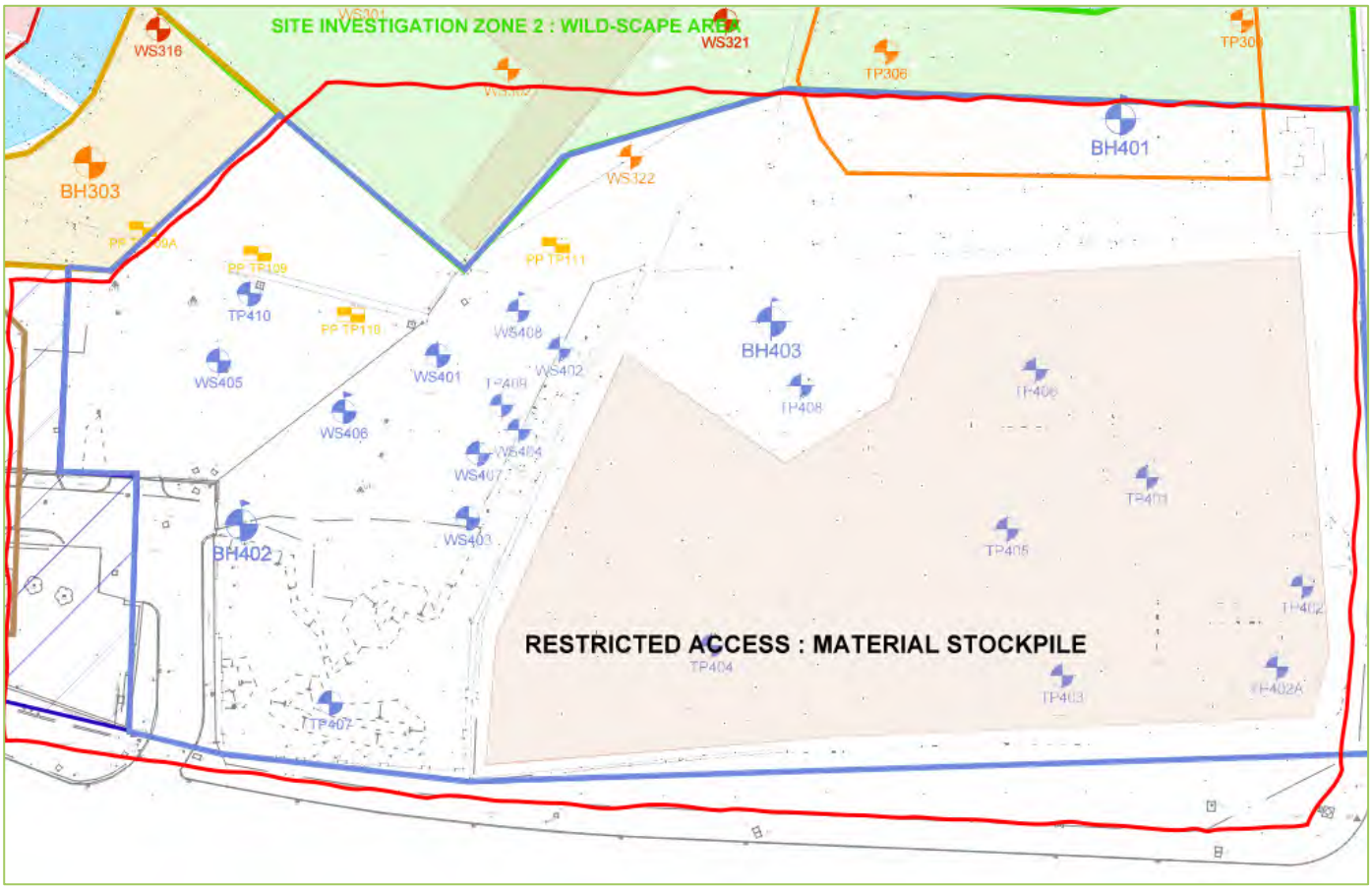
for non-evaporative cooling), 810m southeast (one record for heat pump) and 100m west (two records for general use relating to secondary category (medium loss) and heat pump).

The *River Medlock* is located approximately 10m north of the site at its closest point, meandering through Mayfield Park. The river flows west/southwest, and the regional groundwater flow direction is anticipated to be towards the southwest.

3.5 Previous ROC Investigation

The scope of the ROC investigation[2] within the site included three cable percussion boreholes (BH401 to BH403), eight window sample boreholes (WS401 to WS408) and 11 trial pits (TP401 to TP410 and TP402A). The positions of the ROC exploratory holes are illustrated in Plate 3. Access to approximately half of the site was limited due to the presence of a large material stockpile during the ground investigation and whilst trial pits were excavated in this area, the trial pits were excavated within the material stockpile that is no longer present on site.

Plate 3: ROC 2020 Ground Investigation Exploratory Hole Location Plan for "Zone 5" (Approximate Site Boundary in Red)



3.5.1 Ground Conditions

The ROC site investigation[2] encountered a variable thickness of Made Ground (between 0.70m and 4.80m) beneath thin layers of hardstanding and topsoil. The Made Ground was recorded to be variable in composition and typically described as loose to medium dense, slightly clayey, sandy gravel; sandy, gravelly clay; and clayey, sandy gravelly cobbles. The gravel comprised brick, concrete, sandstone, mudstone and limestone with rare to occasional fragments of slate, timber, glass, ash, asphalt and rebar.

Superficial deposits of Alluvium were recorded in boreholes WS401, WS406, WS407 and WS408 only with the top of the stratum recorded between depths of 0.80mbgl and 3.50m below ground level (mbgl). The deposits were recorded to range between 0.80m and 2.10m in thickness. The alluvial deposits were typically described as mottled orange brown to dark brown, slightly gravelly, clayey, silty sand; silty clay; and clayey sandy gravel. Superficial deposits of the Glacial Till were recorded in boreholes BH403, WS407 and WS408 only, with the top of

the stratum recorded between 1.00mbgl and 1.80mbgl. The deposits were recorded to range between 0.95m and 2.20m in thickness and were typically described as stiff to very stiff, brown, slightly gravelly, sandy clay.

It was noted in the Civic Earth desk study[3] that borehole WS407 recorded Glacial Till above deposits of Alluvium which is unexpected as the Alluvium is a younger deposit than Glacial Till and geological faulting of the superficial deposits is not anticipated. It was noted that the description of Alluvium in borehole WS407 is very similar to the description of the Weathered Chester Sandstone Formation in trial pit TP409, and it was therefore considered that the Sandstone has been incorrectly identified as Alluvium.

The Weathered Chester Sandstone Formation was encountered in exploratory holes BH401 to BH403, WS406, WS407 and TP409, with the upper surface of the stratum encountered between 1.10mbgl and 5.00mbgl. The deposits were proven to a maximum borehole depth of 6.20mbgl and typically described as completely weathered, extremely weak, reddish brown sandstone (recovered as sand) and orange, brown and red, slightly gravelly, clayey sand.

3.5.2 Groundwater Conditions

No groundwater strikes were encountered during the ROC site investigation[2] within the site. Ground gas and groundwater monitoring wells were installed within boreholes BH401 and BH402 within the Made Ground, and in borehole BH403 within the Glacial Till. Groundwater was not encountered during the subsequent monitoring visits.

It was noted in the ROC report[2] that the Chester Sandstone Formation was investigated to a greater extent as part of a separate ROC ground investigation to the west of the site[6] (at the Mayfield Phase 1A site), and these investigations recorded a significant weathered zone (between 7m and 10m in thickness) which overlies the more competent bedrock. The boreholes within the Phase 1A site were extended to approximately 30mbgl and a resting groundwater table was recorded at c.30m to 31mOD. However, due to the 'general absence of groundwater encountered in monitoring wells, and the tendency for water strikes to be recorded above lower permeability stratum', ROC considered it unlikely that groundwater beneath the site is in hydraulic continuity with the River Medlock, except potentially in proximity to the River Medlock.

3.5.3 Summary of Contamination

Visual and olfactory signs of contamination were observed by ROC during their site investigation[2], including a strong chemical odour in borehole WS401, black water with a strong hydrocarbon odour in borehole WS404, and hydrocarbon odours in trial pits TP409 and TP410.

An assessment of soil contamination at the site was carried out by ROC[2] where the soil chemical analysis results were assessed against a 'Public Open Space – Park' end use criteria. The results of the assessment for the exploratory holes within the site indicated elevated concentrations of lead within the Made Ground at borehole WS408. In addition, elevated concentrations of total petroleum hydrocarbons (TPH) (but at concentrations below the assessment criteria) were recorded at exploratory holes BH401, BH402, TP407, WS401, WS403 and WS404 between 200mg/kg and 7,680mg/kg). Elevated concentrations of lead and polycyclic aromatic hydrocarbons (PAHs) were recorded in the stockpiled material (which has now been removed from site) at trial pits TP403 and TP404.

Asbestos was also recorded within the Made Ground in seven locations (WS401, WS404, WS408, TP401, TP402A, TP405, TP407) between 0.4mbgl and 2.0mbgl; the asbestos material was identified as chrysotile and amosite cement, board and loose fibres between <0.001% and 0.465% by weight). It is noted that the material encountered in trial pits TP401, TP402A and TP405 (the large stockpile of material) has since been removed from site.

Risks posed by ground gas across the wider Mayfield Development were not considered applicable for the majority of the site by ROC[2], owing to the then public open space end use. However, it is noted that this ROC assessment is no longer valid for the current proposed development of the site. The limited ground gas monitoring results recorded by ROC within the site indicate a low risk from ground gases; however, additional monitoring would be required to confirm the ground gas regime at the site.

[6] ROC (2020) *Plot O + N, Mayfield. Phase 2 Site Investigation.* Reference ROCP/LD/AS/P2_4134. October 2020.

No groundwater was recorded during the monitoring rounds at the site by ROC. However, sampling of this water table across the wider Mayfield Development by ROC revealed localised elevated concentrations of heavy metals, PAHs and TPH in the same locations where similar hotspots of soil borne contamination were noted[3]. In some cases, the elevated concentrations were considered marginal and considered by ROC to pose a low risk; however, at some locations remedial action was recommended to reduce the risk to local groundwater quality. No measurable variance in surface water quality was noted up or down stream of the site within the Medlock by ROC, which supported ROC's notion the site is not having a significant impact on water quality as it passes the site.

3.5.4 Remediation and Validation Works

Following completion of the ROC ground investigation at the site and across the wider Mayfield Development, two remediation strategies were produced by ROC; the first for Mayfield Park[7] to the north and northwest of the site, and the second for Plots O, N and M[8], the land to the west of the site.

The remediation strategy for Mayfield Park and Plots O, N and M generally included; capping layers in areas of soft landscaping to mitigate the risks to human health; removal of grossly contaminated / impacted soils during excavation of Made Ground to top of natural strata; on-site treatment and re-use of Made Ground soils; excavation of Made Ground at specific borehole locations to mitigate the risks to controlled waters; and installation of barrier pipes for new water supply pipework.

The remediation strategy for Mayfield Park[8] also included a technical note[9] specific to residual contamination associated with Ardwick Tannery, which encroached slightly onto the southwest corner of the Phase 1B site[3]. The ROC technical note[9] summarises that the animal tanning operations were underway since c.1850 and expanded in size during the period leading up to the 1890s, with tan pits in the south and east of the tannery removed and constructed on top of, suggesting the tan pits were moved internally within the new structures. The tannery was subsequently cleared and developed between 1890 and 1908 into Chapelfield Indian Rubber works. The technical note recommended that a watching brief be put in place with specific emergency control measures in the event that tannery related contamination is observed during excavation works, and materials excavated from the tannery area not be re-used until they have been suitably inspected and verified as being free from potential tannery related contamination.

A remediation strategy specific to the site has not been produced; however, the remediation strategy for Mayfield Park[8] makes reference to exploratory holes WS401, WS404 and TP409 as a hotspot of hydrocarbon contamination (referenced as Hydrocarbon Hotspot #2). It was recommended by ROC that the impacted Made Ground and shallow natural soils be removed and replaced to prevent further on-going movement of TPH contamination into the underlying Principal aquifer.

Remediation and validation works were subsequently carried out by E3P across the off-site Mayfield Park and Plots M, N and O[10]. It is understood that enabling works were only undertaken in the far north of the site, which comprised the southern part of the Wetlands area, also referred to as The Wildscape. These works comprised the removal of concrete structures and basements and backfilling with site won material. In addition, during the enabling works an abstraction well located in the far north of the site was identified and fitted with a manhole cover.

Whilst the area in the southeast of the site was used for processing and stockpiling of material, it is understood that no enabling or remediation works were carried out within the site outside of the Wetlands Area. The E3P report[10] states that Hydrocarbon Hotspot #2 was not remediated as the hotspot was located outside of their site boundary.

3.6 Conceptual Site Model

A preliminary qualitative risk assessment was undertaken by Civic Earth[3] which concluded that there is generally

[7] ROC (2020) *Plots O, N & M, Mayfield, Manchester. Phase 3A Remediation Strategy.* Reference 4153-ROC-XX-XX-RP-ES-P3RS2 Revision 2. 18 December 2020.
[8] ROC (2020) *Mayfield Park, Mayfield, Manchester. Phase 3A Remediation Strategy.* Reference 4153-ROC-XX-XX-RP-ES-P3RS1 Revision 2. 17 December 2020.
[9] ROC (2021) *Technical Note 1.1. Residual Tannery Contamination on Mayfield Park, Manchester.* Reference 4153-ROC_XX_XX_RP_ES_TM1.1. 3 February 2021.
[10] E3P (2021) *Mayfield Parks and Plots M, N and O. Validation Report*. Reference 14-575-R1-Rev1. November 2021.

considered to be a low to moderate risk to the identified receptors from potential contaminants associated with the current and former uses of the site and surrounding areas, and potential Made Ground associated with the former development of the site.

In addition, the assessment has identified a number of potential geotechnical constraints associated with the anticipated underlying ground conditions, including the potential for below ground obstructions (for example historical foundations), a variable thickness of Made Ground associated with the historical development of the site including reservoir and risk of UXO to potential intrusive investigation works and/or construction works.

A supplementary intrusive ground investigation was therefore recommended so that the risks from contamination can be assessed and a remediation strategy developed, to inform material management decisions in terms of material re-use / off-site disposal and to obtain parameters for the geotechnical design of the project, such as foundation, floor slab and pavement design.

The Phase 1 Desk Study report[3] should be referred to for full details of the conceptual site model and preliminary risk assessment.

4. Supplementary Phase 2 Site Investigation

4.1 Introduction

A supplementary Phase 2 site investigation was undertaken between 8 and 19 January 2024. A summary of the intrusive works completed at the site is summarised in Table 1.

Table 1: Summary of Exploratory Hole Locations

Location Reference	Type of Exploratory Hole	Ground Level (mOD)	Base Depths (mbgl)	Base Levels (mOD)
BH1001	BH	38.92	25.00	13.92
BH1002	BH	37.16	25.00	12.16
BH1003	BH	39.20	20.00	19.20
BH1004	BH	42.28	25.00	17.28
BH1005	BH	41.16	20.00	21.16
WS1001	WS	37.19	1.00	36.19
WS1002	WS	37.76	2.00	35.76
WS1003	WS	42.19	2.45	39.74
WS1004	WS	38.26	2.50	35.76
WS1005	WS	39.83	2.50	37.33
WS1006	WS	41.96	2.50	39.46
WS1007	WS	37.09	1.00	36.09
WS1008	WS	39.16	1.00	38.16
WS1009	WS	41.65	1.50	40.15
TP1001	TP	42.15	3.00	39.15
TP1002	TP	41.67	2.30	39.37
TP1003	TP	38.10	3.30	34.80
TP1004	TP	37.48	3.20	34.28
TP1005	TP	39.97	3.30	36.67
TP1006	TP	36.51	3.20	33.31
TP1007	TP	38.10	3.30	34.80
TP1008	TP	42.27	3.50	38.77
TP1009	TP	40.00	3.20	36.80
TP1010	TP	41.04	3.00	38.04
TP1011	TP	35.87	3.20	32.67
TP1012	TP	35.93	3.30	32.63
FIP1001	FIP	37.79	1.50	36.29
FIP1002	FIP	38.07	1.05	37.02
FIP1003	FIP	38.41	0.60	37.81

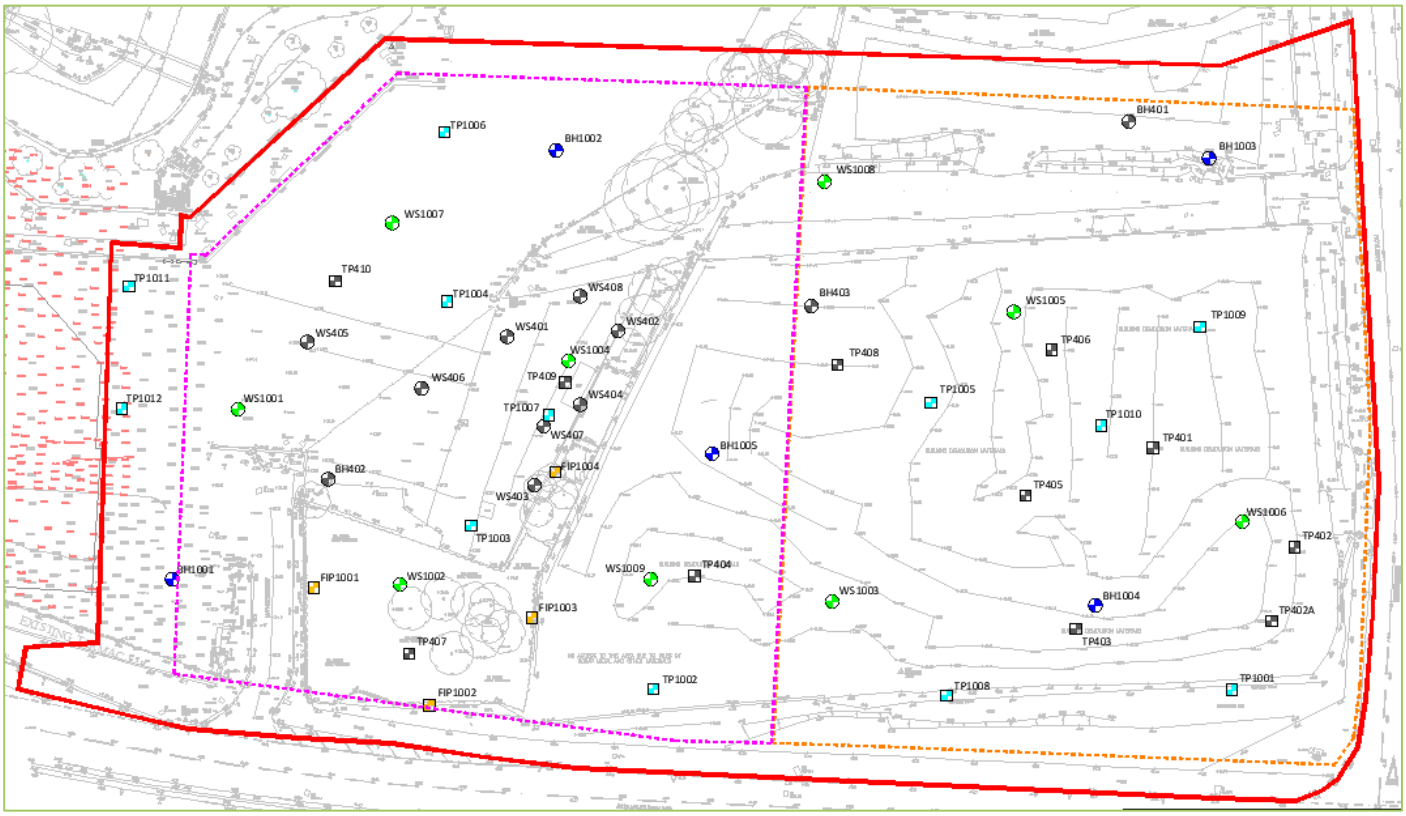
Location Reference	Type of Exploratory Hole	Ground Level (mOD)	Base Depths (mbgl)	Base Levels (mOD)
FIP1004	FIP	38.27	0.80	37.47

BH = cable/rotary borehole; WS = window sample borehole; TP = machine excavated trial pit; FIP = hand excavated foundation inspection trial pit.

Prior to breaking ground, exploratory holes were cleared for buried services by a specialist utility contractor utilisating a cable avoidance tool (CAT) and signal generator.

The investigation was undertaken in general accordance with the requirements of BS 5930:2015+A1:2020[11] and BS 10175:2011+A2:2017[12]. The exploratory hole records are included in Appendix A. An exploratory hole location plan is included in Appendix B; an extract of the exploratory hole location plan is provided in Plate 4, which includes the historical exploratory hole locations undertaken by ROC.

Plate 4. Extract of Exploratory Hole Location Plan



In-situ Standard Penetration Tests (SPTs) were carried out within the cable/rotary boreholes and selected window sample boreholes.

4.2 Ground Gas and Groundwater Monitoring

Three ground gas and groundwater monitoring rounds were undertaken on 30 January, 12 February and 20 February 2024. Groundwater samples were obtained from boreholes BH1001 to BH1005 and WS1004, WS1006 and WS1007 on 30 January 2024 and from boreholes WS1004, WS1006 and WS1007 on 30 February 2024. A summary of the monitoring wells installed is provided in Table 2 and the ground gas and groundwater monitoring and sampling records are included in Appendix C.

[11] British Standards Institution (2015) *Code of practice for ground investigations.* BS 5930:2015+A1:2020.
[12] British Standards Institution (2017) *Investigation of potentially contaminated sites – Code of practice.* BS 10175:2011+A2:2017.

Table 2: Summary of Monitoring Well Response Zones

Location Reference	Target Response Zone	Response Zone Top Depth (mbgl)	Response Zone Base Depth (mbgl)	Response Zone Top Level (mOD)	Response Zone Base Level (mOD)
BH1001	Sandstone Bedrock	4.50	25.00	34.42	13.92
BH1002	Sandstone Bedrock	4.50	25.00	32.66	12.16
BH1003	Sandstone Bedrock	4.50	20.00	34.70	19.20
BH1004	Sandstone Bedrock	5.00	25.00	37.28	17.28
BH1005	Sandstone Bedrock	3.50	20.00	37.66	21.16
WS1002	Made Ground	1.00	2.00	37.76	35.76
WS1004	Made Ground	1.00	2.50	37.26	35.76
WS1005	Made Ground	1.00	1.80	38.83	38.03
WS1006	Made Ground	1.00	2.50	40.96	39.46
WS1007	Made Ground	0.30	1.00	36.79	36.09
WS1009	Made Ground	0.50	1.50	41.05	40.05

4.3 Chemical Laboratory

4.3.1 Soil Testing

Selected soil samples were submitted to i2 Analytical Limited (a UKAS and MCERTS accredited laboratory) for chemical soil testing. The analysis included the following determinants and the results are included in Appendix D.

- 40 Nr. pH
- 40 Nr. soil organic matter (SOM);
- 40 Nr. total sulphate as SO_4;
- 40 Nr. total cyanide;
- 40 Nr. heavy metal suite (antimony, arsenic, barium, beryllium, boron, cadmium, chromium (III and VI), copper, lead, mercury, nickel, selenium, vanadium and zinc);
- 40 Nr. polycyclic aromatic hydrocarbons (PAH);
- 40 Nr. total petroleum hydrocarbons (TPH);
- 40 Nr. total monohydric phenols;
- 40 Nr. BTEX compounds (benzene, toluene, ethylbenzene, xylenes);
- 2 Nr. acid / alkali reserve tests;
- 7 Nr. Waste Acceptance Criteria (WAC) tests;
- 2 Nr. polychlorinated biphenyls (PCB) tests;
- 40 Nr. asbestos screen and identification; and
- 8 Nr. asbestos quantification.

4.3.2 Leachate Testing

Selected soil samples were submitted to i2 Analytical Limited (a UKAS and MCERTS accredited laboratory) for chemical soil leachate testing. The analysis included the following determinants and the results are included in Appendix D. It is noted that partial testing was completed on the sample from trial pit TP1011 due to insufficient sample being available for analysis, following completion of the initial total soils analysis.

- 5 Nr. pH
- 4 Nr. dissolved organic carbon (DOC);
- 5 Nr. total sulphate as SO_4;
- 5 Nr. total cyanide;
- 4 to 5 Nr. heavy metal suite (antimony, arsenic, barium, beryllium, boron, cadmium, calcium, chromium (III and VI), copper, lead, mercury, nickel, selenium, vanadium and zinc);
- 4 Nr. polycyclic aromatic hydrocarbons (PAH);
- 4 to 5 Nr. total petroleum hydrocarbons (TPH); and
- 4 Nr. total monohydric phenols.

4.3.3 Groundwater Testing

Selected water samples were submitted to i2 Analytical Limited (a UKAS and MCERTS accredited laboratory) for chemical water testing. The analysis included the following determinants and the results are included in Appendix D.

- 8 Nr. pH
- 8 Nr. dissolved organic carbon (DOC);
- 8 Nr. total sulphate as SO_4;
- 8 Nr. ammoniacal nitrogen as N;
- 11 Nr. total cyanide;
- 11 Nr. free cyanide;
- 8 Nr. hardness;
- 8 Nr. heavy metal suite (antimony, arsenic, barium, beryllium, boron, cadmium, calcium, chromium (III and VI), copper, lead, magnesium, mercury, nickel, selenium, vanadium and zinc);
- 8 Nr. polycyclic aromatic hydrocarbons (PAH);
- 8 Nr. BTEX compounds (benzene, toluene, ethylbenzene, xylenes);
- 8 Nr. total petroleum hydrocarbons (TPH); and
- 8 Nr. total monohydric phenols.

4.4 Geotechnical Laboratory Analysis

Selected soil samples were submitted to Geolabs Limited (a UKAS accredited laboratory) for geotechnical testing in general accordance with BS 1377[13]. The following tests were scheduled and the results are included in Appendix E:

- 12 Nr. Atterberg Limit (4 Point);
- 10 Nr. particle size distribution (PSD) (wet sieve);
- 4 Nr. PSD sedimentation (by pipette);
- 11 Nr. natural water content;
- 1 Nr. single stage undrained triaxial;
- 18 Nr. point load strength of rock;
- 3 Nr. uniaxial compressive strength of rock including 1 Nr. determination of Young's Modulus and Poisson's

[13] British Standard (2018). *Methods of testing for soils for civil engineering purposes*. BS 1377:2018.

Ratio; and

- 16 Nr. Building Research Establishment (BRE) Special Digest (SD)[14] Suite – including 2:1 water soluble sulphate, 2:1 water soluble chloride, water soluble magnesium, total sulphate, total sulphur and pH.

[14] Building Research Establishment (2006). BRE Special Digest Part 1: *Concrete in aggressive ground*

5. Ground and Groundwater Conditions

5.1 Summary of Ground Model

A summary of the ground conditions encountered during supplementary site investigation is provided in Table 3. It is noted that the ground conditions recorded in foundation inspection trial pits FIP1001 to FIP1004 are not included in Table 3 and are reported separately in Section 5.7.

Table 3: Summary of Supplementary Site Investigation Ground Conditions

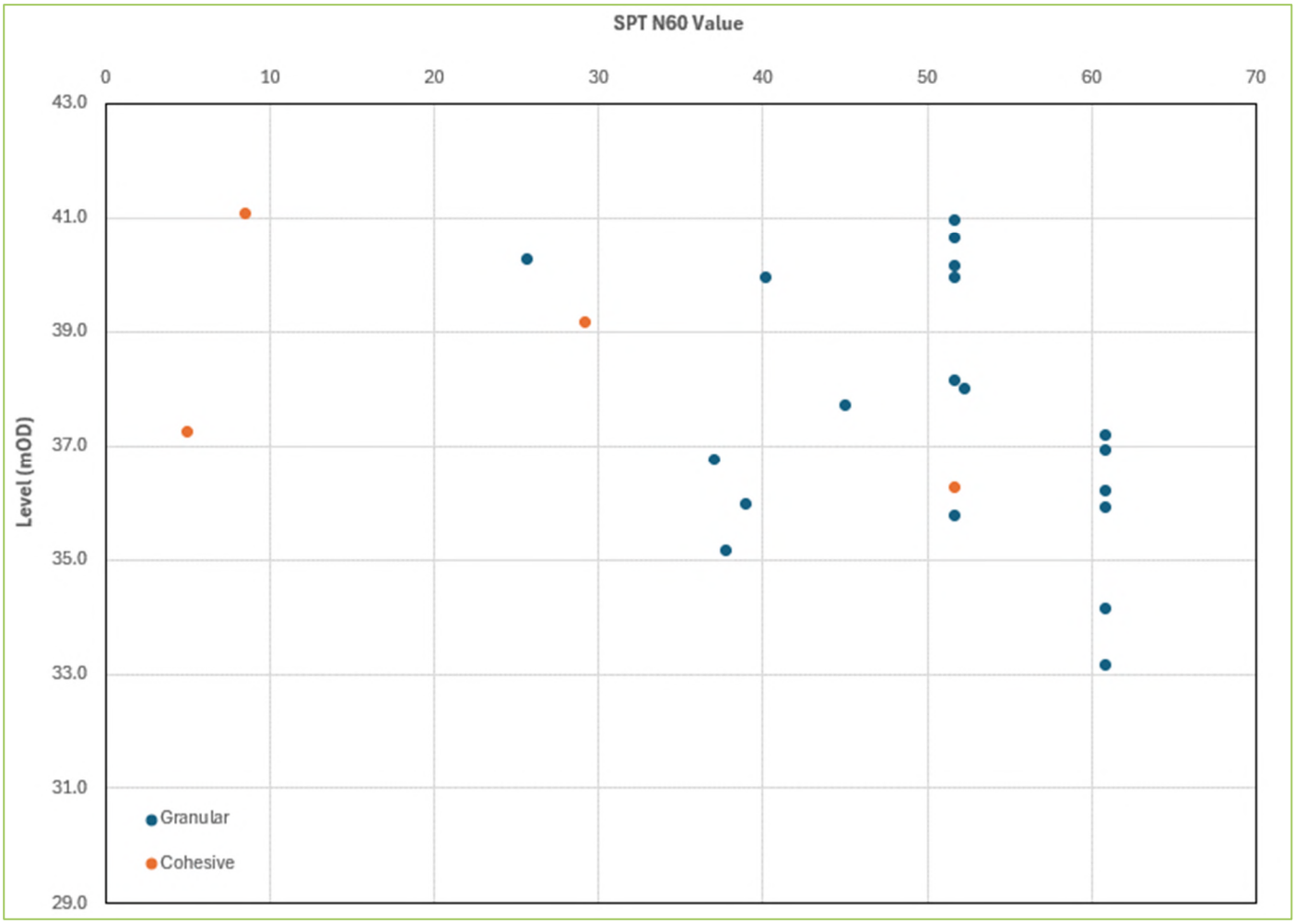
Stratum	Top of Stratum (mbgl) [mOD]	Thickness (m)
Reinforced concrete / concrete / bituminous macadam over soft to stiff dark orange brown black slightly sandy to sandy slightly gravelly to gravelly clay and/or loose to dense dark brown black occasionally red yellow brown clayey gravelly cobbly sand / clayey sandy cobbly gravel. Gravel is angular to subangular fine to coarse of brick, concrete and sandstone. Frequent fragments of glass, wire, plastic, ash, dolomite and tile. Sand is fine to coarse. **[MADE GROUND]**	0.0 [42.28 to 35.87]	0.50 to 4.10
Stiff dark grey orange brown slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse of sandstone and coal. Sand is fine to coarse. *Encountered in BH1004, TP1001, TP1003, TP1007 to TP1010, WS1003 and WS1005.* **[GLACIAL TILL]**	0.50 to 2.70 [41.69 to 36.00]	0.80 to 2.40
Reddish brown SANDSTONE. Recovered as medium dense to very dense fine to coarse sand. *Encountered in BH1001 to BH1005, TP1007 and WS1005.* **[WEATHERED CHESTER SANDSTONE FORMATION]**	2.40 to 4.70 [38.26 to 33.06]	0.10 to 6.65
Very weak to weak, locally extremely weak, medium bedded light reddish brown medium grained SANDSTONE, very weakly to weakly cemented. Occasional subrounded siliceous clasts and fragments of mudstone. Occasional thinly bedded fine grained areas, thin <50mm oxidised bedding planes and rare oxidisation spots. *Encountered in BH1001 to BH1005 and TP1005.* **[CHESTER SANDSTONE FORMATION]**	6.50 to 10.55 [37.07 to 28.37]	>18.50

5.2 Made Ground

Made Ground was encountered from below hardstanding or from surface at each exploratory hole location and ranged in thickness between 0.50m and 4.10m in thickness. The stratum comprised predominantly granular horizons with some cohesive horizons, both of variable consistency and density.

A total of 19 SPTs were undertaken within the granular Made Ground horizons where SPT N60 values ranged from 25 to >50 corresponding to 'medium dense to 'very dense' granular deposits[11]. It is noted that the frequent presence of cobbles within the Made Ground potentially influenced the SPT results in some locations, particularly where >50 values were recorded. A total of 3 SPTs were undertaken within the cohesive Made Ground horizons; 2 SPT N60 values were recorded as 5 and 29, correlating to 'firm to stiff' clay[11]. It is noted that the third SPT undertaken at 2.00mbgl within borehole WS1004 recorded a value of >50; however, it is considered likely that the test was influenced by the presence of a cobble within the Made Ground and therefore not representative of the very soft material that the test was carried out in. A summary of the SPT N60 values versus level are provided in Plate 5.

Plate 5. SPT N60 versus Level (mOD) – Made Ground



Sulphate and pH testing was undertaken on samples of the Made Ground retrieved during the ground investigation. The results are summarised in Table 4.

Table 4: Summary of pH and Sulphate Testing – Made Ground

Number of Tests	pH	Water Soluble SO4* (mg/l)	Water Soluble Chloride* (mg/l)	Water Soluble Nitrate as N* (mg/l)
6	7.9 to 12	29.3 to 993	4.3 to 69	<2.0

*2:1 Leachate Equivalent

A summary of the classification testing undertaken on selected samples from the Made Ground is provided in Table 5. The results of the classification testing indicate the material to be clay of low to intermediate plasticity[11] with a negligible to low volume change potential[15].

Table 5: Summary of Classification Testing – Made Ground

Number of Tests	Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	% Passing (>450µm)	Modified Plasticity Index (%)
4	13.2 to 20.7	22 to 35	16 to 22	44 to 100	2.6 to 14

A summary of the PSD test undertaken on a selected sample from the Made Ground is provided in Table 6. The results of the testing indicate the material to typically comprise an occasionally cobbly, silty, very gravelly sand.

[15] NHBC (2013) *NHBC Standards. Chapter 4.2 Building near trees.*

Table 6: Summary of PSD Testing – Made Ground

Number of Tests	Cobble Content (%)	Gravel Content (%)	Sand Content (%)	Silt Content (%)	Clay Content (%)
1	6.8	33.5	50.9	8.7	

It is noted that the ROC investigation[2] recorded Made Ground to depths of between 0.70mbgl and 4.80mbgl beneath thin layers of hardstanding and topsoil.

5.3 Glacial Till

The Glacial Till was encountered in exploratory holes BH1004, TP1001, TP1003, TP1007 to TP1010, WS1003 and WS1005. The top of the superficial deposits was recorded between 41.69mOD and 36.00mOD and recorded to range between 0.80m and 2.40m in thickness.

SPT N60 values ranged from 8 to >50 (extrapolated to 60) corresponding to 'firm to very stiff' clay. Correlated c_u values ranged from 36kPa to 270kPa (assuming f_1 = 4.5[16]), correlating to low to very high strength material[11]. A summary of the SPT N60 values and undrained shear strengths versus level are provided Plate 6 and Plate 7 respectively. The result of the triaxial test undertaken on an undisturbed sample of the Glacial Till returned an undrained shear strength of 172kPa, correlating to clay of very high strength[11].

A summary of the classification testing undertaken on selected samples from the Glacial Till is provided in Table 7. The results of the classification testing indicate the material to be clay and silt of low to intermediate plasticity[11] with a negligible to medium volume change potential[15]. It is noted that the sample tested from trial pit TP1007 at 3.0mbgl returned a 'non-plastic' result and has been omitted from the summary table; the material would represent clay of negligible volume change potential.

Table 7: Summary of Classification Testing – Glacial Till

Number of Tests	Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	% Passing (>450µm)	Modified Plasticity Index (%)
7	10.7 to 23.5	26 to 46	12 to 27	33 to 100	3.3 to 23

A summary of PSD test undertaken on a selected sample from the Glacial Till is provided in Table 8. The results of the testing indicate the material to typically comprise a gravelly, sandy, clayey silt and gravelly, clayey, silty sand.

Table 8: Summary of PSD Testing – Glacial Till

Number of Tests	Cobble Content (%)	Gravel Content (%)	Sand Content (%)	Silt Content (%)	Clay Content (%)
4	0.0	2.0 to 10.0	20.5 to 48.5	27.8 to 51.4	13.7 to 26.6

Sulphate and pH testing was undertaken on samples of the Glacial Till retrieved during the ground investigation. The results are summarised in Table 9.

Table 9: Summary of pH and Sulphate Testing – Glacial Till

Number of Tests	pH	Water Soluble SO4* (mg/l)	Water Soluble Chloride* (mg/l)	Water Soluble Nitrate as N* (mg/l)
5	5.8 to 8.6	64.3 to 186	1.9 to 11	<2.0

*2:1 Leachate Equivalent

[16] Stroud, M. A. (1974). The Standard Penetration Test in Insensitive Clays and Soft Rocks. Proceedings of the European Symposium on Penetration Testing, Stockholm, June 5-7, 1974 2(2): 367-375

Plate 6. SPT N60 versus Level (mOD) – Glacial Till

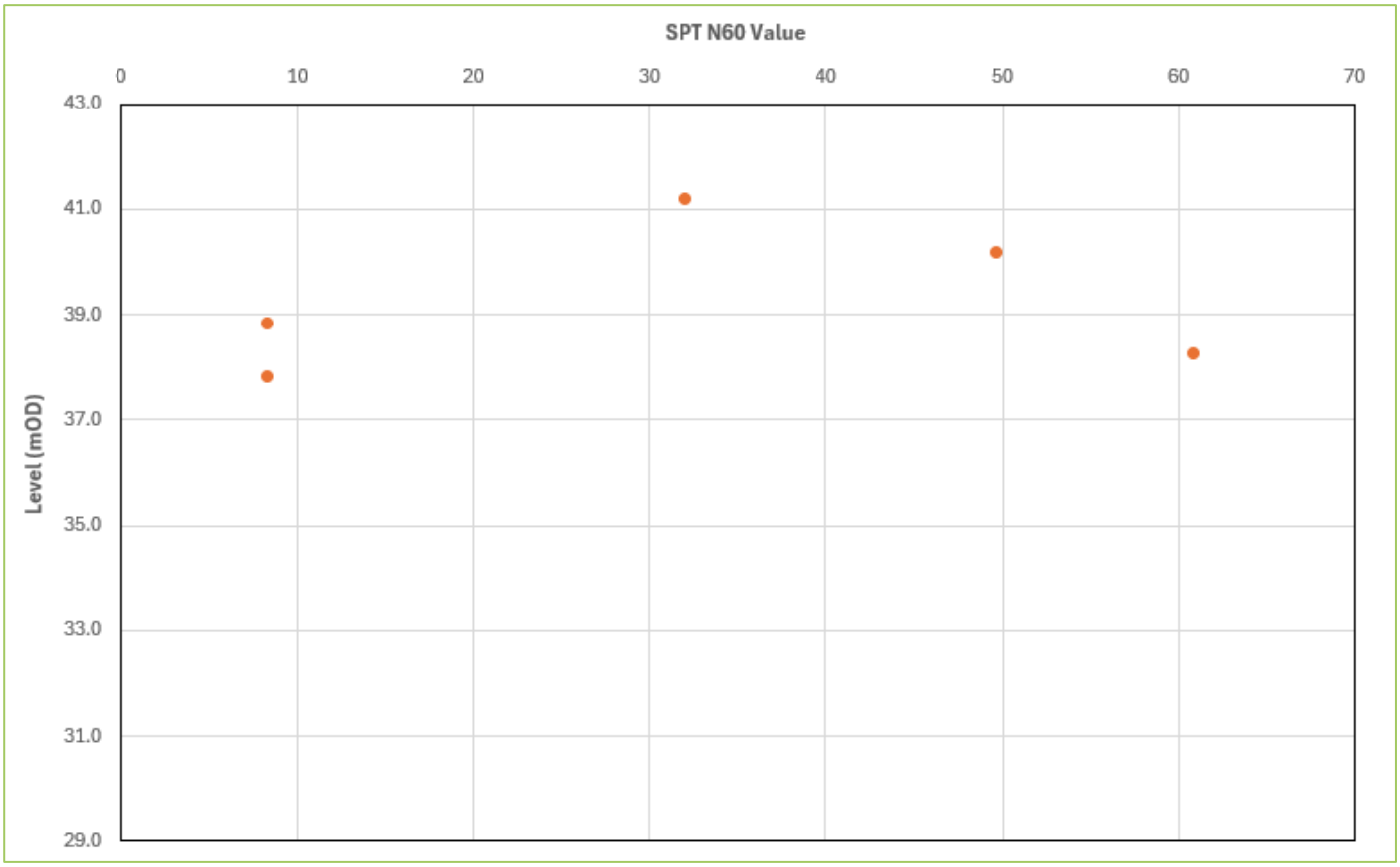
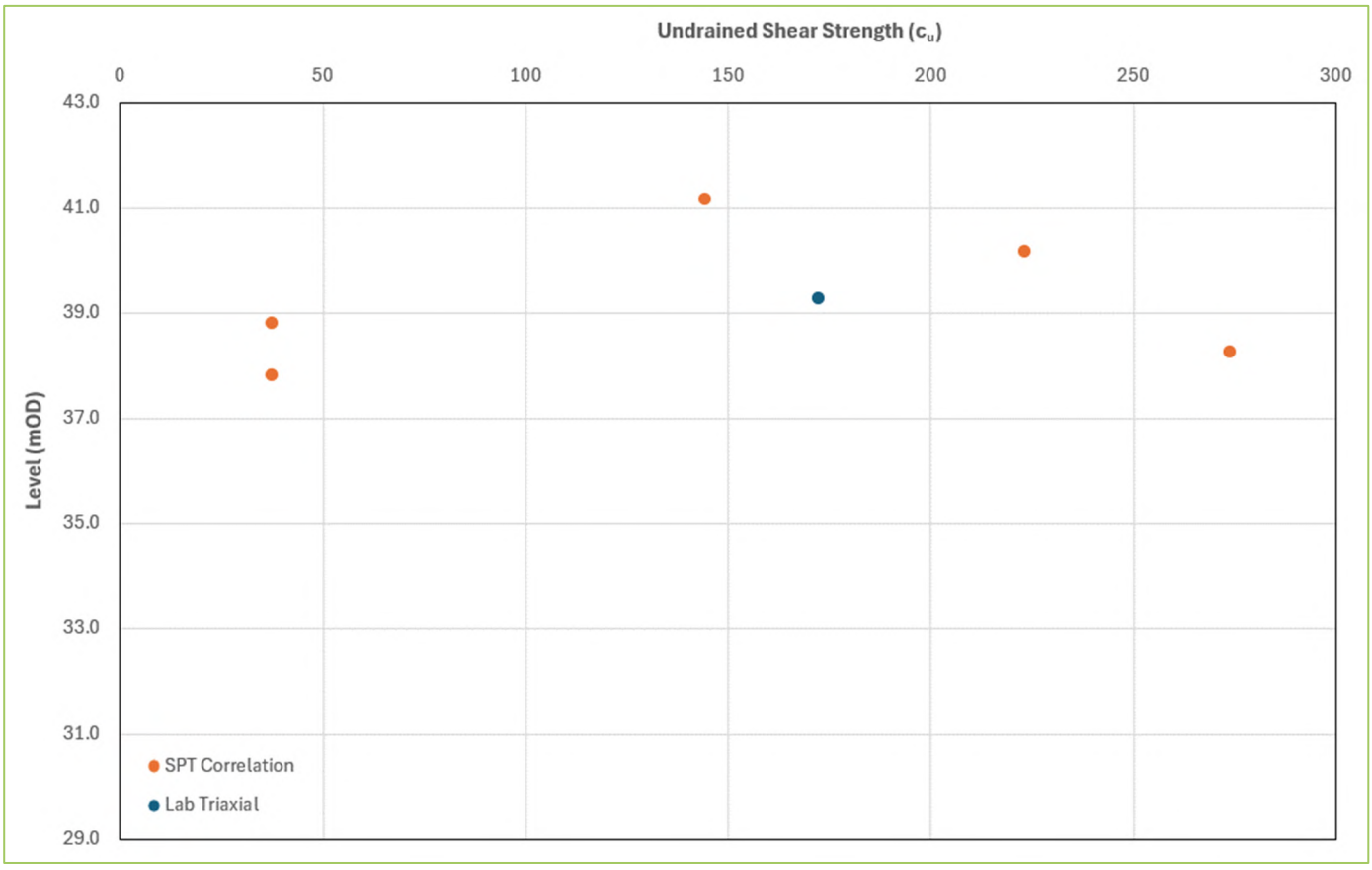


Plate 7. Undrained Shear Strength versus Level (mOD) – Glacial Till



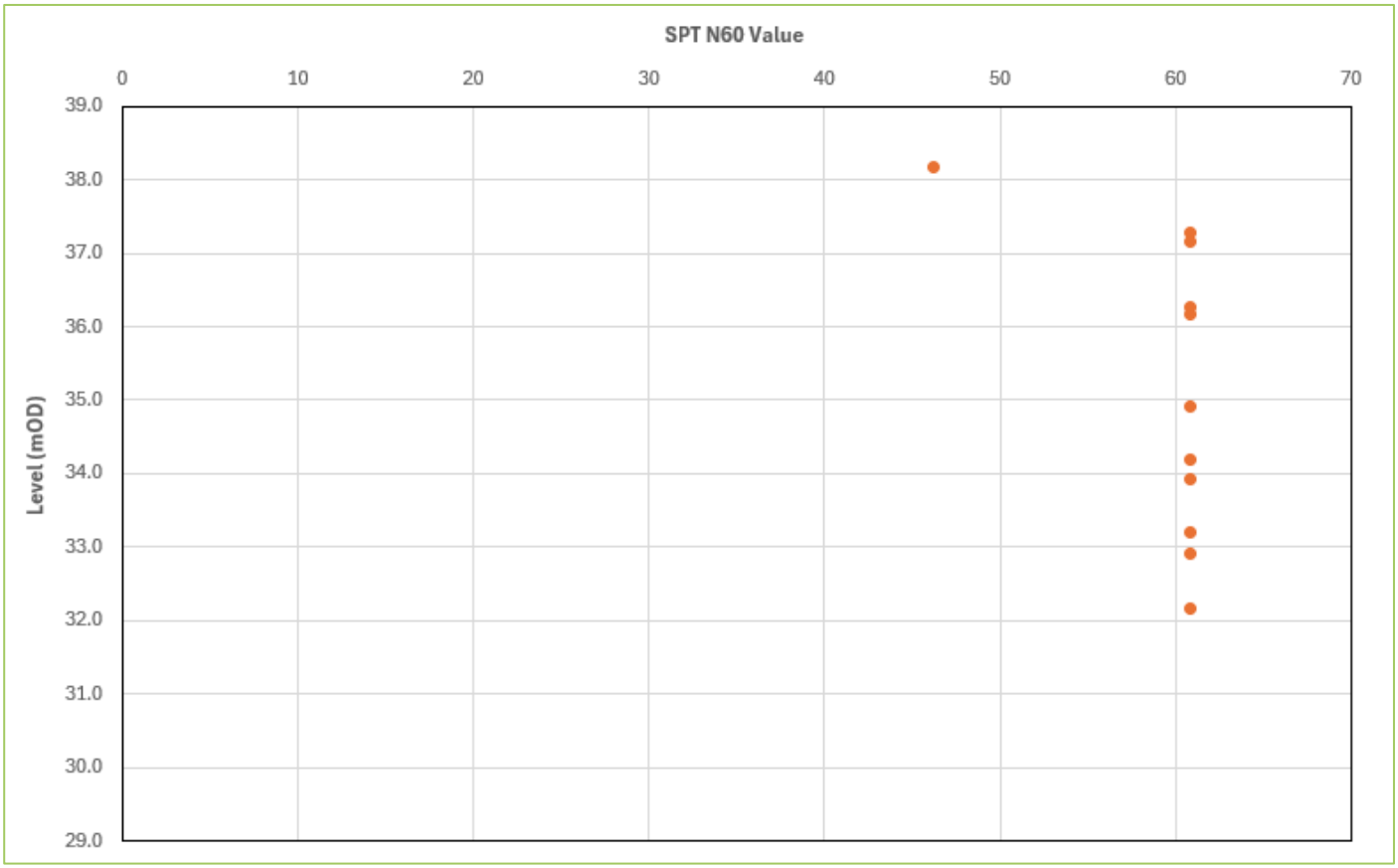
Superficial deposits of the Glacial Till were recorded in boreholes BH403, WS407 and WS408 only during the ROC investigation[2], with the top of the stratum recorded between 1.00mbgl and 1.80mbgl. The deposits were recorded to range between 0.95m and 2.20m in thickness and were typically described as stiff to very stiff, brown, slightly gravelly, sandy clay. Superficial deposits of Alluvium were recorded in boreholes WS401, WS406, WS407 and WS408 only with the top of the stratum recorded between depths of 0.80mbgl and 3.50m below ground level (mbgl). The deposits were recorded to range between 0.80m and 2.10m in thickness. The alluvial deposits were typically described as mottled orange brown to dark brown, slightly gravelly, clayey, silty sand; silty clay; and clayey sandy gravel.

5.4 Chester Sandstone Formation

The Chester Sandstone Formation was recorded in boreholes BH1001 to BH1005, trial pits TP1005 and TP1007, and window sample borehole WS1005. A weathered horizon was encountered (above the competent bedrock) in boreholes BH1001 to BH1005, WS1005 and trial pit TP1007; the weathered horizon was not encountered in trial pit TP1005. The weathered Chester Sandstone Formation, recovered as a dense to very dense sand, was encountered between 38.26mOD and 33.06mOD and ranged between 0.10m and 6.65m in thickness. The more competent bedrock, recovered as a very weak to weak (locally extremely weak) sandstone, was encountered in boreholes BH1001 to BH1005 and trial pit TP1005 between 37.07mOD and 28.37mOD and proven to the maximum borehole penetration depth.

A total of 11 SPTs were carried out within the Weathered Chester Sandstone Formation. SPT N60 values ranged from 46 to >50 (extrapolated to 150) corresponding to dense to very dense granular deposits. A summary of the SPT N60 values versus level are provided Plate 8.

Plate 8. SPT N60 versus Level (mOD) – Weathered Chester Sandstone Formation



A summary of PSD testing undertaken on selected samples from the Weathered Chester Sandstone Formation is provided in Table 10. The results of the testing indicate the material to typically comprise a slightly clayey/silty, slightly gravelly sand.

Table 10: Summary of PSD Testing – Weathered Chester Sandstone Formation

Number of Tests	Cobble Content (%)	Gravel Content (%)	Sand Content (%)	Silt Content (%)	Clay Content (%)
5	0.0	0.6 to 12.6	65.1 to 93.9	5.5 to 22.2	

Sulphate and pH testing was undertaken on samples of the Weathered Chester Sandstone Formation retrieved during the ground investigation. The results are summarised in Table 11.

Table 11: Summary of pH and Sulphate Testing – Weathered Chester Sandstone Formation

Number of Tests	pH	Water Soluble SO4* (mg/l)	Water Soluble Chloride* (mg/l)	Water Soluble Nitrate as N* (mg/l)
5	8.2 to 10.6	31.2 to 177	4.3 to 6.6	<2.0

*2:1 Leachate Equivalent

Point load testing and unconfined compressive strength (UCS) tests were carried out on the core samples retrieved from boreholes BH1001 to BH1005. The results of the three UCS tests recorded UCS values between 0.61MPa and 4.8MPa. The mode of failure was stated as both diagonal shearing and axial splitting. The Young's Modulus and Poisson's Ratio were determined as 0.159GPa and 1.63GPa respectively on the rock sample from borehole BH1004 at 16.59mbgl. Applying the Broch and Franklin conversion of 24 to the point load test results, a corresponding UCS of between 0.24MPa and 2.88MPa with an average of 0.68MPa is estimated.

The recorded and estimated UCS values correlate to an extremely weak to very weak rock[11]. The heavy fracturing / weathered zones interbedded with the more competent sandstone is likely to be influencing the strength of the sandstone.

The Weathered Chester Sandstone Formation was encountered in ROC exploratory holes BH401 to BH403, WS406, WS407 and TP409, with the upper surface of the stratum encountered between 1.10mbgl and 5.00mbgl. The deposits were proven to a maximum borehole depth of 6.20mbgl and typically described as completely weathered, extremely weak, reddish brown sandstone (recovered as sand) and orange, brown and red, slightly gravelly, clayey sand.

5.5 Visual and Olfactory Potential Contamination

Olfactory signs of potential hydrocarbon contamination were noted within trial pit TP1009 within the Made Ground at 1.90mbgl. The presence of foreign materials such as bricks, wire, concrete, plastic, glass and ceramic was noted within the Made Ground.

It is noted that the previous ROC site investigation[2] recorded olfactory signs of potential hydrocarbon contamination in trial pits TP409 and TP410 and seepage of black contaminated water impacting soils at borehole WS404 in the west of the site, considered by ROC to be associated with the historical above ground storage tanks in the area. In addition, a strong chemical odour was recorded by ROC at borehole WS401 in the west of the site, in proximity to borehole WS404 and trial pits TP409.

5.6 Groundwater

Groundwater was encountered during the site investigation as detailed in Table 12.

Table 12: Summary of Groundwater Strikes during Site Investigation

Location	Stratum	Strike Depth (mbgl)	Strike Level (mOD)	Depth after 20 Mins (mbgl)	Level after 20 Mins (mOD)	Rise in Depth after 20 Mins (m)
BH1001	Sandstone	14.70	24.22	9.90	29.02	4.80
BH1002	Sandstone	13.50	23.66	8.10	29.06	5.40
BH1003	Sandstone	12.40	26.80	8.50	30.70	3.90
BH1004	Sandstone	18.00	24.28	12.90	29.38	5.10

Location	Stratum	Strike Depth (mbgl)	Strike Level (mOD)	Depth after 20 Mins (mbgl)	Level after 20 Mins (mOD)	Rise in Depth after 20 Mins (m)
BH1005	Sandstone	16.70	24.46	12.35	28.81	4.35
TP1008	Glacial Till	2.80	39.47	2.67	39.60	0.13
TP1010	Made Ground	2.00	39.04	1.95	39.09	0.05

Three groundwater monitoring rounds were undertaken in in January and February 2024 following completion of the site investigation and the results are summarised in Table 13.

Table 13: Summary of Groundwater Monitoring

Location	Stratum	Date	Groundwater Depth (mbgl)	Groundwater Level (mOD)
BH1001	Sandstone	30/01/24	9.22	29.70
		12/02/24	9.20	29.72
		20/20/24	9.12	29.80
BH1002	Sandstone	30/01/24	7.46	29.70
		12/02/24	7.37	29.79
		20/20/24	7.31	29.85
BH1003	Sandstone	30/01/24	8.59	30.61
		12/02/24	8.61	30.59
		20/20/24	8.46	30.74
BH1004	Sandstone	30/01/24	12.63	29.65
		12/02/24	12.57	29.71
		20/20/24	12.55	29.73
BH1005	Sandstone	30/01/24	11.49	29.67
		12/02/24	11.43	29.73
		20/20/24	11.44	29.72
WS1002	Made Ground	30/01/24	Dry	Dry
		12/02/24	Dry	Dry
		20/20/24	Dry	Dry
WS1004	Made Ground	30/01/24	1.61	36.65
		12/02/24	1.80	36.46
		20/20/24	1.75	36.51
WS1005	Made Ground	30/01/24	Dry	Dry
		12/02/24	Dry	Dry
		20/20/24	Dry	Dry
WS1006	Made Ground	30/01/24	1.95	40.01
		12/02/24	2.08	39.88

Location	Stratum	Date	Groundwater Depth (mbgl)	Groundwater Level (mOD)
		20/20/24	2.06	39.90
WS1007	Made Ground	30/01/24	0.01	37.08
		12/02/24	0.11	36.98
		20/20/24	0.12	36.97
WS1009	Made Ground	30/01/24	Dry	Dry
		12/02/24	Dry	Dry
		20/20/24	Dry	Dry

The groundwater results indicate a groundwater body within the Chester Sandstone Formation between approximately +30.65mOD and +29.70mOD. In addition, perched water was recorded within the Made Ground and there is considered to be the potential for further shallow perched water across the site given the variable nature of the Made Ground material and Glacial Till. These findings are supported by the previous groundwater monitoring investigations across the wider Mayfield Development, where a resting groundwater table was recorded at c.30mOD to 31mOD in the Phase 1A development area to the west of the site.

5.7 Ground Gas

Three rounds of ground gas monitoring have been carried out in January and February 2024. The monitoring rounds were carried out in atmospheric pressures ranging between 998 to 1023mbar in steady and rising pressure systems. A summary of the worst-case ground gas monitoring results is provided in Table 14. The worst-case scenario includes maximum steady flow, maximum steady carbon dioxide and maximum (peak) methane recorded at each borehole over the three monitoring rounds.

Table 14: Summary of Ground Gas Conditions

Location	Stratum	Steady Flow Rate (l/hr)	Maximum Steady CO_2 (% vol. in air)	Maximum CH_4 (% vol. in air)	Maximum PID (ppm)
WS1002	Made Ground	<0.1	0.1	<0.1	0.1
WS1004	Made Ground	<0.1	0.6	<0.1	0.2
WS1005	Made Ground	<0.1	0.1	<0.1	0.1
WS1006	Made Ground	<0.1	0.1	<0.1	0.1
WS1007	Made Ground	<0.1	0.1	<0.1	0.4
WS1009	Made Ground	<0.1	1.0	<0.1	0.1

5.8 Foundation Inspection Trial Pits

A summary of the existing foundation details and depths encountered in trial pits FIP1001 to FIP1004 are summarised in Table 15.

Table 15: Summary of Foundation Inspection Trial Pits

Location	Target Structure	Base of Foundation (mbgl)	Foundation Details
FIP1001	West Internal Retaining Wall	Not encountered	Trial pit extended to 1.50mbgl and base of column not encountered. Trial pit terminated following confirmation from Structural Engineer as information obtained to inform likely grubbing out requirements.
FIP1002	South Boundary Retaining Wall	Not encountered	Advertising board's metal column fixed in front of retaining wall, bolted onto concrete pad. Concrete proven to extend 2.20m away from retaining wall; concrete pad

Location	Target Structure	Base of Foundation (mbgl)	Foundation Details
			found to be 0.90m in thickness. Trial pit terminated following confirmation from structural engineer as unable to extend towards retaining wall safely due to presence of overhead hoarding.
FIP1003	East Internal Retaining Wall	Not encountered	Brick floor encountered at 0.60mbgl. Trial pit terminated following confirmation from structural engineer that sufficient information on ground conditions/extent of tiles floor can be obtained from nearby trial pits.
FIP1004	East Internal Retaining Wall	Not encountered	Tiled floor encountered at 0.70mbgl. Trial pit terminated following confirmation from structural engineer that sufficient information on ground conditions/extent of tiles floor can be obtained from nearby trial pits.

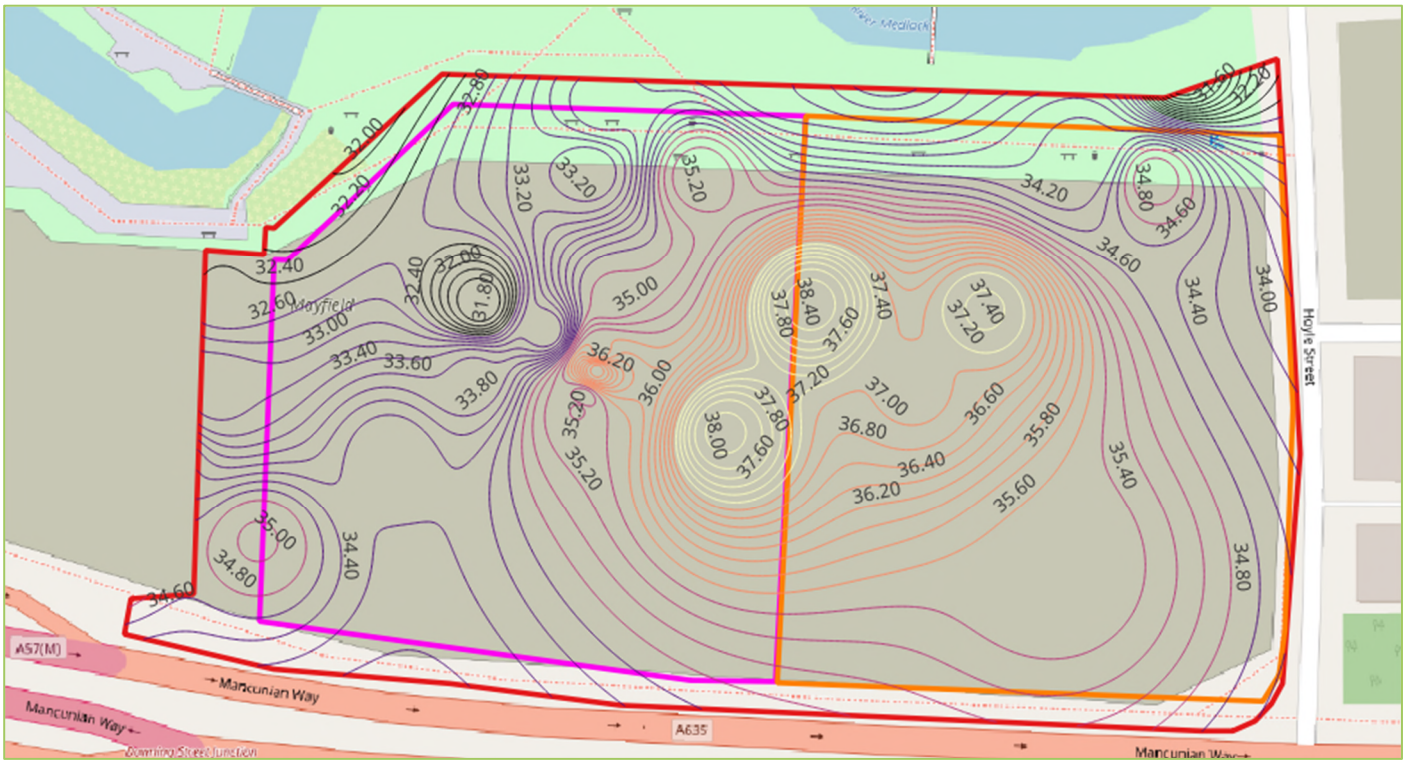
6. Ground Model Summary

The ground model at the site has been generated based on the site investigation previously undertaken within the site by ROC[2] and the supplementary investigation undertaken by Civic Earth in January 2024. The ground conditions across the site were found to comprise a variable thickness of Made Ground (between 0.45m and 5.00m) overlying superficial deposits of Alluvium and Glacial Till. The deposits of Alluvium were recorded during the ROC investigation only in boreholes WS401, WS406, WS407 and WS408. The upper surface of the Alluvium was recorded between 37.20mOD and 24.28mOD and ranged between 0.80m and 2.10m in thickness. Deposits of Glacial Till were recorded during both the ROC and supplementary site investigation between 41.69mOD and 36.00mOD and ranged between 0.80m and 2.40m in thickness. The bedrock of the Chester Sandstone Formation was encountered between 38.51mOD and 28.37mOD.

An indicative contour plot illustrating the level of the top of the sandstone bedrock is provided in Plate 9. The contours have interpreted the upper surface of the sandstone based on the level recorded at the time of investigation at these specific points. Actual levels may vary depending on the actual ground conditions, noting that the top surface of the sandstone is likely to have been influenced by natural and man-made processes, which are likely to have resulted in rapid variation on the level between points. The contours were initially modelled using the exploratory holes where sandstone was encountered. The levels of the contours were then compared against the level of the base of exploratory holes that did not encounter sandstone. Where the base of the exploratory hole was below the level of the contour, the contours were re-modelled assuming that the sandstone was at least 250mm below the base of the exploratory hole. Contours for Plot J suggest that the top of the Chester Sandstone Formation slopes gently downwards from the northwest of the plot towards the southeast and towards the northeast, whilst the contours for Plot K suggest that the top of the bedrock slopes gently downwards from the central east of the plot (at the boundary with Plot J) towards the southwest and northeast. Small 'headlands' are indicated by the contour plots, which could be as a result of ancient natural weather process associated with the nearby River Medlock, or potentially as a result of historical excavation of basements/below ground structures.

Perched water has been encountered in the Made Ground and Glacial Till which is variable in level and appears to be limited in nature, confined by surrounding cohesive deposits. The Principal aquifer was recorded in the Chester Sandstone Formation between approximately +30.65mOD and +29.70mOD.

Plate 9. Indicative Contour Plot of Level (mOD) to Top of Sandstone Bedrock



Illustrative cross sections for the Plot J and Plot K are provided in Plate 10 and Plate 11.

Plate 10. Plot J Illustrative Ground Model Cross Section

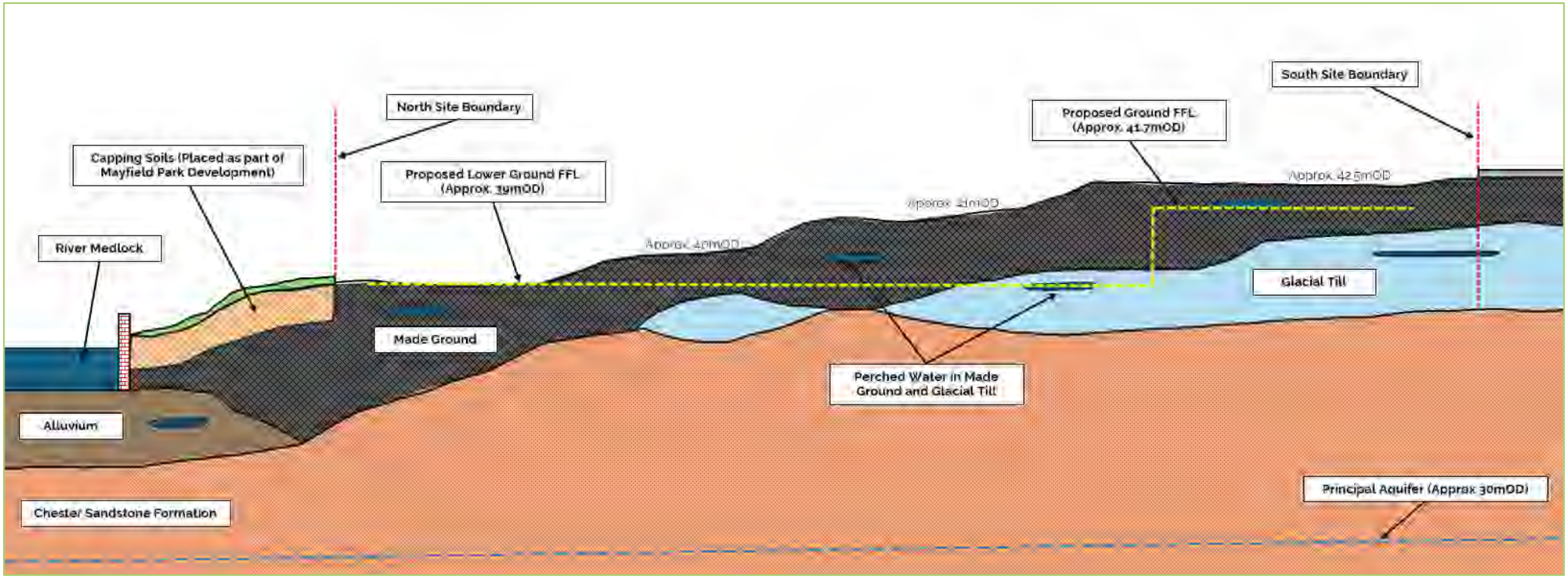
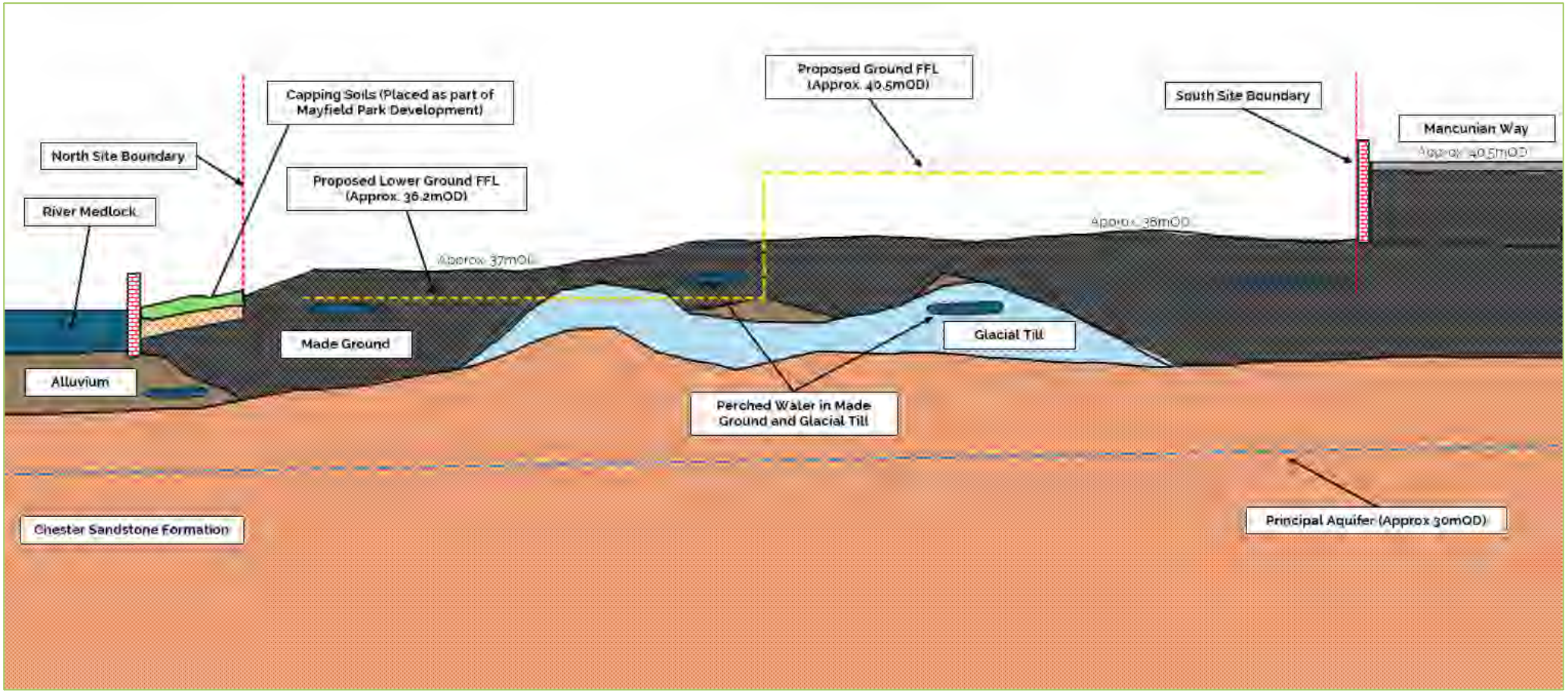


Plate 11. Plot K Illustrative Ground Model Cross Section



7. Contamination Assessment

7.1 Introduction

The risks to the identified potential receptors at the site have been assessed with respect to the identified contamination at the site. The potential receptors have been identified with reference to the Part 2A Contaminated Land Guidance and associated DEFRA guidance[17] and have been considered if there is the potential for them to be adversely affected by exposure to contamination. Civic Earth's approach and rationale to the assessment criteria for this site is provided in Appendix F.

7.2 Risks to Human Health from Soil Contaminants

A total of 40 soil samples were submitted for chemical analysis, 34 samples from the Made Ground and 6 samples from the natural Glacial Till, and the results compared against human health generic assessment criteria (GAC) for a "residential without home grown produce" end use based on the proposed end use of the site.

The assessment results for the Made Ground are summarised in Table A in Appendix F and the natural soils in Table B in Appendix F. It is noted that the Solubility Saturation Limit (SSL) and Vapour Saturation Limit (VSL) criteria indicate the theoretical value at which free phase product is expected to be present. As no evidence of free product was noted during the site investigation, the SSL and VSL values have not been considered within the assessment.

Assessment of the Made Ground results indicate that the contaminant concentrations are generally below their respective assessment thresholds with the exception of arsenic, beryllium, lead and PAHs (benzo(a)anthracene, benzo(a)pyrene, benzo(b) fluoranthene, chrysene and dibenzo(a,h)anthracene). Statistical assessment indicates that the elevated concentrations of arsenic and beryllium (trial pit TP1007 at 2.00mbgl), and benzo(a)anthracene and chrysene (trial pit TP1010 at 2.00mbgl) are localised and not widespread across the site as removal of these "hotspots" from the dataset reduce the US_{95} concentrations to below the respective GAC. The statistical assessment indicates that the elevated concentrations of lead, benzo(a)pyrene, benzo(b)fluoranthene and dibenzo(a,h)anthracene are representative of the site and the US_{95} concentrations are above the respective GAC.

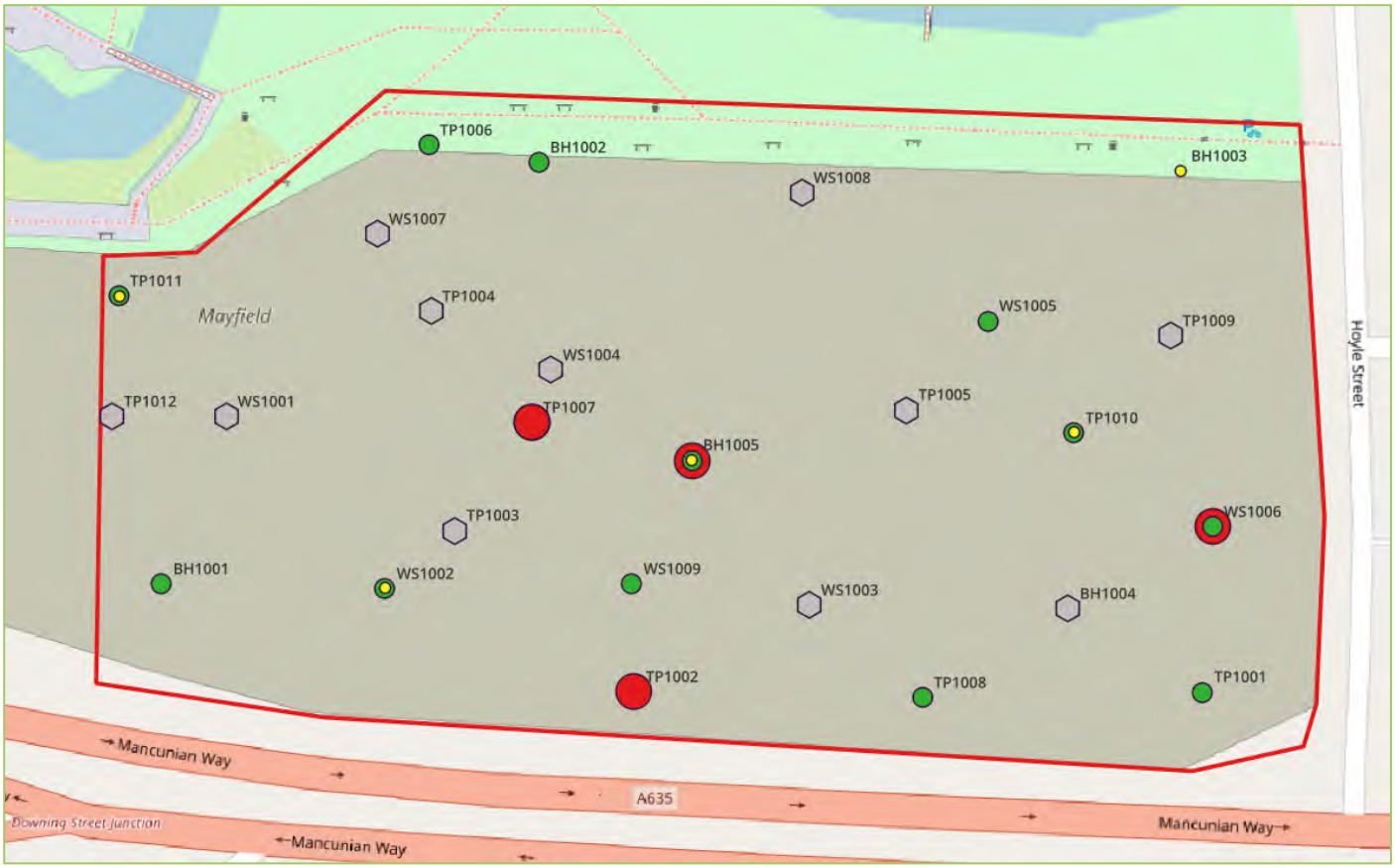
In addition to the total soils analysis, each of the 34 Made Ground samples was screened for the presence of asbestos; asbestos containing material (ACM) was detected in 8 of the soil samples:

- BH1003 at 0.20mbgl – loose fibres of chrysotile at <0.001% by weight;
- BH1003 at 1.00mbgl – chrysotile asbestos cement at 0.954% by weight;
- BH1003 at 4.00mbgl – loose fibres of chrysotile at <0.001% by weight;
- BH1005 at 0.50mbgl – loose fibres of chrysotile at 0.002% by weight;
- BH1005 at 2.00mbgl – loose fibres of chrysotile at 0.002% by weight;
- TP1010 at 2.00mbgl – loose fibres of amosite at <0.001% by weight;
- TP1011 at 1.00mbgl – loose fibres of amosite at <0.001% by weight; and
- WS1002 at 1.50mbgl – loose fibres and sheeting/board debris and loose fibrous debris of chrysotile and amosite at 0.006% by weight.

The Made Ground soil contaminant exceedances are illustrated in Plate 12.

[17] DEFRA (2012) Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance.

Plate 12. Summary of Made Ground Soil Contaminant Exceedances from Supplementary Site Investigation



Notes: Yellow = Asbestos Detected; Green = PAH(s) exceed GAC; Red = Heavy Metal(s) exceed GAC; Grey = No exceedance of GAC but site wide assessment indicates widespread lead and some PAHs concentrations above assessment criteria.

The results of the assessment of the natural soils indicate that the contaminant concentrations recorded are below their respective GAC.

The results of the supplementary site investigation soil assessments are generally similar to those encountered by ROC in September 2020[2] where asbestos was recorded within the in-situ Made Ground in WS401, WS404, WS408, TP401, TP402A, TP405, TP407) between 0.4m and 2.0mbgl, although it is noted that that the material encountered in trial pits TP401, TP402A and TP405 has since been removed from site. The asbestos material was identified as chrysotile and amosite cement, board and loose fibres between <0.001% and 0.465% by weight). An elevated concentration of lead was also identified by ROC at borehole WS408 at 0.40mbgl within the Made Ground (763mg/kg) and elevated concentrations of TPH were recorded (albeit below the GAC used by ROC) at exploratory holes BH401, BH402, TP407, WS401, WS403 and WS404 (between 200mg/kg and 7,680mg/kg).

Based on the soil assessments, there is considered to be a potential risk to future site users and construction workers from the Made Ground soils due to the elevated concentrations of heavy metals and PAHs and the presence of asbestos. Where hardstanding and buildings are proposed, the risk from the underlying soils will be mitigated as the pathway between source and receptor will be broken. A clean capping layer will be required in areas of proposed soft landscaping to mitigate the risks to future site users. It is assumed that the risks to construction workers will be mitigated through the use of appropriate site practices i.e. appropriate personal protective equipment (PPE), dust suppression during earthworks (which would also mitigate the risks to off-site human health receptors), good handwashing practices before eating etc.

7.3 Risks to Human Health from Dissolved Contaminants

A total of eight groundwater samples have been analysed as part of the supplementary site investigation; three samples from the perched water within the Made Ground and five samples from the Principal aquifer within the Chester Sandstone Formation. The groundwater chemical analysis results have been compared to assessment criteria for a residential end use and the results of the assessment are summarised in Table C (Perched Water) and

Table D (Principal Aquifer) in Appendix F. The results of the assessment indicate that the contaminants are below their respective thresholds and therefore the potential risks to future site users from vapours from groundwater to are considered to be low.

7.4 Risks to Human Health and Buildings/Structures from Ground Gas

Gas Screening Values (GSVs) have been calculated in accordance with CIRIA 665[18] using the maximum flow rate and maximum carbon dioxide/methane concentration for each individual well during the three monitoring rounds completed at the site. The results of the assessment are summarised in Table 16.

Table 16: Summary of Ground Gas Risk Assessment

Location	Stratum	Maximum Steady Flow Rate (l/hr)	Maximum Steady CO_2 (% vol. in air)	Maximum CH_4 (% vol. in air)	Maximum GSV	Characteristic Situation
WS1002	Made Ground	<0.1	0.1	<0.1	<0.0001	CS1
WS1004	Made Ground	<0.1	0.6	<0.1	<0.0006	CS1
WS1005	Made Ground	<0.1	0.1	<0.1	<0.0001	CS1
WS1006	Made Ground	<0.1	0.1	<0.1	<0.0001	CS1
WS1007	Made Ground	<0.1	0.1	<0.1	<0.0001	CS1
WS1009	Made Ground	<0.1	1.0	<0.1	<0.001	CS1

For completeness, the monitoring wells installed within the sandstone were monitored for ground gas and the concentrations of methane and carbon dioxide were recorded to be below 1% and 5%, respectively.

Based on the ground gas assessment outlined above and the preliminary ground gas assessment undertaken by ROC following the previous site investigation[2], Characteristic Situation (CS) 1 is considered to be representative of the site, and ground gas protection measures are not considered to be required. It is noted that during the three monitoring rounds, borehole WS1007 was recorded to be saturated i.e. the groundwater level was above the top of the slotted response zone on each occasion. However, the results of the monitoring at this location were within the ranges recorded in the other monitoring wells.

7.5 Risks to Controlled Waters

The potential risks to the nearest significant surface water body (River Medlock approximately 10m north of the site) and the underlying aquifers (Secondary undifferentiated aquifers of the Alluvium and Glacial Till, and Principal aquifer of the Chester Sandstone Formation) have been assessed based on chemical leachate and groundwater analysis, and are discussed in the following sections.

7.5.1 Assessment of Leachate Analysis

A total of five soil samples from the Made Ground were scheduled for leachate analysis and the results of the leachate assessment are summarised in Table E of Appendix F, where the soil leachate concentrations have been compared to the Environmental Quality Standards (EQS) for freshwater. The results of the assessment indicate that the majority of the leachate contaminant concentrations are below their respective assessment thresholds with the exception of the contaminants outlined in Table 17. Concentrations that exceed the Annual Average only are highlighted in orange; concentrations that exceed the maximum allowance concentration (where a maximum allowance concentration has been defined) are highlighted in blue.

Table 17: Summary of Leachate Exceedances

Contaminant	Location	EQS (µg/l) [Annual Average]	EQS (µg/l) [Max. Allowable]	Recorded Concentration (µg/l)
Chromium (III)	BH1002	4.7	32	8.3

[18] CIRIA (2007) *Assessing risks posed by hazardous ground gases to buildings*. CIRIA Report C665, London.

Contaminant	Location	EQS (µg/l) [Annual Average]	EQS (µg/l) [Max. Allowable]	Recorded Concentration (µg/l)
	TP1002			41
Chromium (VI)	WS1006	3.4	*	10
Arsenic	BH1002	50	*	67
Copper	BH1002	1.0	*	3.41
	TP1011			26.87
	WS1004			8.92
Lead	WS1006	1.2	14	1.98
Mercury	BH1002	*	0.07	0.1556
	WS1006			0.1637
Nickel	TP1011	4	34	62
Total Cyanide	BH1002	1	5	3.7
	WS1006			5.5
pH	BH1002	*	6.0 – 9.0	9.2
	TP1011			10.9

*EQS for free cyanide stated.

7.5.2 Assessment of Analysis of Groundwater Samples

A total of three water samples from the perched water within the Made Ground and five water samples from the Principal aquifer within the Chester Sandstone Formation were scheduled for groundwater analysis and the potential risks to the nearest significant surface water body assessed against the EQS for freshwater. The results of the EQS groundwater assessment are summarised in Table F (Perched Water) and Table G (Principal Aquifer) in Appendix F. In addition, the results of the perched water and Principal aquifer analysis have been assessed against the Drinking Water Values (DWVs) given the potential for the aquifer to be used as a drinking water source. The results of the DWV groundwater assessments are summarised in Table H (perched water) and Table I (Principal aquifer) in Appendix F.

It is noted that due to a laboratory error with the free cyanide analysis of the perched water results, the results of the free cyanide analysis are noted to be deviating due to the holding time of the samples. Therefore, a further three water samples from the same borehole positions were obtained and submitted for total and free cyanide analysis to confirm the results of the first set of testing, and the results have been included in Table E.

The results of the perched water assessment indicate elevated concentrations of heavy metals, total cyanide, total phenols, PAHs and ammoniacal nitrogen against the EQS annual average have been recorded in at least one of the water samples. A summary of the exceedances is provided in Table 18. Concentrations that exceed the Annual Average only are highlighted in orange; concentrations that exceed the maximum allowance concentration (where a maximum allowance concentration has been defined) are highlighted in blue.

The results of the Principal aquifer water assessment did not indicate elevated contaminant concentrations. For comparison, the range of concentrations of contaminants recorded in the Principal aquifer have been included in Table 18 for the contaminants that recorded exceedances in the overlying perched water. It is noted that the "Location" stated only relates to the perched water samples.

Table 18: Summary of Perched Water EQS Exceedances and Corresponding Principal Aquifer Concentrations

Contaminant	Location	EQS (µg/l) [Annual Average]	EQS (µg/l) [Max. Allowable]	Perched Water Recorded Concentration (µg/l)	Principal Aquifer Recorded Concentrations (µg/l))
Chromium (III)	WS1004	4.7	32	19	<5.0
	WS1006			24	
	WS1007			230	
Chromium (VI)	WS1004	3.4	*	17	<5.0
	WS1006			18	
	WS1007			180	
Copper	WS1004	1.0	*	4.56	0.08 to 0.33
	WS1007			170	
Lead	WS1007	1.2	14	2.76	<0.2
Mercury	WS1007	*	0.07	0.08	<0.05
	WS1004			0.19	
Nickel	WS1007	4	34	20	0.44 to 1.07
Total Phenols	WS1007	7.7	46	92	<10
Total Cyanide*	WS1007	1	50	44	<10
	WS1006			91	
Total TPH	WS1007	*	10	280	<10
Anthracene	WS1007	0.1	0.1	0.79	<0.01
Benzo(a)pyrene	WS1007	0.00017	0.27	2.03	<0.01
Benzo(b)fluoranthene	WS1007	*	0.017	2.2	<0.01
Benzo(k)fluoranthene	WS1007	*	0.017	0.92	<0.01
Benzo(ghi)perylene	WS1007	*	0.0082	1.24	<0.01
Fluoranthene	WS1007	0.0063	0.12	4.3	<0.01
Ammoniacal Nitrogen as N	WS1007	*	380	3300	18 to 67

*EQS for free cyanide stated.

The results of the perched water DWV assessment indicate that contaminant concentrations of chromium, selenium, total phenols, TPH, PAHs, pH, ammoniacal nitrogen and total sulphate exceed the assessment criteria in the sample obtained from borehole WS1007, and an elevated concentration of total cyanide exceeds the assessment criteria in borehole WS1006 (although it is noted that the concentration of free cyanide is less than the laboratory limit of detection). The results of the Principal aquifer DWV assessment indicate that the contaminant concentrations are below their respective DWVs with the exception of total sulphate which exceed the DWV. A summary of the exceedances and comparison between the perched water and Principal aquifer is provided in Table 19. It is noted that the "Location" stated only relates to the perched water samples with the exception of the elevated sulphate concentration within the Principal aquifer, which is stated in square brackets.

Table 19: Summary of Perched Water DWV Exceedances and Corresponding Principal Aquifer Concentrations

Contaminant	Location	DWV (µg/l)	Perched Water Recorded Concentration (µg/l)	Principal Aquifer Recorded Concentration (µg/l))
Chromium	WS1007	50	230	<5.0
Selenium	WS1007	10	19	2 to 6.2
Total Phenols	WS1007	0.5	92	<10
Total Cyanide	WS1006	50	91	<10
Total TPH	WS1007	10	280	<10
TPH Aromatic EC>16-21	WS1007	90	120	<10
TPH Aromatic EC>21-35	WS1007	90	280	<10
PAH	WS1007	0.1	5.38	<0.04
Benzo(a)pyrene	WS1007	0.01	2.03	<0.1
Total Sulphate	WS1006	250	1690	220 238 331 [BH1003] 348 [BH1005] 563 [BH1004]
pH	WS1004	6.5 to 9.5	12.4	7.0 to 7.3
	WS1007		12.7	
Ammoniacal Nitrogen as N	WS1004	500	650	18 to 67
	WS1007		3300	

7.5.3 Controlled Waters Assessment

The results of the Made Ground leachate assessment indicate that concentrations of heavy metals (arsenic, chromium (III) and (VI), copper, lead, mercury and nickel), total cyanide and pH have the potential to leach at elevated concentrations which may present a risk to the River Medlock. The results of the perched water analysis also reflect elevated concentrations of these contaminants, as well as elevated concentrations of total phenols, total TPH, PAHs and ammoniacal nitrogen in borehole WS1007.

The results of the Principal aquifer EQS assessment indicate that the contaminant concentrations are below their respective assessment thresholds, suggesting that downwards migration of contaminants from the perched water in the Made Ground to the underlying Principal aquifer is limited.

The risks to controlled waters from the Made Ground and perched water are generally considered to be low on the basis of the following:

- Elevated contaminant concentrations recorded in the perched water are not reflected in the deeper Principal aquifer (which is considered to be in continuity to a degree with the River Medlock) which suggests limited existing contaminant migration from the Made Ground / perched water to the Principal aquifer;

- The discontinuous nature of the perched water and presence of cohesive Glacial Till deposits beneath areas of the site will mitigate lateral and vertical contaminant migration;

- The proposed excavation and removal of large volumes of the Made Ground in Plot J (and to some extent in Plot K) to construct the proposed lower ground floor levels will result in the partial removal of the source of contamination from site; and

- The proposed hardstanding and buildings across the majority of the site will limit infiltration and therefore reduce the potential for contaminant migration.

Hotspots of gross hydrocarbon contamination have been identified however which are considered to present a potential risk to controlled waters. These hotspots have been identified as:

1. Borehole WS1007 based on the results of the perched water analysis;
2. Trial pit TP1010 based on the results of the total TPH concentration recorded in soil;
3. Borehole BH1004 based on the results of the total TPH concentration recorded in soil; and
4. "Hotspot #2" previously identified by ROC in the Made Ground and shallow natural soils.

It is recommended that these hotspots are removed and treated for re-use and/or removed from site to reduce the potential for migration of contamination into the underlying Principal aquifer and nearby River Medlock.

The risks to controlled waters from foundation activities i.e. piling are considered to be low assuming appropriate piling techniques are adopted. It is recommended that a Piling Works Risk Assessment is completed to demonstrate that the selected piling methodology will not lead to the creation of new pathways for contaminant migration.

With respect to the potential risk to drinking water supplies within the Principal Aquifer it is noted that there is a potential risk from elevated concentrations of sulphate identified within the Principal aquifer. However, the exceedances were noted to be within an order of magnitude of the DWV and sulphate is considered unlikely to be a driver for remediation. Elevated concentrations of contaminants against the DWV were recorded in the perched water; however, the DWV are considered to be a conservative assessment as the perched water is unlikely to be used as a drinking water supply, and the elevated concentrations are not reflected within the Principal aquifer (with the exception of sulphate, although is it noted that the concentrations within the Principal aquifer are approximately three times lower.

7.6 Risks to Plants and Vegetation

The risk to vegetation and plants from phytotoxic contaminants is summarised in Table I in Appendix F. The results indicate that the concentrations of phytotoxic contaminants within the Made Ground and natural soils generally present a very low risk to proposed plants and vegetation; however, localised elevated concentrations of zinc recorded at boreholes WS1002 and WS1006 within the Made Ground are considered to present a risk to proposed plant and vegetation growth. Importation of suitable soils may be required in areas of soft landscaping which should be installed as part of the proposed capping to mitigate potential risks to human health. In addition, it is likely that the composition of the Made Ground is unlikely to be a suitable growth medium with high proportions of brick and concrete gravel and cobbles observed during the site investigation.

7.7 Risks to Buried Water Supply Pipes

An assessment of the risks to buried water supply pipes is summarised in Table J in Appendix F where the selected soil analysis results have been compared against the UK Water Industry Research (UKWIR) guidance. It is noted that the full suite of UKWIR testing has not been carried out at this stage; however, as outlined in Table J, the initial total soils analysis results indicates that standard polyethylene (PE) pipework would not be suitable for use due to elevated concentrations of TPHs against the assessment criteria. It is therefore anticipated that barrier pipes will be required for new buried water supply pipes.

7.8 Preliminary Waste Characterisation

A preliminary waste characterisation assessment in line with WM3 technical guidance has been carried out on the 40 soil samples submitted for the broader suite of chemical analysis which indicates whether the material is hazardous or non-hazardous. If the material is classified as non-hazardous, there is the option of sending the material to a non-hazardous waste facility or an inert waste facility (subject to the material meeting the inert waste acceptance levels based on Waste Characterisation Acceptance (WAC) analysis). If the material is classified as

hazardous, WAC analysis will be required to demonstrate that the concentrations meet the levels for a hazardous waste facility or stable non-reactive hazardous (SNRH) waste facility without a requirement for prior treatment.

The preliminary waste assessment has been carried out using the HazWaste Online Toolkit and the waste classification reports are included in Appendix G. The results of the assessment indicate that the majority of the material tested would be characterised as non-hazardous material and therefore considered to be acceptable to an inert waste facility (subject to WAC testing) or a non-hazardous waste facility. However, 3 out of the 40 soil samples were characterised as hazardous material:

1. **BH1003 at 1.00mbgl** – hazardous material due to presence of ACM at 0.954% by weight;
2. **BH1004 at 0.20mbgl** – hazardous material due to elevated TPH concentrations (1033mg/kg); and
3. **TP1010 at 2.00mbgl** – hazardous material due to elevated TPH concentrations (1209mg/kg).

In addition to the material sampled from borehole BH1003 at 1.00mbgl, it is noted that ACM was detected in 7 soil samples of Made Ground and this material would not be acceptable for disposal to an inert waste facility, disposal to a non-hazardous waste facility that accepts ACM would be required.

A total of 7 WAC tests were carried out as part of the supplementary site investigation; 2 single stage hazardous WAC tests and 5 single stage full suites:

1. **BH1001 at 1.00mbgl** – material is indicated to be acceptable for disposal at an inert waste facility;
2. **BH1004 at 0.20mbgl** – material is indicated to be acceptable to a hazardous waste facility (due to elevated TPH concentrations) or potentially disposal at a non-hazardous waste facility following treatment to reduce TPH concentrations. Material would not be acceptable to an inert landfill following TPH treatment due to elevated concentrations of total dissolved sulphate (TDS) above the inert waste threshold;
3. **BH1004 at 2.00mbgl** – material is indicated to be acceptable for disposal at an inert waste facility;
4. **TP1004 at 0.50mbgl** – material is indicated to be acceptable for disposal at an inert waste facility;
5. **TP1010 at 2.00mbgl** – material is indicated to be acceptable to a hazardous waste facility (due to elevated TPH concentrations) or potentially disposal at a non-hazardous waste facility following treatment to reduce TPH concentrations. Material would not be acceptable to an inert landfill following TPH treatment due to elevated concentrations of total organic carbon (TOC) above the inert waste threshold.
6. **WS1005 at 0.50mbgl -** material is indicated to be acceptable for disposal at an inert waste facility; and
7. **WS1001 at 1.00mbgl** – material is indicated to be acceptable for disposal at an inert waste facility.

The Contractor should be responsible for the material management and waste classification at the site and the "waste hierarchy" should be used to rank waste management options according to what is best for the environment. Potential for re-use of materials should be considered as part of the cut and fill strategy for the site, and it is recommended that the re-use criteria used for the wider Mayfield Development is adopted for the site which would demonstrate consistency with the wider Mayfield Development; however, it is anticipated that some material will require segregation and off-site disposal. Further information is provided in Section 8.8.

7.9 Revised Qualitative Risk Assessment

A revised risk assessment has been carried out based on the findings of supplementary site investigation and updated conceptual site model, and the potential contaminant linkages that may exist at the site in accordance with the LCRM[19]. An illustrative conceptual site model is presented Plate 13.

[19] Environment Agency (2020). *Land Contamination Risk Management (LCRM)*.

Table 20: Revised Qualitative Risk Assessment

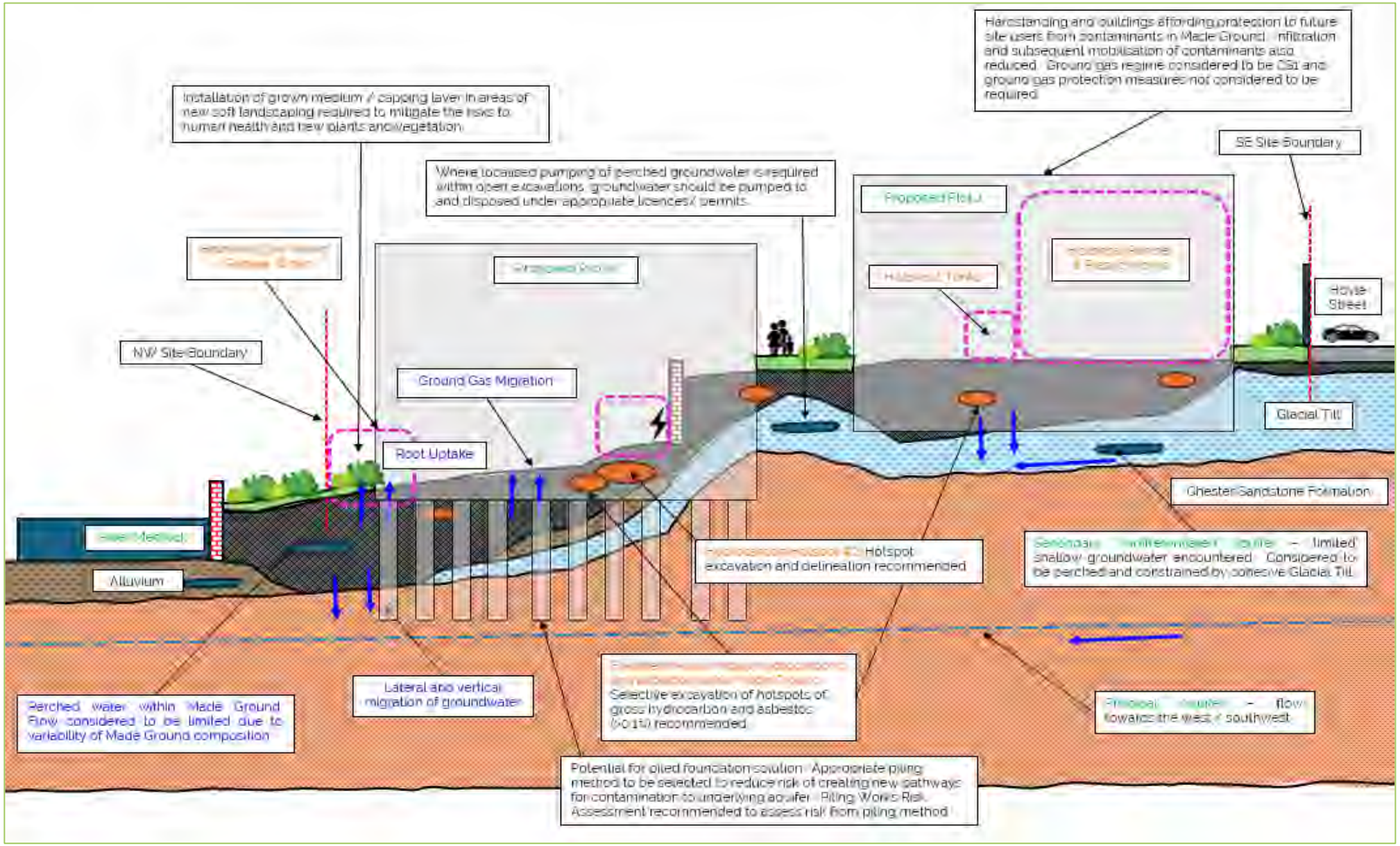
Potential Source/Medium	Potential Exposure Route	Potential Receptor	Severity	Probability	Risk Rating	Comments
Explosive/ asphyxiating gases/vapours from underlying soils (Made Ground) and potential on and off-site sources	Migration of gases and vapours through the surface via permeable soils and drainage & services	Internal building spaces & future occupiers	Medium	Unlikely	Low	Variable thickness of Made Ground encountered on site during site investigations; however, organic rich deposits of Alluvium were not observed. Ground gas monitoring recorded very low ground gas concentrations and negligible flow rates, corresponding to CS1 regime for the site.
Organic/ inorganic contaminants within underlying soils and perched groundwater within the Made Ground	Direct/indirect ingestion of soil, perched water and dust, inhalation of particle vapours and asbestos fibres and dermal contact	Construction workers	Medium	Likely	Moderate	Elevated concentrations of heavy metals, PAHs, TPH and asbestos recorded within the Made Ground during the ROC and supplementary site investigations which are considered to present a potential risk to construction workers. Risk would be mitigated by use of appropriate PPE.
		Future site users	Medium	Low likelihood	Moderate/low	Elevated concentrations of heavy metals, PAHs, TPH and asbestos recorded within the Made Ground during the ROC and supplementary site investigations which are considered to present a potential risk to future site occupiers. Proposed hardstanding and buildings will act as a barrier between receptor and contamination within underlying soils. Placement of capping layers in areas of proposed soft landscaping will be required to mitigate potential risks to future site users.
		Off-site residents	Medium	Low likelihood	Moderate/low	Elevated concentrations of heavy metals, PAHs, TPH and asbestos recorded within the Made Ground during the ROC and supplementary site investigations. Appropriate site practices will require adoption to prevent dust generation during construction e.g., dampening down and covering stockpiles etc.
	Direct contact with underground structures and services	Buildings and structures, buried services	Mild	Likely	Moderate/low	Buried concrete to be designed as appropriate for ground conditions. Barrier pipes considered to be required due to elevated TPH concentrations recorded within the Made Ground.
	Root uptake	Plants and vegetation	Minor	Likely	Low	Hotspots of elevated concentrations of zinc recorded within Made Ground, and it is considered unlikely that the Made Ground at site will provide a suitable growth medium. The use of appropriate topsoil and subsoil in the proposed soil capping layer, required to mitigate

Potential Source/Medium	Potential Exposure Route	Potential Receptor	Severity	Probability	Risk Rating	Comments
						the risks to human health, will provide a growth medium for areas of soft landscaping to mitigate risks to plant growth.
	Lateral and vertical migration	Shallow Secondary A aquifer (*Glacial Till / Alluvium*)	Medium	Unlikely	Low	Elevated soil leachate concentrations of heavy metals, total cyanide and pH recorded in the Made Ground which are reflected in the groundwater analysis of the perched water, as well as localised elevated concentrations of PAHs at borehole WS1007. However, these elevated contaminant concentrations are not reflected in the deeper Principal aquifer, indicating limited mobilisation and leaching of the contaminants within the Made Ground / perched water into the shallow aquifer. In addition, a continuous groundwater table was not observed within the superficial deposits encountered at the site. The cohesive nature of the Glacial Till is considered to limit lateral and vertical migration of potential contaminants. Where proposed, buildings and hardstanding will also limit infiltration and leaching potential.
		Deep Principal aquifer (*Chester Sandstone Formation)*	Medium	Unlikely	Low	Elevated soil leachate concentrations of heavy metals, total cyanide and pH recorded in the Made Ground which are reflected in the groundwater analysis of the perched water, as well as localised elevated concentrations of PAHs at borehole WS1007. However, these elevated contaminant concentrations are not reflected in the deeper Principal aquifer, indicating limited mobilisation and leaching of the contaminants within the Made Ground / perched water into the deeper aquifer. The cohesive nature of the Glacial Till is considered to limit lateral and vertical migration of potential contaminants. Where proposed, buildings and hardstanding will also limit infiltration and leaching potential. Hotspots of hydrocarbon contamination within the shallow soils have been identified at TP1010, BH1004 and "Hotspot #2". It is recommended that these hotspots are removed and treated for re-use and/or removed from site to prevent potential movement of contamination into the Principal aquifer.

Potential Source/Medium	Potential Exposure Route	Potential Receptor	Severity	Probability	Risk Rating	Comments
		Local surface water bodies (*River Medlock*)	Mild	Likely	Moderate/Low	Elevated soil leachate concentrations of heavy metals, total cyanide and pH recorded in the Made Ground which are reflected in the groundwater analysis of the perched water, as well as localised elevated concentrations of PAHs at borehole WS1007. However, these elevated contaminant concentrations are not reflected in the deeper Principal aquifer, indicating limited mobilisation and leaching of the contaminants within the Made Ground / perched water into the shallow aquifer. The cohesive nature of the Glacial Till is considered to limit migration of potential contaminants, where present. Where proposed, buildings and hardstanding will also limit infiltration and leaching potential. Hotspots of hydrocarbon contamination within the shallow soils have been identified at TP1010, BH1004 and "Hotspot #2". It is recommended that these hotspots are removed and treated for re-use and/or removed from site to prevent potential movement of contamination into nearby River Medlock.
Organic / inorganic contaminants within shallow groundwater aquifers (Alluvium / Till)	Direct contact and ingestion of contaminated groundwater	Future site users	Medium	Unlikely	Low	A shallow aquifer within the superficial deposits was not encountered during the site investigations. Should localised shallow groundwater be encountered by construction workers, use of appropriate PPE will mitigate risks to receptors. Future site users and off-site residents are unlikely to come into contact with groundwater due to formal landscaping and buildings/hardstanding across the site.
		Construction workers	Medium	Unlikely	Low	
		Off-site residents	Medium	Unlikely	Low	
	Inhalation of vapours	Future site users	Medium	Unlikely	Low	A shallow aquifer within the superficial deposits was not encountered during the site investigations. It is also noted that very low concentrations below the assessment criteria were recorded within the deeper Principal aquifer groundwater samples.
	Lateral migration	Local surface water bodies (*River Medlock*)	Mild	Unlikely	Very low	A shallow aquifer within the superficial deposits was not encountered during the site investigations, and it is noted that very low contaminant concentrations recorded within Principal aquifer groundwater samples. In addition, the cohesive Glacial Till will limit migration of groundwater.

Potential Source/Medium	Potential Exposure Route	Potential Receptor	Severity	Probability	Risk Rating	Comments
	Vertical migration	Deep Principal aquifer (*Chester Sandstone Formation)*	Medium	Unlikely	Low	A shallow aquifer within the superficial deposits was not encountered during the site investigations. In addition, very low concentrations below the assessment criteria were recorded within the deeper Principal aquifer groundwater samples indicating limited downwards migration of contaminants from the overlying soils and perched water.
	Direct contact with underground services	Buildings and structures	Mild	Unlikely	Very low	A shallow aquifer within the superficial deposits was not encountered during the site investigations. It is also noted that very low concentrations below the assessment criteria were recorded within the deeper. Buried concrete to be designed as appropriate for ground conditions.

Plate 13. Illustrative Conceptual Site Model (Not to Scale)



8. Geoenvironmental Recommendations

8.1 Introduction

Geoenvironmental recommendations for the proposed redevelopment of the site are outlined in the following sections based on the information obtained during the supplementary site investigation and revised qualitative risk assessment. A remediation strategy and verification plan will be produced by Civic Earth under a separate cover to outline the remediation requirements for the site in consideration of the recommendations outlined in the following sections and how they will be verified. Following completion of the remediation works by the Contractor, a verification report should be produced to confirm that the remediation works have been completed in accordance with the remediation strategy.

It is recommended that the reports are submitted to the Local Authority to support the Planning Applications made in relation to the site.

8.2 Watching Brief and Discovery Strategy

It is recommended that a watching brief is carried out by the Contractor during the enabling works, earthworks and construction works. Should areas of unexpected contamination, including asbestos, be encountered or suspected, a qualified geoenvironmental engineer should be informed, and the risk associated with the contamination assessed.

An appropriate remediation strategy should be devised and implemented for the unexpected contamination where necessary, and the regulators should be informed of additional areas of contamination identified. The regulators should be provided with the risk assessment and proposed remediation methodology for agreement before undertaking the remedial works. The methodology should include appropriate verification works to be completed.

8.3 Tannery Watching Brief

As outlined in Section 3.2, a tannery historically encroached onto the west of the site. It is therefore recommended that the regulatory approved tannery watching brief, outlined in the ROC Remediation Strategy for Mayfield Park[2], is implemented during the construction phase. In summary, the tannery watching brief and discovery strategy includes visual inspection of soils for the presence of animal bones, animal hair, animal carcass or flesh, animal hides and significant quantities of deleterious or organic rich materials or sludge. Should any of the above be encountered, operations are to cease, and the excavation backfilled with at least 1m thickness of unimpacted material, and the location and spatial extent recorded. The area is then to be investigated, removed and remediated in accordance with the guidance document "Guidance on assessing risk of Tannery Contamination on building land" with appropriate approvals and sanctions from regulatory authorities[20].

8.4 Borehole Decommissioning

It is recommended that the existing monitoring wells are decommissioned prior to commencement of significant groundworks in accordance with EA good practice guidance[21].

8.5 Ground Gas Protection Measures

Ground gas protection measures are not considered to be required based on the results of the ground gas assessment outlined in Section 7.4.

8.6 Hotspot Removal

As outlined in Section 3.5.3, a hotspot of hydrocarbon (referred to as "Hydrocarbon Hotspot #2") was identified by ROC at exploratory holes WS401, WS404 and TP409. It was recommended by ROC that the impacted Made Ground and shallow natural soils be delineated, removed and treated for re-use and/or removed from site to

[20] PHE (2014) *Guidance on assessing risk of anthrax on building land*. September 2014.
[21] Environment Agency (2012) *Good practice for decommissioning redundant boreholes and wells*.

prevent potential further on-going movement of TPH contamination into the underlying Principal aquifer.

In addition to the ROC hydrocarbon hotspot, it is recommended that the gross TPH contamination identified at borehole BH1004 (at 0.20mbgl) and trial pit TP1010 (at 2.00mbgl), and hazardous concentrations of asbestos at 1.00mbgl, are also delineated and removed and treated for re-use and/or removed from site.

8.7 Capping Layers

Due to the presence of elevated contaminant concentrations and ACM within the Made Ground, capping layers will be required to mitigate the potential risks to human health and plants and vegetation. To comply with BRE 465[22], the capping layers for the areas of soft landscaping will need to comprise a minimum of 450mm of imported soil, with a minimum of 150mm topsoil (including 50mm turf/sod).

The material imported to form the capping layers should be clean imported soil from a known and reputable source and meet the chemical criteria for human health with respect to the residential (without home grown produce consumption) end use of the site. Imported topsoil should also meet the requirements of BS 3882[23] and subsoil the requirements for BS 8601[24]. The material should be free from propagules of aggressive weeds, free from obvious signs of contamination e.g. staining, free phase hydrocarbon, coal, non-odorous such that it could be considered a statutory nuisance and free from unsuitable material/foreign bodies e.g. brick, glass, pipework.

8.8 Material Management

The Contractor should be responsible for the material management and waste classification at the site and the "waste hierarchy" should be used to rank waste management options according to what is best for the environment. Top priority should be given to preventing waste in the first place, for example, during the pre-construction and planning stages of a new development. However, if waste is created, priority should be given to preparing it for re-use, then recycling, then recovery, and last of all disposal.

In order to minimise the volumes of soils being disposed to landfill facilities, it is prudent to consider material management options prior to waste disposal. Screening of uncontaminated natural arisings may permit recycling/re-use of the material on site or for other sites under the WRAP protocol (uncontaminated granular soils only) or the CL:AIRE protocol[25] and would lead to a reduction in disposal requirements.

Providing that a Materials Management Plan (MMP) compliant with the CL:AIRE protocol is produced which details where materials will arise and how they will be used within the limits of that Code of Practice, there is no requirement to seek an environmental permit to re-use materials within the site. However, the process would require sign off by a Qualified Person in advance of works commencing and a final validation report. This process is not applicable to soils that pose harm to human health or the environment.

Potential for re-use of materials should be considered as part of the cut and fill strategy for the site, and it is recommended that the re-use criteria used for the wider Mayfield Development is adopted for the site which would demonstrate consistency with the wider Mayfield Development. However, it is anticipated that some material will require segregation and off-site disposal. It is recommended that one the area to the 'cut' has been defined, the results of the applicable soil testing should be compared against the re-use criteria to identify whether the material is likely to be acceptable for re-use or whether it will require treatment/disposal ,and how this relates to the cut and fill balance.

It is noted that in May/June 2012, HMRC issued Briefs 15/12 and 18/12 clarifying how construction spoil and excess soils will be assessed for landfill tax purposes, and detailed accurate descriptions of waste are required for all wastes to support the landfill tax assessment. Uncontaminated naturally occurring soils will remain inert by default and eligible for the lower rate of landfill tax and similarly, 'reworked soils' and demolition 'stone' comprising only materials listed in the Schedule of the Landfill Tax (Qualifying Material) Order 2011 (SI 2011/1017) would also be eligible for the lower rate of landfill tax. Made Ground containing soil and foreign objects such as timber, plastic,

[22] BRE (2004) *Cover systems for land regeneration - thickness design of cover systems for contaminated land*. BRE 465
[23] British Standards (2015) *Specification for Topsoil and Requirements for Use*. BS3882:2015
[24] British Standards Institute (2013) *Specification for Subsoil and Requirements for Use*.
[25] CL:AIRE (2011) *The Definition of Waste: Development Industry Code of Practice*. Version 2.

rubber, metal, paper, plasterboard, asbestos, etc., regardless of the results of chemical analysis for waste classification purposes, will be eligible for the standard (higher) rate of landfill tax. Therefore, to maximise eligibility for lower rate landfill tax on waste construction spoil/ reworked ground, careful waste segregation and controls are recommended necessary.

All material intended for off-site disposal should be transported and disposed in accordance with the Environmental Protection (Duty of Care) Regulations 1991 and the Landfill (England and Wales) Regulations 2002 (as amended). Waste legislation stipulates that hazardous and non-hazardous waste should be pre-treated prior to disposal and pre-treatment can be undertaken either at the site of origin or may be carried out at a licensed off-site facility and can include selective segregation of soils conducted on site.

8.8.1 Asbestos

Asbestos was detected in 8 out of 34 Made Ground soils samples analysed as part of the supplementary investigation and there is the potential that further asbestos may be present in the Made Ground. Site operatives should be briefed on the potential for asbestos to be encountered during earthworks.

8.9 Mitigation of Risks to Controlled Waters during Construction Works

It is recommended that measures are undertaken to mitigate the potential impact to controlled waters during construction works where contaminants in the underlying soils may be mobilised to a greater extent that naturally occurs. The construction works should be undertaken in line with CIRIA 741[26].

The risks to controlled waters from foundation activities i.e. piling are considered to be low assuming appropriate piling techniques are adopted. It is recommended that a Piling Works Risk Assessment is completed to demonstrate that the selected piling methodology will not lead to the creation of new pathways for contaminant migration.

Excavated soil should be appropriately stored with preventative measures against surface water infiltration/leaching or nuisance odours to protect the environment and human health during temporary storage on site. This could take the form of a lined and covered storage bund using an appropriate material (e.g. polyethylene), positioned away from sensitive locations. Handling and storage protocols for potentially contaminated soils should be documented by the Contractor. Appropriate storage of all hazardous liquids, chemicals and materials where materials are to be stored in accordance with the Control of Substances Hazardous to Health (COSHH) Regulations.

8.10 Buried Water Supply Pipes

Due to the recorded concentrations of contaminants at the site, it is anticipated that barrier pipes will be required for new buried water supply pipes. Completion of a United Utilities Risk Assessment including sampling of soils at depth and location of proposed water supply pipes will be required.

8.11 Health, Safety and Environmental Controls

It is recommended that precautions are taken to minimise exposure of workers and the general public to potentially harmful substances, including asbestos, during earthworks. The risks to contractors should be controlled through the implementation of site safety procedures and the use of suitable personal protective equipment (PPE). Attention should also be paid to restricting possible off-site nuisance such as dust and odour emissions. All site works should be undertaken in accordance with the guidelines prepared by the Health and Safety Executive and all work should also be carried out in accordance with the Contractor's Construction Health and Safety Plan.

Excavations should be planned and inspected regularly by a competent person and no operatives should be permitted to enter un-shored or otherwise protected excavations identified as unstable by a competent person, however shallow they may be. The stockpiled material and excavations should be dampened during all earthworks excavation and earth moving activities and vehicles should be washed before leaving site, with

[26] CIRIA (2015) Environmental Good Practice on Site Guide. 4th Edition. CIRIA C741.

washings contained on site and suitably disposed.

9. Geotechnical Recommendations

9.1 Introduction

Geotechnical recommendations for the proposed redevelopment of the site are outlined in the following sections based on the information obtained during the ROC[2] and supplementary investigations and proposed development scheme. It is understood that the proposed lower ground floor level for Plot J is approximately +39mOD and +36mOD for Plot K.

9.2 Geotechnical Design Parameters

Geotechnical design parameters are outlined in Table 21. The parameters provided are moderately conservative, serviceability limit state and considered appropriate for shallow foundation, retaining walls (gravity/embedded), earthworks (settlement/consolidation) and infrastructure (roads/aprons) design.

Table 21: Geotechnical Design Parameters

Stratum	Bulk Unit Weight γ_b (kN/m³)	Undrained Shear Strength c_u (kPa) [c']	Friction Angle φ (°)	Young's Modulus, Eu (MPa) [E']
Made Ground (Granular)	18	-	30[a]	[10]
Made Ground (Cohesive)	17	20 [0]	22[b]	10[c] [8][d]
Alluvium (Granular)	18	-	34[a]	[20]
Glacial Till (Cohesive)	20	50 [0]	22[b]	25[c] [20][d]
Chester Sandstone Formation	19	-	40[a]	[250]

Notes:

a. *Peck, R.B., Hanson, W.E., and Thornburn, T.H., Foundation Engineering, 2nd Edition, John Wiley, New York, 1967, p.310*
b. *BS 8002:2015 Code of Practice for Earth Retaining Structures, British Standards Institution*
c. *Based on 500Cu – Burland, Standing J.R., and Jardine F.M. (eds) (2001), Building Response to Tunnelling, case Studies from Construction of the Jubilee Line Extension London, Ciria Special Publication 200.*
d. *Based on 0.8EU – Burland, Standing J.R., and Jardine F.M. (eds) (2001), Building Response to Tunnelling, case Studies from Construction of the Jubilee Line Extension London, Ciria Special Publication 200.*

9.3 Foundation Design

Based on the proposed lower ground floor finished floor levels for Plot J, lower ground floor formation levels are likely to be within the Made Ground and Glacial Till across the north of the plot and within the (weathered) Chester Sandstone Formation across the south of the plot. Lower ground floor formation levels within Plot J are likely to be within the Made Ground, Glacial Till, Alluvium and/or (weathered) Chester Sandstone Formation.

Given the variability of the shallow ground conditions, it is recommended that foundations are founded within the Chester Sandstone Formation. It is not recommended that foundations are constructed within the Made Ground or superficial deposits due to the variable bearing capacity and potential for differential settlement of these deposits.

The physical properties of the sandstone bedrock, as recorded on the exploratory hole records from the supplementary investigation, are considered to be more representative of a very dense sand as opposed to competent intact bedrock. At depth, the sandstone was recorded to vary between extremely weak and very weak based on laboratory testing and field descriptions. It is therefore considered that an allowable bearing capacity representative of a very dense sand (500kPa) could be adopted.

If shallow foundations are to be utilised, the formation level within the top of the sandstone bedrock should be inspected by a suitably qualified engineer to confirm competent sandstone at formation level. If a piled foundation

solution is utilised, it is anticipated that piles will be socketed approximately 5m into the sandstone bedrock. Early consultation with an appropriate piling contractor is essential to the design of the piles.

9.4 Floor Slabs and Pavement Design

Based on the proposed formation levels, it is assumed that roads and pavements will be founded onto Made Ground, Alluvium, Glacial Till or Chester Sandstone Formation. It is recommended that pavements and roadways founded on the Made Ground or superficial deposits be designed to a conservative California Bearing Ratio (CBR) value of 2.5%. This could potentially increase following in-situ testing of formation level soils. It is recommended that the formation level should be compacted and soft spots (<2.5% CBR) removed.

All pavements should be designed and compacted and verified in accordance with MCHW Series 600[27]. A specialist testing and construction contractor should be engaged for any lime/cement stabilisation works, and it is anticipated that a stabilisation trial would be undertaken prior to implementation. In areas where land raise is proposed, the build-up of capping/blinding layers beneath pavements/slabs will be dependent on the fill used in the land raise.

Floor slab design will need to take account of the potential variability in ground conditions at the formation level, and suspended slabs will need to be utilised where there is insufficient bearing capacity or potential for an unacceptable level of differential settlement. Where floor slabs are founded onto sandstone, ground bearing slabs may be utilised although the potential for differential settlement where floor slabs span multiple strata will need to be considered.

9.5 Excavation Works

Based on the ground conditions encountered, excavations required during the development should not pose difficulties for conventional excavators or earth moving equipment for the identified strata including some excavation in the upper sandstone horizons based on difficulty of excavation during the supplementary site investigation. Excavations have the potential to become unstable if water is introduced into the excavation. Water control, if required, may be achieved within shallow excavations by adopting a sump pumping system around the perimeter of the excavation as well as appropriate temporary supports such as trench boxes/trench sheets assuming excavations do not extend below the level of the Principal aquifer within the sandstone. This should be confirmed by the contractor and temporary works designer on initial excavation.

Historical structures and foundations will need to be grubbed out and hard material could potentially be processed and reused as engineered fill in line with the recommendations outlined in Section 8.8 and a site-specific earthworks specification. Depending on formation levels, voids will need to be backfilled with engineered fill.

Excavations should be suitably shored or otherwise supported or battered and should be inspected regularly by a competent person. No operatives should enter un-shored or otherwise unprotected excavations identified as unstable by a competent person, however shallow they are, in accordance with the guidelines presented in CIRIA Report 97[28]. Dewatering will likely be required when excavation works are in close proximity to perched groundwater level.

9.6 Buried Concrete Design

Design Sulphate (DS) and Aggressive Chemical Environmental for Concrete (ACEC) classes for the Made Ground, Glacial Till and Chester Sandstone Formation are summarised in Table 22 based on the results of the chemical sulphate and pH testing[29].

[27] Highways England (2016) Manual of Contract Documents for Highway Works, Series 600 (Earthworks), MCHW Series 600.
[28] CIRIA (1992). *Trenching Practice (Second Edition).* Construction Industry Research and Information Association Report 97.
[29] BRE (2005) *Concrete in Aggressive Ground.* BRE Special Digest 1:2005

Table 22: Summary of DS and ACEC Classes

Stratum	WSS DS Class	WSS ACEC Class
Made Ground	DS-2	AC-2
Glacial Till	DS-1	AC-1
Chester Sandstone Formation	DS-1	AC-1

Appendix A
Exploratory Hole Records

Civic Earth
www.civicearth.com

Project Title:	**Phase 1B, Mayfield, Manchester**	Client	**LandsecU+I**
Project Number:	**51001/03**	Logged By: FM / Checked By: HG	
Location ID:	**BH1001**	Location Type:	Cable Percussion to Rotary Coring
Coords:	385119.77E/397475.65N	Level:	38.92mAOD
Status:	FINAL	Scale:	1:50
Final Depth:	25.00		
Sheet 1 of 3		Date Start:	11/01/2024
Date End:	16/01/2024		

Method and Plant Used				Groundwater		
From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
0.00	6.50	CP	Dando 2000	14.70	20	9.90
6.50	25.00	RC	Beretta T46			

Depth (m)	Sample Depth (m)	Type/Ref	Tests/Results	Water Level (m)	Level (mAOD)	Strata Depth (m)	Strata Description	Rotary Coring: Core Run	TCR (%)	SCR (%)	RQD (%)	Fract (mm) min avg max
	0.20	B 2					Medium dense to very dense dark brown slightly clayey gravelly cobbly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of brick and concrete. Cobbles are angular of brick and concrete. Frequent fragments of wire and plastic noted. [MADE GROUND]					
	0.20	ES 1										
	0.50	B 4										
	0.50	ES 3										
1.0	1.00	B 6										
	1.00	ES 5										
	1.20 - 1.65	B 8	SPT(S) 1.20m N=37 (4,5/6,9,11,11)									
	1.20 - 1.65	D 7										
2.0	2.00	ES 9	SPT(S) 2.00m 50 (25 for 75mm/50 for 80mm)									
	2.00 - 2.45	B 11										
	2.00 - 2.45	D 10										
3.0	3.00	ES 12	SPT(S) 3.00m 50 (25 for 75mm/50 for 50mm)									
	3.00 - 3.45	B 14										
	3.00 - 3.45	D 13										
					35.02	3.90						
4.0	4.00 - 4.45	B 16	SPT(S) 4.00m 50 (12,13/50 for 150mm)				Reddish brown SANDSTONE. Recovered as very dense fine to coarse sand. [WEATHERED CHESTER SANDSTONE FORMATION]					
	4.00 - 4.45	D 15										
5.0	5.00 - 5.45	B 18	SPT(S) 5.00m 60 (25 for 75mm/60 for 120mm)									
	5.00 - 5.45	D 17										
6.0	6.00 - 6.45	B 20	SPT(S) 6.00m 50 (25 for 75mm/50 for 150mm)									
	6.00 - 6.45	D 19										
					32.42	6.50						
7.0							Reddish brown SANDSTONE. Recovered as fine to coarse sand with rare areas of weak cementation. [WEATHERED CHESTER SANDSTONE FORMATION]	6.50 8.00	100	0	0	
	7.60	C 1										
8.0								8.00 9.50	100	0	0	0 0 120
9.0												
10.0												

Stratum continues onto next page

Notes:

1. Groundwater encountered at 14.7mbgl, rising to 9.9mbgl over 20 minutes.
2. Installation: 0.00-4.50m 50mm plain standpipe with bentonite seal; 4.50-25.00m slotted standpipe with gravel filter and geowrap. Gas tap, bung and raised cover installed at ground level.
3. ES - Environmental Sample. B - Bulk Sample. D - Disturbed Sample. SPT - Standard Penetration Test.

Hole Diameter		Casing	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
6.50	200	4.00	200
25.00	146		

Hammer Information	
Energy Ratio	Serial No.
73%	BBL02

Install Response Zones		
Ref	From (m)	To (m)
GW100 1	4.50	25.00

Civic Earth
www.civicearth.com

Project Title:	**Phase 1B, Mayfield, Manchester**	Client	**LandsecU+I**
Project Number:	**51001/03**	Logged By: FM / Checked By: HG	
Location ID:	**BH1001**	Location Type: Cable Percussion to Rotary Coring	
Coords: 385119.77E/397475.65N	Level: 38.92mAOD		
Status:	FINAL	Scale: 1:50	Final Depth: 25.00
Sheet 2 of 3		Date Start: 11/01/2024	Date End: 16/01/2024

Method and Plant Used				Groundwater		
From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
0.00	6.50	CP	Dando 2000	14.70	20	9.90
6.50	25.00	RC	Beretta T46			

Inst/ Backfill	Depth (m)	Samples & Tests: Sample Depth (m)	Type/Ref	Tests/Results	Water Level (m)	Level (mAOD)	Strata Depth (m)	Legend / Cover	Strata Description	Rotary Coring: Core Run	TCR (%)	SCR (%)	RQD (%)	Fract (mm) min avg max
									Reddish brown SANDSTONE. Recovered as fine to coarse sand with rare areas of weak cementation. [WEATHERED CHESTER SANDSTONE FORMATION]	9.50 11.00	95	29	15	
		10.63	C			28.37	10.55		Extremely weak locally very weak thinly to medium bedded light reddish brown medium grained SANDSTONE, very weakly to weakly cemented. Rare subrounded siliceous clasts and fragments of mudstone. Occasional thinly bedded fine grained areas, thin <50mm oxidised bedding planes and rare oxidisation spots. Discontinuities: 1) 15 - 20 degrees closely spaced rough undulating and stepped infilled with sand. 2) 45 - 50 degrees medium to widely spaced rough most planar some undulating infilled with sand. [CHESTER SANDSTONE FORMATION]	11.00 12.50	100	82	58	0 150 390
	11.0													
	12.0													
	13.0	13.03	C 5							12.50 14.00	100	85	79	
	14.0					24.62	14.30							
									Weak thinly to medium bedded light reddish brown medium grained SANDSTONE, weakly to moderately cemented. Occasional subrounded siliceous clasts and fragments of mudstone. Occasional thinly bedded fine grained areas, thin <50mm oxidised bedding planes and rare oxidisation spots. Discontinuities: 1) 10 - 15 degrees closely to medium spaced rough stepped and undulating infilled with sand and some oxidisation staining on fracture surfaces. 2) 45 - 50 degrees widely spaced rough undulating infilled with fine to medium sand. [CHESTER SANDSTONE FORMATION]	14.00 15.50	100	95	81	
	15.0													
	16.0									15.50 17.00	100	86	74	
	17.0													0 180 320
	18.0									17.00 18.50	100	91	51	
	19.0													
		19.78	C 9							18.50 20.00	100	96	41	
	20.0													

Stratum continues onto next page

Notes:

1. Groundwater encountered at 14.7mbgl, rising to 9.9mbgl over 20 minutes.
2. Installation: 0.00-4.50m 50mm plain standpipe with bentonite seal; 4.50-25.00m slotted standpipe with gravel filter and geowrap. Gas tap, bung and raised cover installed at ground level.
3. ES - Environmental Sample. B - Bulk Sample. D - Disturbed Sample. SPT - Standard Penetration Test.

Hole Diameter		Casing	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
6.50	200	4.00	200
25.00	146		

Hammer Information	
Energy Ratio	Serial No.
73%	BBL02

Install Response Zones		
Ref	From (m)	To (m)

Civic Earth
www.civicearth.com

Project Title:	**Phase 1B, Mayfield, Manchester**	Client	**LandsecU+I**
Project Number:	**51001/03**	Logged By: FM / Checked By: HG	
Location ID:	**BH1001**	Location Type:	Cable Percussion to Rotary Coring
Coords:	385119.77E/397475.65N	Level:	38.92mAOD
Status:	FINAL	Scale:	1:50
Final Depth:	25.00		
Sheet 3 of 3		Date Start:	11/01/2024
Date End:	16/01/2024		

Method and Plant Used				Groundwater		
From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
0.00	6.50	CP	Dando 2000	14.70	20	9.90
6.50	25.00	RC	Beretta T46			

Inst/ Backfill	Depth (m)	Samples & Tests: Sample Depth (m)	Type/Ref	Tests/Results	Water Level (m)	Level (mAOD)	Strata Depth (m)	Legend / Cover	Strata Description	Rotary Coring: Core Run	TCR (%)	SCR (%)	RQD (%)	Fract (mm) min avg max
									Weak thinly to medium bedded light reddish brown medium grained SANDSTONE, weakly to moderately cemented. Occasional subrounded siliceous clasts and fragments of mudstone. Occasional thinly bedded fine grained areas, thin <50mm oxidised bedding planes and rare oxidisation spots. Discontinuities: 1) 10 - 15 degrees closely to medium spaced rough stepped and undulating infilled with sand and some oxidisation staining on fracture surfaces. 2) 45 - 50 degrees widely spaced rough undulating infilled with fine to medium sand. [CHESTER SANDSTONE FORMATION]	20.00 21.50	100	100	79	
	21.0													
	22.0	22.38	C 11							21.50 23.00	90	83	42	
	23.0													
	24.0									23.00 24.50	100	80	61	
	25.0					13.92	25.00			24.50 25.00	100	100	50	
									EOH at 25.00m - Achieved target depth					
	26.0													
	27.0													
	28.0													
	29.0													
	30.0													

Notes:

1. Groundwater encountered at 14.7mbgl, rising to 9.9mbgl over 20 minutes.
2. Installation: 0.00-4.50m 50mm plain standpipe with bentonite seal; 4.50-25.00m slotted standpipe with gravel filter and geowrap. Gas tap, bung and raised cover installed at ground level.
3. ES - Environmental Sample. B - Bulk Sample. D - Disturbed Sample. SPT - Standard Penetration Test.

Hole Diameter		Casing		Hammer Information	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio	Serial No.
6.50	200	4.00	200	73%	BBL02
25.00	146			Install Response Zones	
				Ref / From (m) / To (m)	

Civic Earth
www.civicearth.com

Project Title:	**Phase 1B, Mayfield, Manchester**	Client	**LandsecU+I**
Project Number:	**51001/03**	Logged By: FM / Checked By: HG	
Location ID:	**BH1002**	Location Type: Cable Percussion to Rotary Coring	
Coords: 385172.14E/397534.09N	Level: 37.16mAOD		
Status:	FINAL	Scale: 1:50	Final Depth: 25.00
Sheet 1 of 3		Date Start: 11/01/2024	Date End: 17/01/2024

Method and Plant Used				Groundwater		
From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
0.00	6.50	CP	Dando 2000	13.50	20	8.10
6.50	25.00	RC	Beretta T46			

Inst/ Backfill	Depth (m)	Sample Depth (m)	Type/Ref	Tests/Results	Water Level (m)	Level (mAOD)	Strata Depth (m)	Legend / Cover	Strata Description	Rotary Coring Core Run	TCR (%)	SCR (%)	RQD (%)	Fract (mm) min avg max
		0.20	B 2						Medium dense to very dense dark brown slightly clayey gravelly cobbly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of concrete and brick. Frequent fragments of wire, plastic and glass noted. [MADE GROUND]					
		0.20	ES 1											
		0.50	B 4											
		0.50	ES 3											
	1.0	1.00	ES 5											
		1.20 - 1.65	B 7	SPT(S) 1.20m N=32 (6,7/9,9,8,6)										
		1.20 - 1.65	D 6											
	2.0	2.00	ES 8	SPT(S) 2.00m N=31 (5,6/6,7,8,10)										
		2.00 - 2.45	B 10											
		2.00 - 2.45	D 9											
	3.0	3.00	ES 11	SPT(S) 3.00m 50 (9,11/50 for 190mm)										
		3.00 - 3.45	B 13											
		3.00 - 3.45	D 12											
	4.0	4.00	ES 14	SPT(S) 4.00m 50 (10,11/50 for 180mm)		33.06	4.10							
		4.00	ES 15						Reddish brown SANDSTONE. Recovered as very dense fine to coarse sand. [WEATHERED CHESTER SANDSTONE FORMATION]					
		4.00 - 4.45	B 16											
		4.00 - 4.45	D 15											
	5.0	5.00 - 5.45	B 18	SPT(S) 5.00m 50 (25 for 95mm/50 for 170mm)										
		5.00 - 5.45	D 17											
	6.0	6.00 - 6.45	B 20											
		6.00 - 6.45	D 19											
						30.66	6.50							
	7.0								Reddish brown SANDSTONE. Recovered mostly as fine to coarse sand with rare areas of weak cementation. [WEATHERED CHESTER SANDSTONE FORMATION]					
						29.96	7.20			6.50 8.00	80	37	8	
		7.67	C 14						Extremely weak locally very weak thinly to medium bedded light reddish brown medium grained SANDSTONE, very weakly to weakly cemented. Rare subrounded siliceous clasts and fragments of mudstone. Occasional thinly bedded fine grained areas, thin <50mm oxidised bedding planes and rare oxidisation spots. Discontinuities: 1) 15 - 20 degrees closely spaced rough undulating and stepped infilled with sand. 2) 45 - 50 degrees medium to widely spaced rough most planar some undulating infilled with sand. [CHESTER SANDSTONE FORMATION]					
	8.0													
										8.00 9.50	100	90	34	
	9.0													
	10.0													

Stratum continues onto next page

Notes:

1. Groundwater encountered at 13.5mbgl, rising to 8.1mbgl over 20 minutes.
2. Installation: 0.00-4.50m 50mm plain standpipe with bentonite seal; 4.50-25.00m slotted standpipe with gravel filter and geowrap. Gas tap, bung and raised cover installed at ground level.
3. ES - Environmental Sample. B - Bulk Sample. D - Disturbed Sample. SPT - Standard Penetration Test.

Hole Diameter		Casing	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
6.50	200	4.00	200
25.00	146		

Hammer Information	
Energy Ratio	Serial No.
73%	BBL02

Install Response Zones		
Ref	From (m)	To (m)
GW1002	4.50	25.00

Civic Earth
www.civicearth.com

Project Title:	**Phase 1B, Mayfield, Manchester**	Client	**LandsecU+I**
Project Number:	**51001/03**	Logged By: FM / Checked By: HG	
Location ID:	**BH1002**	Location Type: Cable Percussion to Rotary Coring	
Coords: 385172.14E/397534.09N	Level: 37.16mAOD		
Status:	FINAL	Scale: 1:50	Final Depth: 25.00
Sheet 2 of 3		Date Start: 11/01/2024	Date End: 17/01/2024

Method and Plant Used				Groundwater		
From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
0.00	6.50	CP	Dando 2000	13.50	20	8.10
6.50	25.00	RC	Beretta T46			

Inst/ Backfill	Depth (m)	Samples & Tests: Sample Depth (m)	Type/Ref	Tests/Results	Water Level (m)	Level (mAOD)	Strata Depth (m)	Legend / Cover	Strata Description	Rotary Coring: Core Run	TCR (%)	SCR (%)	RQD (%)	Fract (mm) min avg max
	11.0	10.23	C 16						Extremely weak locally very weak thinly to medium bedded light reddish brown medium grained SANDSTONE, very weakly to weakly cemented. Rare subrounded siliceous clasts and fragments of mudstone. Occasional thinly bedded fine grained areas, thin <50mm oxidised bedding planes and rare oxidisation spots. Discontinuities: 1) 15 - 20 degrees closely spaced rough undulating and stepped infilled with sand. 2) 45 - 50 degrees medium to widely spaced rough most planar some undulating infilled with sand. [CHESTER SANDSTONE FORMATION]	9.50 11.00	100	63	25	
	12.0									11.00 12.50	80	39	35	0 100 230
	13.0									12.50 14.00	86	23	23	
	14.0					23.16	14.00							
	15.0								Weak thinly to medium bedded light reddish brown medium grained SANDSTONE, weakly to moderately cemented. Occasional subrounded siliceous clasts and fragments of mudstone. Occasional thinly bedded fine grained areas, thin <50mm oxidised bedding planes and rare oxidisation spots. Discontinuities: 1) 10 - 15 degrees closely to medium spaced rough stepped and undulating infilled with sand and some oxidisation staining on fracture surfaces. 2) 45 - 50 degrees medium spaced rough undulating infilled with fine to medium sand. [CHESTER SANDSTONE FORMATION]	14.00 15.50	89	73	15	
	16.0									15.50 17.00	87	77	41	
	17.0	17.60	C 21							17.00 18.50	100	90	73	0 150 330
	18.0													
	19.0									18.50 20.00	100	51	39	
	20.0													

Stratum continues onto next page

Notes:

1. Groundwater encountered at 13.5mbgl, rising to 8.1mbgl over 20 minutes.
2. Installation: 0.00-4.50m 50mm plain standpipe with bentonite seal; 4.50-25.00m slotted standpipe with gravel filter and geowrap. Gas tap, bung and raised cover installed at ground level.
3. ES - Environmental Sample. B - Bulk Sample. D - Disturbed Sample. SPT - Standard Penetration Test.

Hole Diameter		Casing	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
6.50	200	4.00	200
25.00	146		

Hammer Information	
Energy Ratio	Serial No.
73%	BBL02

Install Response Zones		
Ref	From (m)	To (m)

Civic Earth
www.civicearth.com

Project Title:	**Phase 1B, Mayfield, Manchester**	Client	**LandsecU+I**
Project Number:	**51001/03**	Logged By: FM / Checked By: HG	
Location ID:	**BH1002**	Location Type:	Cable Percussion to Rotary Coring
Coords:	385172.14E/397534.09N	Level:	37.16mAOD
Status:	FINAL	Scale:	1:50
Final Depth:	25.00		
Sheet 3 of 3		Date Start:	11/01/2024
Date End:	17/01/2024		

Method and Plant Used				Groundwater		
From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
0.00	6.50	CP	Dando 2000	13.50	20	8.10
6.50	25.00	RC	Beretta T46			

Inst/ Backfill	Depth (m)	Samples & Tests: Sample Depth (m)	Type/Ref	Tests/Results	Water Level (m)	Level (mAOD)	Strata Depth (m)	Legend / Cover	Strata Description	Rotary Coring: Core Run	TCR (%)	SCR (%)	RQD (%)	Fract (mm) min avg max
	21.0								Weak thinly to medium bedded light reddish brown medium grained SANDSTONE, weakly to moderately cemented. Occasional subrounded siliceous clasts and fragments of mudstone. Occasional thinly bedded fine grained areas, thin <50mm oxidised bedding planes and rare oxidisation spots. Discontinuities: 1) 10 - 15 degrees closely to medium spaced rough stepped and undulating infilled with sand and some oxidisation staining on fracture surfaces. 2) 45 - 50 degrees medium spaced rough undulating infilled with fine to medium sand. [CHESTER SANDSTONE FORMATION]	20.00 21.50	100	100	72	
	22.0									21.50 23.00	100	95	61	
	23.0	23.50	C 25							23.00 24.50	100	54	54	
	24.0	24.68	C 26							24.50 25.00	100	100	64	
	25.0					12.16	25.00		EOH at 25.00m - Achieved target depth					
	26.0													
	27.0													
	28.0													
	29.0													
	30.0													

Notes:

1. Groundwater encountered at 13.5mbgl, rising to 8.1mbgl over 20 minutes.
2. Installation: 0.00-4.50m 50mm plain standpipe with bentonite seal; 4.50-25.00m slotted standpipe with gravel filter and geowrap. Gas tap, bung and raised cover installed at ground level.
3. ES - Environmental Sample. B - Bulk Sample. D - Disturbed Sample. SPT - Standard Penetration Test.

Hole Diameter		Casing	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
6.50	200	4.00	200
25.00	146		

Hammer Information	
Energy Ratio	Serial No.
73%	BBL02

Install Response Zones		
Ref	From (m)	To (m)

Civic Earth
www.civicearth.com

Project Title:	**Phase 1B, Mayfield, Manchester**	Client	**LandsecU+I**
Project Number:	**51001/03**	Logged By: FM / Checked By: HG	
Location ID:	**BH1003**	Location Type:	Cable Percussion to Rotary Coring
Coords:	385261.27E/397532.97N	Level:	39.20mAOD
Status:	FINAL	Scale:	1:50
Final Depth:	20.00		
Sheet 1 of 2		Date Start:	12/01/2024
Date End:	18/01/2024		

Method and Plant Used				Groundwater		
From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
0.00	6.50	CP	Dando 2000	12.40	20	8.50
6.50	20.00	RC	Beretta T46			

Inst/ Backfill	Depth (m)	Sample Depth (m)	Type/Ref	Tests/Results	Water Level (m)	Level (mAOD)	Strata Depth (m)	Legend / Cover	Strata Description	Core Run	TCR (%)	SCR (%)	RQD (%)	Fract (mm) min avg max
		0.20	B 2						Dense to very dense dark brown slightly clayey gravelly cobbly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of brick and concrete. Cobbles are angular of brick and concrete. Frequent fragments of glass and plastic noted. [MADE GROUND]					
		0.20	ES 1											
		0.50	B 4											
		0.50	ES 3											
	1.0	1.00	B 6											
		1.00	ES 5											
		1.20 - 1.65	B 8	SPT(S) 1.20m N=43 (5,6/7,12,12,12)										
		1.20 - 1.65	D 7											
	2.0	2.00	ES 9	SPT(S) 2.00m N=50 (7,8/50 for 285mm)										
		2.00 - 2.45	B 11											
		2.00 - 2.45	D 10											
	3.0	3.00	ES 12	SPT(S) 3.00m N=50 (6,7/50 for 265mm)										
		3.00 - 3.45	B 14											
		3.00 - 3.45	D 13											
	4.0	4.00	ES 15			35.10	4.10							
		4.00 - 4.45	B 17						Orangish brown SANDSTONE. Recovered as very dense fine to coarse sand. [WEATHERED CHESTER SANDSTONE FORMATION]					
		4.00 - 4.45	D 16											
	5.0	5.00 - 5.45	B 19	SPT(S) 5.00m 50 (25 for 95mm/50 for 185mm)										
		5.00 - 5.45	D 18											
	6.0	6.00 - 6.45	B 21	SPT(S) 6.00m 50 (25 for 80mm/50 for 155mm)		32.70	6.50							
		6.00 - 6.45	D 20											
	7.0								Extremely weak locally very weak thinly to medium bedded light reddish brown medium grained SANDSTONE, very weakly to weakly cemented. Rare subrounded siliceous clasts and fragments of mudstone. Occasional thinly bedded fine grained areas, thin <50mm oxidised bedding planes and rare oxidisation spots. Discontinuities: 1) 15 - 20 degrees closely spaced rough undulating and stepped infilled with sand. 2) 45 - 50 degrees medium to widely spaced rough most planar some undulating infilled with sand. [CHESTER SANDSTONE FORMATION]	6.50 8.00	81	30	16	
	8.0									8.00 9.50	100	95	49	
	9.0	9.11	C 28											
	10.0	9.90	C											

Stratum continues onto next page

Notes:

1. Groundwater encountered at 12.4mbgl, rising to 8.5mbgl over 20 minutes.
2. Installation: 0.00-4.50m 50mm plain standpipe with bentonite seal; 4.50-20.00m slotted standpipe with gravel filter and geowrap. Gas tap, bung and flush cover installed at ground level.
3. ES - Environmental Sample. B - Bulk Sample. D - Disturbed Sample. SPT - Standard Penetration Test.

Hole Diameter		Casing	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
6.50	200	4.00	200
20.00	146		

Hammer Information	
Energy Ratio	Serial No.
73%	BBL02

Install Response Zones		
Ref	From (m)	To (m)
GW100 3	4.50	20.00

Civic Earth
www.civicearth.com

Project Title:	**Phase 1B, Mayfield, Manchester**	Client	**LandsecU+I**
Project Number:	**51001/03**	Logged By: FM / Checked By: HG	
Location ID:	**BH1003**	Location Type:	Cable Percussion to Rotary Coring
Coords:	385261.27E/397532.97N	Level:	39.20mAOD
Status:	FINAL	Scale:	1:50
Final Depth:	20.00		
Sheet 2 of 2		Date Start:	12/01/2024
Date End:	18/01/2024		

Method and Plant Used				Groundwater		
From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
0.00	6.50	CP	Dando 2000	12.40	20	8.50
6.50	20.00	RC	Beretta T46			

Inst/ Backfill	Depth (m)	Samples & Tests: Sample Depth (m)	Type/Ref	Tests/Results	Water Level (m)	Level (mAOD)	Strata Depth (m)	Legend / Cover	Strata Description	Rotary Coring: Core Run	TCR (%)	SCR (%)	RQD (%)	Fract (mm): min avg max
	11.0								Extremely weak locally very weak thinly to medium bedded light reddish brown medium grained SANDSTONE, very weakly to weakly cemented. Rare subrounded siliceous clasts and fragments of mudstone. Occasional thinly bedded fine grained areas, thin <50mm oxidised bedding planes and rare oxidisation spots. Discontinuities: 1) 15 - 20 degrees closely spaced rough undulating and stepped infilled with sand. 2) 45 - 50 degrees medium to widely spaced rough most planar some undulating infilled with sand. [CHESTER SANDSTONE FORMATION]	9.50 11.00	33	27	10	
	12.0									11.00 12.50	95	6	0	0 50 150
	13.0									12.50 14.00	73	11	0	
	14.0									14.00 15.50	100	38	17	
	15.0	15.43	C 32			24.30	14.90		Weak thinly to medium bedded light reddish brown medium grained SANDSTONE, weakly to moderately cemented. Occasional subrounded siliceous clasts and fragments of mudstone. Occasional thinly bedded fine grained areas, thin <50mm oxidised bedding planes and rare oxidisation spots. Discontinuities: 1) 10 - 15 degrees closely spaced rough stepped and undulating infilled with sand and some oxidisation staining on fracture surfaces. 2) 45 - 50 degrees medium spaced rough undulating infilled with fine to medium sand and some oxidisation staining on fracture surfaces. [CHESTER SANDSTONE FORMATION]	15.50 17.00	100	16	14	
	16.0													
	17.0									17.00 18.50	73	69	48	0 180 310
	18.0													
	19.0									18.50 20.00	80	80	72	
	20.0					19.20	20.00							

EOH at 20.00m - Achieved target depth

Notes:

1. Groundwater encountered at 12.4mbgl, rising to 8.5mbgl over 20 minutes.
2. Installation: 0.00-4.50m 50mm plain standpipe with bentonite seal; 4.50-20.00m slotted standpipe with gravel filter and geowrap. Gas tap, bung and flush cover installed at ground level.
3. ES - Environmental Sample. B - Bulk Sample. D - Disturbed Sample. SPT - Standard Penetration Test.

Hole Diameter		Casing	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
6.50	200	4.00	200
20.00	146		

Hammer Information	
Energy Ratio	Serial No.
73%	BBL02

Install Response Zones		
Ref	From (m)	To (m)

Civic Earth
www.civicearth.com

Project Title:	**Phase 1B, Mayfield, Manchester**	Client	**LandsecU+I**
Project Number:	**51001/03**	Logged By: FM / Checked By: HG	
Location ID:	**BH1004**	Location Type:	Cable Percussion to Rotary Coring
Coords:	385245.73E/397472.13N	Level:	42.28mAOD
Status:	FINAL	Scale:	1:50
Final Depth:	25.00		
Sheet 1 of 3		Date Start:	10/01/2024
Date End:	11/01/2024		

Method and Plant Used				Groundwater		
From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
0.00	6.50	CP	Dando 2000	18.00	20	12.90
6.50	25.00	RC	Beretta T46			

Inst/ Backfill	Depth (m)	Sample Depth (m)	Type/Ref	Tests/Results	Water Level (m)	Level (mAOD)	Strata Depth (m)	Legend / Cover	Strata Description	Core Run	TCR (%)	SCR (%)	RQD (%)	Fract (mm) min avg max
		0.20	B 2			42.08	0.20		Reinforced concrete. 8mm rebar noted. [MADE GROUND]					
		0.20	ES 1											
		0.50	B 4						Dark reddish brown sandy cobbly gravel. Gravel is angular to subangular fine to coarse of brick and concrete. Sand is fine to coarse. Cobbles are angular of brick and concrete. [MADE GROUND]					
		0.50	ES 3			41.63	0.65							
		0.70	D 5											
	1.0	1.00	B 7						Soft orangish brown slightly sandy gravelly clay. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of brick and concrete. [MADE GROUND]					
		1.00	ES 6											
		1.20 - 1.65	B 9	SPT(S) 1.20m N=7 (1,2/2,2,1,2)										
		1.20 - 1.65	D 8			40.68	1.60							
	2.0	2.00	ES 10	SPT(S) 2.00m N=21 (4,5/5,5,6,5)					Medium dense light orangish brown gravelly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of brick and concrete. [MADE GROUND]					
		2.00 - 2.45	B 12											
		2.00 - 2.45	D 11											
		2.70	B 13			39.58	2.70							
	3.0	3.00	ES 14	Ublows=52 Recovery=90%					Stiff dark brown slightly gravelly slightly sandy CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of sandstone and coal. [GLACIAL TILL]					
		3.00 - 3.45	UT 15											
		3.00 - 3.45	UT100 15											
		3.70	B 16			38.58	3.70							
	4.0	4.00	ES 17	SPT(S) 4.00m N=50 (10,12/50 for 295mm)					Stiff grey slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of sandstone and coal. [GLACIAL TILL]					
		4.00 - 4.45	B 19											
		4.00 - 4.45	D 18			37.58	4.70							
	5.0	5.00	ES 20	SPT(S) 5.00m 50 (9,10/50 for 210mm)					Reddish brown SANDSTONE. Recovered as very dense fine to coarse sand. [WEATHERED CHESTER SANDSTONE FORMATION]					
		5.00 - 5.45	B 22											
		5.00 - 5.45	D 21											
	6.0	6.00	ES 23	SPT(S) 6.00m N=50 (4,12/50 for 230mm)										
		6.00 - 6.45	B 25											
		6.00 - 6.45	D 24			35.78	6.50							
	7.0								Very weak locally extremely weak medium bedded light reddish brown medium grained SANDSTONE, very weakly to weakly cemented. Occasional subrounded siliceous clasts and fragments of mudstone. Occasional thinly bedded fine grained areas, thin <50mm oxidised bedding planes and rare oxidisation spots. Discontinuities: 1) 45 degrees closely to medium spaced rough undulating infilled with sand and some oxidisation staining on fracture surfaces. [CHESTER SANDSTONE FORMATION]	6.50 8.00	63	63	52	
	8.0									8.00 9.50	100	55	55	0 180 550
	9.0	9.01	C											
	10.0													

Stratum continues onto next page

Notes:

1. Groundwater encountered at 18.0mbgl, rising to 12.9mbgl over 20 minutes.
2. Installation: 0.00-5.00m 50mm plain standpipe with bentonite seal; 5.00-25.00m slotted standpipe with gravel filter and geowrap. Gas tap, bung and raised cover installed at ground level.
3. ES - Environmental Sample. B - Bulk Sample. D - Disturbed Sample. SPT - Standard Penetration Test.

Hole Diameter		Casing	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
6.50	200	5.00	200
25.00	146		

Hammer Information	
Energy Ratio	Serial No.
73%	BBL02

Install Response Zones		
Ref	From (m)	To (m)
GW1004	5.00	25.00

Civic Earth
www.civicearth.com

Project Title:	**Phase 1B, Mayfield, Manchester**	Client	**LandsecU+I**
Project Number:	**51001/03**	Logged By: FM / Checked By: HG	
Location ID:	**BH1004**	Location Type: Cable Percussion to Rotary Coring	
		Coords: 385245.73E/397472.13N	Level: 42.28mAOD
Status:	FINAL	Scale: 1:50	Final Depth: 25.00
Sheet 2 of 3		Date Start: 10/01/2024	Date End: 11/01/2024

Method and Plant Used				Groundwater		
From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
0.00	6.50	CP	Dando 2000	18.00	20	12.90
6.50	25.00	RC	Beretta T46			

Inst/ Backfill	Depth (m)	Samples & Tests: Sample Depth (m)	Type/Ref	Tests/Results	Water Level (m)	Level (mAOD)	Strata Depth (m)	Legend / Cover	Strata Description	Rotary Coring: Core Run	TCR (%)	SCR (%)	RQD (%)	Fract (mm): min avg max
	11.0								Very weak locally extremely weak medium bedded light reddish brown medium grained SANDSTONE, very weakly to weakly cemented. Occasional subrounded siliceous clasts and fragments of mudstone. Occasional thinly bedded fine grained areas, thin <50mm oxidised bedding planes and rare oxidisation spots. Discontinuities: 1) 45 degrees closely to medium spaced rough undulating infilled with sand and some oxidisation staining on fracture surfaces. [CHESTER SANDSTONE FORMATION]	9.50 11.00	97	97	81	
						30.63	11.65							
	12.0	11.88	C 39						Weak medium bedded light reddish brown medium grained SANDSTONE, weakly to moderately cemented. Occasional subrounded siliceous clasts and fragments of mudstone. Occasional thinly bedded fine grained areas, thin <50mm oxidised bedding planes and rare oxidisation spots. Discontinuities: 1) 45 degrees closely to medium spaced rough undulating infilled with sand and some oxidisation staining on fracture surfaces. [CHESTER SANDSTONE FORMATION]	11.00 12.50	75	29	21	
	13.0									12.50 14.00	83	64	64	
	14.0									14.00 15.50	94	94	61	
	15.0													
	16.0	16.59	C							15.50 17.00	65	65	61	0 220 750
	17.0									17.00 18.50	90	90	63	
	18.0													
	19.0									18.50 20.00	88	58	49	
	20.0													

Stratum continues onto next page

Notes:

1. Groundwater encountered at 18.0mbgl, rising to 12.9mbgl over 20 minutes.
2. Installation: 0.00-5.00m 50mm plain standpipe with bentonite seal; 5.00-25.00m slotted standpipe with gravel filter and geowrap. Gas tap, bung and raised cover installed at ground level.
3. ES - Environmental Sample. B - Bulk Sample. D - Disturbed Sample. SPT - Standard Penetration Test.

Hole Diameter		Casing	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
6.50	200	5.00	200
25.00	146		

Hammer Information	
Energy Ratio	Serial No.
73%	BBL02

Install Response Zones		
Ref	From (m)	To (m)

Civic Earth
www.civicearth.com

Project Title:	**Phase 1B, Mayfield, Manchester**	Client	**LandsecU+I**
Project Number:	**51001/03**	Logged By: FM / Checked By: HG	
Location ID:	**BH1004**	Location Type:	Cable Percussion to Rotary Coring
Coords:	385245.73E/397472.13N	Level:	42.28mAOD
Status:	FINAL	Scale:	1:50
Final Depth:	25.00		
Sheet 3 of 3		Date Start:	10/01/2024
Date End:	11/01/2024		

Method and Plant Used				Groundwater		
From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
0.00	6.50	CP	Dando 2000	18.00	20	12.90
6.50	25.00	RC	Beretta T46			

Inst/ Backfill	Depth (m)	Samples & Tests: Sample Depth (m)	Type/Ref	Tests/Results	Water Level (m)	Level (mAOD)	Strata Depth (m)	Legend / Cover	Strata Description	Rotary Coring: Core Run	TCR (%)	SCR (%)	RQD (%)	Fract (mm) min avg max
	21.0								Weak medium bedded light reddish brown medium grained SANDSTONE, weakly to moderately cemented. Occasional subrounded siliceous clasts and fragments of mudstone. Occasional thinly bedded fine grained areas, thin <50mm oxidised bedding planes and rare oxidisation spots. Discontinuities: 1) 45 degrees closely to medium spaced rough undulating infilled with sand and some oxidisation staining on fracture surfaces. [CHESTER SANDSTONE FORMATION]	20.00 21.50	61	55	49	
	22.0									21.50 23.00	74	70	70	
	23.0									23.00 24.50	71	34	29	
	24.0									24.50 25.00	100	100	95	
	25.0					17.28	25.00		EOH at 25.00m - Achieved target depth					
	26.0													
	27.0													
	28.0													
	29.0													
	30.0													

Notes:

1. Groundwater encountered at 18.0mbgl, rising to 12.9mbgl over 20 minutes.
2. Installation: 0.00-5.00m 50mm plain standpipe with bentonite seal; 5.00-25.00m slotted standpipe with gravel filter and geowrap. Gas tap, bung and raised cover installed at ground level.
3. ES - Environmental Sample. B - Bulk Sample. D - Disturbed Sample. SPT - Standard Penetration Test.

Hole Diameter		Casing	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
6.50	200	5.00	200
25.00	146		

Hammer Information	
Energy Ratio	Serial No.
73%	BBL02

Install Response Zones		
Ref	From (m)	To (m)

Civic Earth
www.civicearth.com

Project Title:	**Phase 1B, Mayfield, Manchester**	Client	**LandsecU+I**
Project Number:	**51001/03**	Logged By: FM / Checked By: HG	
Location ID:	**BH1005**	Location Type: Cable Percussion to Rotary Coring	
Coords: 385193.47E/397492.76N	Level: 41.16mAOD		
Status:	FINAL	Scale: 1:50	Final Depth: 20.00
Sheet 1 of 2		Date Start: 10/01/2024	Date End: 15/01/2024

Method and Plant Used				Groundwater		
From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
0.00	5.50	CP	Dando 2000	16.70	20	12.35
5.50	20.00	RC	Beretta T46			

Inst/ Backfill	Depth (m)	Sample Depth (m)	Type/Ref	Tests/Results	Water Level (m)	Level (mAOD)	Strata Depth (m)	Legend / Cover	Strata Description	Core Run	TCR (%)	SCR (%)	RQD (%)	Fract (mm) min avg max
		0.20	B 2						Dense dark brown sandy cobbly gravel. Gravel is angular to subangular fine to coarse brick, sandstone and concrete. Sand is fine to coarse. Cobbles are angular of brick and concrete. [MADE GROUND]					
		0.20	ES 1											
		0.50	B 4											
		0.50	ES 3											
	1.0	1.00	B 6											
		1.00	ES 5											
		1.20 - 1.65	B 8	SPT(S) 1.20m N=33 (2,3/10,10,6,7)										
		1.20 - 1.65	D 7											
						39.36	1.80							
	2.0	2.00	ES 9	SPT(S) 2.00m N=24 (2,2/3,2,3,16)					Stiff dark brown gravelly sandy clay. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of sandstone, brick and concrete. [MADE GROUND]					
		2.00 - 2.45	B 11											
		2.00 - 2.45	D 10											
						38.26	2.90							
		2.90	B 12											
	3.0	3.00	ES 13	SPT(S) 3.00m N=38 (9 for 75mm/9,8,10,11)					Reddish brown SANDSTONE. Recovered as dense to very dense fine to coarse sand. [WEATHERED CHESTER SANDSTONE FORMATION]					
		3.00 - 3.45	B											
		3.00 - 3.45	B 15											
		3.00 - 3.45	D 14											
	4.0	4.00	ES 16	SPT(S) 4.00m 50 (10,13/50 for 205mm)										
		4.00 - 4.45	B 18											
		4.00 - 4.45	D 17											
	5.0	5.00	ES 19	SPT(S) 5.00m 50 (25 for 85mm/50 for 155mm)										
		5.00 - 5.45	B 21											
		5.00 - 5.45	D 20											
						35.66	5.50							
	6.0								Reddish brown SANDSTONE. Recovered mostly as fine to coarse sand with rare areas of weak cementation. [WEATHERED CHESTER SANDSTONE FORMATION]	5.50 7.00	80	0	0	
	7.0									7.00 8.50	90	21	18	
						33.18	7.98							
	8.0	8.08	C						Extremely weak locally very weak thinly to medium bedded light reddish brown medium grained SANDSTONE, very weakly to weakly cemented. Rare subrounded siliceous clasts and fragments of mudstone. Occasional thinly bedded fine grained areas, thin <50mm oxidised bedding planes and rare oxidisation spots. Discontinuities: 1) 15 - 20 degrees closely spaced rough undulating and stepped infilled with sand. [CHESTER SANDSTONE FORMATION]					
	9.0									8.50 10.00	92	27	17	0 0 160
	10.0													

Stratum continues onto next page

Notes:

1. Groundwater encountered at 16.70mbgl, rising to 12.35mbgl over 20 minutes.
2. Installation: 0.00-3.50m 50mm plain standpipe with bentonite seal; 3.50-20.00m slotted standpipe with gravel filter and geowrap. Gas tap, bung and raised cover installed at ground level.
3. ES - Environmental Sample. B - Bulk Sample. D - Disturbed Sample. SPT - Standard Penetration Test.

Hole Diameter		Casing	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
5.50	200	4.50	200
20.00	146		

Hammer Information	
Energy Ratio	Serial No.
73%	BBL02

Install Response Zones		
Ref	From (m)	To (m)
GW1005	3.50	20.00

Civic Earth
www.civicearth.com

Project Title:	**Phase 1B, Mayfield, Manchester**	Client	**LandsecU+I**
Project Number:	**51001/03**	Logged By: FM / Checked By: HG	
Location ID:	**BH1005**	Location Type:	Cable Percussion to Rotary Coring
Coords:	385193.47E/397492.76N	Level:	41.16mAOD
Status:	FINAL	Scale:	1:50
Final Depth:	20.00		
Sheet 2 of 2		Date Start:	10/01/2024
Date End:	15/01/2024		

Method and Plant Used				Groundwater		
From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
0.00	5.50	CP	Dando 2000	16.70	20	12.35
5.50	20.00	RC	Beretta T46			

Inst/ Backfill	Depth (m)	Samples & Tests: Sample Depth (m)	Type/Ref	Tests/Results	Water Level (m)	Level (mAOD)	Strata Depth (m)	Legend / Cover	Strata Description	Rotary Coring: Core Run	TCR (%)	SCR (%)	RQD (%)	Fract (mm) min avg max
						30.36	10.80		Extremely weak locally very weak thinly to medium bedded light reddish brown medium grained SANDSTONE, very weakly to weakly cemented. Rare subrounded siliceous clasts and fragments of mudstone. Occasional thinly bedded fine grained areas, thin <50mm oxidised bedding planes and rare oxidisation spots. Discontinuities: 1) 15 - 20 degrees closely spaced rough undulating and stepped infilled with sand. [CHESTER SANDSTONE FORMATION]	10.00 11.50	90	62	27	
	11.0	10.82	C 52											
	12.0								Weak thinly to medium bedded light reddish brown medium grained SANDSTONE, weakly to moderately cemented. Occasional subrounded siliceous clasts and fragments of mudstone. Occasional thinly bedded fine grained areas, thin <50mm oxidised bedding planes and rare oxidisation spots. Discontinuities: 1) 10 - 15 degrees closely to medium spaced rough stepped and undulating infilled with sand and some oxidisation staining on fracture surfaces. 2) 45 - 50 degrees medium spaced rough undulating infilled with fine to medium sand. [CHESTER SANDSTONE FORMATION]	11.50 13.00	80	57	21	
	13.0									13.00 14.50	80	33	21	
	14.0													
	15.0	14.83 14.90	C 55 C 55							14.50 16.00	86	70	70	0 120 230
	16.0													
	17.0									16.00 17.50	76	39	28	
	18.0									17.50 19.00	100	37	15	
	19.0													
	20.0	19.52	C 58			21.16	20.00			19.00 20.00	100	61	61	

EOH at 20.00m - Achieved target depth

Notes:

1. Groundwater encountered at 16.70mbgl, rising to 12.35mbgl over 20 minutes.
2. Installation: 0.00-3.50m 50mm plain standpipe with bentonite seal; 3.50-20.00m slotted standpipe with gravel filter and geowrap. Gas tap, bung and raised cover installed at ground level.
3. ES - Environmental Sample. B - Bulk Sample. D - Disturbed Sample. SPT - Standard Penetration Test.

Hole Diameter		Casing	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
5.50	200	4.50	200
20.00	146		

Hammer Information	
Energy Ratio	Serial No.
73%	BBL02

Install Response Zones		
Ref	From (m)	To (m)

Civic Earth
www.civicearth.com

Project Title:	**Phase 1B, Mayfield, Manchester**	Client:	**LandsecU+I**
Project Number:	**51001/03**	Logged By: FM / Checked By: HG	
Location ID:	**TP1001**	Location Type:	Trial pit/trench
Coords:	385264.41E/397460.57N	Level:	42.15mAOD
Status:	FINAL	Scale:	1:25
Final Depth:	3.00		
Sheet 1 of 1		Date Start:	10/01/2024
Date End:	10/01/2024		

Method and Plant Used				Groundwater		
From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
0.00	3.00	TP	JCB 3CX			

Inst/ Backfill	Depth (m)	Samples & Tests: Sample Depth (m)	Type/Ref	Tests/Results	Water Level (m)	Level (mAOD)	Strata Depth (m)	Legend / Cover	Strata Description
		0.20 0.20 0.20	B 3 D 2 ES 1			41.90	0.25		Loose to medium dense dark brown slightly gravelly slightly sandy clay. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of sandstone, brick and concrete. [MADE GROUND]
		0.50 0.50 0.50	B 6 D 5 ES 4			41.55	0.60		Stiff dark brown gravelly slightly sandy clay. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of sandstone, brick and concrete. Frequent fragments of wire and glass bottles noted. [MADE GROUND]
	1.0	1.00 1.00 1.00	B 9 D 8 ES 7						Stiff orangish brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of sandstone and coal. [GLACIAL TILL]
	2.0	2.00 2.00 2.00	B 12 D 11 ES 10			39.35	2.80		
	3.0	3.00 3.00 3.00	B 15 D 14 ES 13			39.15	3.00		Stiff grey slightly slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of sandstone and coal. [GLACIAL TILL]
									EOH at 3.00m - Terminated due to instability of excavation.
	4.0								
	5.0								

Notes:

1. No groundwater encountered.
2. Backfilled with arisings on completion.
3. Densities and consistencies based on Engineer's observations.

Soakaway Tests

Test Number	Date	Duration (hh:mm)	Infiltration Rate

Pit Details

Stability	Shoring Used	Length (m)	Width (m)
Unstable	No	2.80	0.60

Civic Earth
www.civicearth.com

Project Title:	**Phase 1B, Mayfield, Manchester**	Client:	**LandsecU+I**
Project Number:	**51001/03**	Logged By:	FM
		Checked By:	HG
Location ID:	**TP1002**	Location Type:	Trial pit/trench
Coords:	385185.44E/397460.68N	Level:	41.67mAOD
Status:	FINAL	Scale:	1:25
		Final Depth:	2.30
Sheet 1 of 1		Date Start:	10/01/2024
		Date End:	10/01/2024

Method and Plant Used				Groundwater		
From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
0.00	2.30	TP	JCB 3CX			

Inst/ Backfill	Depth (m)	Samples & Tests: Sample Depth (m)	Type/Ref	Tests/Results	Water Level (m)	Level (mAOD)	Strata Depth (m)	Legend / Cover	Strata Description
		0.15	B 3			41.57	0.10		Reinforced concrete. 8mm rebar noted.
		0.15	D 2						[MADE GROUND]
		0.15	ES 1			41.47	0.20		Loose blackish brown slightly gravelly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of sandstone, concrete and brick. Frequent ash noted.
									[MADE GROUND]
		0.50	B 6						Loose to medium dense yellowish brown slightly clayey gravelly cobbly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of sandstone, brick and concrete. Cobbles are angular of brick and concrete. Fragments of wire noted.
		0.50	D 5						[MADE GROUND]
		0.50	ES 4			40.97	0.70		Loose to medium dense reddish brown slightly sandy cobbly gravel. Gravel is angular fine to coarse brick and concrete. Cobbles are angular of brick. Fragments of glass bottles and wire noted.
	1.0	1.00	B 9						[MADE GROUND]
		1.00	D 8						
		1.00	ES 7						
	2.0	2.00	B 12			39.37	2.30		EOH at 2.30m - Terminated due to instability of excavation.
		2.00	D 11						
		2.00	ES 10						
	3.0								
	4.0								
	5.0								

Notes:

1. No groundwater encountered.
2. Backfilled with arisings on completion.
3. Densities and consistencies based on Engineer's observations.

Soakaway Tests

Test Number	Date	Duration (hh:mm)	Infiltration Rate

Pit Details

Stability	Shoring Used	Length (m)	Width (m)
Unstable	No	2.70	0.60

Civic Earth
www.civicearth.com

Project Title:	**Phase 1B, Mayfield, Manchester**	Client:	**LandsecU+I**
Project Number:	**51001/03**	Logged By: FM / Checked By: HG	
Location ID:	**TP1003**	Location Type:	Trial pit/trench
Coords:	385160.54E/397483.00N	Level:	38.10mAOD
Status:	FINAL	Scale:	1:25
Final Depth:	3.30	Sheet	1 of 1
Date Start:	11/01/2024	Date End:	11/01/2024

Method and Plant Used				Groundwater		
From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
0.00	3.30	TP	JCB 3CX			

Inst/ Backfill	Depth (m)	Samples & Tests: Sample Depth (m)	Type/Ref	Tests/Results	Water Level (m)	Level (mAOD)	Strata Depth (m)	Legend / Cover	Strata Description
						38.00	0.10		Bituminous macadam.
						37.95	0.15		[MADE GROUND]
		0.20	B 3			37.90	0.20		Medium dense yellowish brown slightly sandy gravel. Gravel is angular fine to coarse of dolomite. Sand is fine to coarse.
		0.20	D 2						[MADE GROUND]
		0.20	ES 1						
						37.65	0.45		Bituminous macadam.
		0.50	B 6						[MADE GROUND]
		0.50	D 5						Loose to medium dense yellowish brown slightly sandy gravel. Gravel is angular fine to coarse of dolomite. Sand is fine to coarse.
		0.50	ES 4						[MADE GROUND]
									Loose to medium dense reddish brown slightly sandy cobbly gravel. Gravel is angular fine to coarse of brick. Sand is fine to coarse. Cobbles are angular of brick.
	1.0	1.00	B 9						[MADE GROUND]
		1.00	D 8						
		1.00	ES 7						
						36.70	1.40		Stiff grey slightly sandy slightly gravelly silty CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of sandstone and coal.
									[GLACIAL TILL]
	2.0	2.00	B 12						
		2.00	D 11						
		2.00	ES 10						
	3.0	3.00	B 15						
		3.00	D 14						
		3.00	ES 13						
						34.80	3.30		EOH at 3.30m - Terminated due to instability of excavation.
	4.0								
	5.0								

Notes:

1. No groundwater encountered.
2. Backfilled with arisings on completion.
3. Densities and consistencies based on Engineer's observations.

Soakaway Tests

Test Number	Date	Duration (hh:mm)	Infiltration Rate

Pit Details

Stability	Shoring Used	Length (m)	Width (m)
Unstable	No	2.80	0.60

Civic Earth
www.civicearth.com

Project Title:	**Phase 1B, Mayfield, Manchester**	Client:	**LandsecU+I**
Project Number:	**51001/03**	Logged By: FM / Checked By: HG	
Location ID:	**TP1004**	Location Type:	Trial pit/trench
Coords:	385157.24E/397513.48N	Level:	37.48mAOD
Status:	FINAL	Scale:	1:25
Final Depth:	3.20	Date Start:	11/01/2024
Date End:	11/01/2024	Sheet	1 of 1

Method and Plant Used				Groundwater		
From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
0.00	3.20	TP	JCB 3CX			

Inst/ Backfill	Depth (m)	Samples & Tests: Sample Depth (m)	Type/Ref	Tests/Results	Water Level (m)	Level (mAOD)	Strata Depth (m)	Legend / Cover	Strata Description
		0.20 0.20 0.20	B 3 D 2 ES 1			37.28	0.20		Loose to medium dense dark brown slightly clayey gravelly cobbly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of brick and concrete. Cobbles are angular of brick and concrete. Frequent fragments of wire and plastic noted. [MADE GROUND]
		0.50 0.50 0.50	B 6 D 5 ES 4						Loose to medium dense yellowish brown slightly sandy gravel. Gravel is angular fine to coarse of dolomite. Sand is fine to coarse. [MADE GROUND]
	1.0	1.00 1.00 1.00	B 9 D 8 ES 7						
	2.0	2.00 2.00 2.00	B 12 D 11 ES 10			35.18	2.30		Concrete. [MADE GROUND]
	3.0					34.28	3.20		EOH at 3.20m - Terminated due to instability of excavation and buried concrete obstruction.
	4.0								
	5.0								

Notes:

1. No groundwater encountered.
2. Backfilled with arisings on completion.
3. Densities and consistencies based on Engineer's observations.

Soakaway Tests

Test Number	Date	Duration (hh:mm)	Infiltration Rate

Pit Details

Stability	Shoring Used	Length (m)	Width (m)
Unstable	No	2.90	0.60

Civic Earth
www.civicearth.com

Project Title:	**Phase 1B, Mayfield, Manchester**	Client:	**LandsecU+I**
Project Number:	**51001/03**	Logged By: FM / Checked By: HG	
Location ID:	**TP1005**	Location Type:	Trial pit/trench
Coords:	385223.31E/397499.75N	Level:	39.97mAOD
Status:	FINAL	Scale:	1:25
Final Depth:	3.30	Sheet	1 of 1
Date Start:	10/01/2024	Date End:	10/01/2024

Method and Plant Used				Groundwater		
From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
0.00	3.30	TP	JCB 3CX			

Inst/ Backfill	Depth (m)	Samples & Tests: Sample Depth (m)	Type/Ref	Tests/Results	Water Level (m)	Level (mAOD)	Strata Depth (m)	Legend / Cover	Strata Description
		0.20 0.20 0.20	B 3 D 2 ES 1			39.57	0.40		Medium dense dark brown gravelly cobbly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of concrete, brick and sandstone. Cobbles are angular of brick and concrete. Frequent fragments of wire noted. [MADE GROUND]
		0.50 0.50 0.50	B 6 D 5 ES 4						Soft dark brown slightly gravelly slightly sandy clay. Sand is fine to coarse with a low ash content. Gravel is angular to subangular fine to coarse of brick, sandstone and concrete. Frequent fragments of tile and wire noted. [MADE GROUND]
	1.0	1.00 1.00 1.00	B 9 D 8 ES 7			38.47	1.50		
		1.50 1.50 1.50	B 12 D 11 ES 10						Stiff orangish brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of sandstone and coal. [GLACIAL TILL]
	2.0	2.00 2.00 2.00	B 15 D 14 ES 13			37.07	2.90		
	3.0	3.00 3.00 3.00	B 18 D 17 ES 16			36.67	3.30		Extremely weak orange brown SANDSTONE. Recovered as medium dense sand. Sand is fine to coarse. [CHESTER SANDSTONE FORMATION]
									EOH at 3.30m - Terminated due to instability of excavation.
	4.0								
	5.0								

Notes:

1. No groundwater encountered.
2. Backfilled with arisings on completion.
3. Densities and consistencies based on Engineer's observations.

Soakaway Tests

Test Number	Date	Duration (hh:mm)	Infiltration Rate

Pit Details

Stability	Shoring Used	Length (m)	Width (m)
Unstable	No	2.80	0.60

Civic Earth
www.civicearth.com

Project Title:	**Phase 1B, Mayfield, Manchester**	Client:	**LandsecU+I**
Project Number:	**51001/03**	Logged By:	FM
		Checked By:	HG
Location ID:	**TP1006**	Location Type:	Trial pit/trench
Coords:	385156.91E/397536.55N	Level:	36.51mAOD
Status:	FINAL	Scale:	1:25
		Final Depth:	3.20
Sheet 1 of 1		Date Start:	11/01/2024
		Date End:	11/01/2024

Method and Plant Used				Groundwater		
From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
0.00	3.20	TP	JCB 3CX			

Inst/ Backfill	Depth (m)	Samples & Tests: Sample Depth (m)	Type/Ref	Tests/Results	Water Level (m)	Level (mAOD)	Strata Depth (m)	Legend / Cover	Strata Description
		0.20 0.20 0.20	B 3 D 2 ES 1			36.31	0.20		Medium dense dark brown slightly clayey gravelly cobbly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of brick and concrete. Cobbles are angular of brick and concrete. Frequent fragments of wire and plastic noted. [MADE GROUND]
		0.50 0.50 0.50	B 6 D 5 ES 4			35.71	0.80		Medium dense yellowish brown slightly sandy gravel. Gravel is angular fine to coarse of dolomite. Sand is fine to coarse. [MADE GROUND]
	1.0	1.00 1.00 1.00	B 9 D 8 ES 7						Loose to medium dense dark brown slightly clayey gravelly cobbly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of brick and concrete. Cobbles are angular of brick and concrete. Frequent fragments of wire and plastic noted. [MADE GROUND]
	2.0	2.00 2.00 2.00	B 12 D 11 ES 10						
	3.0	3.00 3.00 3.00	B 15 D 14 ES 13			33.31	3.20		EOH at 3.20m - Terminated due to instability of excavation.
	4.0								
	5.0								

Notes:

1. No groundwater encountered.
2. Backfilled with arisings on completion.
3. Densities and consistencies based on Engineer's observations.

Soakaway Tests

Test Number	Date	Duration (hh:mm)	Infiltration Rate

Pit Details

Stability	Shoring Used	Length (m)	Width (m)
Unstable	No	2.80	0.60

Civic Earth
www.civicearth.com

Project Title:	**Phase 1B, Mayfield, Manchester**	Client:	**LandsecU+I**
Project Number:	**51001/03**	Logged By: FM / Checked By: HG	
Location ID:	**TP1007**	Location Type:	Trial pit/trench
Coords:	385171.14E/397497.97N	Level:	38.10mAOD
Status:	FINAL	Scale:	1:25
Final Depth:	3.30	Sheet	1 of 1
Date Start:	11/01/2024	Date End:	11/01/2024

Method and Plant Used				Groundwater		
From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
0.00	3.30	TP	JCB 3CX			

Inst/ Backfill	Depth (m)	Samples & Tests: Sample Depth (m)	Type/Ref	Tests/Results	Water Level (m)	Level (mAOD)	Strata Depth (m)	Legend / Cover	Strata Description
						38.05	0.05		Bituminous macadam.
		0.20	B 3						[MADE GROUND]
		0.20	D 2			37.85	0.25		Loose to medium dense yellowish brown slightly sandy gravel. Gravel is angular fine to coarse of dolomite. Sand is fine to coarse.
		0.20	ES 1						[MADE GROUND]
									Loose to medium dense dark brown slightly clayey gravelly cobbly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of brick and concrete. Cobbles are angular of brick and concrete. Frequent fragments of wire and plastic noted.
		0.50	B 6			37.55	0.55		[MADE GROUND]
		0.50	D 5						Soft orangish brown slightly gravelly slightly sandy clay. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of sandstone, brick and concrete. Frequent fragments of wire noted.
		0.50	ES 4						[MADE GROUND]
	1.0	1.00	B 9						
		1.00	D 8						
		1.00	ES 7						
						36.20	1.90		Soft grey silty sandy clay. Sand is fine to coarse. Rare angular fine to coarse gravel of brick and concrete noted.
	2.0	2.00	B 12						[MADE GROUND]
		2.00	D 11			36.00	2.10		Stiff dark brown slightly sandy slightly gravelly silty CLAY. Gravel is angular to subrounded fine to coarse of sandstone and coal. Sand is fine to coarse.
		2.00	ES 10						[GLACIAL TILL]
	3.0	3.00	B 15						
		3.00	D 14			35.00	3.10		Extremely weak orange brown SANDSTONE. Recovered as medium dense sand. Sand is fine to coarse.
		3.00	ES 13			34.80	3.30		[WEATHERED CHESTER SANDSTONE FORMATION]
									EOH at 3.30m - Terminated due to instability of excavation.
	4.0								
	5.0								

Notes:

1. No groundwater encountered.
2. Backfilled with arisings on completion.
3. Densities and consistencies based on Engineer's observations.

Soakaway Tests

Test Number	Date	Duration (hh:mm)	Infiltration Rate

Pit Details

Stability	Shoring Used	Length (m)	Width (m)
Unstable	No	2.90	0.60

Civic Earth
www.civicearth.com

Project Title:	**Phase 1B, Mayfield, Manchester**	Client:	**LandsecU+I**
Project Number:	**51001/03**	Logged By: FM / Checked By: HG	
Location ID:	**TP1008**	Location Type:	Trial pit/trench
Coords:	385225.45E/397459.78N	Level:	42.27mAOD
Status:	FINAL	Scale:	1:25
Final Depth:	3.50		
Sheet 1 of 1	Date Start: 10/01/2024	Date End:	10/01/2024

Method and Plant Used				Groundwater		
From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
0.00	3.50	TP	JCB 3CX	2.80	20	2.67

Inst/ Backfill	Depth (m)	Samples & Tests: Sample Depth (m)	Type/Ref	Tests/Results	Water Level (m)	Level (mAOD)	Strata Depth (m)	Legend / Cover	Strata Description
		0.20	B 3			42.02	0.25		Firm dark brown slightly gravelly slightly sandy clay. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of sandstone, brick and concrete. Frequent fragments of wire noted. [MADE GROUND]
		0.20	D 2						
		0.20	ES 1						
		0.50	B 6						Loose to medium dense blackish brown slightly gravelly sand. Sand is fine to coarse with a high ash content. Gravel is angular to subangular fine to coarse of concrete. [MADE GROUND]
		0.50	D 5						
		0.50	ES 4						
	1.0	1.00	B 9						
		1.00	D 8						
		1.00	ES 7			40.57	1.70		Stiff orangish brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of sandstone and coal. [GLACIAL TILL]
	2.0	2.00	B 12						
		2.00	D 11						
		2.00	ES 10		▽				
						39.47	2.80		Stiff grey slightly slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of sandstone and coal. [GLACIAL TILL]
	3.0	3.00	B 15						
		3.00	D 14						
		3.00	ES 13			38.77	3.50		EOH at 3.50m - Terminated due to instability of excavation.
	4.0								
	5.0								

Notes:

1. Groundwater encountered at 2.80mbgl, rising to 2.67mbgl after 20 minutes.
2. Backfilled with arisings on completion.
3. Densities and consistencies based on Engineer's observations.

Soakaway Tests

Test Number	Date	Duration (hh:mm)	Infiltration Rate

Pit Details

Stability	Shoring Used	Length (m)	Width (m)
Unstable	No	2.70	0.60

Civic Earth
www.civicearth.com

Project Title:	**Phase 1B, Mayfield, Manchester**	Client:	**LandsecU+I**
Project Number:	**51001/03**	Logged By: FM / Checked By: HG	
Location ID:	**TP1009**	Location Type:	Trial pit/trench
Coords:	385260.01E/397510.01N	Level:	40.00mAOD
Status:	FINAL	Scale:	1:25
Final Depth:	3.20	Date Start:	11/01/2024
Date End:	11/01/2024	Sheet	1 of 1

Method and Plant Used				Groundwater		
From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
0.00	3.20	TP	JCB 3CX			

Inst/ Backfill	Depth (m)	Samples & Tests: Sample Depth (m)	Type/Ref	Tests/Results	Water Level (m)	Level (mAOD)	Strata Depth (m)	Legend / Cover	Strata Description
		0.20 0.20 0.20	B 3 D 2 ES 1			39.80	0.20		Loose dark brown slightly clayey gravelly cobbly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of brick and concrete. Cobbles are angular of brick and concrete. Frequent fragments of wire and plastic noted. [MADE GROUND]
						39.65	0.35		Reinforced concrete. 6mm rebar noted. [MADE GROUND]
		0.50 0.50 0.50	B 6 D 5 ES 4			39.40	0.60		Medium dense yellowish brown slightly sandy gravel. Gravel is angular fine to coarse of dolomite. Sand is fine to coarse. [MADE GROUND]
	1.0	1.00 1.00 1.00	B 9 D 8 ES 7			38.80	1.20		Reinforced concrete. 6mm rebar noted. Present across the eastern half of the pit only. [MADE GROUND]
	2.0	2.00 2.00 2.00	B 12 D 11 ES 10			37.60	2.40		Soft orangish brown slightly gravelly slightly sandy clay. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of sandstone, brick and concrete. Frequent fragments of wire noted. Olfactory evidence of hydrocarbons noted at 1.90m in the western edge of the pit. [MADE GROUND]
	3.0	3.00 3.00 3.00	B 15 D 14 ES 13			36.80	3.20		Stiff grey slightly sandy slightly gravelly silty CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of sandstone and coal. [GLACIAL TILL]
	4.0								EOH at 3.20m - Terminated due to instability of excavation.
	5.0								

Notes:

1. No groundwater encountered.
2. Backfilled with arisings on completion.
3. Densities and consistencies based on Engineer's observations.
4. Brick wall noted on northern and western edges of trial pit to 2.40mbgl.

Soakaway Tests

Test Number	Date	Duration (hh:mm)	Infiltration Rate

Pit Details

Stability	Shoring Used	Length (m)	Width (m)
Unstable	No	2.80	0.60

Civic Earth
www.civicearth.com

Project Title:	**Phase 1B, Mayfield, Manchester**	Client:	**LandsecU+I**
Project Number:	**51001/03**	Logged By: FM / Checked By: HG	
Location ID:	**TP1010**	Location Type:	Trial pit/trench
Coords:	385246.52E/397496.59N	Level:	41.04mAOD
Status:	FINAL	Scale:	1:25
Final Depth:	3.00	Sheet	1 of 1
Date Start:	10/01/2024	Date End:	10/01/2024

Method and Plant Used				Groundwater		
From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
0.00	3.00	TP	JCB 3CX	2.00	20	1.95

Inst/ Backfill	Depth (m)	Samples & Tests: Sample Depth (m)	Type/Ref	Tests/Results	Water Level (m)	Level (mAOD)	Strata Depth (m)	Legend / Cover	Strata Description
		0.20 0.20 0.20	B 3 D 2 ES 1						Loose dark brown gravelly cobbly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of concrete, brick and sandstone. Cobbles are angular of brick and concrete. [MADE GROUND]
		0.50 0.50 0.50	B 6 D 5 ES 4						
	1.0	1.00 1.00 1.00	B 9 D 8 ES 7						
						39.24	1.80		
		2.00 2.00 2.00	B 12 D 11 ES 10		▽				Loose blackish brown slightly sandy slightly cobbly gravel. Gravel is angular to subangular fine to coarse of sandstone, brick and concrete. Cobbles are angular of concrete. Sand is fine to medium. [MADE GROUND]
	2.0					38.94	2.10		
									Stiff orange brown sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of sandstone and coal. [GLACIAL TILL]
	3.0	3.00 3.00 3.00	B 15 D 14 ES 13			38.04	3.00		
									EOH at 3.00m - Terminated due to instability of excavation.
	4.0								
	5.0								

Notes:

1. Groundwater encountered at 2.00mbgl, rising to 1.95m after 20 minutes,
2. Backfilled with arisings on completion.
3. Densities and consistencies based on Engineer's observations.

Soakaway Tests

Test Number	Date	Duration (hh:mm)	Infiltration Rate

Pit Details

Stability	Shoring Used	Length (m)	Width (m)
Unstable	No	2.90	0.60

Civic Earth
www.civicearth.com

Project Title:	**Phase 1B, Mayfield, Manchester**	Client:	**LandsecU+I**
Project Number:	**51001/03**	Logged By:	FM
		Checked By:	HG

Location ID: **TP1011**

Status: FINAL

Sheet 1 of 1

Location Type: Trial pit/trench

Coords: 385113.86E/397515.54N Level: 35.87mAOD

Scale: 1:25 Final Depth: 3.20

Date Start: 11/01/2024 Date End: 11/01/2024

Method and Plant Used				Groundwater		
From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
0.00	3.20	TP	JCB 3CX			

Inst/ Backfill	Depth (m)	Samples & Tests: Sample Depth (m)	Type/Ref	Tests/Results	Water Level (m)	Level (mAOD)	Strata Depth (m)	Legend / Cover	Strata Description
		0.20	B 3						Loose dark brown slightly clayey gravelly cobbly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of brick and concrete. Cobbles are angular of brick and concrete. Frequent fragments of glass and plastic noted. [MADE GROUND]
		0.20	D 2						
		0.20	ES 1						
		0.50	B 6						
		0.50	D 5						
		0.50	ES 4						
	1.0	1.00	B 9						
		1.00	D 8						
		1.00	ES 7						
	2.0	2.00	B 12						
		2.00	D 11						
		2.00	ES 10						
	3.0	3.00	B 15						
		3.00	D 14						
		3.00	ES 13			32.67	3.20		
									EOH at 3.20m - Terminated due to instability of excavation.
	4.0								
	5.0								

Notes:

1. No groundwater encountered.
2. Backfilled with arisings on completion.
3. Densities and consistencies based on Engineer's observations.

Soakaway Tests

Test Number	Date	Duration (hh:mm)	Infiltration Rate

Pit Details

Stability	Shoring Used	Length (m)	Width (m)
Unstable	No	2.70	0.60

Civic Earth
www.civicearth.com

Project Title:	**Phase 1B, Mayfield, Manchester**	Client:	**LandsecU+I**
Project Number:	**51001/03**	Logged By: FM / Checked By: HG	
Location ID:	**TP1012**	Location Type:	Trial pit/trench
Coords:	385112.93E/397498.89N	Level:	35.93mAOD
Status:	FINAL	Scale:	1:25
Final Depth:	3.30	Sheet	1 of 1
Date Start:	11/01/2024	Date End:	11/01/2024

Method and Plant Used				Groundwater		
From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
0.00	3.30	TP	JCB 3CX			

Inst/ Backfill	Depth (m)	Samples & Tests: Sample Depth (m)	Type/Ref	Tests/Results	Water Level (m)	Level (mAOD)	Strata Depth (m)	Legend / Cover	Strata Description
						35.88	0.05		Loose reddish brown sand. Sand is fine to coarse.
						35.83	0.10		[MADE GROUND]
		0.20	B 3						Loose to medium dense greyish brown slightly sandy gravel. Gravel is angular fine to coarse concrete.
		0.20	D 2						[MADE GROUND]
		0.20	ES 1						Loose to medium dense dark brown slightly clayey gravelly cobbly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of brick and concrete. Cobbles are angular of brick and concrete. Frequent fragments of glass and plastic noted.
		0.50	B 7						[MADE GROUND]
		0.50	D 5						
		0.50	D 6						
		0.50	ES 4						
	1.0	1.00	B 10						
		1.00	D 9						
		1.00	ES 8						
	2.0	2.00	B 13						
		2.00	D 12						
		2.00	ES 11						
	3.0	3.00	B 16						
		3.00	D 15						
		3.00	ES 14						
						32.63	3.30		EOH at 3.30m - Terminated due to instability of excavation.
	4.0								
	5.0								

Notes:

1. No groundwater encountered.
2. Backfilled with arisings on completion.
3. Densities and consistencies based on Engineer's observations.

Soakaway Tests

Test Number	Date	Duration (hh:mm)	Infiltration Rate

Pit Details

Stability	Shoring Used	Length (m)	Width (m)
Unstable	No	2.70	0.60

Civic Earth
www.civicearth.com

Project Title:	**Phase 1B, Mayfield, Manchester**	Client:	**LandsecU+I**
Project Number:	**51001/03**	Logged By: FM / Checked By: HG	
Location ID:	**WS1001**	Location Type: Window Sampler	
		Coords: 385128.73E/397498.81N	Level: 37.19mAOD
Status:	FINAL	Scale: 1:25	Final Depth: 1.00 m
	Sheet 1 of 1	Date Start: 19/01/2024	Date End: 19/01/2024

Method and Plant Used				Groundwater		
From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
0.00	1.00	WS	Tracked WS			

Inst/ Backfill	Depth (m)	Samples & Tests: Sample Depth (m)	Type/Ref	Tests/Results	Water Level (m)	Level (mAOD)	Strata Depth (m)	Legend / Cover	Strata Description	Window Sampling: WS Run	Dia (mm)	Recovery (%)
		0.50 0.50	B 2 D 1						Dense reddish brown gravelly slightly clayey cobbly sand. Sand is fine to coarse. Gravel is angular fine to coarse of brick and concrete. Cobbles are angular of brick and concrete. Frequent fragments of glass, tile, plastic and wire noted. [MADE GROUND]	0.00 1.00	128	100
	1.0	1.00 1.00 1.00	3 D 4 ES 3			36.19	1.00		EOH at 1.00m - Refusal on dense material.			
	2.0											
	3.0											
	4.0											
	5.0											

Notes:

1. No groundwater encountered.
2. Borehole backfilled with arisings on completion.
3. ES - Environmental Sample. B - Bulk Sample. D - Disturbed Sample.
4. Densities and consistencies above 1.0m based on Engineer's observations.

Hole Diameter		Casing		Hammer Information	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio	Serial No.
1.00	128			%	

Install Response Zones		
Ref	From (m)	To (m)

Civic Earth
www.civicearth.com

Project Title:	**Phase 1B, Mayfield, Manchester**	Client:	**LandsecU+I**
Project Number:	**51001/03**	Logged By:	FM
		Checked By:	HG
Location ID:	**WS1002**	Location Type:	Window Sampler
Status:	FINAL	Coords:	385150.82E/397474.98N
		Level:	37.76mAOD
Sheet 1 of 1		Scale:	1:25
		Final Depth:	2.00 m
		Date Start:	19/01/2024
		Date End:	19/01/2024

Method and Plant Used				Groundwater		
From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
0.00	1.20	IP	Hand Tools			
1.20	2.00	WS	Tracked WS			

Inst/ Backfill	Depth (m)	Samples & Tests: Sample Depth (m)	Type/Ref	Tests/Results	Water Level (m)	Level (mAOD)	Strata Depth (m)	Legend / Cover	Strata Description	Window Sampling: WS Run	Dia (mm)	Recovery (%)
		0.50 0.50	B 2 D 1						Dense to very dense reddish brown slightly clayey gravelly cobbly sand. Sand is fine to coarse. Gravel is angular fine to coarse of brick and concrete. Cobbles are angular of brick and concrete. Frequent fragments of glass, tile, plastic and wire noted. [MADE GROUND]			
	1.0	1.00 1.00	B 4 D 3	SPT(S) 1.00m N=37 (6,7/8,9,10,10)								
		1.50 1.50 1.50	5 D 6 ES 5							1.20 2.00	128	80
	2.0	2.00 2.00	B 8 D 7	SPT(S) 2.00m 50 (25 for 5mm/50 for 10mm)		35.76	2.00		EOH at 2.00m - Refusal on very dense material.			
	3.0											
	4.0											
	5.0											

Notes:

1. No groundwater encountered.
2. Installation: 0.00-1.00m plain 50mm plain standpipe with bentonite seal; 1.00-2.00m slotted standpipe with gravel filter and geowrap. Gas tap, bung and raised cover installed at ground level.
3. ES - Environmental Sample. B - Bulk Sample. D - Disturbed Sample.
4. Densities and consistencies above 1.2m based on Engineer's observations.

Hole Diameter		Casing		Hammer Information	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio	Serial No.
2.00	128			62%	DART449

Install Response Zones		
Ref	From (m)	To (m)
GG1002	1.00	2.00

Civic Earth
www.civicearth.com

Project Title:	**Phase 1B, Mayfield, Manchester**	Client:	**LandsecU+I**
Project Number:	**51001/03**	Logged By: FM / Checked By: HG	
Location ID:	**WS1003**	Location Type: Window Sampler	
Coords: 385209.78E/397472.62N	Level: 42.19mAOD		
Status:	FINAL	Scale: 1:25	Final Depth: 2.45 m
Sheet 1 of 1		Date Start: 18/01/2024	Date End: 18/01/2024

Method and Plant Used				Groundwater		
From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
0.00	1.20	IP	Hand Tools			
1.20	2.45	WS	Tracked WS			

Inst/ Backfill	Depth (m)	Samples & Tests: Sample Depth (m)	Type/Ref	Tests/Results	Water Level (m)	Level (mAOD)	Strata Depth (m)	Legend / Cover	Strata Description	Window Sampling: WS Run	Dia (mm)	Recovery (%)
		0.20	ES 1						Dense dark brown slightly clayey gravelly cobbly sand. Sand is fine to coarse. Gravel is angular fine to coarse of brick and concrete. Cobbles are angular of brick and concrete. Frequent fragments of glass, tile, plastic and wire noted. [MADE GROUND]			
		0.50	B 4			41.69	0.50					
		0.50	D 3						Stiff orangish brown mottled grey slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of sandstone and coal. [GLACIAL TILL]			
		0.50	ES 2									
	1.0	1.00	D 6	SPT(S) 1.00m N=31 (5,6/6,7,8,10)								
		1.00	ES 5									
		1.50	D 7							1.20 2.00	128	100
	2.0	2.00	D 9	SPT(S) 2.00m N=48 (7,9/9,10,12,17)								
		2.00	ES 8							2.00 2.45	128	100
						39.74	2.45		EOH at 2.45m - Refusal			
	3.0											
	4.0											
	5.0											

Notes:

1. No groundwater encountered.
2. Borehole backfilled with arisings on completion.
3. ES - Environmental Sample. B - Bulk Sample. D - Disturbed Sample. SPT - Standard Penetration Test.
4. Densities and consistencies above 1.2m based on Engineer's observations.

Hole Diameter		Casing		Hammer Information	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio	Serial No.
2.45	128			62%	DART449

Install Response Zones		
Ref	From (m)	To (m)

Civic Earth
www.civicearth.com

Project Title:	**Phase 1B, Mayfield, Manchester**	Client:	**LandsecU+I**
Project Number:	**51001/03**	Logged By: FM / Checked By: HG	
Location ID:	**WS1004**	Location Type: Window Sampler	
Coords: 385173.90E/397505.36N	Level: 38.26mAOD		
Status:	FINAL	Scale: 1:25	Final Depth: 2.50 m
Sheet 1 of 1		Date Start: 19/01/2024	Date End: 19/01/2024

Method and Plant Used				Groundwater		
From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
0.00	1.20	IP	Hand Tools			
1.20	2.50	WS	Tracked WS			

Inst/ Backfill	Depth (m)	Samples & Tests: Sample Depth (m)	Type/Ref	Tests/Results	Water Level (m)	Level (mAOD)	Strata Depth (m)	Legend / Cover	Strata Description	Window Sampling: WS Run	Dia (mm)	Recovery (%)
						38.11	0.15		Bituminous macadam. [MADE GROUND]			
						37.96	0.30		Dense yellowish brown slightly sandy gravel. Gravel is angular fine to coarse of dolomite. [MADE GROUND]			
		0.50 0.50	B 2 D 1			37.66	0.60		Dense dark brown slightly clayey gravelly cobbly sand. Sand is fine to coarse. Gravel is angular fine to coarse of brick and concrete. Cobbles are angular of brick and concrete. Frequent fragments of glass, tile, plastic and wire noted. [MADE GROUND]			
		0.80 0.80	3 ES 3						Soft orange brown slightly gravelly sandy clay. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of sandstone, brick and concrete. Frequent fragments of wire and plastic noted. [MADE GROUND]			
	1.0	1.00	D 4	SPT(S) 1.00m N=5 (1,2/1,2,1,1)								
		1.50	D 5							1.20 2.00	128	80
						36.36	1.90					
	2.0	2.00 2.00 2.00	6 D 7 ES 6	SPT(S) 2.00m 50 (25 for 15mm/50 for 20mm)					Soft blackish brown slightly gravelly silty clay. Gravel is angular to subangular fine to coarse of brick, sandstone and concrete. [MADE GROUND]	2.00 2.50	128	100
						35.76	2.50		EOH at 2.50m - Refusal on cobble			
	3.0											
	4.0											
	5.0											

Notes:

1. No groundwater encountered.
2. Installation: 0.00-1.00m plain 50mm plain standpipe with bentonite seal; 1.00-2.50m slotted standpipe with gravel filter and geowrap. Gas tap, bung and raised cover installed at ground level.
3. ES - Environmental Sample. B - Bulk Sample. D - Disturbed Sample.
4. Densities and consistencies above 1.2m based on Engineer's observations.

Hole Diameter		Casing		Hammer Information	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio	Serial No.
2.50	128			62%	DART449

Install Response Zones		
Ref	From (m)	To (m)
GG1004	1.00	2.50

Civic Earth
www.civicearth.com

Project Title:	**Phase 1B, Mayfield, Manchester**	Client:	**LandsecU+I**
Project Number:	**51001/03**	Logged By:	FM
		Checked By:	HG
Location ID:	**WS1005**	Location Type:	Window Sampler
Coords:	385234.61E/397512.09N	Level:	39.83mAOD
Status:	FINAL	Scale:	1:25
		Final Depth:	2.50 m
Sheet 1 of 1		Date Start:	18/01/2024
		Date End:	18/01/2024

Method and Plant Used				Groundwater		
From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
0.00	1.20	IP	Hand Tools			
1.20	2.50	WS	Tracked WS			

Inst/ Backfill	Depth (m)	Samples & Tests: Sample Depth (m)	Type/Ref	Tests/Results	Water Level (m)	Level (mAOD)	Strata Depth (m)	Legend / Cover	Strata Description	Window Sampling: WS Run	Dia (mm)	Recovery (%)
		0.20	ES 1						Dense dark brown slightly clayey gravelly cobbly sand. Sand is fine to coarse. Gravel is angular fine to coarse of brick and concrete. Cobbles are angular of brick and concrete. Frequent fragments of glass, tile, plastic and wire noted. [MADE GROUND]			
		0.50	B 4									
		0.50	D 3									
		0.50	ES 2									
						38.93	0.90					
	1.0	1.00	B 7	SPT(S) 1.00m N=8 (1,2/2,2,2,2)					Firm orangish brown mottled grey slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of sandstone and coal. [GLACIAL TILL]			
		1.00	D 6									
		1.00	ES 5									
		1.50	D 8							1.20 2.00	128	70
						38.03	1.80					
	2.0	2.00	D 10	SPT(S) 2.00m N=8 (1,2/2,2,2,2)					Firm grey mottled brown slightly sandy slightly gravelly silty CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of sandstone and coal. [GLACIAL TILL]			
		2.00	ES 9							2.00 2.50	128	95
						37.43	2.40					
		2.50	D 11			37.33	2.50		Reddish brown SANDSTONE. Recovered as fine to coarse sand. [WEATHERED CHESTER SANDSTONE FORMATION]			
									EOH at 2.50m - Achieved target depth			
	3.0											
	4.0											
	5.0											

Notes:

1. No groundwater encountered.
2. Installation: 0.00-1.00m plain 50mm plain standpipe with bentonite seal; 1.00-1.80m slotted standpipe with gravel filter and geowrap.; 1.80-2.50m backfilled with arisings. Gas tap, bung and raised cover installed at ground level.
3. ES - Environmental Sample. B - Bulk Sample. D - Disturbed Sample. SPT - Standard Penetration Test.
4. Densities and consistencies above 1.2m based on Engineer's observations.

Hole Diameter		Casing		Hammer Information	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio	Serial No.
2.50	128			62%	DART449

Install Response Zones		
Ref	From (m)	To (m)
GG1005	1.00	1.80

Civic Earth
www.civicearth.com

Project Title:	**Phase 1B, Mayfield, Manchester**	Client:	**LandsecU+I**
Project Number:	**51001/03**	Logged By: FM / Checked By: HG	
Location ID:	**WS1006**	Location Type: Window Sampler	
Coords: 385265.83E/397483.51N	Level: 41.96mAOD		
Status:	FINAL	Scale: 1:25	Final Depth: 2.50 m
Sheet 1 of 1		Date Start: 18/01/2024	Date End: 18/01/2024

Method and Plant Used				Groundwater		
From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
0.00	1.20	IP	Hand Tools			
1.20	2.50	WS	Tracked WS			

Inst/ Backfill	Depth (m)	Samples & Tests: Sample Depth (m)	Type/Ref	Tests/Results	Water Level (m)	Level (mAOD)	Strata Depth (m)	Legend / Cover	Strata Description	Window Sampling: WS Run	Dia (mm)	Recovery (%)
		0.20	ES 1						Very dense dark brown slightly clayey gravelly cobbly sand. Sand is fine to coarse. Gravel is angular fine to coarse of brick and concrete. Cobbles are angular of brick and concrete. Frequent fragments of glass, tile, plastic and wire noted. [MADE GROUND]			
		0.50	B 4									
		0.50	D 3									
		0.50	ES 2									
	1.0	1.00	B 7	SPT(S) 1.00m 50 (25 for 5mm/50 for 5mm)								
		1.00	D 6									
		1.00	ES 5									
		1.50	D 8							1.20 2.00	128	70
	2.0	2.00	B 11	SPT(S) 2.00m 50 (25 for 5mm/50 for 5mm)								
		2.00	D 10									
		2.00	ES 9							2.00 2.50	128	70
						39.46	2.50		EOH at 2.50m - Refusal			
	3.0											
	4.0											
	5.0											

Notes:

1. No groundwater encountered.
2. Installation: 0.00-1.00m plain 50mm plain standpipe with bentonite seal; 1.00-2.50m slotted standpipe with gravel filter and geowrap. Gas tap, bung and raised cover installed at ground level.
3. ES - Environmental Sample. B - Bulk Sample. D - Disturbed Sample. SPT - Standard Penetration Test.
4. Densities and consistencies above 1.2m based on Engineer's observations.

Hole Diameter		Casing	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)
2.50	128		

Hammer Information	
Energy Ratio	Serial No.
62%	DART449

Install Response Zones		
Ref	From (m)	To (m)
GG1006	1.00	2.50

Civic Earth
www.civicearth.com

Project Title:	**Phase 1B, Mayfield, Manchester**	Client:	**LandsecU+I**
Project Number:	**51001/03**	Logged By:	FM
		Checked By:	HG
Location ID:	**WS1007**	Location Type:	Window Sampler
Coords:	385149.73E/397524.22N	Level:	37.09mAOD
Status:	FINAL	Scale:	1:25
		Final Depth:	1.00 m
Sheet 1 of 1		Date Start:	19/01/2024
		Date End:	19/01/2024

Method and Plant Used				Groundwater		
From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
0.00	1.00	WS	Tracked WS			

Inst/ Backfill	Depth (m)	Samples & Tests: Sample Depth (m)	Type/Ref	Tests/Results	Water Level (m)	Level (mAOD)	Strata Depth (m)	Legend / Cover	Strata Description	Window Sampling: WS Run	Dia (mm)	Recovery (%)
		0.50 0.50	B 2 D 1						Dense dark brown slightly clayey gravelly cobbly sand. Sand is fine to coarse. Gravel is angular fine to coarse of brick and concrete. Cobbles are angular of brick and concrete. Frequent fragments of glass, tile, plastic and wire noted. [MADE GROUND]	0.00 1.00	128	85
		0.70 0.70	D 3 ES 3									
	1.0	1.00	D 4			36.09	1.00		EOH at 1.00m - Refusal			
	2.0											
	3.0											
	4.0											
	5.0											

Notes:

1. No groundwater encountered.
2. Installation: 0.00-0.30m plain 50mm plain standpipe with bentonite seal; 0.30-1.00m slotted standpipe with gravel filter and geowrap. Gas tap, bung and raised cover installed at ground level.
3. ES - Environmental Sample. B - Bulk Sample. D - Disturbed Sample.
4. Densities and consistencies above 1.2m based on Engineer's observations.

Hole Diameter		Casing		Hammer Information	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio %	Serial No.
1.00	128				

Install Response Zones		
Ref	From (m)	To (m)
GG1007	0.30	1.00

Civic Earth

www.civicearth.com

Project Title:	**Phase 1B, Mayfield, Manchester**	Client:	**LandsecU+I**
Project Number:	**51001/03**	Logged By: / Checked By:	HG
Location ID:	**WS1008**	Location Type:	Window Sampler
Coords:	385208.72E/397529.86N	Level:	39.16mAOD
Status:	FINAL	Scale:	1:25
Final Depth:	1.00 m	Date Start:	18/01/2024
Date End:	18/01/2024	Sheet	1 of 1

Method and Plant Used				Groundwater		
From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
0.00	1.00	IP	Hand Tools			

Inst/ Backfill	Depth (m)	Samples & Tests: Sample Depth (m)	Type/Ref	Tests/Results	Water Level (m)	Level (mAOD)	Strata Depth (m)	Legend / Cover	Strata Description	Window Sampling: WS Run	Dia (mm)	Recovery (%)
						39.01	0.15		Concrete. 8mm rebar noted. [MADE GROUND]			
		0.20	ES 1						Very dense reddish brown slightly sandy cobbly gravel. Gravel is angular fine to coarse of concrete and brick. Cobbles are angular of brick. Sand is fine to coarse. Frequent fragments of glass, plastic and wire. [MADE GROUND]			
		0.50	B 4									
		0.50	D 3									
		0.50	ES 2									
	1.0	1.00	B 7	SPT(S) 1.00m 50 (25 for 30mm/50 for 25mm)		38.16	1.00					
		1.00	D 6						EOH at 1.00m - Refusal			
		1.00	ES 5									
	2.0											
	3.0											
	4.0											
	5.0											

Notes:

1. No groundwater encountered.
2. Borehole backfilled with arisings.
3. ES - Environmental Sample. B - Bulk Sample. D - Disturbed Sample. SPT - Standard Penetration Test.
4. Densities and consistencies above 1.2m based on Engineer's observations.

Hole Diameter		Casing		Hammer Information	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio	Serial No.
1.00	128			62%	DART449

Install Response Zones		
Ref	From (m)	To (m)

Civic Earth
www.civicearth.com

Project Title:	**Phase 1B, Mayfield, Manchester**	Client:	**LandsecU+I**
Project Number:	**51001/03**	Logged By:	FM
		Checked By:	HG
Location ID:	**WS1009**	Location Type:	Window Sampler
Coords:	385185.11E/397475.66N	Level:	41.65mAOD
Status:	FINAL	Scale:	1:25
		Final Depth:	1.50 m
Sheet 1 of 1		Date Start:	18/01/2024
		Date End:	18/01/2024

Method and Plant Used				Groundwater		
From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
0.00	1.20	IP	Hand Tools			
1.20	1.50	WS	Tracked WS			

Inst/ Backfill	Depth (m)	Samples & Tests: Sample Depth (m)	Type/Ref	Tests/Results	Water Level (m)	Level (mAOD)	Strata Depth (m)	Legend / Cover	Strata Description	Window Sampling: WS Run	Dia (mm)	Recovery (%)
		0.20	ES 1						Very dense reddish brown slightly sandy cobbly gravel. Gravel is angular fine to coarse of concrete and brick. Cobbles are angular of brick. Sand is fine to coarse. Frequent fragments of glass, plastic and wire noted. [MADE GROUND]			
		0.50	B 4									
		0.50	D 3									
		0.50	ES 2									
	1.0	1.00	B 7	SPT(S) 1.00m 50 (25 for 0mm/50 for 5mm)								
		1.00	D 6									
		1.00	ES 5							1.20 1.50	128	100
		1.50	D 8	SPT(S) 1.50m 50 (25 for 0mm/50 for 0mm)		40.15	1.50		EOH at 1.50m - Refusal			
	2.0											
	3.0											
	4.0											
	5.0											

Notes:

1. No groundwater encountered.
2. Installation: 0.00-0.50m plain 50mm plain standpipe with bentonite seal; 0.50-1.50m slotted standpipe with gravel filter and geowrap. Gas tap, bung and raised cover installed at ground level.
3. ES - Environmental Sample. B - Bulk Sample. D - Disturbed Sample. SPT - Standard Penetration Test.
4. Densities and consistencies above 1.2m based on Engineer's observations.

Hole Diameter		Casing		Hammer Information	
Depth (m)	Dia (mm)	Depth (m)	Dia (mm)	Energy Ratio	Serial No.
1.50	128			62%	DART449

Install Response Zones		
Ref	From (m)	To (m)
GG1009	0.50	1.50

Civic Earth
www.civicearth.com

Project Title:	**Phase 1B, Mayfield, Manchester**	Client:	**LandsecU+I**
Project Number:	**51001/03**	Logged By: FM / Checked By: HG	
Location ID:	**FIP1001**	Location Type:	Trial pit/trench
Coords:	385139.12E/397474.53N	Level:	37.78mAOD
Status:	FINAL	Scale:	1:25
Final Depth:	1.50	Sheet	1 of 1
Date Start:	10/01/2024	Date End:	11/01/2024

Method and Plant Used				Groundwater		
From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
0.00	1.50	TP	Hand Tools			

Inst/ Backfill	Depth (m)	Samples & Tests: Sample Depth (m)	Type/Ref	Tests/Results	Water Level (m)	Level (mAOD)	Strata Depth (m)	Legend / Cover	Strata Description
						37.74	0.05		Asphalt.
									[MADE GROUND]
									Light grey brown sand (subbase). Sand is fine to medium.
						37.48	0.30		[MADE GROUND]
		0.50	B 2						Loose to medium dense dark brown slightly clayey gravelly cobbly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of brick and concrete. Cobbles are angular of brick and concrete.
		0.50	D 1						[MADE GROUND]
	1.0	1.00	B 4						
		1.00	D 3						
		1.50	B 6			36.28	1.50		
		1.50	D 5						EOH at 1.50m - Terminated at target depth.
	2.0								
	3.0								
	4.0								
	5.0								

Notes:

1. No groundwater encountered.
2. Backfilled with arisings on completion.
3. Densities and consistencies based on Engineer's observations.
4. Base of foundation not encountered.

Soakaway Tests

Test Number	Date	Duration (hh:mm)	Infiltration Rate

Pit Details

Stability	Shoring Used	Length (m)	Width (m)
Unstable	No	2.40	2.30

Civic Earth
www.civicearth.com

Project Title:	**Phase 1B, Mayfield, Manchester**	Client:	**LandsecU+I**
Project Number:	**51001/03**	Logged By: FM / Checked By: HG	
Location ID:	**FIP1002**	Location Type:	Trial pit/trench
Coords:	385154.83E/397458.52N	Level:	38.07mAOD
Status:	FINAL	Scale:	1:25
Final Depth:	1.05	Sheet	1 of 1
Date Start:	10/01/2024	Date End:	11/01/2024

Method and Plant Used				Groundwater		
From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
0.00	1.05	TP	Hand Tools			

Inst/ Backfill	Depth (m)	Samples & Tests: Sample Depth (m)	Type/Ref	Tests/Results	Water Level (m)	Level (mAOD)	Strata Depth (m)	Legend / Cover	Strata Description
						38.02	0.05		Asphalt.
									[MADE GROUND]
									Light grey brown sand (subbase). Sand is fine to medium.
									[MADE GROUND]
		0.50	B 2						
		0.50	D 1			37.52	0.55		
									Loose to medium dense dark brown slightly clayey gravelly cobbly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of brick and concrete. Cobbles are angular of brick and concrete.
									[MADE GROUND]
	1.0	1.00	B 4						
		1.00	D 3			37.02	1.05		
									EOH at 1.05m - Terminated at target depth.
	2.0								
	3.0								
	4.0								
	5.0								

Notes:

1. No groundwater encountered.
2. Backfilled with arisings on completion.
3. Densities and consistencies based on Engineer's observations.

Soakaway Tests

Test Number	Date	Duration (hh:mm)	Infiltration Rate

Pit Details

Stability	Shoring Used	Length (m)	Width (m)
Slight Collapse	No	2.20	1.70

Civic Earth
www.civicearth.com

Project Title:	**Phase 1B, Mayfield, Manchester**	Client:	**LandsecU+I**
Project Number:	**51001/03**	Logged By:	FM
		Checked By:	HG
Location ID:	**FIP1003**	Location Type:	Trial pit/trench
Coords:	385168.89E/397470.43N	Level:	38.41mAOD
Status:	FINAL	Scale:	1:25
		Final Depth:	0.60
Sheet 1 of 1		Date Start:	10/01/2024
		Date End:	11/01/2024

Method and Plant Used				Groundwater		
From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
0.00	0.60	TP	Hand Tools			

Inst/ Backfill	Depth (m)	Samples & Tests: Sample Depth (m)	Type/Ref	Tests/Results	Water Level (m)	Level (mAOD)	Strata Depth (m)	Legend / Cover	Strata Description
						38.36	0.05		Asphalt.
									[MADE GROUND]
									Medium dense dark brown slightly clayey gravelly cobbly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of brick and concrete. Cobbles are angular of brick and concrete. Frequent fragments of wire and plastic noted.
									[MADE GROUND]
		0.50 0.50	B 2 D 1			37.81	0.60		EOH at 0.60m - Terminated upon encountering brick floor.
	1.0								
	2.0								
	3.0								
	4.0								
	5.0								

Notes:

1. No groundwater encountered.
2. Backfilled with arisings on completion.
3. Densities and consistencies based on Engineer's observations.

Soakaway Tests

Test Number	Date	Duration (hh:mm)	Infiltration Rate

Pit Details

Stability	Shoring Used	Length (m)	Width (m)
Slight Collapse	No	3.20	1.10

Civic Earth
www.civicearth.com

Project Title: **Phase 1B, Mayfield, Manchester**		Client: **LandsecU+I**
Project Number: **51001/03**	Logged By: FM Checked By: HG	
Location ID: **FIP1004**	Location Type: Trial pit/trench	
	Coords: 385172.08E/397490.28N	Level: 38.27mAOD
Status: FINAL	Scale: 1:25	Final Depth: 0.80
Sheet 1 of 1	Date Start: 10/01/2024	Date End: 11/01/2024

Method and Plant Used				Groundwater		
From (m)	To (m)	Type	Plant Used	Strike (m)	Time (min)	Rose To
0.00	0.80	TP	Hand Tools			

Inst/ Backfill	Depth (m)	Samples & Tests: Sample Depth (m)	Type/Ref	Tests/Results	Water Level (m)	Level (mAOD)	Strata Depth (m)	Legend / Cover	Strata Description
						38.22	0.05		Asphalt.
									[MADE GROUND]
		0.50 0.50	B 2 D 1						Medium dense dark brown slightly clayey gravelly cobbly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of brick and concrete. Cobbles are angular of brick and concrete. Frequent fragments of wire and plastic noted.
									[MADE GROUND]
						37.47	0.80		EOH at 0.80m - Terminated upon encountering tiled floor.
	1.0								
	2.0								
	3.0								
	4.0								
	5.0								

Notes:

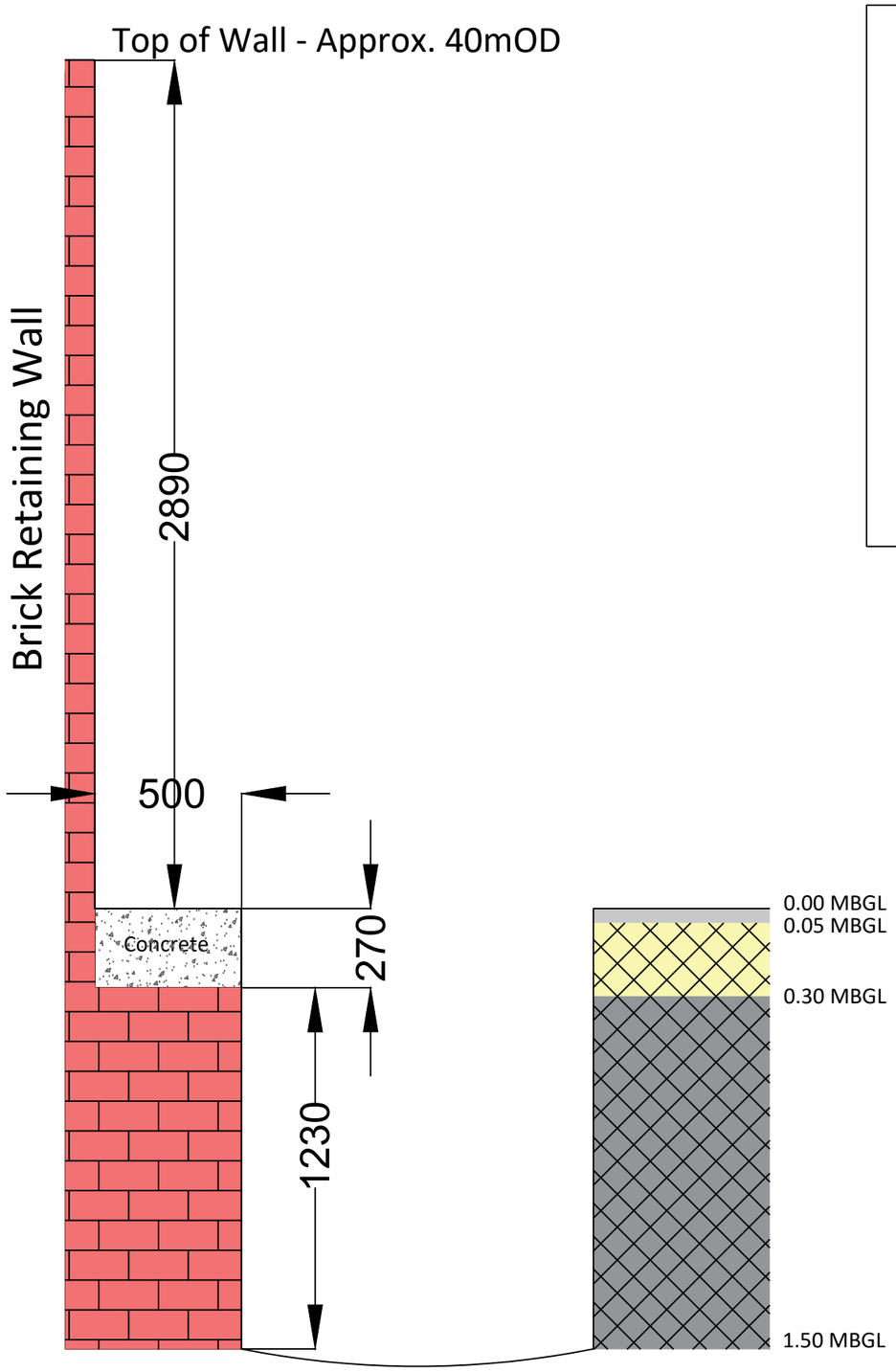
1. No groundwater encountered.
2. Backfilled with arisings on completion.
3. Densities and consistencies based on Engineer's observations.

Soakaway Tests

Test Number	Date	Duration (hh:mm)	Infiltration Rate

Pit Details

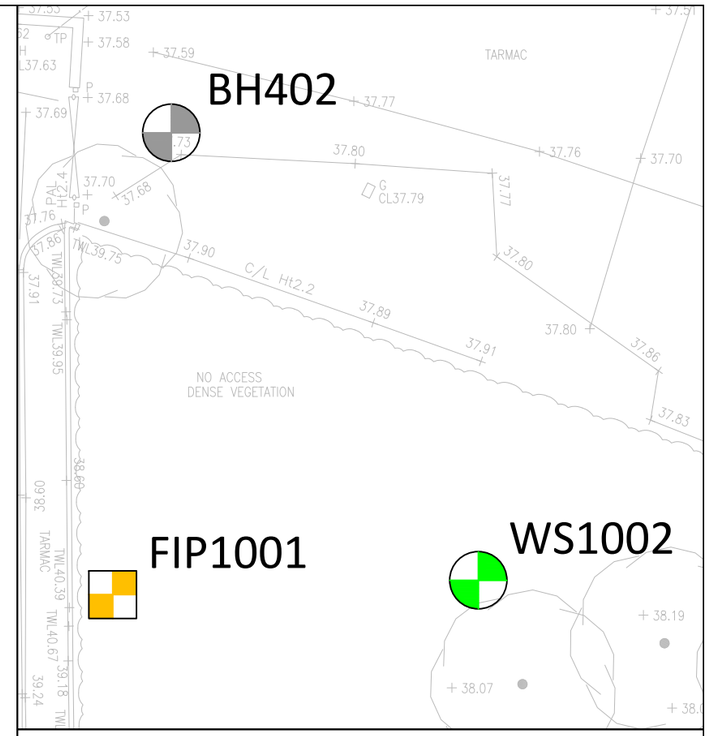
Stability	Shoring Used	Length (m)	Width (m)
Slight Collapse	No	4.70	1.30



0.00 - 0.05 MBGL: Asphalt.

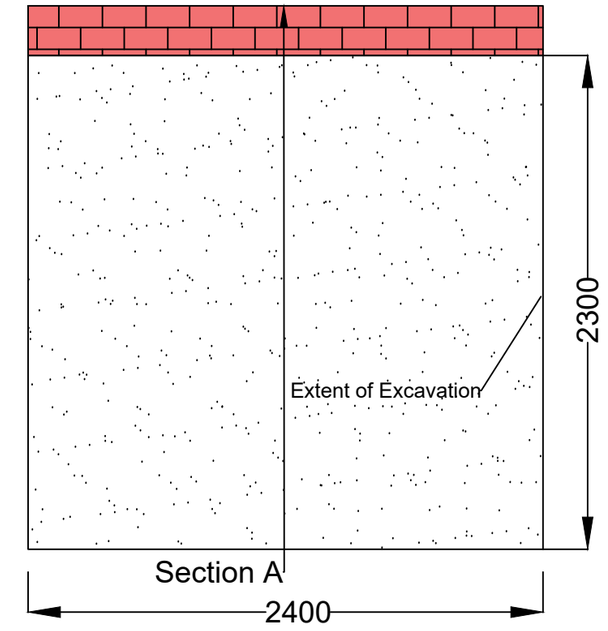
0.05 - 0.30 MBGL: MADE GROUND - Light grey brown sand (subbase). Sand is fine to medium.

0.30 - 1.50 MBGL: MADE GROUND - Loose to medium dense dark brown slightly clayey gravelly cobbly sand Sand is fine to coarse. Gravel is angular to subangular fine to coarse of brick and concrete. Cobbles are angular of brick and concrete.



PLAN OF EXCAVATION

N



DATE	REV	DESCRIPTION	DRAWN	CHKD
11/03/24	P01	First Issue	KP	HG

1. MBGL = metres below ground level
2. mOD = metres above Ordnance Datum
3. Trial pit terminated at 1.50mbgl
4. No groundwater encountered
5. Trial pit backfilled with arisings and left slightly mounded
6. Dimensions of structures / foundations provided in mm unless otherwise stated
7. Refer to Engineer log for soil sampling details
8. Trial pit probed to 3.00mbgl and underside of foundation not encountered

© CIVIC EARTH LIMITED

MANCHESTER / LONDON / LEEDS /GLASGOW
www.civicearth.com

PROJECT
Mayfield Phase 1B

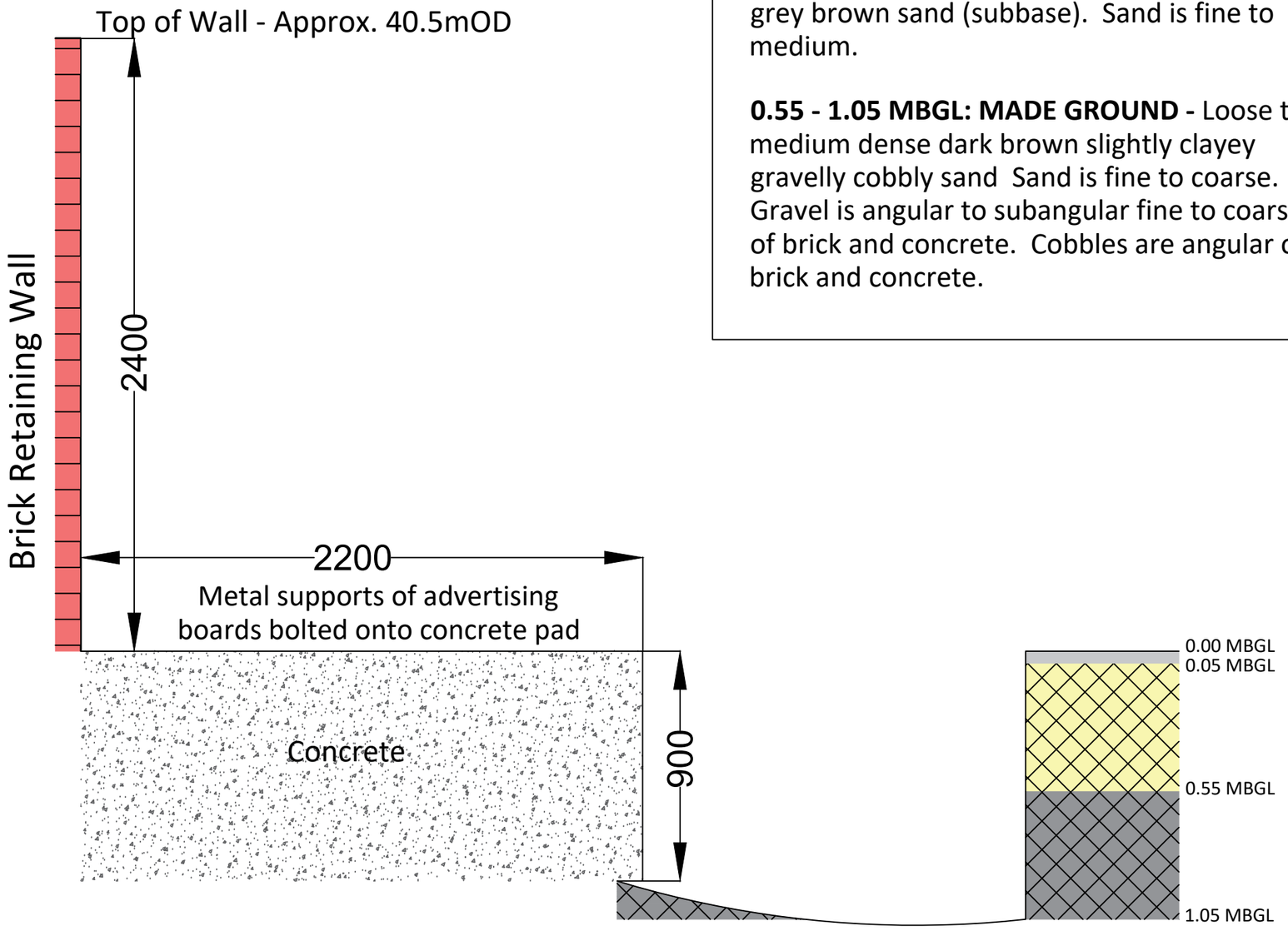
TITLE
Foundation Inspection Pit
FIP1001

DRAWING STATUS: FOR INFORMATION
STATUS CODE: -

CE PROJECT No.	SCALE @ A3	DATE CREATED	DRAWN	CHECKED
51001/03	NTS	11/03/24	KP	HG

DRAWING No.: 51001-CE-02-XX-D-G-0002
REV: P01

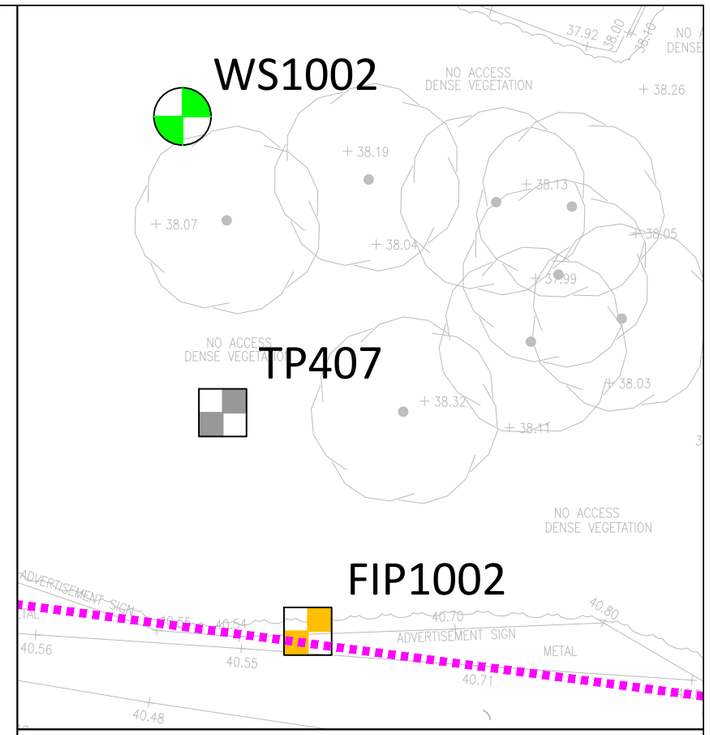
SECTION A

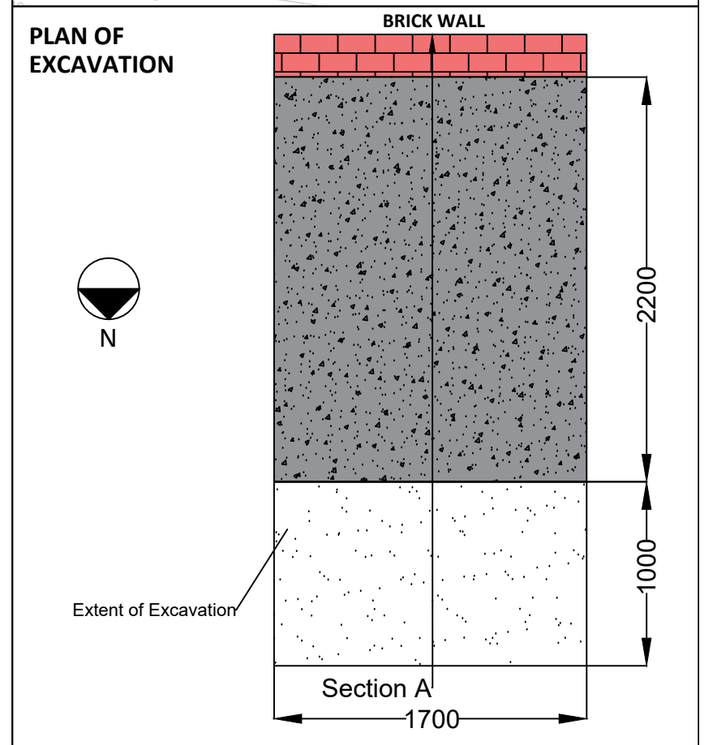


0.00 - 0.05 MBGL: Asphalt.

0.05 - 0.55 MBGL: MADE GROUND - Light grey brown sand (subbase). Sand is fine to medium.

0.55 - 1.05 MBGL: MADE GROUND - Loose to medium dense dark brown slightly clayey gravelly cobbly sand Sand is fine to coarse. Gravel is angular to subangular fine to coarse of brick and concrete. Cobbles are angular of brick and concrete.





1. MBGL = metres below ground level
2. mOD = metres above Ordnance Datum
3. Trial pit terminated at 1.05mbgl
4. No groundwater encountered
5. Trial pit backfilled with arisings and left slightly mounded
6. Dimensions of structures / foundations provided in mm unless otherwise stated
7. Refer to Engineer log for soil sampling details

© CIVIC EARTH LIMITED

MANCHESTER / LONDON / LEEDS /GLASGOW
www.civicearth.com

DATE	REV	DESCRIPTION	DRAWN	CHKD
11/03/24	P01	First Issue	KP	HG

PROJECT: Mayfield Phase 1B

DRAWING STATUS: FOR INFORMATION

STATUS CODE: -

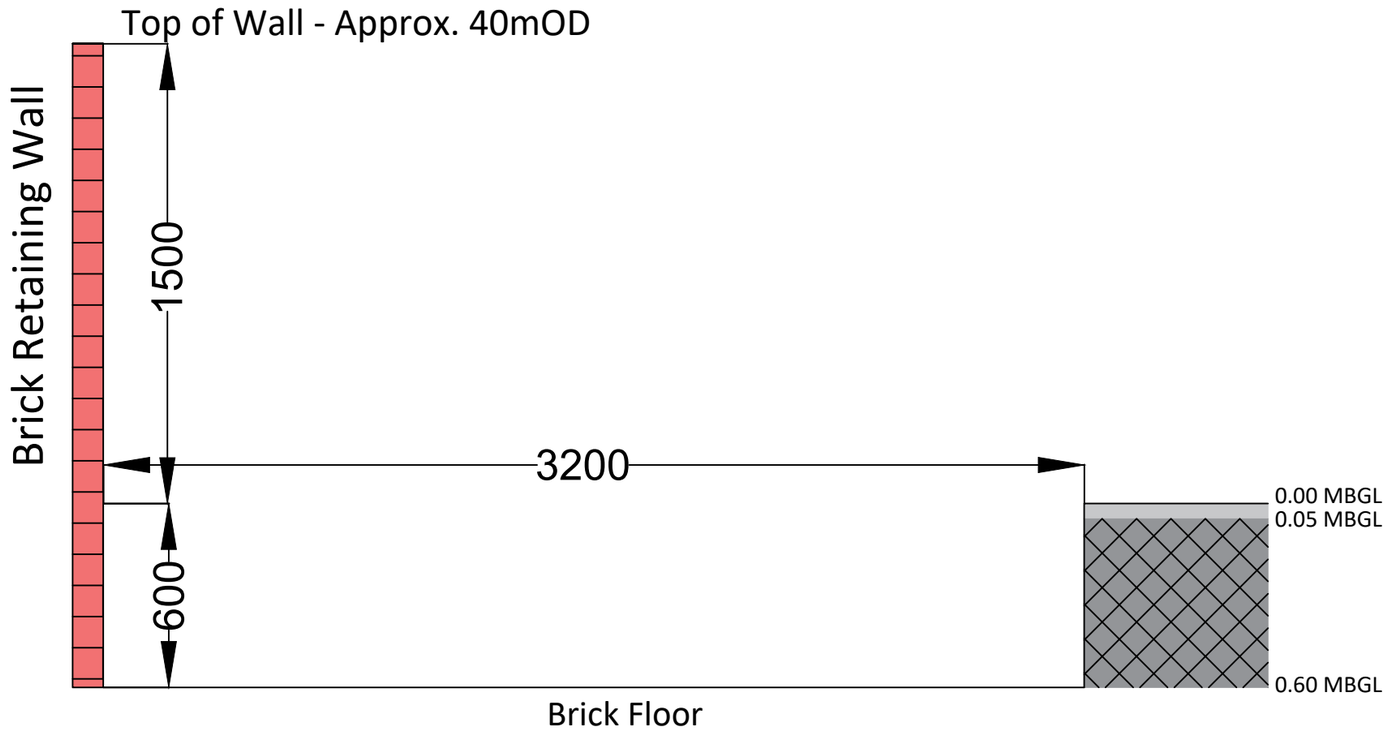
CE PROJECT No.	SCALE @ A3	DATE CREATED	DRAWN	CHECKED
51001/03	NTS	11/03/24	KP	HG

TITLE: Foundation Inspection Pit FIP1002

DRAWING No.: 51001-CE-02-XX-D-G-0003

REV: P01

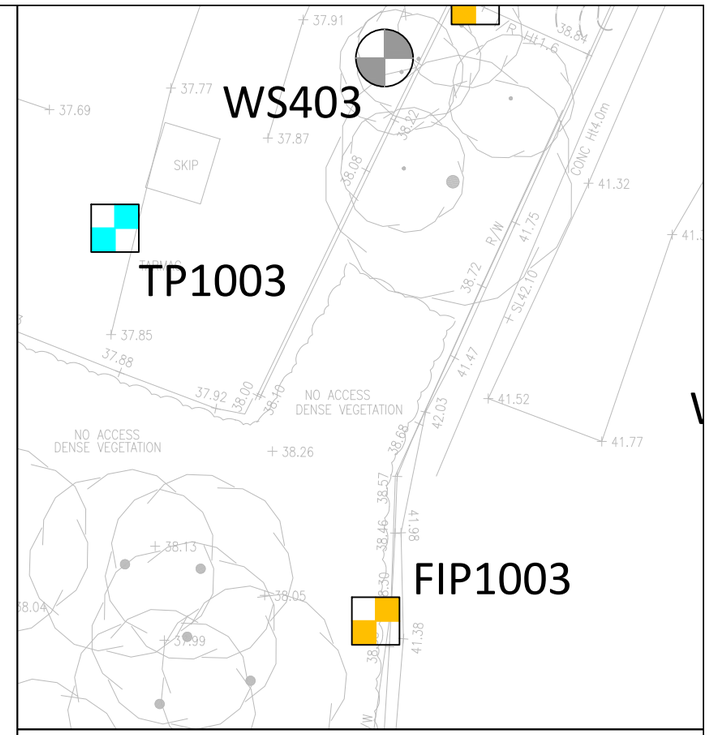
SECTION A



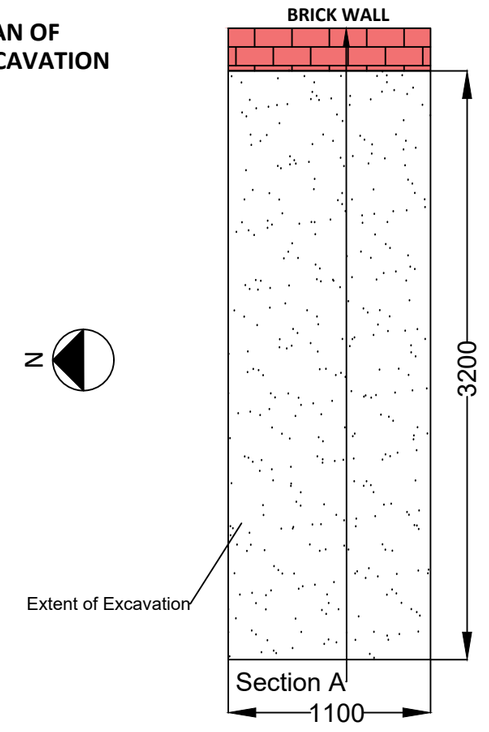
0.00 - 0.05 MBGL: Asphalt.

0.05 - 0.60 MBGL: MADE GROUND - Medium dense dark brown slightly clayey gravelly cobbly sand. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of brick and concrete. Cobbles are angular of brick and concrete. Frequent fragments of wire and plastic noted.

0.60 MBGL - Brick floor.



PLAN OF EXCAVATION



DATE	REV	DESCRIPTION	DRAWN	CHKD
11/03/24	P01	First Issue	KP	HG

1. MBGL = metres below ground level
2. mOD = metres above Ordnance Datum
3. Trial pit terminated at 0.60mbgl on brick floor
4. No groundwater encountered
5. Trial pit backfilled with arisings and left slightly mounded
6. Dimensions of structures / foundations provided in mm unless otherwise stated
7. Refer to Engineer log for soil sampling details

© CIVIC EARTH LIMITED

MANCHESTER / LONDON / LEEDS /GLASGOW
www.civicearth.com

PROJECT
Mayfield Phase 1B

TITLE
Foundation Inspection Pit
FIP1003

DRAWING STATUS
FOR INFORMATION

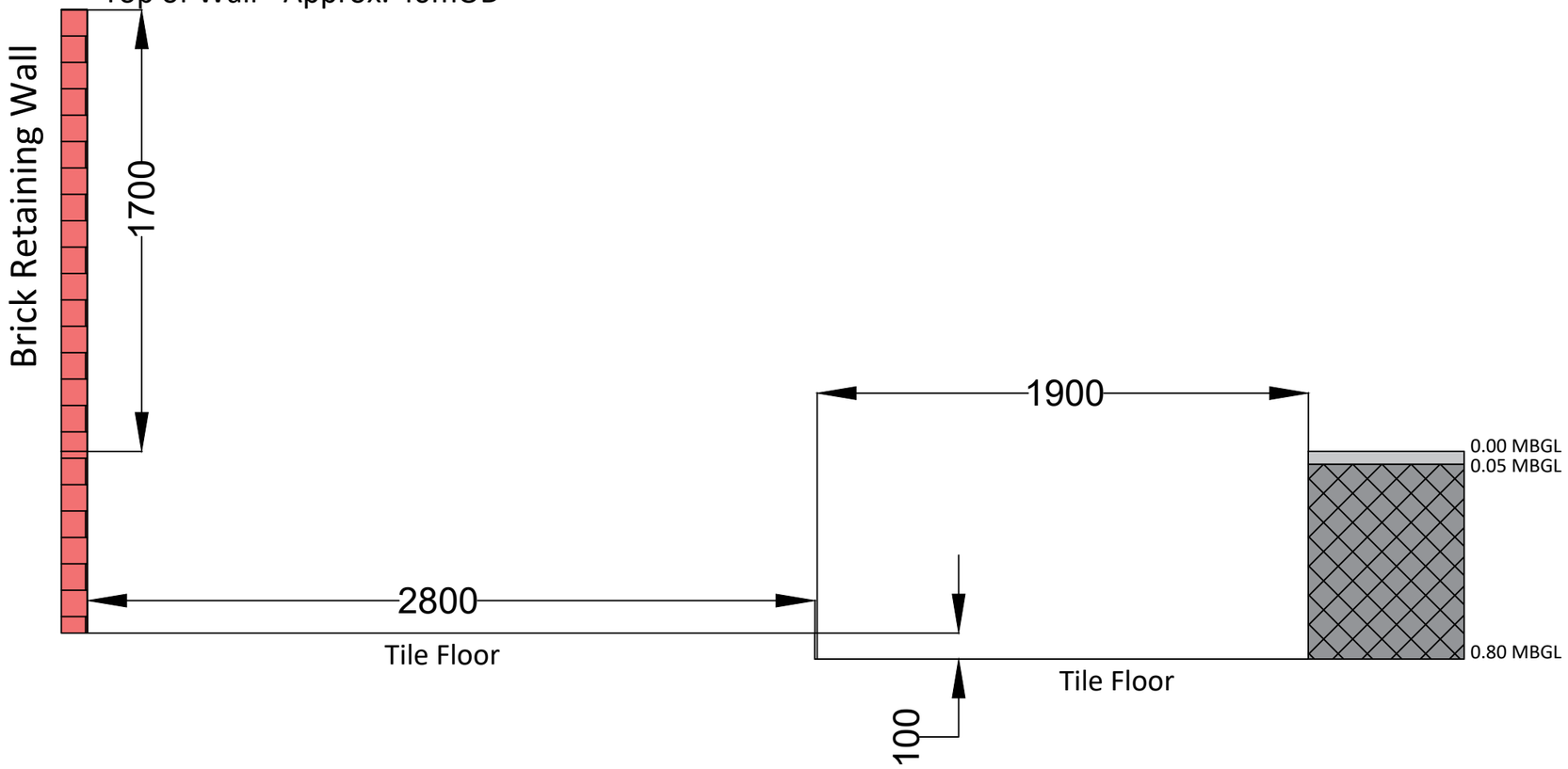
STATUS CODE
-

CE PROJECT No.	SCALE @ A3	DATE CREATED	DRAWN	CHECKED
51001/03	NTS	11/03/24	KP	HG

DRAWING No.
51001-CE-02-XX-D-G-0004

REV
P01

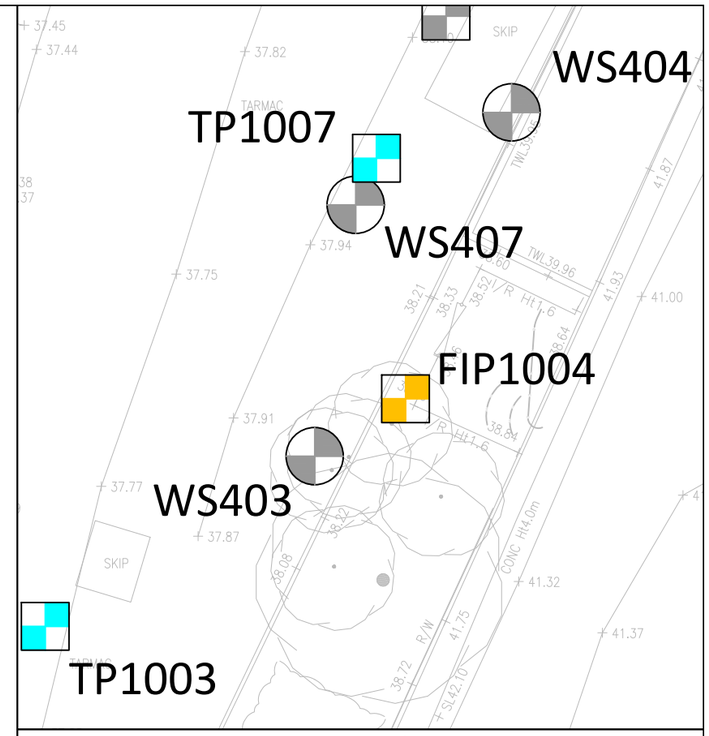
SECTION A

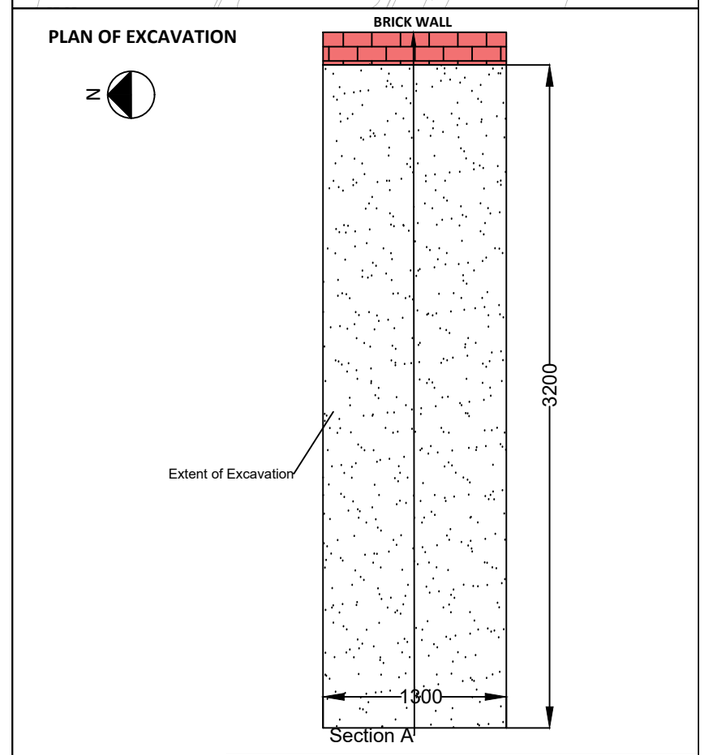


0.00 - 0.05 MBGL: Asphalt.

0.05 - 0.80 MBGL: MADE GROUND - Medium dense dark brown slightly clayey gravelly cobbly sand Sand is fine to coarse. Gravel is angular to subangular fine to coarse of brick and concrete. Cobbles are angular of brick and concrete. Frequent fragments of wire and plastic noted.

0.80 MBGL - Tile floor.





DATE	REV	DESCRIPTION	DRAWN	CHKD
11/03/24	P01	First Issue	KP	HG

1. MBGL = metres below ground level
2. mOD = metres above Ordnance Datum
3. Trial pit terminated at 0.80mbgl on tile floor
4. No groundwater encountered
5. Trial pit backfilled with arisings and left slightly mounded
6. Dimensions of structures / foundations provided in mm unless otherwise stated
7. Refer to Engineer log for soil sampling details

© CIVIC EARTH LIMITED

MANCHESTER / LONDON / LEEDS /GLASGOW
www.civicearth.com

PROJECT
Mayfield Phase 1B

TITLE
Foundation Inspection Pit FIP1004

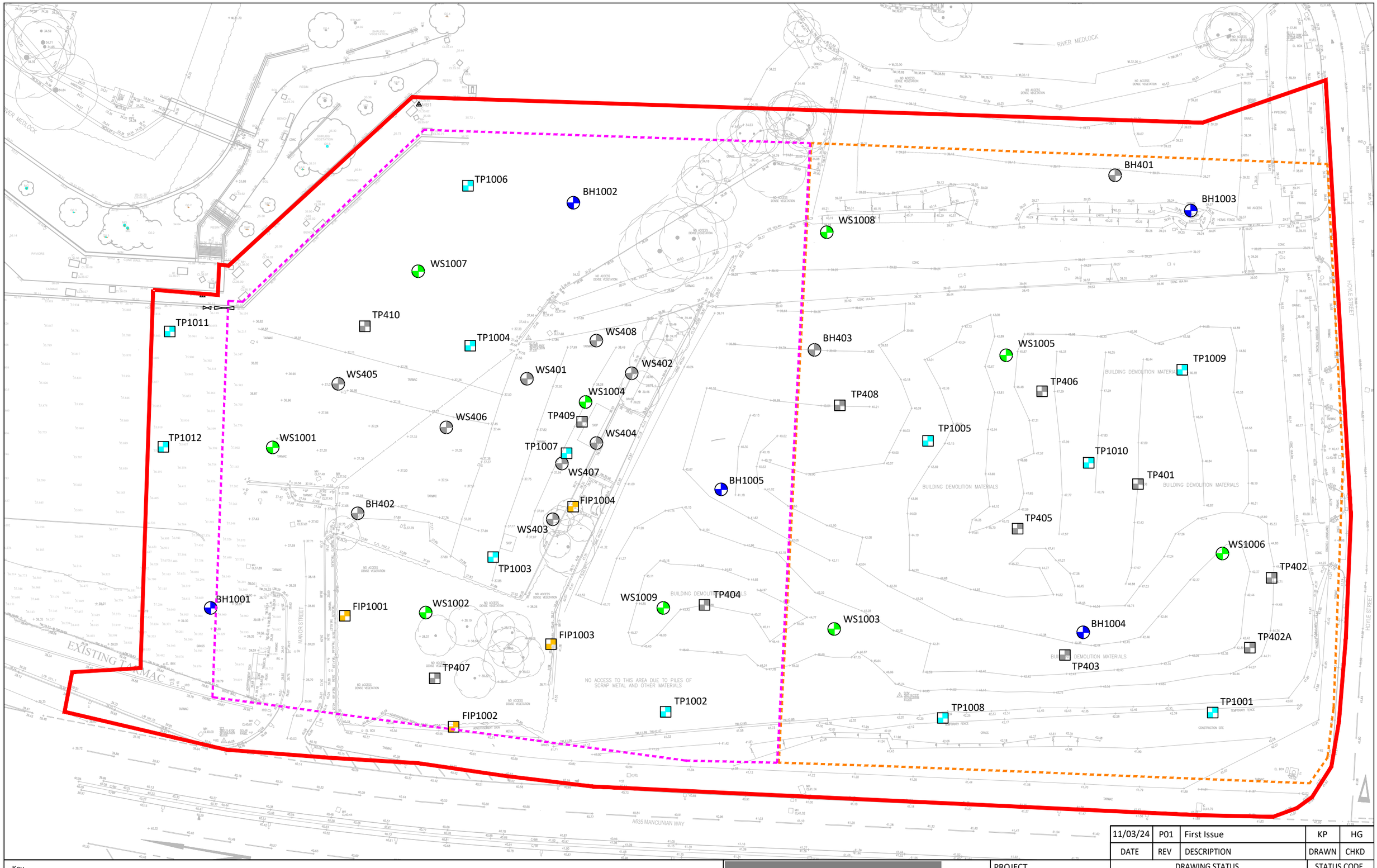
DRAWING STATUS	STATUS CODE
FOR INFORMATION	-

CE PROJECT No.	SCALE @ A3	DATE CREATED	DRAWN	CHECKED
51001/03	NTS	11/03/24	KP	HG

DRAWING No.	REV
51001-CE-02-XX-D-G-0005	P01

Appendix B

Exploratory Hole Location Plan



11/03/24	P01	First Issue	KP	HG
DATE	REV	DESCRIPTION	DRAWN	CHKD

Key

- Indicative Planning Boundary
- Indicative Footprint of Plot J
- Indicative Footprint of Plot K
- Historical ROC Borehole (2019/2020)
- Historical ROC Window Sample (2019)
- Historical ROC Trial Pit (2019)
- Civic Earth Cable/Rotary Borehole (2024)
- Civic Earth Window Sample (2024)
- Civic Earth Trial Pit (2024)
- Civic Earth Foundation Inspection Pit (2024)

© CIVIC EARTH LIMITED

MANCHESTER / LONDON / LEEDS /GLASGOW
www.civicearth.com

PROJECT
Mayfield Phase 1B

TITLE
Exploratory Hole Location Plan

DRAWING STATUS
FOR INFORMATION

STATUS CODE
-

CE PROJECT No.	SCALE @ A3	DATE CREATED	DRAWN	CHECKED
51001	NTS	11/03/24	KP	HG

DRAWING No.
51001-CE-02-XX-D-G-0001

REV
P01

Appendix C

Ground Gas and Groundwater Monitoring Results

Ground Gas and Groundwater Monitoring Record Sheet

JOB DETAILS:

Client: Civic Earth
Site: Mayfield Park Phase 1B, Manchester
Date: 30/01/2024
Quote No:
Visit No: 1 **of**
Operator: Ian Sidgwick
Project Manager: Jake Townsend

Monitoring Point	GAS CONCENTRATIONS												VOLATILES		FLOW DATA				WELL AND WATER DATA		Comments
	Methane (%v/v)		%LEL		Carbon dioxide (%v/v)		Carbon monoxide (ppmv)		Hydrogen sulphide (ppmv)		Oxygen (%v/v)		PID Peak (ppm)	Product thickness (mm)	Flow rate (l/hr)		Differential borehole Pressure (mb)	Time for flow to equalise (secs)	Water level (mbgl)	Depth of well (mbgl)	
	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Min.	Steady			Peak	Steady					
BH1001	ND	ND	ND	ND	0.1	0.1	1	ND	1	ND	20.2	20.4	0.2	ND	-0.1	0.0	-0.67	30	9.22	23.45	
BH1002	ND	ND	ND	ND	0.1	0.1	1	1	1	1	14.1	14.1	1.3	ND	0.0	0.0	-0.09	30	7.46	23.83	No odour noted
BH1003	ND	ND	ND	ND	0.2	0.2	1	1	ND	ND	19.7	19.7	0.6	ND	-7.5	-0.2	-21.24	150	8.59	18.40	
BH1004	ND	ND	ND	ND	2.6	2.6	ND	ND	ND	ND	16.5	16.5	0.3	ND	-1.2	-0.2	-3.32	150	12.63	24.17	
BH1005	ND	ND	ND	ND	0.1	0.1	ND	ND	ND	ND	20.8	20.8	0.1	ND	-0.4	-0.1	-1.36	120	11.49	19.11	
WS1002	ND	ND	ND	ND	0.1	0.1	ND	ND	ND	ND	20.6	20.6	0.1	ND	0.0	0.0	0.05	30	Dry	1.81	
WS1004	ND	ND	ND	ND	0.2	0.2	4	2	1	1	18.2	18.2	0.2	ND	0.0	0.0	0.09	30	1.61	2.20	
WS1005	ND	ND	ND	ND	0.1	0.1	12	11	ND	ND	20.5	20.5	0.1	ND	0.0	0.0	0.12	30	Dry	1.80	
WS1006	ND	ND	ND	ND	0.2	0.1	ND	ND	ND	ND	20.8	20.8	0.1	ND	0.0	0.0	0.07	30	1.95	2.62	
WS1007	ND	ND	ND	ND	0.1	0.1	2	2	1	1	20.1	20.2	0.4	ND	0.0	0.0	0.23	30	0.01	0.80	
WS1009	ND	ND	ND	ND	0.6	0.6	ND	ND	ND	ND	20.2	20.2	0.1	ND	0.0	0.0	0.18	30	Dry	1.29	
Max	**ND**	**ND**	**ND**	**ND**	**2.6**	**2.6**	**12**	**11**	**1**	**1**	**20.8**	**20.8**	**1.3**	**ND**	**0.0**	**0.0**	**0**	**150**	**12.63**	**24.17**	
Min	**ND**	**ND**	**ND**	**ND**	**0.1**	**0.1**	**ND**	**ND**	**ND**	**ND**	**14.1**	**14.1**	**0.1**	**ND**	**-7.5**	**-0.2**	**-21.2**	**30**	**DRY**	**0.80**	

ND - Not detected
NR - Not recorded
NA - Non applicable

METEOROLOGICAL AND SITE INFORMATION:

(Select correct box with X or enter data, as applicable)

State of ground:		Dry		Moist	X	Wet		Snow		Frozen
Wind:		Calm	X	Light		Moderate		Strong		
Cloud cover:		None		Slight	X	Cloudy		Overcast		
Precipitation:		None	X	Slight		Moderate		Heavy		
Time monitoring performed:			07:50	Start			11:50	End		
Barometric pressure (mbar):			1022	Start			1023	End		
Pressure trend (Daily):				Falling	X	Steady		Rising		
Source:	Online									
Air Temperature (Deg. C):			8	Before			11	After		

INSTRUMENTATION TECHNICAL SPECIFICATIONS:

Ground gas meter: G507254
Gas Range: **CH_4** 0 - 100% **CO_2** 0 - 100% **O_2** 0 - 25%
Gas Flow range: +/- 26 l/hour
Differential Pressure: +/- 150 mb
Date of last calibration: 01/08/2023
Date of next calibration: 01/02/2024

Ambient air check: **CH_4** 0.0 **CO_2** 0.0 **O_2** 20.6

Ground Gas and Groundwater Monitoring Record Sheet

JOB DETAILS:

Client: Civic Earth
Site: Mayfield Park Phase 1B, Manchester
Date: 12/02/2024
Quote No:
Visit No: 2 **of**
Operator: Ian Sidgwick
Project Manager: Jake Townsend

Monitoring Point	GAS CONCENTRATIONS												VOLATILES		FLOW DATA				WELL AND WATER DATA		Comments
	Methane (%v/v)		%LEL		Carbon dioxide (%v/v)		Carbon monoxide (ppmv)		Hydrogen sulphide (ppmv)		Oxygen (%v/v)		PID Peak (ppm)	Product thickness (mm)	Flow rate (l/hr)		Differential borehole Pressure (mb)	Time for flow to equalise (secs)	Water level (mbgl)	Depth of well (mbgl)	
	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Min.	Steady			Peak	Steady					
BH1001	ND	ND	ND	ND	0.2	0.2	ND	ND	ND	ND	20.4	20.4	0.1	ND	-0.2	-0.1	-0.92	60	9.20	23.32	
BH1002	ND	ND	ND	ND	0.1	0.1	ND	ND	1	ND	12.6	12.6	0.8	ND	-0.1	-0.1	-0.93	60	7.37	23.80	No odour noted
BH1003	ND	ND	ND	ND	0.5	0.5	1	1	1	1	19.8	19.8	0.1	ND	-0.5	-0.1	-1.78	120	8.61	18.38	
BH1004	ND	ND	ND	ND	2.3	2.3	1	1	ND	ND	16.4	16.4	0.3	ND	-0.1	0.0	-0.86	60	12.57	24.15	
BH1005	0.1	0.1	2.0	2.0	2.2	2.2	ND	ND	ND	ND	16.4	16.4	0.1	ND	-0.2	0.0	-0.95	60	11.43	18.91	
WS1002	ND	ND	ND	ND	0.1	0.1	ND	ND	ND	ND	20.9	20.9	ND	ND	0.0	0.0	-0.28	30	Dry	1.81	
WS1004	ND	ND	ND	ND	0.6	0.6	2	1	ND	ND	17.5	17.5	ND	ND	0.0	0.0	0.05	30	1.80	2.19	
WS1005	ND	ND	ND	ND	0.1	0.1	10	1	ND	ND	20.5	20.5	0.1	ND	0.0	0.0	0.02	30	Dry	1.79	
WS1006	ND	ND	ND	ND	0.1	0.1	ND	ND	ND	ND	20.6	20.8	ND	ND	0.0	0.0	0.02	30	2.08	2.62	
WS1007	ND	ND	ND	ND	0.1	0.1	18	4	1	1	19.8	19.8	0.3	ND	-2.7	-0.2	-6.78	150	0.11	0.80	No gas logging; pulled water after ~40 seconds
WS1009	ND	ND	ND	ND	1.3	1.0	ND	ND	ND	ND	19.3	19.7	ND	ND	0.0	0.0	0.05	30	Dry	1.29	
Max	**0.1**	**0.1**	**2.0**	**2.0**	**2.3**	**2.3**	**18**	**4**	**1**	**1**	**20.9**	**20.9**	**0.8**	**ND**	**0.0**	**0.0**	**0**	**150**	**12.57**	**24.15**	
Min	**ND**	**ND**	**ND**	**ND**	**0.1**	**0.1**	**ND**	**ND**	**ND**	**ND**	**12.6**	**12.6**	**0.1**	**ND**	**-2.7**	**-0.2**	**-6.8**	**30**	**DRY**	**0.80**	

ND - Not detected
NR - Not recorded
NA - Non applicable

METEOROLOGICAL AND SITE INFORMATION: (Select correct box with X or enter data, as applicable)

State of ground:		Dry	X	Moist		Wet		Snow		Frozen
Wind:		Calm	X	Light		Moderate		Strong		
Cloud cover:		None		Slight		Cloudy	X	Overcast		
Precipitation:		None	X	Slight		Moderate		Heavy		
Time monitoring performed:			08:00	Start			10:06	End		
Barometric pressure (mbar):			998	Start			1001	End		
Pressure trend (Daily):				Falling		Steady	X	Rising		
Source:	Online									
Air Temperature (Deg. C):			6	Before			8	After		

INSTRUMENTATION TECHNICAL SPECIFICATIONS:

Ground gas meter: G507254
Gas Range: **CH_4** 0 - 100% **CO_2** 0 - 100% **O_2** 0 - 25%
Gas Flow range: +/- 26 l/hour
Differential Pressure: +/- 150 mb
Date of last calibration: 01/08/2023
Date of next calibration: 01/02/2024

Ambient air check: **CH_4** 0.0 **CO_2** 0.0 **O_2** 20.8

Ground Gas and Groundwater Monitoring Record Sheet

JOB DETAILS:

Client: Civic Earth
Site: Mayfield Park Phase 1B, Manchester
Date: 20/02/2024
Quote No:
Visit No: 3 **of**
Operator: Ian Sidgwick
Project Manager: Jake Townsend

Monitoring Point	GAS CONCENTRATIONS												VOLATILES		FLOW DATA				WELL AND WATER DATA		Comments
	Methane (%v/v)		%LEL		Carbon dioxide (%v/v)		Carbon monoxide (ppmv)		Hydrogen sulphide (ppmv)		Oxygen (%v/v)		PID Peak (ppm)	Product thickness (mm)	Flow rate (l/hr)		Differential borehole Pressure (mb)	Time for flow to equalise (secs)	Water level (mbgl)	Depth of well (mbgl)	
	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Min.	Steady			Peak	Steady					
BH1001	ND	ND	ND	ND	3.4	3.4	ND	ND	1	1	11.3	11.3	0.3	ND	0.0	0.0	0.51	30	9.12	23.32	
BH1002	ND	ND	ND	ND	0.1	0.1	ND	ND	1	1	9.7	9.7	1.2	ND	0.0	0.0	0.07	30	7.31	23.79	No odour noted
BH1003	ND	ND	ND	ND	0.5	0.5	2	2	1	1	19.3	19.3	0.4	ND	-0.4	-0.1	-1.21	120	8.46	18.38	
BH1004	ND	ND	ND	ND	2.6	2.6	1	1	1	1	16.1	16.1	0.4	ND	0.0	0.0	0.55	60	12.55	24.04	
BH1005	0.3	0.2	6.0	4.0	1.7	1.7	ND	ND	ND	ND	15.9	15.9	0.1	ND	0.1	0.1	0.83	60	11.44	18.90	
WS1002	ND	ND	ND	ND	0.1	0.1	ND	ND	1	1	20.2	20.3	0.1	ND	0.0	0.0	0.00	30	Dry	1.81	
WS1004	ND	ND	ND	ND	0.6	0.6	1	1	ND	ND	17.1	17.1	0.2	ND	0.0	0.0	-0.26	30	1.75	2.19	
WS1005	ND	ND	ND	ND	0.1	0.0	1	ND	ND	ND	20.2	20.3	0.1	ND	0.0	0.0	0.05	30	Dry	1.79	
WS1006	ND	ND	ND	ND	0.1	0.1	ND	ND	ND	ND	20.4	20.5	ND	ND	0.0	0.0	0.05	30	2.06	2.62	
WS1007	ND	ND	ND	ND	0.1	0.1	8	5	1	1	19.4	19.6	ND	ND	-0.3	0.0	-1.09	60	0.12	0.80	No gas logging; pulled water after ~40 seconds
WS1009	ND	ND	ND	ND	0.3	0.3	ND	ND	ND	ND	20.3	20.3	0.1	ND	0.0	0.0	0.07	30	Dry	1.29	
Max	**0.3**	**0.2**	**6.0**	**4.0**	**3.4**	**3.4**	**8**	**5**	**1**	**1**	**20.4**	**20.5**	**1.2**	**ND**	**0.1**	**0.1**	**1**	**120**	**12.55**	**24.04**	
Min	**ND**	**ND**	**ND**	**ND**	**0.1**	**0.0**	**ND**	**ND**	**ND**	**ND**	**9.7**	**9.7**	**0.1**	**ND**	**-0.4**	**-0.1**	**-1.2**	**30**	**DRY**	**0.80**	

ND - Not detected
NR - Not recorded
NA - Non applicable

METEOROLOGICAL AND SITE INFORMATION:

(Select correct box with X or enter data, as applicable)

State of ground:		Dry	X	Moist		Wet		Snow		Frozen
Wind:		Calm	X	Light		Moderate		Strong		
Cloud cover:		None	X	Slight		Cloudy		Overcast		
Precipitation:	X	None		Slight		Moderate		Heavy		
Time monitoring performed:			08:00	Start			11:20	End		
Barometric pressure (mbar):			1020	Start			1021	End		
Pressure trend (Daily):				Falling	X	Steady		Rising		
Source:	Online									
Air Temperature (Deg. C):			10	Before			14	After		

INSTRUMENTATION TECHNICAL SPECIFICATIONS:

Ground gas meter: GA5000 - G507254
Gas Range: **CH_4** 0 - 100% **CO_2** 0 - 100% **O_2** 0 - 25%
Gas Flow range: +/- 26 l/hour
Differential Pressure: +/- 150 mb
Date of last calibration: 01/08/2023
Date of next calibration: 01/02/2024

Ambient air check: **CH_4** 0.0 **CO_2** 0.0 **O_2** 20.8

Groundwater Monitoring

Sampling Record Sheet

CLIENT Civic Earth
DATE 30/01/2024
WEATHER Cloudy, wet ground, 10 degrees, 1022mbar

SITE Mayfield Park, Manchester Phase 1B
TIME On: 07:50 Off: 11:50
MONITORING PERSONNEL Ian Sidgwick

Monitoring Location	DTL m	DTB m	End m	EC mS/cm	Temp C	pH	Purge Volume L	Odour description	Sediment description	Oil/grease visible	Colour description	Turbidity description	Comments
BH1001	9.22	23.45	23.45	1146.2	12.14	10.38	10	None	High medium-coarse	None	Red-brown	Moderate-high	
BH1002	7.46	23.83	23.83	891.8	12.12	9.06	10	None	High medium-coarse	None	Red-brown	High	
BH1003	8.59	18.4	18.4	987.1	12.40	8.50	10	None	Moderate coarse	None	Red-brown	Moderate	
BH1004	12.63	24.17	24.17	1586.7	12.51	8.47	10	None	High medium-coarse	None	Red-brown	High	
BH1005	11.49	19.11	19.11	1073.0	12.42	7.89	10	None	Low fine-medium	None	Pale brown	Very low	
WS1002	Dry	1.81	1.81	NR	NR	NR	NR	NR	NR	NR	NR	NR	
WS1004	1.61	2.2	2.2	3809.2	11.95	10.92	0	None	Virtually none	None	Colourless	Hazy	Poor recharge
WS1005	Dry	1.8	1.8	NR	NR	NR	NR	NR	NR	NR	NR	NR	
WS1006	1.95	2.62	2.62	2615.0	11.58	8.87	0	Slight organic (peaty and a bit ammoniacal)	High fine-medium	None	Red-brown	Very high	Microbailer required
WS1007	0.01	0.8	0.8	8325.7	12.29	12.76	0	None	High medium-coarse	None	Red-brown	High	Microbailer required
WS1009	Dry	1.29	1.29	NR	NR	NR	NR	NR	NR	NR	NR	NR	

Groundwater Monitoring

Sampling Record Sheet

CLIENT	Civic Earth	SITE	Mayfield Park, Manchester Phase 1B
DATE	20/02/2024	TIME	On: 08:00 Off: 11:20
WEATHER	Cloudy, mild, dry	MONITORING PERSONNEL	Ian Sidgwick

Monitoring Location	DTL m	DTB m	End m	EC mS/cm	Temp C	pH	Purge Volume L	Odour description	Sediment description	Oil/grease visible	Colour description	Turbidity description	Comments
WS1004	1.75	2.19	2.19	1867.2	11.02	12.57	0	None	Moderate-high fine	None	Dark grey	High	Poor recharge
WS1006	2.06	2.62	2.62	2358.6	10.70	7.36	0	None	High fine-medium	None	Red-brown	High	Microbailer required
WS1007	0.12	0.8	0.8	3641.4	10.78	12.00	0	None	High medium-coarse	None	Red-brown	High	Microbailer required

Appendix D
Chemical Analysis Results

Kirsty Poore
Civic Earth Limited
Carvers Warehouse
77 Dale Street
Manchester
M1 2HG

e: kirsty.poore@civicearth.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 24-78198

Project / Site name:	Mayfield Phase 1B	**Samples received on:**	12/01/2024
Your job number:	51001-03	**Samples instructed on/ Analysis started on:**	12/01/2024
Your order number:	PO-0030	**Analysis completed by:**	19/01/2024
Report Issue Number:	1	**Report issued on:**	19/01/2024
Samples Analysed:	6 soil samples		

Signed: A. Czerwińska

Agnieszka Czerwińska
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-78198
Project / Site name: Mayfield Phase 1B
Your Order No: PO-0030

Lab Sample Number				2928051	2928052	2928053	2928054	2928055
Sample Reference				BH1004	BH1004	BH1004	BH1004	BH1005
Sample Number				1	6	10	14	3
Depth (m)				0.20	1.00	2.00	3.00	0.50
Date Sampled				10/01/2024	10/01/2024	10/01/2024	10/01/2024	10/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	55	51	22	< 0.1	18
Moisture Content	%	0.01	NONE	3.4	10	9.4	15	12
Total mass of sample received	kg	0.001	NONE	0.5	0.6	0.5	0.5	0.7
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	Chrysotile- Loose Fibres
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	-	Detected
Asbestos Analyst ID	N/A	N/A	N/A	MMI	MMI	MMI	N/A	MMI
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	12.1	9.2	9.2	8.5	11.7
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	5000	900	380	350	5400
Organic Matter (automated)	%	0.1	MCERTS	1.1	1.8	0.9	1.8	2.2
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	0.06	< 0.05	0.36	2
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.13
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.57	3.8
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.46	2.8
Phenanthrene	mg/kg	0.05	MCERTS	0.27	0.16	0.06	2.6	22
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.65	5.4
Fluoranthene	mg/kg	0.05	MCERTS	0.43	0.18	0.05	1.9	26
Pyrene	mg/kg	0.05	MCERTS	0.39	0.2	0.06	1.6	23
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.22	0.11	< 0.05	0.78	10
Chrysene	mg/kg	0.05	MCERTS	0.23	0.11	< 0.05	0.75	9.9
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.3	0.13	< 0.05	0.67	10
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.11	< 0.05	< 0.05	0.25	4.5
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.22	0.11	< 0.05	0.52	9.3
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.12	< 0.05	< 0.05	0.24	4.2
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.07	0.97
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.15	< 0.05	< 0.05	0.3	5
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	1.8
Total PAH								
Total WAC-17 PAHs	mg/kg	0.85	NONE	2.44	1.06	< 0.85	11.7	141

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-78198
Project / Site name: Mayfield Phase 1B
Your Order No: PO-0030

Lab Sample Number				2928051	2928052	2928053	2928054	2928055
Sample Reference				BH1004	BH1004	BH1004	BH1004	BH1005
Sample Number				1	6	10	14	3
Depth (m)				0.20	1.00	2.00	3.00	0.50
Date Sampled				10/01/2024	10/01/2024	10/01/2024	10/01/2024	10/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	4.6	< 1.0	3.2	< 1.0	4.8
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	7.3	17	17	5.8	25
Barium (aqua regia extractable)	mg/kg	1	MCERTS	120	92	52	100	220
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.69	0.91	0.48	1	0.85
Boron (water soluble)	mg/kg	0.2	MCERTS	0.5	0.8	0.3	0.7	1
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	15	18	25	27	26
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	16	18	25	27	26
Copper (aqua regia extractable)	mg/kg	1	MCERTS	36	62	19	25	68
Lead (aqua regia extractable)	mg/kg	1	MCERTS	120	280	40	14	380
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	1.3	< 0.3	< 0.3	0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	14	20	18	33	19
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	1.3	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	19	24	26	26	28
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	60	83	50	61	130
Monoaromatics & Oxygenates								
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
o-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS_1D_AL}$	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS_1D_AL}$	mg/kg	0.02	NONE	< 0.020##	< 0.020##	< 0.020##	< 0.020##	< 0.020##
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS_1D_AL}$	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH_CU_1D_AL}$	mg/kg	1	MCERTS	< 1.0	1.3	< 1.0	1.7	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH_CU_1D_AL}$	mg/kg	2	MCERTS	2.5	4	< 2.0	4.3	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	34	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	850	35	10	16	47
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH_CU+HS_1D_AL}$	mg/kg	10	NONE	890###	44###	12###	28###	50###
TPH-CWG - Aromatic >EC5 - EC7 $_{HS_1D_AR}$	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPH-CWG - Aromatic >EC7 - EC8 $_{HS_1D_AR}$	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPH-CWG - Aromatic >EC8 - EC10 $_{HS_1D_AR}$	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPH-CWG - Aromatic >EC10 - EC12 $_{EH_CU_1D_AR}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	1.5
TPH-CWG - Aromatic >EC12 - EC16 $_{EH_CU_1D_AR}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	12
TPH-CWG - Aromatic >EC16 - EC21 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	62
TPH-CWG - Aromatic >EC21 - EC35 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	170	< 10	< 10	< 10	140
TPH-CWG - Aromatic (EC5 - EC35) $_{EH_CU+HS_1D_AR}$	mg/kg	10	NONE	180	< 10	< 10	< 10	220

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-78198
Project / Site name: Mayfield Phase 1B
Your Order No: PO-0030

Lab Sample Number				2928056
Sample Reference				BH1005
Sample Number				9
Depth (m)				2.00
Date Sampled				10/01/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Stone Content	%	0.1	NONE	51
Moisture Content	%	0.01	NONE	12
Total mass of sample received	kg	0.001	NONE	0.6

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	Chrysotile- Loose Fibres
Asbestos in Soil	Type	N/A	ISO 17025	Detected
Asbestos Analyst ID	N/A	N/A	N/A	MMI

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	10.4
Total Cyanide	mg/kg	1	MCERTS	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	1900
Organic Matter (automated)	%	0.1	MCERTS	2.7

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.6
Acenaphthylene	mg/kg	0.05	MCERTS	0.22
Acenaphthene	mg/kg	0.05	MCERTS	7.2
Fluorene	mg/kg	0.05	MCERTS	5.7
Phenanthrene	mg/kg	0.05	MCERTS	32
Anthracene	mg/kg	0.05	MCERTS	8.6
Fluoranthene	mg/kg	0.05	MCERTS	37
Pyrene	mg/kg	0.05	MCERTS	31
Benzo(a)anthracene	mg/kg	0.05	MCERTS	13
Chrysene	mg/kg	0.05	MCERTS	11
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	13
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	4.2
Benzo(a)pyrene	mg/kg	0.05	MCERTS	11
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	5.1
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	1.3
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	5.3
Coronene	mg/kg	0.05	NONE	2.3

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	188

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-78198
Project / Site name: Mayfield Phase 1B
Your Order No: PO-0030

Lab Sample Number				2928056
Sample Reference				BH1005
Sample Number				9
Depth (m)				2.00
Date Sampled				10/01/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Heavy Metals / Metalloids				
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	2.8
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8.7
Barium (aqua regia extractable)	mg/kg	1	MCERTS	130
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.58
Boron (water soluble)	mg/kg	0.2	MCERTS	0.8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8
Chromium (III)	mg/kg	1	NONE	16
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	16
Copper (aqua regia extractable)	mg/kg	1	MCERTS	36
Lead (aqua regia extractable)	mg/kg	1	MCERTS	150
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	14
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	19
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	94
Monoaromatics & Oxygenates				
Benzene	µg/kg	5	MCERTS	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0
p & m-xylene	µg/kg	5	MCERTS	< 5.0
o-xylene	µg/kg	5	MCERTS	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0
Petroleum Hydrocarbons				
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS_1D_AL}$	mg/kg	0.02	NONE	< 0.020
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS_1D_AL}$	mg/kg	0.02	NONE	< 0.020##
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS_1D_AL}$	mg/kg	0.05	NONE	< 0.050
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH_CU_1D_AL}$	mg/kg	1	MCERTS	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH_CU_1D_AL}$	mg/kg	2	MCERTS	2.2
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	52
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH_CU+HS_1D_AL}$	mg/kg	10	NONE	60###
TPH-CWG - Aromatic >EC5 - EC7 $_{HS_1D_AR}$	mg/kg	0.01	NONE	< 0.010
TPH-CWG - Aromatic >EC7 - EC8 $_{HS_1D_AR}$	mg/kg	0.01	NONE	< 0.010
TPH-CWG - Aromatic >EC8 - EC10 $_{HS_1D_AR}$	mg/kg	0.05	NONE	< 0.050
TPH-CWG - Aromatic >EC10 - EC12 $_{EH_CU_1D_AR}$	mg/kg	1	MCERTS	1.3
TPH-CWG - Aromatic >EC12 - EC16 $_{EH_CU_1D_AR}$	mg/kg	2	MCERTS	22
TPH-CWG - Aromatic >EC16 - EC21 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	110
TPH-CWG - Aromatic >EC21 - EC35 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	160
TPH-CWG - Aromatic (EC5 - EC35) $_{EH_CU+HS_1D_AR}$	mg/kg	10	NONE	290

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number : 24-78198
Project / Site name: Mayfield Phase 1B

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2928051	BH1004	1	0.2	Brown sand with concrete and stones.
2928052	BH1004	6	1	Brown loam and clay with gravel and stones.
2928053	BH1004	10	2	Brown sandy clay with gravel and stones.
2928054	BH1004	14	3	Brown clay.
2928055	BH1005	3	0.5	Brown loam and clay with concrete and brick.
2928056	BH1005	9	2	Brown loam and clay with stones and brick.

Analytical Report Number : 24-78198
Project / Site name: Mayfield Phase 1B

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260. Refer to CoA for analyte specific accreditation	L073B-PL	W	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID. Refer to CoA for band specific accreditation.	In-house method with silica gel split/clean up.	L088/76-PL	D	MCERTS

Analytical Report Number : 24-78198
Project / Site name: Mayfield Phase 1B

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

- Quality control parameter has a high recovery (outside of limit); however the associated result is below the reporting limit, other checks applied prior to reporting the data have been accepted. The result should be considered as being deviating and may be compromised
- Quality control parameter failure associated with this result; other checks applied prior to reporting the data have been accepted. The result should be considered as being deviating and may be compromised.

Kirsty Poore
Civic Earth Limited
Carvers Warehouse
77 Dale Street
Manchester
M1 2HG

e: kirsty.poore@civicearth.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 24-78200

Project / Site name:	Mayfield Phase 1B	**Samples received on:**	12/01/2024
Your job number:	51001-03	**Samples instructed on/ Analysis started on:**	12/01/2024
Your order number:	PO0030	**Analysis completed by:**	21/01/2024
Report Issue Number:	1	**Report issued on:**	22/01/2024
Samples Analysed:	6 soil samples		

Signed:

Joanna Szwagrzak
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-78200
Project / Site name: Mayfield Phase 1B
Your Order No: PO0030

Lab Sample Number				2928061	2928062	2928063	2928064	2928065
Sample Reference				TP1001	TP1002	TP1005	TP1005	TP1008
Sample Number				4	1	4	10	7
Depth (m)				0.50	0.15	0.50	1.50	1.00
Date Sampled				10/01/2024	10/01/2024	10/01/2024	10/01/2024	10/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	26	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	12	14	10	7.9	14
Total mass of sample received	kg	0.001	NONE	0.6	0.6	0.5	0.7	0.5
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	-	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	WEM	WEM	WEM	N/A	WEM
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	8.2	10.3	9	7.9	8.6
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	590	1300	410	250	990
Organic Matter (automated)	%	0.1	MCERTS	2.4	2.1	1.7	0.9	3.4
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	0.41	0.13	0.08	0.07	3.8
Acenaphthylene	mg/kg	0.05	MCERTS	0.1	< 0.05	< 0.05	< 0.05	0.89
Acenaphthene	mg/kg	0.05	MCERTS	2.9	< 0.05	0.08	< 0.05	4.7
Fluorene	mg/kg	0.05	MCERTS	1.5	< 0.05	0.07	< 0.05	4.8
Phenanthrene	mg/kg	0.05	MCERTS	17	0.33	0.42	0.09	32
Anthracene	mg/kg	0.05	MCERTS	3.1	0.07	0.1	< 0.05	7.3
Fluoranthene	mg/kg	0.05	MCERTS	21	0.53	0.5	0.11	32
Pyrene	mg/kg	0.05	MCERTS	20	0.55	0.45	0.1	31
Benzo(a)anthracene	mg/kg	0.05	MCERTS	7.9	0.28	0.25	< 0.05	14
Chrysene	mg/kg	0.05	MCERTS	8.3	0.31	0.24	< 0.05	14
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	9	0.35	0.21	< 0.05	15
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	3.2	0.15	0.12	< 0.05	5.6
Benzo(a)pyrene	mg/kg	0.05	MCERTS	7.8	0.27	0.18	< 0.05	13
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	3.7	0.15	0.09	< 0.05	6
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.86	< 0.05	< 0.05	< 0.05	1.5
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	4.6	0.18	0.11	< 0.05	7.1
Coronene	mg/kg	0.05	NONE	1.6	< 0.05	< 0.05	< 0.05	2.5
Total PAH								
Total WAC-17 PAHs	mg/kg	0.85	NONE	113	3.3	2.9	< 0.85	196

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-78200
Project / Site name: Mayfield Phase 1B
Your Order No: PO0030

Lab Sample Number				2928061	2928062	2928063	2928064	2928065
Sample Reference				TP1001	TP1002	TP1005	TP1005	TP1008
Sample Number				4	1	4	10	7
Depth (m)				0.50	0.15	0.50	1.50	1.00
Date Sampled				10/01/2024	10/01/2024	10/01/2024	10/01/2024	10/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	4	4.2	< 1.0	< 1.0	3.4
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	14	14	4.5	4.8	25
Barium (aqua regia extractable)	mg/kg	1	MCERTS	350	670	72	110	180
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.2	1.2	1	0.78	1.5
Boron (water soluble)	mg/kg	0.2	MCERTS	0.7	0.4	1.7	1.5	0.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	23	17	26	16	22
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	23	17	27	16	22
Copper (aqua regia extractable)	mg/kg	1	MCERTS	46	44	25	13	110
Lead (aqua regia extractable)	mg/kg	1	MCERTS	130	460	11	6.9	170
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.3	< 0.3	< 0.3	< 0.3	0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	26	15	25	17	31
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	33	26	19	14	37
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	130	140	64	33	140
Monoaromatics & Oxygenates								
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
o-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS_1D_AL}$	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS_1D_AL}$	mg/kg	0.02	NONE	< 0.020##	< 0.020##	< 0.020##	< 0.020##	< 0.020##
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS_1D_AL}$	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH_CU_1D_AL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	3.4
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH_CU_1D_AL}$	mg/kg	2	MCERTS	3	< 2.0	< 2.0	< 2.0	9.2
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	10
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	8.2	< 8.0	< 8.0	< 8.0	34
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH_CU+HS_1D_AL}$	mg/kg	10	NONE	15###	< 10##	< 10##	< 10##	56###
TPH-CWG - Aromatic >EC5 - EC7 $_{HS_1D_AR}$	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPH-CWG - Aromatic >EC7 - EC8 $_{HS_1D_AR}$	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPH-CWG - Aromatic >EC8 - EC10 $_{HS_1D_AR}$	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPH-CWG - Aromatic >EC10 - EC12 $_{EH_CU_1D_AR}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	4.8
TPH-CWG - Aromatic >EC12 - EC16 $_{EH_CU_1D_AR}$	mg/kg	2	MCERTS	13	< 2.0	< 2.0	< 2.0	32
TPH-CWG - Aromatic >EC16 - EC21 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	52	< 10	< 10	< 10	120
TPH-CWG - Aromatic >EC21 - EC35 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	50	< 10	< 10	< 10	130
TPH-CWG - Aromatic (EC5 - EC35) $_{EH_CU+HS_1D_AR}$	mg/kg	10	NONE	110	< 10	< 10	< 10	280

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-78200
Project / Site name: Mayfield Phase 1B
Your Order No: PO0030

Lab Sample Number				2928066
Sample Reference				TP1010
Sample Number				10
Depth (m)				2.00
Date Sampled				10/01/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Stone Content	%	0.1	NONE	34
Moisture Content	%	0.01	NONE	13
Total mass of sample received	kg	0.001	NONE	0.6

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	Amosite- Loose Fibres
Asbestos in Soil	Type	N/A	ISO 17025	Detected
Asbestos Analyst ID	N/A	N/A	N/A	WEM

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.7
Total Cyanide	mg/kg	1	MCERTS	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	1200
Organic Matter (automated)	%	0.1	MCERTS	5.4

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	4.3
Acenaphthylene	mg/kg	0.05	MCERTS	0.76
Acenaphthene	mg/kg	0.05	MCERTS	9.2
Fluorene	mg/kg	0.05	MCERTS	6
Phenanthrene	mg/kg	0.05	MCERTS	45
Anthracene	mg/kg	0.05	MCERTS	13
Fluoranthene	mg/kg	0.05	MCERTS	78
Pyrene	mg/kg	0.05	MCERTS	72
Benzo(a)anthracene	mg/kg	0.05	MCERTS	35
Chrysene	mg/kg	0.05	MCERTS	39
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	45
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	15
Benzo(a)pyrene	mg/kg	0.05	MCERTS	37
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	19
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	4.9
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	22
Coronene	mg/kg	0.05	NONE	8.6

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	455

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-78200
Project / Site name: Mayfield Phase 1B
Your Order No: PO0030

Lab Sample Number				2928066
Sample Reference				TP1010
Sample Number				10
Depth (m)				2.00
Date Sampled				10/01/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Heavy Metals / Metalloids				
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	2.4
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.2
Barium (aqua regia extractable)	mg/kg	1	MCERTS	140
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.1
Boron (water soluble)	mg/kg	0.2	MCERTS	1.4
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8
Chromium (III)	mg/kg	1	NONE	19
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	20
Copper (aqua regia extractable)	mg/kg	1	MCERTS	56
Lead (aqua regia extractable)	mg/kg	1	MCERTS	52
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	22
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	30
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	130

Monoaromatics & Oxygenates

Benzene	µg/kg	5	MCERTS	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0
p & m-xylene	µg/kg	5	MCERTS	< 5.0
o-xylene	µg/kg	5	MCERTS	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6 $_{HS_1D_AL}$	mg/kg	0.02	NONE	< 0.020
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS_1D_AL}$	mg/kg	0.02	NONE	< 0.020##
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS_1D_AL}$	mg/kg	0.05	NONE	< 0.050
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH_CU_1D_AL}$	mg/kg	1	MCERTS	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH_CU_1D_AL}$	mg/kg	2	MCERTS	6.9
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	12
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	170
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH_CU+HS_1D_AL}$	mg/kg	10	NONE	190###

TPH-CWG - Aromatic >EC5 - EC7 $_{HS_1D_AR}$	mg/kg	0.01	NONE	< 0.010
TPH-CWG - Aromatic >EC7 - EC8 $_{HS_1D_AR}$	mg/kg	0.01	NONE	< 0.010
TPH-CWG - Aromatic >EC8 - EC10 $_{HS_1D_AR}$	mg/kg	0.05	NONE	< 0.050
TPH-CWG - Aromatic >EC10 - EC12 $_{EH_CU_1D_AR}$	mg/kg	1	MCERTS	6.6
TPH-CWG - Aromatic >EC12 - EC16 $_{EH_CU_1D_AR}$	mg/kg	2	MCERTS	59
TPH-CWG - Aromatic >EC16 - EC21 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	300
TPH-CWG - Aromatic >EC21 - EC35 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	860
TPH-CWG - Aromatic (EC5 - EC35) $_{EH_CU+HS_1D_AR}$	mg/kg	10	NONE	1200

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number : 24-78200
Project / Site name: Mayfield Phase 1B

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2928061	TP1001	4	0.5	Brown loam and clay with gravel.
2928062	TP1002	1	0.15	Brown loam and sand with brick and clinker
2928063	TP1005	4	0.5	Brown loam and clay with gravel.
2928064	TP1005	10	1.5	Brown clay and sand with gravel.
2928065	TP1008	7	1	Brown loam and clay with gravel and vegetation.
2928066	TP1010	10	2	Brown loam and clay with gravel and stones.

Analytical Report Number : 24-78200
Project / Site name: Mayfield Phase 1B

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260. Refer to CoA for analyte specific accreditation	L073B-PL	W	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID. Refer to CoA for band specific accreditation.	In-house method with silica gel split/clean up.	L088/76-PL	D	MCERTS

Analytical Report Number : 24-78200
Project / Site name: Mayfield Phase 1B

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

- Quality control parameter failure associated with this result; other checks applied prior to reporting the data have been accepted. The result should be considered as being deviating and may be compromised.
- Quality control parameter has a high recovery (outside of limit); however the associated result is below the reporting limit, other checks applied prior to reporting the data have been accepted. The result should be considered as being deviating and may be compromised

Kirsty Poore
Civic Earth Limited☐
Carvers Warehouse
77 Dale Street
Manchester
M1 2HG

e: kirsty.poore@civicearth.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 24-78201

Replaces Analytical Report Number: 24-78201, issue no. 1
Additional analysis undertaken.
PCB WHO 12 added to sample 2928070 as per clients request

Project / Site name:	Mayfield Phase 1B	**Samples received on:**	12/01/2024
Your job number:	51001-03	**Samples instructed on/ Analysis started on:**	12/01/2024
Your order number:	PO0030	**Analysis completed by:**	25/01/2024
Report Issue Number:	2	**Report issued on:**	31/01/2024
Samples Analysed:	9 soil samples		

Signed:

Joanna Szwagrzak
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-78201
Project / Site name: Mayfield Phase 1B
Your Order No: PO0030

Lab Sample Number				2928067	2928068	2928069	2928070	2928071
Sample Reference				TP1003	TP1004	TP1006	TP1007	TP1007
Sample Number				4	4	7	10	13
Depth (m)				0.50	0.50	1.00	2.00	3.00
Date Sampled				11/01/2024	11/01/2024	11/01/2024	11/01/2024	11/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	62	40	35	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	8.1	6	10	43	13
Total mass of sample received	kg	0.001	NONE	0.5	0.7	0.6	0.7	0.6
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	-	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	-
Asbestos Analyst ID	N/A	N/A	N/A	IZJ	IZJ	IZJ	IZJ	N/A
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	10.1	8.8	11.2	7.8	7.9
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	1400	1300	2200	2400	110
Organic Matter (automated)	%	0.1	MCERTS	2.5	0.5	2.1	11	0.1
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	3.6	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	0.38	0.12	1.1	0.12	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	0.06	< 0.05	0.16	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.08	0.09	1.1	0.18	< 0.05
Fluorene	mg/kg	0.05	MCERTS	0.1	0.07	0.99	0.4	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.77	0.71	7.3	0.56	< 0.05
Anthracene	mg/kg	0.05	MCERTS	0.16	0.13	1.6	0.48	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.9	0.96	8.7	1.1	< 0.05
Pyrene	mg/kg	0.05	MCERTS	0.93	0.91	8	1	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.4	0.46	3.9	0.6	< 0.05
Chrysene	mg/kg	0.05	MCERTS	0.52	0.5	3.8	0.54	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.57	0.56	4.2	0.6	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.23	0.25	1.8	0.17	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.45	0.45	3.6	0.31	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.36	0.26	1.8	0.22	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.51	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.41	0.3	2	0.28	< 0.05
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	0.97	< 0.05	< 0.05
Total PAH								
Total WAC-17 PAHs	mg/kg	0.85	NONE	6.32	5.77	51.4	6.57	< 0.85

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-78201
Project / Site name: Mayfield Phase 1B
Your Order No: PO0030

Lab Sample Number				2928067	2928068	2928069	2928070	2928071
Sample Reference				TP1003	TP1004	TP1006	TP1007	TP1007
Sample Number				4	4	7	10	13
Depth (m)				0.50	0.50	1.00	2.00	3.00
Date Sampled				11/01/2024	11/01/2024	11/01/2024	11/01/2024	11/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	1.8	2	4.9	4.4	2
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	16	8.1	35	79	5.1
Barium (aqua regia extractable)	mg/kg	1	MCERTS	210	1700	210	140	15
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.51	0.45	0.89	1.9	0.22
Boron (water soluble)	mg/kg	0.2	MCERTS	0.8	0.3	1.9	1.7	0.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	2.9	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	16	9.5	19	47	3.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	16	9.8	19	47	3.9
Copper (aqua regia extractable)	mg/kg	1	MCERTS	30	26	57	320	5.3
Lead (aqua regia extractable)	mg/kg	1	MCERTS	57	84	180	520	3.3
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	0.3	0.6	3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	11	20	15	50	3.4
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	21	13	21	35	7.7
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	62	160	140	140	10
Monoaromatics & Oxygenates								
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
o-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS_1D_AL}$	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS_1D_AL}$	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS_1D_AL}$	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH_CU_1D_AL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	1.1	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH_CU_1D_AL}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	11	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	11	< 8.0	15	16	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	200	17	120	58	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH_CU+HS_1D_AL}$	mg/kg	10	NONE	210	17	130	87	< 10
TPH-CWG - Aromatic >EC5 - EC7 $_{HS_1D_AR}$	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPH-CWG - Aromatic >EC7 - EC8 $_{HS_1D_AR}$	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPH-CWG - Aromatic >EC8 - EC10 $_{HS_1D_AR}$	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPH-CWG - Aromatic >EC10 - EC12 $_{EH_CU_1D_AR}$	mg/kg	1	MCERTS	< 1.0	< 1.0	1.1	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 $_{EH_CU_1D_AR}$	mg/kg	2	MCERTS	2.5	3.2	9.1	2.5	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	21	< 10	46	16	< 10
TPH-CWG - Aromatic >EC21 - EC35 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	250	39	130	54	< 10
TPH-CWG - Aromatic (EC5 - EC35) $_{EH_CU+HS_1D_AR}$	mg/kg	10	NONE	280	51	180	73	< 10

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-78201
Project / Site name: Mayfield Phase 1B
Your Order No: PO0030

Lab Sample Number				2928067	2928068	2928069	2928070	2928071
Sample Reference				TP1003	TP1004	TP1006	TP1007	TP1007
Sample Number				4	4	7	10	13
Depth (m)				0.50	0.50	1.00	2.00	3.00
Date Sampled				11/01/2024	11/01/2024	11/01/2024	11/01/2024	11/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
PCBs								
PCB Congener 077	mg/kg	0.001	NONE	-	-	-	< 0.001	-
PCB Congener 081	mg/kg	0.001	NONE	-	-	-	< 0.001	-
PCB Congener 105	mg/kg	0.001	NONE	-	-	-	< 0.001	-
PCB Congener 114	mg/kg	0.001	NONE	-	-	-	< 0.001	-
PCB Congener 118	mg/kg	0.001	NONE	-	-	-	< 0.001	-
PCB Congener 123	mg/kg	0.001	NONE	-	-	-	< 0.001	-
PCB Congener 126	mg/kg	0.001	NONE	-	-	-	< 0.001	-
PCB Congener 156	mg/kg	0.001	NONE	-	-	-	< 0.001	-
PCB Congener 157	mg/kg	0.001	NONE	-	-	-	< 0.001	-
PCB Congener 167	mg/kg	0.001	NONE	-	-	-	< 0.001	-
PCB Congener 169	mg/kg	0.001	NONE	-	-	-	< 0.001	-
PCB Congener 189	mg/kg	0.001	NONE	-	-	-	< 0.001	-
Total PCBs – WHO12								
Total PCBs	mg/kg	0.012	NONE	-	-	-	< 0.012	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-78201
Project / Site name: Mayfield Phase 1B
Your Order No: PO0030

Lab Sample Number				2928072	2928073	2928074	2928075
Sample Reference				TP1009	TP1009	TP1011	TP1012
Sample Number				10	13	7	4
Depth (m)				2.00	3.00	1.00	0.50
Date Sampled				11/01/2024	11/01/2024	11/01/2024	11/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Stone Content	%	0.1	NONE	< 0.1	< 0.1	42	9.8
Moisture Content	%	0.01	NONE	15	14	8.9	14
Total mass of sample received	kg	0.001	NONE	0.7	0.8	0.8	0.7
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	Amosite- Loose Fibres	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	-	Detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	IZJ	N/A	IZJ	IZJ
General Inorganics							
pH - Automated	pH Units	N/A	MCERTS	7.5	8.1	10.4	8.6
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	240	420	1800	1100
Organic Matter (automated)	%	0.1	MCERTS	0.8	1.2	1.3	1.9
Total Phenols							
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs							
Naphthalene	mg/kg	0.05	MCERTS	0.19	0.15	0.94	0.59
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.15	0.16
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	1.3	0.45
Fluorene	mg/kg	0.05	MCERTS	0.05	< 0.05	0.88	0.39
Phenanthrene	mg/kg	0.05	MCERTS	0.27	0.21	8.2	3.1
Anthracene	mg/kg	0.05	MCERTS	0.06	0.05	1.6	0.74
Fluoranthene	mg/kg	0.05	MCERTS	0.15	0.15	8.4	5
Pyrene	mg/kg	0.05	MCERTS	0.16	0.15	7.8	4.9
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.06	0.06	3.6	2.5
Chrysene	mg/kg	0.05	MCERTS	0.07	0.08	3.5	2.2
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	3.7	2.9
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	1.6	0.87
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	3.1	2.3
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	1.5	1.1
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.42	0.23
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	1.8	1.3
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	0.72	0.56
Total PAH							
Total WAC-17 PAHs	mg/kg	0.85	NONE	1.01	0.85	49.3	29.1

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-78201
Project / Site name: Mayfield Phase 1B
Your Order No: PO0030

Lab Sample Number				2928072	2928073	2928074	2928075
Sample Reference				TP1009	TP1009	TP1011	TP1012
Sample Number				10	13	7	4
Depth (m)				2.00	3.00	1.00	0.50
Date Sampled				11/01/2024	11/01/2024	11/01/2024	11/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Heavy Metals / Metalloids							
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	2.5	2.2	4.5	4
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	2.7	8.1	31	27
Barium (aqua regia extractable)	mg/kg	1	MCERTS	87	84	210	110
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.78	0.9	0.82	0.94
Boron (water soluble)	mg/kg	0.2	MCERTS	0.8	1.2	1	0.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	24	22	17	17
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	25	22	17	17
Copper (aqua regia extractable)	mg/kg	1	MCERTS	9	22	51	59
Lead (aqua regia extractable)	mg/kg	1	MCERTS	15	18	150	140
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	0.5	0.4
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	18	25	16	17
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	30	24	20	21
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	54	59	130	90
Monoaromatics & Oxygenates							
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
p & m-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
o-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0
Petroleum Hydrocarbons							
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS_1D_AL}$	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS_1D_AL}$	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS_1D_AL}$	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH_CU_1D_AL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH_CU_1D_AL}$	mg/kg	2	MCERTS	< 2.0	< 2.0	3.2	3.5
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0	15	15
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0	86	140
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH_CU+HS_1D_AL}$	mg/kg	10	NONE	< 10	< 10	100	160
TPH-CWG - Aromatic >EC5 - EC7 $_{HS_1D_AR}$	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010
TPH-CWG - Aromatic >EC7 - EC8 $_{HS_1D_AR}$	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010
TPH-CWG - Aromatic >EC8 - EC10 $_{HS_1D_AR}$	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050
TPH-CWG - Aromatic >EC10 - EC12 $_{EH_CU_1D_AR}$	mg/kg	1	MCERTS	1.2	1	1.1	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 $_{EH_CU_1D_AR}$	mg/kg	2	MCERTS	2.8	3.6	6.8	5.1
TPH-CWG - Aromatic >EC16 - EC21 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	< 10	< 10	30	23
TPH-CWG - Aromatic >EC21 - EC35 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	< 10	< 10	77	71
TPH-CWG - Aromatic (EC5 - EC35) $_{EH_CU+HS_1D_AR}$	mg/kg	10	NONE	12	15	120	100

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-78201
Project / Site name: Mayfield Phase 1B
Your Order No: PO0030

Lab Sample Number				2928072	2928073	2928074	2928075
Sample Reference				TP1009	TP1009	TP1011	TP1012
Sample Number				10	13	7	4
Depth (m)				2.00	3.00	1.00	0.50
Date Sampled				11/01/2024	11/01/2024	11/01/2024	11/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
PCBs							
PCB Congener 077	mg/kg	0.001	NONE	-	-	-	-
PCB Congener 081	mg/kg	0.001	NONE	-	-	-	-
PCB Congener 105	mg/kg	0.001	NONE	-	-	-	-
PCB Congener 114	mg/kg	0.001	NONE	-	-	-	-
PCB Congener 118	mg/kg	0.001	NONE	-	-	-	-
PCB Congener 123	mg/kg	0.001	NONE	-	-	-	-
PCB Congener 126	mg/kg	0.001	NONE	-	-	-	-
PCB Congener 156	mg/kg	0.001	NONE	-	-	-	-
PCB Congener 157	mg/kg	0.001	NONE	-	-	-	-
PCB Congener 167	mg/kg	0.001	NONE	-	-	-	-
PCB Congener 169	mg/kg	0.001	NONE	-	-	-	-
PCB Congener 189	mg/kg	0.001	NONE	-	-	-	-

Total PCBs – WHO12

Total PCBs	mg/kg	0.012	NONE	-	-	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 24-78201
Project / Site name: Mayfield Phase 1B

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2928067	TP1003	4	0.5	Brown loam and sand with concrete and brick.
2928068	TP1004	4	0.5	Brown clay and sand with gravel and stones.
2928069	TP1006	7	1	Brown loam and sand with stones and brick.
2928070	TP1007	10	2	Brown clay and loam with gravel.
2928071	TP1007	13	3	Brown sandy clay.
2928072	TP1009	10	2	Brown clay.
2928073	TP1009	13	3	Brown clay and sand with gravel.
2928074	TP1011	7	1	Brown loam and clay with gravel and stones.
2928075	TP1012	4	0.5	Brown loam and clay with gravel and stones.

Analytical Report Number : 24-78201
Project / Site name: Mayfield Phase 1B

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260. Refer to CoA for analyte specific accreditation	L073B-PL	W	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
PCBs WHO 12 in soil	Determination of PCBs (WHO-12 Congeners) by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID. Refer to CoA for band specific accreditation.	In-house method with silica gel split/clean up.	L088/76-PL	D	MCERTS
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS

Analytical Report Number : 24-78201
Project / Site name: Mayfield Phase 1B

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Kirsty Poore
Civic Earth Limited
Carvers Warehouse
77 Dale Street
Manchester
M1 2HG

e: kirsty.poore@civicearth.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 24-78202

Project / Site name:	Mayfield Phase 1B	**Samples received on:**	12/01/2024
Your job number:	51001-03	**Samples instructed on/ Analysis started on:**	12/01/2024
Your order number:	PO0030	**Analysis completed by:**	19/01/2024
Report Issue Number:	1	**Report issued on:**	19/01/2024
Samples Analysed:	4 soil samples		

Signed: A. Czerwińska

Agnieszka Czerwińska
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-78202
Project / Site name: Mayfield Phase 1B
Your Order No: PO0030

Lab Sample Number				2928076	2928077	2928078	2928079
Sample Reference				BH1002	BH1002	BH1001	BH1001
Sample Number				1	15	5	12
Depth (m)				0.20	4.00	1.00	3.00
Date Sampled				11/01/2024	11/01/2024	11/01/2024	11/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Stone Content	%	0.1	NONE	11	14	16	< 0.1
Moisture Content	%	0.01	NONE	12	9.6	14	12
Total mass of sample received	kg	0.001	NONE	0.8	0.7	0.9	0.8
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MJN	MJN	MJN	MJN

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	9.6	9	10.4	9.6
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	2100	840	8300	640
Organic Matter (automated)	%	0.1	MCERTS	2.5	0.9	2.1	0.7

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	1.2	0.09	0.1	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	0.24	< 0.05	0.07	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	2.8	0.23	0.25	< 0.05
Fluorene	mg/kg	0.05	MCERTS	2.3	0.14	0.2	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	16	1.3	2.1	0.16
Anthracene	mg/kg	0.05	MCERTS	3.8	0.27	0.56	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	17	1.7	3.4	0.26
Pyrene	mg/kg	0.05	MCERTS	15	1.6	3.6	0.26
Benzo(a)anthracene	mg/kg	0.05	MCERTS	7.2	0.76	1.7	0.11
Chrysene	mg/kg	0.05	MCERTS	7.1	0.79	1.8	0.13
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	7.9	0.87	2.1	0.17
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	2.6	0.35	0.7	0.07
Benzo(a)pyrene	mg/kg	0.05	MCERTS	6.5	0.77	1.9	0.12
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	2.9	0.38	1.2	0.08
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.72	< 0.05	0.39	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	3.5	0.39	1.9	0.09
Coronene	mg/kg	0.05	NONE	1.2	< 0.05	< 0.05	< 0.05

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	97.9	9.73	21.7	1.45

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-78202
Project / Site name: Mayfield Phase 1B
Your Order No: PO0030

Lab Sample Number				2928076	2928077	2928078	2928079
Sample Reference				BH1002	BH1002	BH1001	BH1001
Sample Number				1	15	5	12
Depth (m)				0.20	4.00	1.00	3.00
Date Sampled				11/01/2024	11/01/2024	11/01/2024	11/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Heavy Metals / Metalloids							
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	6.4	6.1	< 1.0	1.6
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	41	17	9.7	2.4
Barium (aqua regia extractable)	mg/kg	1	MCERTS	210	140	290	64
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.2	0.49	0.74	0.28
Boron (water soluble)	mg/kg	0.2	MCERTS	1.6	0.6	3.4	0.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	21	12	19	6.4
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	22	12	19	6.5
Copper (aqua regia extractable)	mg/kg	1	MCERTS	65	26	39	7.8
Lead (aqua regia extractable)	mg/kg	1	MCERTS	260	64	100	11
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.7	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	18	7	33	5
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	25	12	26	10
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	180	76	96	15
Monoaromatics & Oxygenates							
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
p & m-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
o-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0
Petroleum Hydrocarbons							
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS_1D_AL}$	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS_1D_AL}$	mg/kg	0.02	NONE	< 0.020##	< 0.020	< 0.020	< 0.020
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS_1D_AL}$	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH_CU_1D_AL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH_CU_1D_AL}$	mg/kg	2	MCERTS	2.8	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	9.9	< 8.0	9.8	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	63	< 8.0	74	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH_CU+HS_1D_AL}$	mg/kg	10	NONE	76###	< 10	86	< 10
TPH-CWG - Aromatic >EC5 - EC7 $_{HS_1D_AR}$	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010
TPH-CWG - Aromatic >EC7 - EC8 $_{HS_1D_AR}$	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010
TPH-CWG - Aromatic >EC8 - EC10 $_{HS_1D_AR}$	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050
TPH-CWG - Aromatic >EC10 - EC12 $_{EH_CU_1D_AR}$	mg/kg	1	MCERTS	1.1	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 $_{EH_CU_1D_AR}$	mg/kg	2	MCERTS	8	2.7	5.2	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	34	< 10	22	< 10
TPH-CWG - Aromatic >EC21 - EC35 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	76	< 10	78	< 10
TPH-CWG - Aromatic (EC5 - EC35) $_{EH_CU+HS_1D_AR}$	mg/kg	10	NONE	120	16	100	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number : 24-78202
Project / Site name: Mayfield Phase 1B

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2928076	BH1002	1	0.2	Brown loam and clay with gravel and stones.
2928077	BH1002	15	4	Brown sandy clay with gravel and stones.
2928078	BH1001	5	1	Brown clay and sand with gravel and stones.
2928079	BH1001	12	3	Brown sandy clay with gravel.

Analytical Report Number : 24-78202
Project / Site name: Mayfield Phase 1B

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260. Refer to CoA for analyte specific accreditation	L073B-PL	W	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID. Refer to CoA for band specific accreditation.	In-house method with silica gel split/clean up.	L088/76-PL	D	MCERTS

Analytical Report Number : 24-78202
Project / Site name: Mayfield Phase 1B

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

- Quality control parameter has a high recovery (outside of limit); however the associated result is below the reporting limit, other checks applied prior to reporting the data have been accepted. The result should be considered as being deviating and may be compromised
- Quality control parameter failure associated with this result; other checks applied prior to reporting the data have been accepted. The result should be considered as being deviating and may be compromised.

Kirsty Poore
Civic Earth Limited
Carvers Warehouse
77 Dale Street
Manchester
M1 2HG

e: kirsty.poore@civicearth.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 24-78340

Project / Site name:	Mayfield Phase 1B	**Samples received on:**	15/01/2024
Your job number:	51001 03	**Samples instructed on/ Analysis started on:**	15/01/2024
Your order number:	PO-0030	**Analysis completed by:**	22/01/2024
Report Issue Number:	1	**Report issued on:**	22/01/2024
Samples Analysed:	3 soil samples		

Signed:

Anna Goc
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-78340
Project / Site name: Mayfield Phase 1B
Your Order No: PO-0030

Lab Sample Number				2928876	2928877	2928878
Sample Reference				BH1003	BH1003	BH1003
Sample Number				1	5	15
Depth (m)				0.20	1.00	4.00
Date Sampled				12/01/2024	12/01/2024	12/01/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Stone Content	%	0.1	NONE	52	42	35
Moisture Content	%	0.01	NONE	9.6	13	16
Total mass of sample received	kg	0.001	NONE	0.8	0.7	0.8

Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	Chrysotile- Loose Fibres	Chrysotile- Asbestos Cement	Chrysotile- Loose Fibres
Asbestos in Soil	Type	N/A	ISO 17025	Detected	Detected	Detected
Asbestos Analyst ID	N/A	N/A	N/A	MMI	MMI	MMI

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	10.6	11.1	9.7
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	1900	3300	1100
Organic Matter (automated)	%	0.1	MCERTS	1.7	1.2	1.1

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.28	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.26	0.12	< 0.05
Fluorene	mg/kg	0.05	MCERTS	0.18	0.09	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	1.4	1.2	0.14
Anthracene	mg/kg	0.05	MCERTS	0.3	0.22	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	1.6	1.5	0.26
Pyrene	mg/kg	0.05	MCERTS	1.5	1.4	0.27
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.71	0.69	0.15
Chrysene	mg/kg	0.05	MCERTS	0.82	0.68	0.14
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.85	0.71	0.15
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.31	0.28	0.07
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.62	0.6	0.12
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.34	0.29	0.07
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.08	0.07	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.4	0.37	0.08
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	9.59	8.21	1.45

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-78340
Project / Site name: Mayfield Phase 1B
Your Order No: PO-0030

Lab Sample Number				2928876	2928877	2928878
Sample Reference				BH1003	BH1003	BH1003
Sample Number				1	5	15
Depth (m)				0.20	1.00	4.00
Date Sampled				12/01/2024	12/01/2024	12/01/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Heavy Metals / Metalloids						
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	2.6	3.2	1.9
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8.6	6.9	5.3
Barium (aqua regia extractable)	mg/kg	1	MCERTS	550	470	190
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.37	0.61	0.42
Boron (water soluble)	mg/kg	0.2	MCERTS	0.7	0.7	0.7
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.7	1	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	10	15	11
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	10	15	11
Copper (aqua regia extractable)	mg/kg	1	MCERTS	17	17	12
Lead (aqua regia extractable)	mg/kg	1	MCERTS	43	41	53
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	8.9	11	7.7
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	11	19	14
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	74	60	41
Monoaromatics & Oxygenates						
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
p & m-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
o-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0
Petroleum Hydrocarbons						
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS_1D_AL}$	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020
TPH-CWG - Aliphatic >EC6 - EC8### $_{HS_1D_AL}$	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS_1D_AL}$	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH_CU_1D_AL}$	mg/kg	1	MCERTS	3	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH_CU_1D_AL}$	mg/kg	2	MCERTS	12	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	52	8.8	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	83	23	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH_CU+HS_1D_AL}$	mg/kg	10	NONE	150	34	< 10
TPH-CWG - Aromatic >EC5 - EC7 $_{HS_1D_AR}$	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010
TPH-CWG - Aromatic >EC7 - EC8 $_{HS_1D_AR}$	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010
TPH-CWG - Aromatic >EC8 - EC10 $_{HS_1D_AR}$	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050
TPH-CWG - Aromatic >EC10 - EC12 $_{EH_CU_1D_AR}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 $_{EH_CU_1D_AR}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	11	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	25	16	< 10
TPH-CWG - Aromatic (EC5 - EC35) $_{EH_CU+HS_1D_AR}$	mg/kg	10	NONE	38	23	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number : 24-78340
Project / Site name: Mayfield Phase 1B

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2928876	BH1003	1	0.2	Brown loam and sand with vegetation and stones.
2928877	BH1003	5	1	Brown sand with gravel and brick.
2928878	BH1003	15	4	Brown sand with brick and stones.

Analytical Report Number : 24-78340
Project / Site name: Mayfield Phase 1B

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260. Refer to CoA for analyte specific accreditation	L073B-PL	W	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID. Refer to CoA for band specific accreditation.	In-house method with silica gel split/clean up.	L088/76-PL	D	MCERTS

Analytical Report Number : 24-78340
Project / Site name: Mayfield Phase 1B

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

- Quality control parameter failure associated with this result; other checks applied prior to reporting the data have been accepted. The result should be considered as being deviating and may be compromised.

Kirsty Poore
Civic Earth Limited
Carvers Warehouse
77 Dale Street
Manchester
M1 2HG

e: kirsty.poore@civicearth.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 24-79122

Project / Site name:	Mayfield Phase 1B	**Samples received on:**	19/01/2024
Your job number:	51001 03	**Samples instructed on/ Analysis started on:**	19/01/2024
Your order number:	PO-0030	**Analysis completed by:**	29/01/2024
Report Issue Number:	1	**Report issued on:**	29/01/2024
Samples Analysed:	7 soil samples		

Signed:

Joanna Szwagrzak
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-79122
Project / Site name: Mayfield Phase 1B
Your Order No: PO-0030

Lab Sample Number				2933116	2933117	2933118	2933119	2933120
Sample Reference				WS1008	WS1005	WS1005	WS1006	WS1003
Sample Number				2	2	5	5	1
Depth (m)				0.50	0.50	1.00	1.00	0.20
Date Sampled				18/01/2024	18/01/2024	18/01/2024	18/01/2024	18/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	13	17	18	16	8.4
Total mass of sample received	kg	0.001	NONE	0.7	0.8	0.7	0.8	0.7
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	-	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	IZJ	IZJ	N/A	IZJ	IZJ
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	10.1	10.6	8	8.4	10.3
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	930	4200	580	1500	2100
Organic Matter (automated)	%	0.1	MCERTS	0.4	1.7	1.8	3	1.3
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	0.17	1.1	0.31	2.4~	0.38
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	0.19	< 0.05	0.13~	0.07
Acenaphthene	mg/kg	0.05	MCERTS	0.05	1.4	< 0.05	1.4~	0.17
Fluorene	mg/kg	0.05	MCERTS	0.05	1.2	0.05	1~	0.14
Phenanthrene	mg/kg	0.05	MCERTS	0.36	9.2	0.24	7.1~	1.2
Anthracene	mg/kg	0.05	MCERTS	0.08	2.1	0.07	1.5~	0.28
Fluoranthene	mg/kg	0.05	MCERTS	0.55	10	0.3	6.5~	1.8
Pyrene	mg/kg	0.05	MCERTS	0.5	9.5	0.28	6.7~	1.8
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.22	4.1	0.14	2.7~	0.81
Chrysene	mg/kg	0.05	MCERTS	0.23	4.3	0.14	3.1~	0.88
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.24	4.3	0.17	2.5~	0.86
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.11	1.4	< 0.05	1.3~	0.34
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.22	3.7	0.13	2.4~	0.71
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.14	2.1	0.08	1.3~	0.44
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.49	< 0.05	0.35~	0.11
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.15	2.4	0.11	1.7~	0.47
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05~	< 0.05
Total PAH								
Total WAC-17 PAHs	mg/kg	0.85	NONE	3.07	57.5	2.02	42.1~	10.5

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-79122
Project / Site name: Mayfield Phase 1B
Your Order No: PO-0030

Lab Sample Number				2933116	2933117	2933118	2933119	2933120
Sample Reference				WS1008	WS1005	WS1005	WS1006	WS1003
Sample Number				2	2	5	5	1
Depth (m)				0.50	0.50	1.00	1.00	0.20
Date Sampled				18/01/2024	18/01/2024	18/01/2024	18/01/2024	18/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	2.1	2.6	3.4	7.2	2.2
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	5.9	14	16	55	14
Barium (aqua regia extractable)	mg/kg	1	MCERTS	110	160	97	200	120
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.52	0.58	1.6	1.4	0.66
Boron (water soluble)	mg/kg	0.2	MCERTS	0.9	1.3	0.5	0.5	0.8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	9.2	15	20	66	15
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	9.2	15	20	66	15
Copper (aqua regia extractable)	mg/kg	1	MCERTS	17	27	54	90	29
Lead (aqua regia extractable)	mg/kg	1	MCERTS	20	84	99	310	97
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	0.3	1.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	10	15	26	20	14
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	16	22	30	26	20
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	34	83	72	260	70
Monoaromatics & Oxygenates								
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
o-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS_1D_AL}$	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS_1D_AL}$	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS_1D_AL}$	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH_CU_1D_AL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH_CU_1D_AL}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	< 8.0	59	< 8.0	< 8.0	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH_CU+HS_1D_AL}$	mg/kg	10	NONE	< 10	62	< 10	< 10	< 10
TPH-CWG - Aromatic >EC5 - EC7 $_{HS_1D_AR}$	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPH-CWG - Aromatic >EC7 - EC8 $_{HS_1D_AR}$	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPH-CWG - Aromatic >EC8 - EC10 $_{HS_1D_AR}$	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPH-CWG - Aromatic >EC10 - EC12 $_{EH_CU_1D_AR}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	1.9	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 $_{EH_CU_1D_AR}$	mg/kg	2	MCERTS	< 2.0	3.4	< 2.0	9.1	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	< 10	22	< 10	18	< 10
TPH-CWG - Aromatic >EC21 - EC35 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	< 10	87	< 10	24	< 10
TPH-CWG - Aromatic (EC5 - EC35) $_{EH_CU+HS_1D_AR}$	mg/kg	10	NONE	< 10	110	< 10	53	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-79122
Project / Site name: Mayfield Phase 1B
Your Order No: PO-0030

Lab Sample Number				2933121	2933122
Sample Reference				WS1003	WS1009
Sample Number				2	2
Depth (m)				0.50	0.50
Date Sampled				18/01/2024	18/01/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	9.6	11
Total mass of sample received	kg	0.001	NONE	0.8	0.7
Asbestos in Soil	Type	N/A	ISO 17025	-	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	N/A	EWS

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	9.1	10.1
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	1300	970
Organic Matter (automated)	%	0.1	MCERTS	1.7	1.4

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	0.47~	3.3
Acenaphthylene	mg/kg	0.05	MCERTS	0.09~	0.15
Acenaphthene	mg/kg	0.05	MCERTS	0.21~	9.3
Fluorene	mg/kg	0.05	MCERTS	0.23~	7.1
Phenanthrene	mg/kg	0.05	MCERTS	1.4~	37
Anthracene	mg/kg	0.05	MCERTS	0.31~	10
Fluoranthene	mg/kg	0.05	MCERTS	1.9~	34
Pyrene	mg/kg	0.05	MCERTS	1.9~	28
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.82~	13
Chrysene	mg/kg	0.05	MCERTS	0.93~	12
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.84~	11
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.39~	5.8
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.8~	10
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.45~	5.9
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.1~	1.4
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.51~	5.9
Coronene	mg/kg	0.05	NONE	< 0.05~	< 0.05

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	11.4~	193

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-79122
Project / Site name: Mayfield Phase 1B
Your Order No: PO-0030

Lab Sample Number				2933121	2933122
Sample Reference				WS1003	WS1009
Sample Number				2	2
Depth (m)				0.50	0.50
Date Sampled				18/01/2024	18/01/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Heavy Metals / Metalloids					
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	3.1	3.3
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	15	11
Barium (aqua regia extractable)	mg/kg	1	MCERTS	100	160
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.71	0.62
Boron (water soluble)	mg/kg	0.2	MCERTS	0.6	0.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	16	14
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	16	14
Copper (aqua regia extractable)	mg/kg	1	MCERTS	37	29
Lead (aqua regia extractable)	mg/kg	1	MCERTS	87	100
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	14	14
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	20	22
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	80	100
Monoaromatics & Oxygenates					
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
p & m-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0
o-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0
Petroleum Hydrocarbons					
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS_1D_AL}$	mg/kg	0.02	NONE	< 0.020	< 0.020
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS_1D_AL}$	mg/kg	0.02	NONE	< 0.020	< 0.020
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS_1D_AL}$	mg/kg	0.05	NONE	< 0.050	< 0.050
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH_CU_1D_AL}$	mg/kg	1	MCERTS	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH_CU_1D_AL}$	mg/kg	2	MCERTS	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	19	< 8.0
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH_CU+HS_1D_AL}$	mg/kg	10	NONE	19	< 10
TPH-CWG - Aromatic >EC5 - EC7 $_{HS_1D_AR}$	mg/kg	0.01	NONE	< 0.010	< 0.010
TPH-CWG - Aromatic >EC7 - EC8 $_{HS_1D_AR}$	mg/kg	0.01	NONE	< 0.010	< 0.010
TPH-CWG - Aromatic >EC8 - EC10 $_{HS_1D_AR}$	mg/kg	0.05	NONE	< 0.050	< 0.050
TPH-CWG - Aromatic >EC10 - EC12 $_{EH_CU_1D_AR}$	mg/kg	1	MCERTS	< 1.0	2.1
TPH-CWG - Aromatic >EC12 - EC16 $_{EH_CU_1D_AR}$	mg/kg	2	MCERTS	< 2.0	21
TPH-CWG - Aromatic >EC16 - EC21 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	< 10	71
TPH-CWG - Aromatic >EC21 - EC35 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	22	89
TPH-CWG - Aromatic (EC5 - EC35) $_{EH_CU+HS_1D_AR}$	mg/kg	10	NONE	27	180

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number : 24-79122
Project / Site name: Mayfield Phase 1B

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2933116	WS1008	2	0.5	Brown sand with gravel and brick.
2933117	WS1005	2	0.5	Brown sand with gravel.
2933118	WS1005	5	1	Brown clay and sand with gravel.
2933119	WS1006	5	1	Brown sandy loam with gravel and vegetation.
2933120	WS1003	1	0.2	Brown sand with gravel.
2933121	WS1003	2	0.5	Brown loam and clay with gravel and vegetation.
2933122	WS1009	2	0.5	Brown sand with gravel and brick.

Analytical Report Number : 24-79122
Project / Site name: Mayfield Phase 1B

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260. Refer to CoA for analyte specific accreditation	L073B-PL	W	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID. Refer to CoA for band specific accreditation.	In-house method with silica gel split/clean up.	L088/76-PL	D	MCERTS
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS

Analytical Report Number : 24-79122
Project / Site name: Mayfield Phase 1B

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

~ - Quality control surrogate recovery outside of limits, other checks applied prior to reporting the data have been accepted. The result should be considered as being deviating and may be compromised

Kirsty Poore
Civic Earth Limited
Carvers Warehouse
77 Dale Street
Manchester
M1 2HG

e: kirsty.poore@civicearth.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 24-79387

Project / Site name:	Mayfield Phase 1B	**Samples received on:**	22/01/2024
Your job number:	51001 03	**Samples instructed on/ Analysis started on:**	22/01/2024
Your order number:	PO-0030	**Analysis completed by:**	30/01/2024
Report Issue Number:	1	**Report issued on:**	30/01/2024
Samples Analysed:	5 soil samples		

Signed:

Anna Goc
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-79387
Project / Site name: Mayfield Phase 1B
Your Order No: PO-0030

Lab Sample Number				2934591	2934592	2934593	2934594	2934595
Sample Reference				WS1004	WS1004	WS1007	WS1002	WS1001
Sample Number				3	6	3	5	3
Depth (m)				0.80	2.00	0.70	1.50	1.00
Date Sampled				19/01/2024	19/01/2024	19/01/2024	19/01/2024	19/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	17	25	14	16	13
Total mass of sample received	kg	0.001	NONE	0.8	0.7	0.8	0.8	0.8
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	-	-	Chrysotile, Amosite-Loose Fibrous Debris; Amosite-Sheeting/Board Debris	-
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	KSZ	KSZ	KSZ	KSZ	KSZ

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.2	7.8	10	9.7	8.8
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO4	mg/kg	50	MCERTS	290	1000	1800	2800	460
Organic Matter (automated)	%	0.1	MCERTS	1.4	3.8	1.7	3.3	0.7

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.17	0.41	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.06	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.51	0.62	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	0.11	0.39	0.28	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	0.29	3.5	4.9	0.46
Anthracene	mg/kg	0.05	MCERTS	< 0.05	0.14	0.79	0.88	0.1
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.44	4.6	5.9	0.76
Pyrene	mg/kg	0.05	MCERTS	< 0.05	0.4	4.4	5.2	0.73
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.21	2.2	2.9	0.38
Chrysene	mg/kg	0.05	MCERTS	< 0.05	0.2	2.2	3.2	0.4
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	0.21	2.4	3.3	0.45
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	0.07	0.99	1.4	0.12
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.15	2.2	3	0.33
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.08	0.97	1.5	0.18
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.28	0.4	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	0.1	1.2	1.8	0.2
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05	1.4	< 0.05

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	< 0.85	2.4	26.7	36.9	4.11

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-79387
Project / Site name: Mayfield Phase 1B
Your Order No: PO-0030

Lab Sample Number				2934591	2934592	2934593	2934594	2934595
Sample Reference				WS1004	WS1004	WS1007	WS1002	WS1001
Sample Number				3	6	3	5	3
Depth (m)				0.80	2.00	0.70	1.50	1.00
Date Sampled				19/01/2024	19/01/2024	19/01/2024	19/01/2024	19/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Antimony (aqua regia extractable)	mg/kg	1	ISO 17025	2	5.4	4.9	11	3
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8	39	30	14	12
Barium (aqua regia extractable)	mg/kg	1	MCERTS	120	150	190	710	180
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.1	1.5	0.85	0.88	0.96
Boron (water soluble)	mg/kg	0.2	MCERTS	0.6	0.5	0.7	1.3	< 0.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	0.7	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	26	29	19	20	21
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	26	29	19	22	21
Copper (aqua regia extractable)	mg/kg	1	MCERTS	27	140	51	42	33
Lead (aqua regia extractable)	mg/kg	1	MCERTS	23	220	160	250	57
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	3.2	0.4	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	30	39	16	18	17
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	29	33	23	37	30
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	60	110	130	430	66
Monoaromatics & Oxygenates								
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
o-xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6 $_{HS_1D_AL}$	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPH-CWG - Aliphatic >EC6 - EC8 $_{HS_1D_AL}$	mg/kg	0.02	NONE	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPH-CWG - Aliphatic >EC8 - EC10 $_{HS_1D_AL}$	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPH-CWG - Aliphatic >EC10 - EC12 $_{EH_CU_1D_AL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16 $_{EH_CU_1D_AL}$	mg/kg	2	MCERTS	< 2.0	< 2.0	3.5	6.5	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0	14	58	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35 $_{EH_CU_1D_AL}$	mg/kg	8	MCERTS	< 8.0	11	65	330	53
TPH-CWG - Aliphatic (EC5 - EC35) $_{EH_CU+HS_1D_AL}$	mg/kg	10	NONE	< 10	14	83	390	61
TPH-CWG - Aromatic >EC5 - EC7 $_{HS_1D_AR}$	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPH-CWG - Aromatic >EC7 - EC8 $_{HS_1D_AR}$	mg/kg	0.01	NONE	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPH-CWG - Aromatic >EC8 - EC10 $_{HS_1D_AR}$	mg/kg	0.05	NONE	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
TPH-CWG - Aromatic >EC10 - EC12 $_{EH_CU_1D_AR}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16 $_{EH_CU_1D_AR}$	mg/kg	2	MCERTS	< 2.0	< 2.0	3.6	4.5	< 2.0
TPH-CWG - Aromatic >EC16 - EC21 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	< 10	< 10	22	61	< 10
TPH-CWG - Aromatic >EC21 - EC35 $_{EH_CU_1D_AR}$	mg/kg	10	MCERTS	< 10	16	54	330	45
TPH-CWG - Aromatic (EC5 - EC35) $_{EH_CU+HS_1D_AR}$	mg/kg	10	NONE	< 10	21	80	390	48

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-79387
Project / Site name: Mayfield Phase 1B
Your Order No: PO-0030

Lab Sample Number				2934591	2934592	2934593	2934594	2934595
Sample Reference				WS1004	WS1004	WS1007	WS1002	WS1001
Sample Number				3	6	3	5	3
Depth (m)				0.80	2.00	0.70	1.50	1.00
Date Sampled				19/01/2024	19/01/2024	19/01/2024	19/01/2024	19/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
PCBs								
PCB Congener 077	mg/kg	0.001	NONE	< 0.001	-	-	-	-
PCB Congener 081	mg/kg	0.001	NONE	< 0.001	-	-	-	-
PCB Congener 105	mg/kg	0.001	NONE	< 0.001	-	-	-	-
PCB Congener 114	mg/kg	0.001	NONE	< 0.001	-	-	-	-
PCB Congener 118	mg/kg	0.001	NONE	< 0.001	-	-	-	-
PCB Congener 123	mg/kg	0.001	NONE	< 0.001	-	-	-	-
PCB Congener 126	mg/kg	0.001	NONE	< 0.001	-	-	-	-
PCB Congener 156	mg/kg	0.001	NONE	< 0.001	-	-	-	-
PCB Congener 157	mg/kg	0.001	NONE	< 0.001	-	-	-	-
PCB Congener 167	mg/kg	0.001	NONE	< 0.001	-	-	-	-
PCB Congener 169	mg/kg	0.001	NONE	< 0.001	-	-	-	-
PCB Congener 189	mg/kg	0.001	NONE	< 0.001	-	-	-	-
Total PCBs – WHO12								
Total PCBs	mg/kg	0.012	NONE	< 0.012	-	-	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number : 24-79387
Project / Site name: Mayfield Phase 1B

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2934591	WS1004	3	0.8	Brown clay.
2934592	WS1004	6	2	Brown clay and sand.
2934593	WS1007	3	0.7	Brown clay and sand with gravel.
2934594	WS1002	5	1.5	Brown sand with gravel and brick.
2934595	WS1001	3	1	Brown sand with gravel and brick.

Analytical Report Number : 24-79387
Project / Site name: Mayfield Phase 1B

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260. Refer to CoA for analyte specific accreditation	L073B-PL	W	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
PCBs WHO 12 in soil	Determination of PCBs (WHO-12 Congeners) by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID. Refer to CoA for band specific accreditation.	In-house method with silica gel split/clean up.	L088/76-PL	D	MCERTS

Analytical Report Number : 24-79387
Project / Site name: Mayfield Phase 1B

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Kirsty Poore
Civic Earth Limited
Carvers Warehouse
77 Dale Street
Manchester
M1 2HG

e: kirsty.poore@civicearth.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 24-79427

Replaces Analytical Report Number: 24-79427, issue no. 1
Result correction by laboratory.
Asbestos soil analysis corrected to reflect original prepared samples.

Project / Site name:	Mayfield Phase 1B	**Samples received on:**	23/01/2024
Your job number:	51001-03	**Samples instructed on/ Analysis started on:**	23/01/2024
Your order number:	PO-0030	**Analysis completed by:**	19/02/2024
Report Issue Number:	2	**Report issued on:**	19/02/2024
Samples Analysed:	3 leachate samples - 10 soil samples		

Signed: JSzwagrak

Joanna Szwagrzak
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-79427
Project / Site name: Mayfield Phase 1B
Your Order No: PO-0030

Lab Sample Number				2934830	2934831	2934832	2934833	2934834
Sample Reference				BH1002	BH1003	BH1003	BH1003	BH1004
Sample Number				1	1	5	15	1
Depth (m)				0.20	0.20	1.00	4.00	0.20
Date Sampled				11/01/2024	12/01/2024	12/01/2024	12/01/2024	10/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	11	-	-	-	-
Moisture Content	%	0.01	NONE	12	-	-	-	-
Total mass of sample received	kg	0.001	NONE	0.8	-	-	-	-
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	Chrysotile	Chrysotile	Chrysotile	-
Asbestos in Soil	Type	N/A	ISO 17025	-	Detected	Detected	Detected	-
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	< 0.001	0.954	< 0.001	-
Asbestos Quantification Total	%	0.001	ISO 17025	-	< 0.001	0.954	< 0.001	-
Asbestos Analyst ID	N/A	N/A	N/A	N/A	EC	MWI	MWI	N/A
General Inorganics								
Total Cyanide	mg/kg	1	MCERTS	< 1.0	-	-	-	-
Alkali Reserve (soils)	g/100g NaOH	0.0025	NONE	-	-	-	-	0.8072
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	-	-	-	-
Heavy Metals / Metalloids								
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	-	-	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-79427
Project / Site name: Mayfield Phase 1B
Your Order No: PO-0030

Lab Sample Number				2934835	2934836	2934837	2934838	2934839
Sample Reference				BH1005	BH1005	TP1002	TP1010	TP1011
Sample Number				3	9	1	10	7
Depth (m)				0.50	2.00	0.15	2.00	1.00
Date Sampled				10/01/2024	10/01/2024	10/01/2024	10/01/2024	11/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	-	-	26	-	42
Moisture Content	%	0.01	NONE	-	-	14	-	8.9
Total mass of sample received	kg	0.001	NONE	-	-	0.6	-	0.8
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	Chrysotile	Chrysotile	-	Amosite	Amosite
Asbestos in Soil	Type	N/A	ISO 17025	Detected	Detected	-	Detected	Detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	0.002	0.002	-	< 0.001	< 0.001
Asbestos Quantification Total	%	0.001	ISO 17025	0.002	0.002	-	< 0.001	< 0.001
Asbestos Analyst ID	N/A	N/A	N/A	EC	EC	N/A	EC	MWI
General Inorganics								
Total Cyanide	mg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
Alkali Reserve (soils)	g/100g NaOH	0.0025	NONE	0.3506	-	-	-	-
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	-	-	< 1.0	-	< 1.0
Heavy Metals / Metalloids								
Chromium (hexavalent)	mg/kg	1.8	MCERTS	-	-	< 1.8	-	< 1.8

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-79427
Project / Site name: Mayfield Phase 1B
Your Order No: PO-0030

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006-PL based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
2934831	BH1003	0.20	134	Loose Fibres	**Chrysotile**	< 0.001	**< 0.001**
2934832	BH1003	1.00	126	Asbestos Cement	**Chrysotile**	0.954	**0.954**
2934833	BH1003	4.00	114	Loose Fibres	**Chrysotile**	< 0.001	**< 0.001**
2934835	BH1005	0.50	114	Loose Fibres	**Chrysotile**	0.002	**0.002**
2934836	BH1005	2.00	101	Loose Fibres	**Chrysotile**	0.002	**0.002**
2934838	TP1010	2.00	129	Loose Fibres	**Amosite**	< 0.001	**< 0.001**
2934839	TP1011	1.00	127	Loose Fibres	**Amosite**	< 0.001	**< 0.001**

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 24-79427
Project / Site name: Mayfield Phase 1B

Your Order No: PO-0030

Lab Sample Number				2938103	2938104	2938105
Sample Reference				BH1002	TP1002	TP1011
Sample Number				1	1	7
Depth (m)				0.20	0.15	1.00
Date Sampled				11/01/2024	10/01/2024	11/01/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
General Inorganics						
pH (automated)	pH Units	N/A	ISO 17025	9.2	8.5	10.9
Total Cyanide (Low Level 1 µg/l)	µg/l	1	ISO 17025	3.7	1	I/S
Sulphate as SO_4	mg/l	0.1	ISO 17025	42.2	34.2	65.5
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	5.28	7.43	I/S
Total Phenols						
Total Phenols (monohydric)	µg/l	1	ISO 17025	1.6	2.6	I/S
Speciated PAHs						
Naphthalene	µg/l	0.01	NONE	< 0.01	< 0.01	I/S
Acenaphthylene	µg/l	0.01	NONE	< 0.01	< 0.01	I/S
Acenaphthene	µg/l	0.01	NONE	< 0.01	< 0.01	I/S
Fluorene	µg/l	0.01	NONE	< 0.01	< 0.01	I/S
Phenanthrene	µg/l	0.01	NONE	< 0.01	< 0.01	I/S
Anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	I/S
Fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01	I/S
Pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	I/S
Benzo(a)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	I/S
Chrysene	µg/l	0.01	NONE	< 0.01	< 0.01	I/S
Benzo(b)fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01	I/S
Benzo(k)fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01	I/S
Benzo(a)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	I/S
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01	I/S
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01	I/S
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01	I/S
Total PAH						
Total EPA-16 PAHs	µg/l	0.2	NONE	< 0.2	< 0.2	< 0.2
Heavy Metals / Metalloids						
Antimony (dissolved)	µg/l	1.7	ISO 17025	49	38	< 1.7
Arsenic (dissolved)	µg/l	1	ISO 17025	67	9.3	28
Barium (dissolved)	µg/l	0.05	ISO 17025	26	94	41
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	< 0.2
Boron (dissolved)	µg/l	10	ISO 17025	160	36	28
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	I/S
Chromium (III)	µg/l	5	NONE	8.3	41	I/S
Chromium (dissolved)	µg/l	0.4	ISO 17025	8.3	41	8.4
Copper (dissolved)	µg/l	0.7	ISO 17025	29	12	290
Lead (dissolved)	µg/l	1	ISO 17025	< 1.0	7.5	1.2
Mercury - CV-AFS	µg/l	0.007	ISO 17025	0.1556	0.0306	I/S
Nickel (dissolved)	µg/l	0.3	ISO 17025	1.3	1.1	62
Selenium (dissolved)	µg/l	4	ISO 17025	5.7	< 4.0	< 4.0
Vanadium (dissolved)	µg/l	1.7	ISO 17025	23	< 1.7	42
Zinc (dissolved)	µg/l	0.4	ISO 17025	6.8	12	8.3
Calcium (dissolved)	mg/l	0.012	ISO 17025	100	47	70

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-79427
Project / Site name: Mayfield Phase 1B

Your Order No: PO-0030

Lab Sample Number				2938103	2938104	2938105
Sample Reference				BH1002	TP1002	TP1011
Sample Number				1	1	7
Depth (m)				0.20	0.15	1.00
Date Sampled				11/01/2024	10/01/2024	11/01/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Petroleum Hydrocarbons						
Petroleum Range Organics (C6 - C10) HS_1D_TOTAL	µg/l	10	NONE	< 10	< 10	< 10
Diesel Range Organics (C10 - C25) EH_1D_TOTAL_MS	µg/l	10	NONE	< 10	< 10	I/S
Oil Range Organics (C25 - C40) EH_1D_TOTAL_MS	µg/l	10	NONE	< 10	< 10	I/S

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number : 24-79427
Project / Site name: Mayfield Phase 1B

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2934830	BH1002	1	0.2	Brown loam and clay with gravel and stones.
2934837	TP1002	1	0.15	Brown loam and sand with brick and clinker
2934839	TP1011	7	1	Brown loam and clay with gravel and stones.

Analytical Report Number : 24-79427
Project / Site name: Mayfield Phase 1B

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
BS EN 12457-1 (2:1) Leachate Prep	2:1 (as recieved, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis.	In-house method based on BSEN12457-1.	L043-PL	W	NONE
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Boron in leachate	Determination of boron in leachate. Sample acidified and followed by ICP-OES.	In-house method based on MEWAM	L039-PL	W	ISO 17025
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	ISO 17025
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in leachate - LOW LEVEL 1 ug/l	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in leachate	Determination of PAH compounds in leachate by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L102B-PL	W	NONE
pH at 20oC in leachate (automated)	Determination of pH in leachate by electrometric measurement.	In house method.	L099B	W	ISO 17025
PRO (Leachates)	Determination of hydrocarbons C6-C10 by headspace GC-MS.	In-house method based on USEPA8260	L088-PL	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Dissolved Organic Carbon in leachate	Determination of dissolved organic carbon in leachate by the measurement on a non-dispersive infrared analyser of carbon dioxide released by acidification.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	NONE
DRO (Leachates)	Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.	In-house method	L070-PL	W	NONE

Analytical Report Number : 24-79427
Project / Site name: Mayfield Phase 1B

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Cr (III) in leachate	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
TPH Oils (Leachate)	Determination of dichloromethane/hexane extractable hydrocarbons in leachate by GC-MS.	In-house method	L070-PL	W	NONE
Alkali Reserve of Soils	Alkali Reserve of Soils by calculation	In house method	L046-PL	W	NONE
Total cyanide in leachate - 1µg/l	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025
Sulphate in leachates	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE

Analytical Report Number : 24-79427
Project / Site name: Mayfield Phase 1B

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Mercury Low Level in leachate	Mercury in leachate by CV-AFS,	In-house method based on USEPA method 1631	L085-PL	W	ISO 17025

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Sample Deviation Report

Analytical Report Number : 24-79427

Project / Site name: Mayfield Phase 1B

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis.Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
BH1002	1	S	2934830	c	Total cyanide in soil	L080-PL	c
TP1002	1	S	2934837	c	Total cyanide in soil	L080-PL	c
TP1011	7	S	2934839	c	Total cyanide in soil	L080-PL	c

Kirsty Poore
Civic Earth Limited
Carvers Warehouse
77 Dale Street
Manchester
M1 2HG

e: kirsty.poore@civicearth.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 24-79428

Project / Site name:	Mayfield Phase 1B	**Samples received on:**	23/01/2024
Your job number:	51001-03	**Samples instructed on/ Analysis started on:**	23/01/2024
Your order number:	PO-0030	**Analysis completed by:**	30/01/2024
Report Issue Number:	1	**Report issued on:**	30/01/2024
Samples Analysed:	5 10:1 WAC Samples		

Signed:

Anna Goc
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

i2 Analytical
7 Woodshots Meadow
Croxley Green Business Park
Watford, WD18 8YS

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Report No:	**24-79428**						
					Client:	**CIVICEARTH**	
Location	**Mayfield Phase 1B**						
Lab Reference (Sample Number)	2934840 / 2934841				**Landfill Waste Acceptance Criteria**		
					Limits		
Sampling Date	11/01/2024				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	BH1001 5						
Depth (m)	1.00						
Solid Waste Analysis							
TOC (%)**	1.0				3%	5%	6%
Loss on Ignition (%) **	2.5				--	--	10%
BTEX (µg/kg)**	< 5.0				6000	--	--
Sum of PCBs (mg/kg)**	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	190				500	--	--
Total PAH (WAC-17) (mg/kg)	37.2				100	--	--
pH (units)**	10.1				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	150				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0042			0.0420	0.5	2	25
Barium *	0.0230			0.230	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0072			0.073	0.5	10	70
Copper *	0.0082			0.082	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0018			0.0184	0.5	10	30
Nickel *	0.0010			0.010	0.4	10	40
Lead *	0.0048			0.048	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0041			0.042	4	50	200
Chloride *	1.8			18	800	15000	25000
Fluoride*	0.13			1.3	10	150	500
Sulphate *	28			280	1000	20000	50000
TDS*	160			1600	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	5.04			50.4	500	800	1000
Leach Test Information							
Stone Content (%)	16						
Sample Mass (kg)	0.90						
Dry Matter (%)	86						
Moisture (%)	14						

Results are expressed on a dry weight basis, after correction for moisture content where applicable.

*= UKAS accredited (liquid eluate analysis only)

Stated limits are for guidance only and i2 cannot be held responsible for any discrepencies with current legislation

** = MCERTS accredited

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

i2 Analytical
7 Woodshots Meadow
Croxley Green Business Park
Watford, WD18 8YS

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Report No:	**24-79428**						
					Client:	**CIVICEARTH**	
Location	**Mayfield Phase 1B**						
Lab Reference (Sample Number)	2934842 / 2934843				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	10/01/2024				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	BH1004 1						
Depth (m)	0.20						
Solid Waste Analysis							
TOC (%)**	0.8				3%	5%	6%
Loss on Ignition (%) **	3.6				--	--	10%
BTEX (µg/kg)**	-				6000	--	--
Sum of PCBs (mg/kg)**	-				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	-				500	--	--
Total PAH (WAC-17) (mg/kg)	-				100	--	--
pH (units)**	11.7				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	140				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0020			0.0196	0.5	2	25
Barium *	0.271			2.71	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.014			0.14	0.5	10	70
Copper *	0.0080			0.080	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0018			0.0177	0.5	10	30
Nickel *	0.0009			0.0090	0.4	10	40
Lead *	0.0032			0.032	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0047			0.047	4	50	200
Chloride *	0.58			5.8	800	15000	25000
Fluoride*	0.13			1.3	10	150	500
Sulphate *	2.6			26	1000	20000	50000
TDS*	1900			19000	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	5.07			50.7	500	800	1000
Leach Test Information							
Stone Content (%)	55						
Sample Mass (kg)	0.50						
Dry Matter (%)	97						
Moisture (%)	3.4						

Results are expressed on a dry weight basis, after correction for moisture content where applicable.

*= UKAS accredited (liquid eluate analysis only)

Stated limits are for guidance only and i2 cannot be held responsible for any discrepencies with current legislation

** = MCERTS accredited

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

i2 Analytical
7 Woodshots Meadow
Croxley Green Business Park
Watford, WD18 8YS

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Report No:	**24-79428**						
					Client:	**CIVICEARTH**	
Location	**Mayfield Phase 1B**						
Lab Reference (Sample Number)	2934844 / 2934845				**Landfill Waste Acceptance Criteria**		
					Limits		
Sampling Date	10/01/2024				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	BH1004 10						
Depth (m)	2.00						
Solid Waste Analysis							
TOC (%)**	0.3				3%	5%	6%
Loss on Ignition (%) **	0.7				--	--	10%
BTEX (µg/kg)**	< 5.0				6000	--	--
Sum of PCBs (mg/kg)**	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	< 0.85				100	--	--
pH (units)**	8.4				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	10				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0241			0.241	0.5	2	25
Barium *	0.0033			0.0325	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0015			0.015	0.5	10	70
Copper *	0.0059			0.059	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0125			0.125	0.5	10	30
Nickel *	0.0016			0.016	0.4	10	40
Lead *	0.0029			0.029	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0010			0.0099	4	50	200
Chloride *	2.5			25	800	15000	25000
Fluoride*	0.37			3.7	10	150	500
Sulphate *	17			170	1000	20000	50000
TDS*	56			560	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	7.78			77.8	500	800	1000
Leach Test Information							
Stone Content (%)	22						
Sample Mass (kg)	0.50						
Dry Matter (%)	91						
Moisture (%)	9.4						

Results are expressed on a dry weight basis, after correction for moisture content where applicable.

*= UKAS accredited (liquid eluate analysis only)

Stated limits are for guidance only and i2 cannot be held responsible for any discrepencies with current legislation

** = MCERTS accredited

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

i2 Analytical
7 Woodshots Meadow
Croxley Green Business Park
Watford, WD18 8YS

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Report No:	**24-79428**						
					Client:	**CIVICEARTH**	
Location	**Mayfield Phase 1B**						
Lab Reference (Sample Number)	2934846 / 2934847				**Landfill Waste Acceptance Criteria**		
					Limits		
Sampling Date	11/01/2024				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	TP1004 4						
Depth (m)	0.50						
Solid Waste Analysis							
TOC (%)**	1.0				3%	5%	6%
Loss on Ignition (%) **	2.0				--	--	10%
BTEX (µg/kg)**	< 5.0				6000	--	--
Sum of PCBs (mg/kg)**	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	240				500	--	--
Total PAH (WAC-17) (mg/kg)	4.24				100	--	--
pH (units)**	8.3				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	13				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0255			0.255	0.5	2	25
Barium *	0.0097			0.0966	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0016			0.016	0.5	10	70
Copper *	0.0051			0.051	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	< 0.0004			< 0.0040	0.5	10	30
Nickel *	0.0006			0.0057	0.4	10	40
Lead *	0.0053			0.053	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0027			0.027	4	50	200
Chloride *	1.7			17	800	15000	25000
Fluoride*	0.31			3.1	10	150	500
Sulphate *	8.5			85	1000	20000	50000
TDS*	42			420	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	8.37			83.7	500	800	1000
Leach Test Information							
Stone Content (%)	62						
Sample Mass (kg)	0.50						
Dry Matter (%)	92						
Moisture (%)	8.1						

Results are expressed on a dry weight basis, after correction for moisture content where applicable.

*= UKAS accredited (liquid eluate analysis only)

Stated limits are for guidance only and i2 cannot be held responsible for any discrepencies with current legislation

** = MCERTS accredited

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

i2 Analytical
7 Woodshots Meadow
Croxley Green Business Park
Watford, WD18 8YS

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Report No:	**24-79428**						
					Client:	**CIVICEARTH**	
Location	**Mayfield Phase 1B**						
Lab Reference (Sample Number)	2934848 / 2934849				**Landfill Waste Acceptance Criteria**		
					Limits		
Sampling Date	10/01/2024				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	TP1010 10						
Depth (m)	2.00						
Solid Waste Analysis							
TOC (%)**	4.0				3%	5%	6%
Loss on Ignition (%) **	7.0				--	--	10%
BTEX (µg/kg)**	-				6000	--	--
Sum of PCBs (mg/kg)**	-				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	-				500	--	--
Total PAH (WAC-17) (mg/kg)	-				100	--	--
pH (units)**	8.0				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	8.0				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0072			0.0720	0.5	2	25
Barium *	0.0087			0.0875	20	100	300
Cadmium *	< 0.0001			< 0.0008	0.04	1	5
Chromium *	0.0015			0.015	0.5	10	70
Copper *	0.0051			0.051	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0134			0.134	0.5	10	30
Nickel *	< 0.0003			< 0.0030	0.4	10	40
Lead *	0.0036			0.036	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0025			0.025	4	50	200
Chloride *	3.0			30	800	15000	25000
Fluoride*	0.61			6.1	10	150	500
Sulphate *	36			360	1000	20000	50000
TDS*	83			830	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	11.4			114	500	800	1000
Leach Test Information							
Stone Content (%)	34						
Sample Mass (kg)	0.60						
Dry Matter (%)	87						
Moisture (%)	13						

Results are expressed on a dry weight basis, after correction for moisture content where applicable.

*= UKAS accredited (liquid eluate analysis only)

Stated limits are for guidance only and i2 cannot be held responsible for any discrepencies with current legislation

** = MCERTS accredited

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number : 24-79428
Project / Site name: Mayfield Phase 1B

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2934840	BH1001	5	1	Brown clay and sand with gravel and stones.
2934842	BH1004	1	0.2	Brown sand with concrete and stones.
2934844	BH1004	10	2	Brown sandy clay with gravel and stones.
2934846	TP1004	4	0.5	Brown loam and sand with concrete and brick.
2934848	TP1010	10	2	Brown loam and clay with gravel and stones.

Analytical Report Number : 24-79428
Project / Site name: Mayfield Phase 1B

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
BS EN 12457-2 (10:1) Leachate Prep	10:1 (as recieved, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis.	In-house method based on BSEN12457-2.	L043-PL	W	NONE
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance""	L046-PL	W	NONE
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In house method.	L047-PL	D	MCERTS
Mineral Oil (Soil) C10 - C40	Determination of mineral oil fraction extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L076-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	MCERTS
PCB's By GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	MCERTS
pH at 20oC in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In house method.	L005-PL	W	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
BTEX in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260. Refer to CoA for analyte specific accreditation	L073B-PL	W	MCERTS
Total BTEX in soil (Poland)	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260. Refer to CoA for analyte specific accreditation	L073-PL	W	MCERTS
Metals in leachate by ICP-OES	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260.	L082-PL	W	ISO 17025
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination"	L033B-PL	W	ISO 17025
Sulphate 10:1 WAC	Determination of sulphate in leachate by ICP-OES	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025

Analytical Report Number : 24-79428
Project / Site name: Mayfield Phase 1B

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total dissolved solids 10:1 WAC	Determination of total dissolved solids in water by EC probe using a factor of 0.6.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L031-PL	W	ISO 17025
Monohydric phenols 10:1 WAC	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved inorganic carbon in leachate by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	NONE

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Kirsty Poore
Civic Earth Limited☐
Carvers Warehouse
77 Dale Street
Manchester
M1 2HG

e: kirsty.poore@civicearth.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 24-80689

Project / Site name:	Mayfield Phase 1B	**Samples received on:**	31/01/2024
Your job number:	51001 03	**Samples instructed on/ Analysis started on:**	31/01/2024
Your order number:	PO-0030	**Analysis completed by:**	08/02/2024
Report Issue Number:	1	**Report issued on:**	08/02/2024
Samples Analysed:	2 10:1 WAC Samples		

Signed:

Joanna Wawrzeczko
Senior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

i2 Analytical
7 Woodshots Meadow
Croxley Green Business Park
Watford, WD18 8YS

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Report No:	**24-80689**						
					Client:	**CIVICEARTH**	
Location	**Mayfield Phase 1B**				**Landfill Waste Acceptance Criteria Limits**		
Lab Reference (Sample Number)	2941694 / 2941695						
Sampling Date	18/01/2024				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	WS1005 2						
Depth (m)	0.50						
Solid Waste Analysis							
TOC (%)**	1.1				3%	5%	6%
Loss on Ignition (%) **	2.6				--	--	10%
BTEX (µg/kg)**	< 5.0 ##				6000	--	--
Sum of PCBs (mg/kg)**	< 0.007				1	--	--
Mineral Oil (mg/kg) $_{EH_1D_CU_AL}$	210				500	--	--
Total PAH (WAC-17) (mg/kg)	61.7				100	--	--
pH (units)**	7.0				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	0.00				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0059			0.0589	0.5	2	25
Barium *	0.0177			0.177	20	100	300
Cadmium *	0.0002			0.0019	0.04	1	5
Chromium *	0.0030			0.030	0.5	10	70
Copper *	0.021			0.21	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0026			0.0257	0.5	10	30
Nickel *	0.0018			0.018	0.4	10	40
Lead *	0.0057			0.057	0.5	10	50
Antimony *	0.0060			0.060	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.013			0.12	4	50	200
Chloride *	2.3			23	800	15000	25000
Fluoride*	0.18			1.8	10	150	500
Sulphate *	35			350	1000	20000	50000
TDS*	110			1100	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	7.52			75.2	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.80						
Dry Matter (%)	83						
Moisture (%)	17						

Results are expressed on a dry weight basis, after correction for moisture content where applicable.

*= UKAS accredited (liquid eluate analysis only)

Stated limits are for guidance only and i2 cannot be held responsible for any discrepencies with current legislation

** = MCERTS accredited

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

i2 Analytical
7 Woodshots Meadow
Croxley Green Business Park
Watford, WD18 8YS

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Report No:	**24-80689**						
					Client:	**CIVICEARTH**	
Location	**Mayfield Phase 1B**						
Lab Reference (Sample Number)	2941696 / 2941697				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	19/01/2024				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	WS1001 3						
Depth (m)	1.00						
Solid Waste Analysis							
TOC (%)**	0.4				3%	5%	6%
Loss on Ignition (%) **	1.6				--	--	10%
BTEX (µg/kg)**	< 5.0 ##				6000	--	--
Sum of PCBs (mg/kg)**	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	43				500	--	--
Total PAH (WAC-17) (mg/kg)	1.65				100	--	--
pH (units)**	7.6				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	3.0				--	To be evaluated	To be evaluated
Eluate Analysis (BS EN 12457 - 2 preparation utilising end over end leaching procedure)	10:1 mg/l			10:1 mg/kg	Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0122			0.123	0.5	2	25
Barium *	0.0111			0.111	20	100	300
Cadmium *	< 0.0001			0.0010	0.04	1	5
Chromium *	0.0006			0.0056	0.5	10	70
Copper *	0.0049			0.049	2	50	100
Mercury *	< 0.0005			< 0.0050	0.01	0.2	2
Molybdenum *	0.0013			0.0128	0.5	10	30
Nickel *	0.0012			0.012	0.4	10	40
Lead *	< 0.0010			< 0.010	0.5	10	50
Antimony *	0.0036			0.036	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0022			0.022	4	50	200
Chloride *	0.77			7.7	800	15000	25000
Fluoride*	0.47			4.7	10	150	500
Sulphate *	4.2			42	1000	20000	50000
TDS*	40			400	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	7.73			77.3	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	0.80						
Dry Matter (%)	83						
Moisture (%)	17						

Results are expressed on a dry weight basis, after correction for moisture content where applicable.

*= UKAS accredited (liquid eluate analysis only)

Stated limits are for guidance only and i2 cannot be held responsible for any discrepencies with current legislation

** = MCERTS accredited

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number : 24-80689
Project / Site name: Mayfield Phase 1B

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2941694	WS1005	2	0.5	Brown sand with gravel.
2941696	WS1001	3	1	Brown clay.

Analytical Report Number : 24-80689
Project / Site name: Mayfield Phase 1B

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
BS EN 12457-2 (10:1) Leachate Prep	10:1 (as recieved, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis.	In-house method based on BSEN12457-2.	L043-PL	W	NONE
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance""	L046-PL	W	NONE
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In house method.	L047-PL	D	MCERTS
Mineral Oil (Soil) C10 - C40	Determination of mineral oil fraction extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L076-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270.	L064-PL	D	MCERTS
PCB's By GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	MCERTS
pH at 20oC in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In house method.	L005-PL	W	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
BTEX in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260. Refer to CoA for analyte specific accreditation	L073B-PL	W	MCERTS
Total BTEX in soil (Poland)	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260. Refer to CoA for analyte specific accreditation	L073-PL	W	MCERTS
Metals in leachate by ICP-OES	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260.	L082-PL	W	ISO 17025
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination"	L033B-PL	W	ISO 17025
Sulphate 10:1 WAC	Determination of sulphate in leachate by ICP-OES	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025

Analytical Report Number : 24-80689
Project / Site name: Mayfield Phase 1B

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total dissolved solids 10:1 WAC	Determination of total dissolved solids in water by EC probe using a factor of 0.6.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L031-PL	W	ISO 17025
Monohydric phenols 10:1 WAC	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved inorganic carbon in leachate by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	NONE

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

- Quality control parameter has a high recovery (outside of limit); however the associated result is below the reporting limit, other checks applied prior to reporting the data have been accepted. The result should be considered as being deviating and may be compromised

Kirsty Poore
Civic Earth Limited
Carvers Warehouse
77 Dale Street
Manchester
M1 2HG

e: kirsty.poore@civicearth.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 24-80690

Project / Site name:	Mayfield Phase 1B	**Samples received on:**	31/01/2024
Your job number:	51001 03	**Samples instructed on/ Analysis started on:**	31/01/2024
Your order number:	PO-0030	**Analysis completed by:**	19/02/2024
Report Issue Number:	1	**Report issued on:**	19/02/2024
Samples Analysed:	2 leachate samples - 1 soil sample		

Signed:

Joanna Szwagrzak
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-80690
Project / Site name: Mayfield Phase 1B
Your Order No: PO-0030

Lab Sample Number				2941698
Sample Reference				WS1002
Sample Number				5
Depth (m)				1.50
Date Sampled				19/01/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	Chrysotile & Amosite
Asbestos in Soil	Type	N/A	ISO 17025	Detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	0.006
Asbestos Quantification Total	%	0.001	ISO 17025	0.006
Asbestos Analyst ID	N/A	N/A	N/A	DBU

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: **24-80690**
Project / Site name: **Mayfield Phase 1B**
Your Order No: **PO-0030**

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006-PL based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
2941698	WS1002	1.50	148	Loose Fibres & Sheeting/Board Debris & Loose Fibrous Debris	**Chrysotile & Amosite**	0.006	**0.006**

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-80690
Project / Site name: Mayfield Phase 1B

Your Order No: PO-0030

Lab Sample Number				2941699	2941700
Sample Reference				WS1006	WS1004
Sample Number				5	6
Depth (m)				1.00	2.00
Date Sampled				18/01/2024	19/01/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
General Inorganics					
pH (automated)	pH Units	N/A	ISO 17025	8	8.1
Total Cyanide (Low Level 1 µg/l)	µg/l	1	ISO 17025	5.5	< 1.0
Free Cyanide (Low Level 1 µg/l)	µg/l	1	ISO 17025	< 1	< 1
Sulphate as SO_4	mg/l	0.1	ISO 17025	37	564
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	17.2	16.2
Total Phenols					
Total Phenols (monohydric)	µg/l	1	ISO 17025	3.4	5.3
Speciated PAHs					
Naphthalene	µg/l	0.01	NONE	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	NONE	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	NONE	< 0.01	< 0.01
Fluorene	µg/l	0.01	NONE	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	NONE	< 0.01	< 0.01
Anthracene	µg/l	0.01	NONE	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01
Pyrene	µg/l	0.01	NONE	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01
Chrysene	µg/l	0.01	NONE	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01
Total PAH					
Total EPA-16 PAHs	µg/l	0.2	NONE	< 0.2	< 0.2

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-80690
Project / Site name: Mayfield Phase 1B

Your Order No: PO-0030

Lab Sample Number				2941699	2941700
Sample Reference				WS1006	WS1004
Sample Number				5	6
Depth (m)				1.00	2.00
Date Sampled				18/01/2024	19/01/2024
Time Taken				None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Heavy Metals / Metalloids					
Antimony (dissolved)	µg/l	1.7	ISO 17025	14	10
Arsenic (dissolved)	µg/l	1	ISO 17025	36	5.2
Barium (dissolved)	µg/l	0.05	ISO 17025	43	53
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2
Boron (dissolved)	µg/l	10	ISO 17025	73	130
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	10	< 5.0
Chromium (III)	µg/l	5	NONE	< 5.0	< 5.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	15	0.5
Copper (dissolved)	µg/l	0.7	ISO 17025	23	13
Lead (dissolved)	µg/l	1	ISO 17025	34	< 1.0
Mercury - CV-AFS	µg/l	0.007	ISO 17025	0.1637	< 0.0070
Nickel (dissolved)	µg/l	0.3	ISO 17025	1.3	7.4
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0
Vanadium (dissolved)	µg/l	1.7	ISO 17025	6.5	< 1.7
Zinc (dissolved)	µg/l	0.4	ISO 17025	26	19
Calcium (dissolved)	mg/l	0.012	ISO 17025	38	230
Petroleum Hydrocarbons					
Petroleum Range Organics (C6 - C10) $_{HS_1D_TOTAL}$	µg/l	10	NONE	< 10	< 10
Diesel Range Organics (C10 - C25) $_{EH_1D_TOTAL_MS}$	µg/l	10	NONE	< 10	< 10
Oil Range Organics (C25 - C40) $_{EH_1D_TOTAL_MS}$	µg/l	10	NONE	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number : 24-80690
Project / Site name: Mayfield Phase 1B

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
BS EN 12457-1 (2:1) Leachate Prep	2:1 (as recieved, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis.	In-house method based on BSEN12457-1.	L043-PL	W	NONE
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Boron in leachate	Determination of boron in leachate. Sample acidified and followed by ICP-OES.	In-house method based on MEWAM	L039-PL	W	ISO 17025
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	ISO 17025
Monohydric phenols in leachate - LOW LEVEL 1 ug/l	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Speciated EPA-16 PAHs in leachate	Determination of PAH compounds in leachate by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L102B-PL	W	NONE
pH at 20oC in leachate (automated)	Determination of pH in leachate by electrometric measurement.	In house method.	L099B	W	ISO 17025
PRO (Leachates)	Determination of hydrocarbons C6-C10 by headspace GC-MS.	In-house method based on USEPA8260	L088-PL	W	NONE
Dissolved Organic Carbon in leachate	Determination of dissolved organic carbon in leachate by the measurement on a non-dispersive infrared analyser of carbon dioxide released by acidification.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	NONE
DRO (Leachates)	Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.	In-house method	L070-PL	W	NONE
Cr (III) in leachate	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
TPH Oils (Leachate)	Determination of dichloromethane/hexane extractable hydrocarbons in leachate by GC-MS.	In-house method	L070-PL	W	NONE
Free cyanide in leachate	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Total cyanide in leachate - 1µg/l	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025
Sulphate in leachates	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025

Analytical Report Number : 24-80690
Project / Site name: Mayfield Phase 1B

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Mercury Low Level in leachate	Mercury in leachate by CV-AFS,	In-house method based on USEPA method 1631	L085-PL	W	ISO 17025

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Kirsty Poore
Civic Earth Limited
Carvers Warehouse
77 Dale Street
Manchester
M1 2HG

e: kirsty.poore@civicearth.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 24-80851

Replaces Analytical Report Number: 24-80851, issue no. 2
Client references/information amended.
Sample's id's amended in samples 2942573 - 2942577 as per client's request

Project / Site name:	Mayfield Phase 1B	**Samples received on:**	01/02/2024
Your job number:	51001-03	**Samples instructed on/ Analysis started on:**	01/02/2024
Your order number:	PO-0030	**Analysis completed by:**	20/02/2024
Report Issue Number:	3	**Report issued on:**	26/02/2024
Samples Analysed:	8 water samples		

Izabela Wójcik
Signed:

Izabela Wójcik
Senior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-80851
Project / Site name: Mayfield Phase 1B

Your Order No: PO-0030

Lab Sample Number				2942573	2942574	2942575	2942576	2942577
Sample Reference				BH1001	BH1002	BH1003	BH1004	BH1005
Sample Number				SST1	SST2	SST3	SST4	SST5
Depth (m)				15.00	15.00	15.00	15.00	15.00
Date Sampled				30/01/2024	30/01/2024	30/01/2024	30/01/2024	30/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
General Inorganics								
pH (L099)	pH Units	N/A	ISO 17025	7.1	7.3	7.1	7	7.1
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	1.8	8.6	9.8	12	1
Free Cyanide	µg/l	10	ISO 17025	-	-	-	-	-
Free Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Sulphate as SO4	mg/l	0.045	ISO 17025	220	238	331	563	348
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	46	23	67	37	18
Dissolved Organic Carbon (DOC)	mg/l	0.1	ISO 17025	2.69	3.23	4.37	4.95	2.1
Hardness - Total	mgCaCO3/l	1	ISO 17025	527	447	485	966	552
Total Phenols								
Total Phenols (monohydric)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Total PAH								
Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16
Heavy Metals / Metalloids								
Boron (dissolved)	µg/l	10	ISO 17025	170	230	160	340	110
Calcium (dissolved)	mg/l	0.012	ISO 17025	180	160	160	310	140
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chromium (III)	µg/l	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Magnesium (dissolved)	mg/l	0.005	ISO 17025	18	13	22	46	47

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-80851
Project / Site name: Mayfield Phase 1B

Your Order No: PO-0030

Lab Sample Number				2942573	2942574	2942575	2942576	2942577
Sample Reference				BH1001	BH1002	BH1003	BH1004	BH1005
Sample Number				SST1	SST2	SST3	SST4	SST5
Depth (m)				15.00	15.00	15.00	15.00	15.00
Date Sampled				30/01/2024	30/01/2024	30/01/2024	30/01/2024	30/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Antimony (dissolved)	µg/l	0.4	ISO 17025	< 0.4	1	1.5	0.6	< 0.4
Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.21	0.58	0.33	0.33	0.22
Barium (dissolved)	µg/l	0.06	ISO 17025	61	120	38	65	36
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Cadmium (dissolved)	mg/l	0.00002	ISO 17025	0.0001	0.0001	0.0001	0.0001	0.0001
Chromium (dissolved)	µg/l	0.2	ISO 17025	0.7	1.1	1.1	1.1	2.3
Copper (dissolved)	µg/l	0.5	ISO 17025	1.9	2.9	6.3	1.6	1.8
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	2.6	1.9	2.8	2.3	4.2
Selenium (dissolved)	µg/l	0.6	ISO 17025	2	3.4	6.2	2	2.6
Vanadium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	0.4	0.3	< 0.2	< 0.2
Zinc (dissolved)	µg/l	0.5	ISO 17025	3	2.6	9.3	3.6	16
Monoaromatics & Oxygenates								
Benzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Toluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Ethylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
p & m-xylene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
o-xylene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6 $_{HS_1D_AL}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8 $_{HS_1D_AL}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10 $_{HS_1D_AL}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12 $_{EH_1D_AL_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16 $_{EH_1D_AL_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21 $_{EH_1D_AL_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35 $_{EH_1D_AL_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35) $_{HS+EH_1D_AL_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7 $_{HS_1D_AR}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8 $_{HS_1D_AR}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10 $_{HS_1D_AR}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12 $_{EH_1D_AR_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16 $_{EH_1D_AR_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21 $_{EH_1D_AR_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35 $_{EH_1D_AR_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35) $_{HS+EH_1D_AR_MS}$	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-80851
Project / Site name: Mayfield Phase 1B

Your Order No: PO-0030

Lab Sample Number				2942578	2942579	2942580
Sample Reference				WS1004	WS1006	WS1007
Sample Number				MG1	MG2	MG3
Depth (m)				2.50	2.50	1.00
Date Sampled				30/01/2024	30/01/2024	30/01/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
General Inorganics						
pH (L099)	pH Units	N/A	ISO 17025	12.4	7.7	12.7
Total Cyanide	µg/l	10	ISO 17025	< 10	91	44
Total Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	3.4	-	-
Free Cyanide	µg/l	10	ISO 17025	-	< 10	< 10
Free Cyanide (Low Level 1 µg/l)	µg/l	1	NONE	< 1.0	-	-
Sulphate as SO4	mg/l	0.045	ISO 17025	103	1690	149
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	650	48	3300
Dissolved Organic Carbon (DOC)	mg/l	0.1	ISO 17025	11.3	6.66	19.2
Hardness - Total	mgCaCO3/l	1	ISO 17025	637	1800	958
Total Phenols						
Total Phenols (monohydric)	µg/l	1	ISO 17025	3.7	< 10	92
Speciated PAHs						
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	1
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.1
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.81
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.44
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	3.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.79
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	4.3
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	3.97
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	1.87
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	2.13
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	2.2
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.92
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	2.03
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	1.02
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.29
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	1.24
Total PAH						
Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16	< 0.16	26.1
Heavy Metals / Metalloids						
Boron (dissolved)	µg/l	10	ISO 17025	63	400	< 10
Calcium (dissolved)	mg/l	0.012	ISO 17025	260	630	380
Chromium (hexavalent)	µg/l	5	ISO 17025	17	18	180
Chromium (III)	µg/l	5	NONE	19	24	230
Magnesium (dissolved)	mg/l	0.005	ISO 17025	0.035	55	0.023

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-80851
Project / Site name: Mayfield Phase 1B

Your Order No: PO-0030

Lab Sample Number				2942578	2942579	2942580
Sample Reference				WS1004	WS1006	WS1007
Sample Number				MG1	MG2	MG3
Depth (m)				2.50	2.50	1.00
Date Sampled				30/01/2024	30/01/2024	30/01/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Antimony (dissolved)	µg/l	0.4	ISO 17025	2.5	5.8	0.6
Arsenic (dissolved)	µg/l	0.15	ISO 17025	2.84	2.97	3.4
Barium (dissolved)	µg/l	0.06	ISO 17025	160	76	720
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1	< 0.1	< 0.1
Cadmium (dissolved)	mg/l	0.00002	ISO 17025	< 0.00002	0.0002	< 0.00002
Chromium (dissolved)	µg/l	0.2	ISO 17025	36	43	410
Copper (dissolved)	µg/l	0.5	ISO 17025	53	6	170
Lead (dissolved)	µg/l	0.2	ISO 17025	4.5	0.5	53
Mercury (dissolved)	µg/l	0.05	ISO 17025	0.19	< 0.05	0.08
Nickel (dissolved)	µg/l	0.5	ISO 17025	3	4	20
Selenium (dissolved)	µg/l	0.6	ISO 17025	9.1	4.1	19
Vanadium (dissolved)	µg/l	0.2	ISO 17025	13	0.5	1.5
Zinc (dissolved)	µg/l	0.5	ISO 17025	< 0.5	27	3.2
Monoaromatics & Oxygenates						
Benzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Toluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Ethylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
p & m-xylene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
o-xylene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Petroleum Hydrocarbons						
TPH-CWG - Aliphatic >C5 - C6 $_{HS_1D_AL}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8 $_{HS_1D_AL}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10 $_{HS_1D_AL}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12 $_{EH_1D_AL_MS}$	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16 $_{EH_1D_AL_MS}$	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21 $_{EH_1D_AL_MS}$	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35 $_{EH_1D_AL_MS}$	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35) $_{HS+EH_1D_AL_MS}$	µg/l	10	NONE	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7 $_{HS_1D_AR}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8 $_{HS_1D_AR}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10 $_{HS_1D_AR}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12 $_{EH_1D_AR_MS}$	µg/l	10	NONE	< 10	< 10	15
TPH-CWG - Aromatic >C12 - C16 $_{EH_1D_AR_MS}$	µg/l	10	NONE	< 10	< 10	30
TPH-CWG - Aromatic >C16 - C21 $_{EH_1D_AR_MS}$	µg/l	10	NONE	< 10	< 10	120
TPH-CWG - Aromatic >C21 - C35 $_{EH_1D_AR_MS}$	µg/l	10	NONE	< 10	< 10	120
TPH-CWG - Aromatic (C5 - C35) $_{HS+EH_1D_AR_MS}$	µg/l	10	NONE	< 10	< 10	280

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number : 24-80851
Project / Site name: Mayfield Phase 1B

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Boron in water	Determination of boron in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM	L039-PL	W	ISO 17025
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW.	L080-PL	W	ISO 17025
Free cyanide in water	Determination of free cyanide by distillation followed by colorimetry.Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Total Hardness of water	Determination of hardness in waters by calculation from calcium and magnesium. Accredited Matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045-PL	W	ISO 17025
Monohydric phenols in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Monohydric phenols in water - LOW LEVEL 1 ug/l	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
Sulphate in water	Determination of sulphate in water after filtration by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	ISO 17025
Total cyanide in water	Determination of total cyanide by distillation followed by colorimetry. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Dissolved Organic Carbon in water	Determination of dissolved inorganic carbon in water by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260. Refer to CoA for analyte specific accreditation	L073B-PL	W	ISO 17025
Ammoniacal Nitrogen as N in water	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the discrete analyser (colorimetric) salicylate/nitroprusside method. Accredited matrices SW, GW, PW, FSE, LL.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
Cr (III) in water	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
Low level total cyanide in water	Determination of total cyanide by distillation followed by colorimetry. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	NONE

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

4041

Analytical Report Number : 24-80851
Project / Site name: Mayfield Phase 1B

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In house method.	L099-PL	W	ISO 17025
Free cyanide (low level) in water	Determination of free cyanide by distillation followed by colorimetry.Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	NONE

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Civic Earth Limited
Carvers Warehouse
77 Dale Street
Manchester
M1 2HG

e: kirsty.poore@civicearth.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 24-004617

Project / Site name:	Mayfield Phase 1B	**Samples received on:**	22/02/2024
Your job number:	51001-03	**Samples instructed on/ Analysis started on:**	22/02/2024
Your order number:	PO-0030	**Analysis completed by:**	27/02/2024
Report Issue Number:	1	**Report issued on:**	28/02/2024
Samples Analysed:	3 water samples		

Signed:

Dominika Liana
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 24-004617
Project / Site name: Mayfield Phase 1B

Your Order No: PO-0030

Lab Sample Number				124181	124182	124183
Sample Reference				WS1004	WS1006	WS1007
Sample Number				MG1	MG2	MG3
Depth (m)				2.50	2.50	1.00
Date Sampled				20/02/2024	20/02/2024	20/02/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
General Inorganics						
Total Cyanide	µg/l	10	ISO 17025	< 10	38	70
Free Cyanide	µg/l	10	ISO 17025	< 10	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number : 24-004617
Project / Site name: Mayfield Phase 1B

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Free cyanide in water	Determination of free cyanide by distillation followed by colorimetry.Accredited matrices SW, GW, PW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	ISO 17025
Total cyanide in water	Determination of total cyanide by distillation followed by colorimetry. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080	W	ISO 17025

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Appendix E

Geotechnical Laboratory Analysis Results

GEOLABS Limited
Bucknalls Lane
Garston
Watford
Hertfordshire
WD25 9XX
Tel: +44(0) 1923 892 190
Fax: +44(0) 1923 892 191
email: admin@geolabs.co.uk
web: www.geolabs.co.uk

Civic Earth Limited
Carvers Warehouse
77 Dale Street
Manchester
M1 2HG

21 February 2024
Report No : GEO/39814/01

For the attention of Ms K Poore

Date samples received	18/01/2024
Date written instructions received	02/02/2024
Date testing commenced	03/02/2024
Date of sample disposal	**20/03/2024**

Our ref **GEO / 39814**
Your Ref **51001/03**

Project **MAYFIELD PHASE 1B**

Further to your instructions we have pleasure in enclosing the results of the tests you requested in the attached figures.

LABORATORY TEST REPORT

Item No	Test Quantity	Description
1	~	Geotechnical Test Summary
~	11	Water Content
~	12	Liquid & Plastic Limits
2	10	Particle Size Distribution
3	1	Unconsolidated Undrained Triaxial Compression
4	2	Rock Testing
5	1	Unconfined Compressive Strength with Deformability
6	18	Point Load Strength Index

Any opinions or interpretations expressed herein are outside the scope of UKAS accreditation. All results contained in this report are provisional unless signed by an approved signatory. The results contained in this report relate only to samples received in the laboratory and are tested 'as received' unless otherwise stated. This report should not be reproduced, except in full, without the written approval of the laboratory. The results reported are applicable only to the test items received by the laboratory.

All the necessary data required by the documented test procedures has been recorded and will be stored for a period of not less than 6 years. This data will be issued to yourselves at your request. All samples will be disposed of after the date shown above. Written confirmation will be required to retain the samples beyond this period and a storage charge may be applied.

We trust that the above meets your requirements and should you require any further information or assistance, please do not hesitate to contact us.

Yours faithfully
on behalf of **GEOLABS Limited**

S Burke
Senior Technician

"Geolabs" and the Geolabs logo are registered trademarks in the name of Geolabs Limited
Registered Office: Bucknalls Lane Garston Watford Hertfordshire WD25 9XX Registered in England and Wales No: 3177641

SUMMARY OF GEOTECHNICAL TESTING

Sample details					Classification Tests					Density Tests		Undrained Triaxial Compression				Chemical Tests			Other tests and comments
Location	Depth (m)	Sample Ref	Type	Description	WC %	LL %	PL %	PI %	<425 µm %	Bulk Mg/m³	Dry Mg/m³	Condition	Cell Pressure kPa	Deviator Stress kPa	Shear Stress kPa	pH	2:1 W/S SO4 g/L	W/S Mg mg/L	
BH1001	5.00-5.45	18	B	Orangish brown slightly silty SAND.															Particle Size Distribution
BH1002	6.00-6.45	20	B	Orangish brown slightly gravelly silty SAND.															Particle Size Distribution
BH1003	5.00-5.45	19	B	Orangish brown slightly gravelly silty SAND.															Particle Size Distribution
BH1004	1.20-1.65	9	B	Dark brown slightly gravelly clayey silty SAND.	13.8	22	16	6.0	44										
BH1004	3.00-3.45	15	UT	Very stiff dark brown gravelly sandy silty CLAY.	16.1	32	15	17	97	2.32	2.00	Undisturbed	60	344	172				
BH1004	3.70	16	B	Greyish brown slightly gravelly sandy clayey SILT.															Particle Size Distribution
BH1004	4.00-4.45	18	D	Greyish brown gravelly clayey silty SAND. Gravel is fine to medium.	10.7	26	16	10	33										
BH1004	6.00-6.45	25	B	Orangish brown slightly gravelly silty SAND.															Particle Size Distribution
BH1005	3.00-3.45		B	Orangish brown gravelly clayey silty SAND.															Particle Size Distribution
TP1001	0.50	5	D	Dark brown gravelly sandy silty CLAY. Gravel is fine to medium.	13.2	33	19	14	45										

Sample type: B (Bulk disturb.) BLK (Block) C (Core) D (Disturbed) LB (Large Bulk dist.) U (Undisturbed) NP=Non Plastic

Checked and Approved by



S Burke - Senior Technician
26/02/2024

Project Number:

GEO / 39814

Project Name:

MAYFIELD PHASE 1B
51001/03

GEOLABS®

SUMMARY OF GEOTECHNICAL TESTING

Sample details					Classification Tests					Density Tests		Undrained Triaxial Compression				Chemical Tests			Other tests and comments
Location	Depth (m)	Sample Ref	Type	Description	WC %	LL %	PL %	PI %	<425 µm %	Bulk Mg/m³	Dry Mg/m³	Condition	Cell Pressure kPa	Deviator Stress kPa	Shear Stress kPa	pH	2:1 W/S SO4 g/L	W/S Mg mg/L	
TP1001	1.00	9	B	Brown gravelly sandy clayey SILT.															Particle Size Distribution
TP1001	2.00	12	B	Black gravelly slightly sandy clayey SILT with rare rootlets and fine to medium brick.	23.5	40	27	13	62										
TP1005	1.50	12	B	Dark brown slightly sandy slightly gravelly silty CLAY.	17.9	29	12	17	99										
TP1005	2.00	15	B	Reddish brown gravelly clayey silty SAND.															Particle Size Distribution
TP1007	1.00	8	D	Dark brown slightly sandy silty CLAY with rare fine to medium gravel.	20.7	35	22	13	88										
TP1007	3.00	15	B	Orangish brown silty SAND.	16.7		NP		100										
TP1009	2.00	11	D	Brownish grey greyish brown mottled slightly sandy silty CLAY.	15.7	33	19	14	100										
TP1010	3.00	15	B	Brown slightly gravelly sandy clayey SILT.															Particle Size Distribution
TP1012	3.00	16	B	Brown silty very gravelly SAND with occasional cobbles.															Particle Size Distribution
WS1003	0.50	3	D	Dark brown slightly sandy gravelly silty CLAY.	11.1	32	19	13	39										

Sample type: B (Bulk disturb.) BLK (Block) C (Core) D (Disturbed) LB (Large Bulk dist.) U (Undisturbed) NP=Non Plastic

Checked and Approved by

S Burke

S Burke - Senior Technician
26/02/2024

Project Number:

GEO / 39814

Project Name:

MAYFIELD PHASE 1B
51001/03

GEOLABS®

SUMMARY OF GEOTECHNICAL TESTING

Sample details					Classification Tests					Density Tests		Undrained Triaxial Compression				Chemical Tests			Other tests and comments
Location	Depth (m)	Sample Ref	Type	Description	WC %	LL %	PL %	PI %	<425 µm %	Bulk Mg/m³	Dry Mg/m³	Condition	Cell Pressure kPa	Deviator Stress kPa	Shear Stress kPa	pH	2:1 W/S SO4 g/L	W/S Mg mg/L	
WS1003	0.50	4	B	Black slightly sandy gravelly silty CLAY. Gravel is fine to medium and includes brick.	15.2	31	19	12	48										
WS1005	2.00	10	D	Greyish brown brownish grey brown mottled slightly sandy silty CLAY.	23.0	46	23	23	100										

Sample type: B (Bulk disturb.) BLK (Block) C (Core) D (Disturbed) LB (Large Bulk dist.) U (Undisturbed) NP=Non Plastic

Checked and Approved by



S Burke - Senior Technician
26/02/2024

Project Number:

GEO / 39814

Project Name:

MAYFIELD PHASE 1B
51001/03

GEOLABS®

BS EN ISO 17892-4 : 2016

PARTICLE SIZE DISTRIBUTION

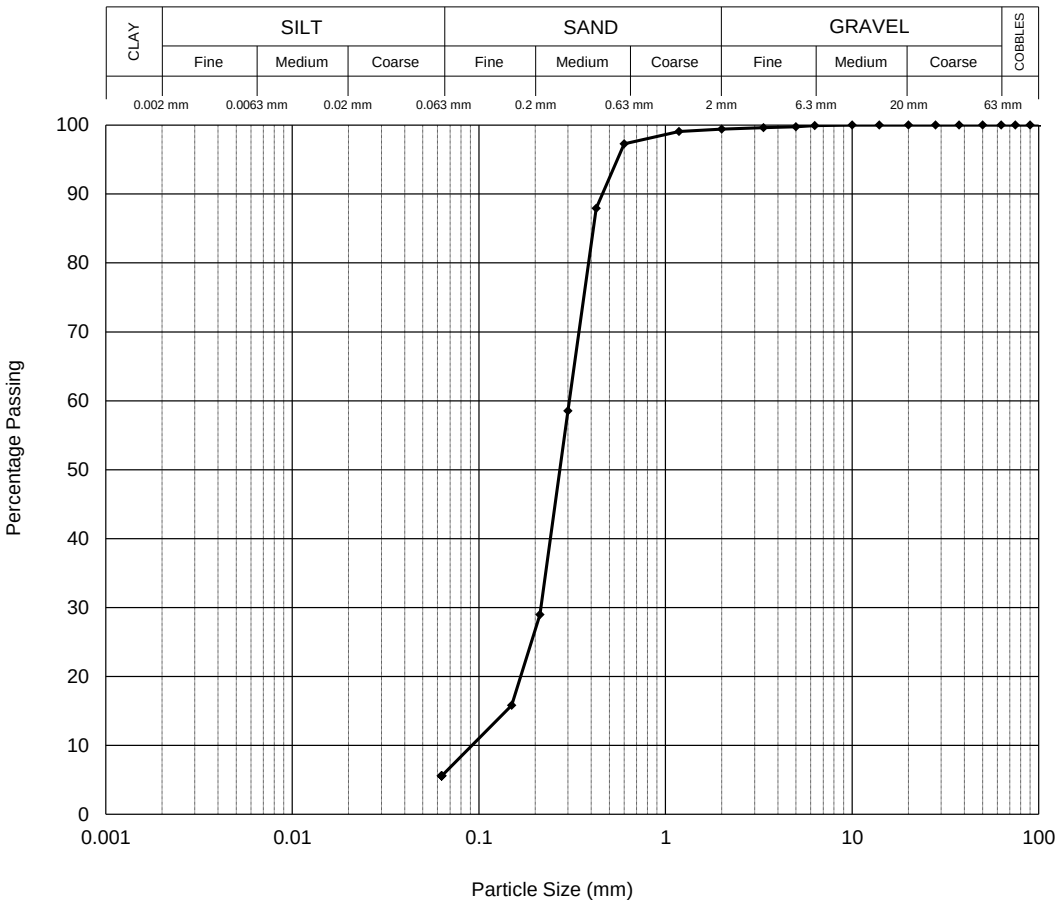
Location	BH1001
Sample Ref	18
Depth (m)	5.00-5.45
Sample Type	B

Description

Orangish brown slightly silty SAND.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	100
3.35 mm	100
2.00 mm	99
1.18 mm	99
600 µm	97
425 µm	88
300 µm	59
212 µm	29
150 µm	16
63 µm	6



Particle Proportions	
Cobbles	0.0
Gravel	0.6
Sand	93.9
Silt & Clay	5.5

Tested by MJ
Checked and Approved by

S Burke - Senior Technician
21/02/2024

Project Number:

GEO / 39814

Project Name:

MAYFIELD PHASE 1B
51001/03

GEOLABS

UKAS TESTING 1982

BS EN ISO 17892-4 : 2016

PARTICLE SIZE DISTRIBUTION

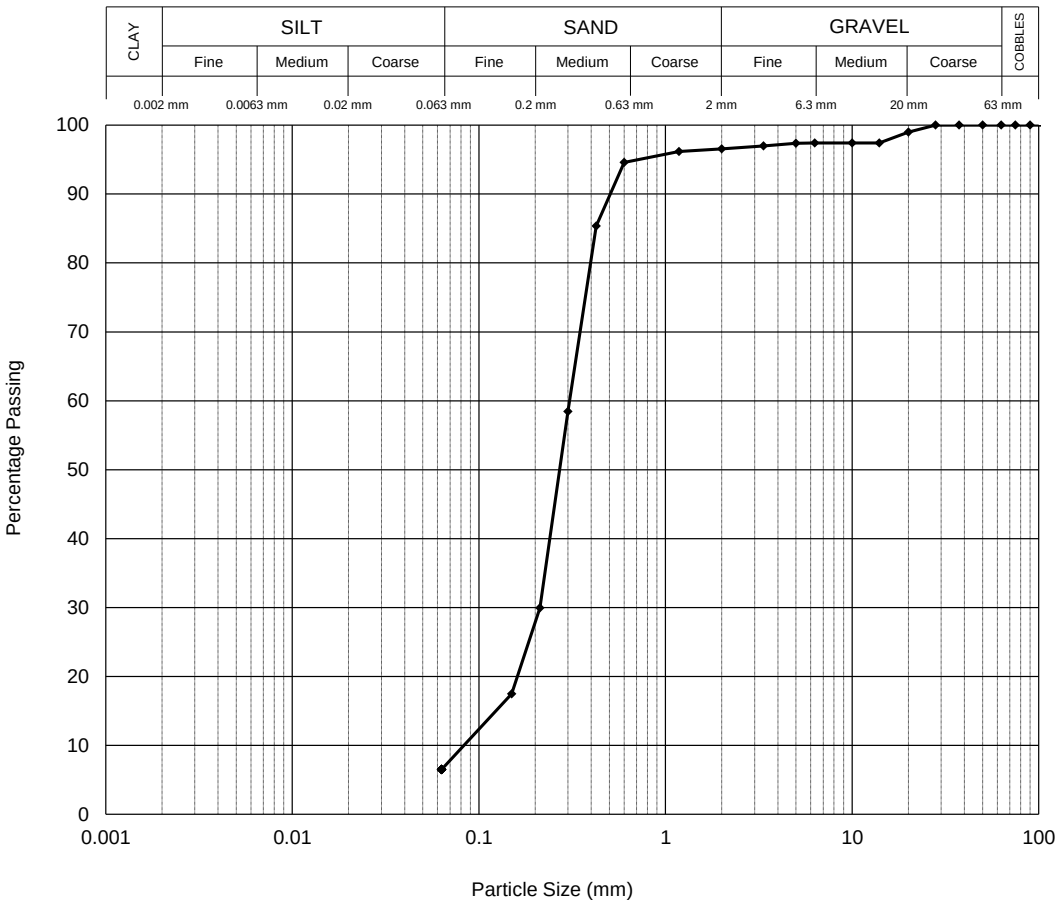
Location	BH1002
Sample Ref	20
Depth (m)	6.00-6.45
Sample Type	B

Description

Orangish brown slightly gravelly silty SAND.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	99
14.0 mm	97
10.0 mm	97
6.30 mm	97
5.00 mm	97
3.35 mm	97
2.00 mm	97
1.18 mm	96
600 µm	95
425 µm	85
300 µm	58
212 µm	30
150 µm	17
63 µm	6



Particle Proportions	
Cobbles	0.0
Gravel	3.5
Sand	90.1
Silt & Clay	6.4

Tested by AD
Checked and Approved by

S Burke - Senior Technician
21/02/2024

Project Number:

GEO / 39814

Project Name:

MAYFIELD PHASE 1B
51001/03

GEOLABS

UKAS TESTING 1982

BS EN ISO 17892-4 : 2016

PARTICLE SIZE DISTRIBUTION

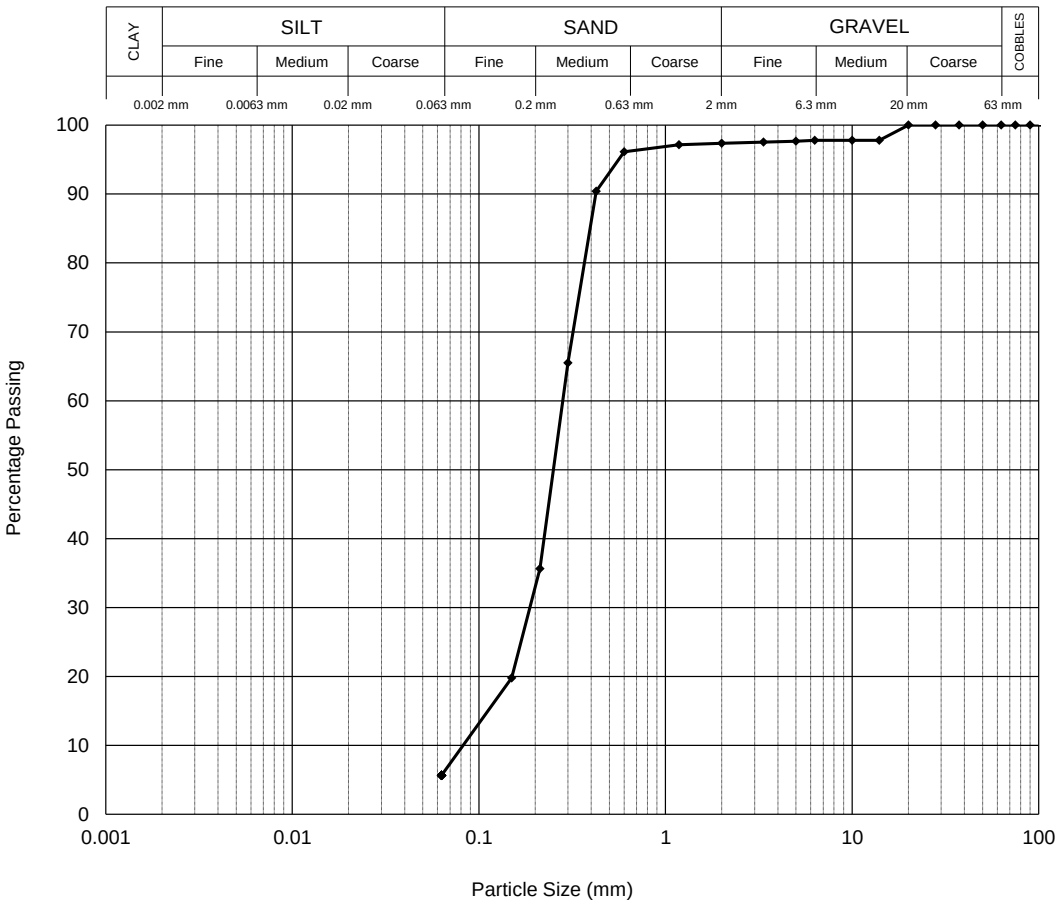
Location	BH1003
Sample Ref	19
Depth (m)	5.00-5.45
Sample Type	B

Description

Orangish brown slightly gravelly silty SAND.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	98
10.0 mm	98
6.30 mm	98
5.00 mm	98
3.35 mm	98
2.00 mm	97
1.18 mm	97
600 µm	96
425 µm	90
300 µm	65
212 µm	36
150 µm	20
63 µm	6



Particle Proportions	
Cobbles	0.0
Gravel	2.7
Sand	91.7
Silt & Clay	5.6

Tested by MJ
Checked and Approved by

S Burke - Senior Technician
21/02/2024

Project Number:

GEO / 39814

Project Name:

MAYFIELD PHASE 1B
51001/03

BS EN ISO 17892-4 : 2016

PARTICLE SIZE DISTRIBUTION

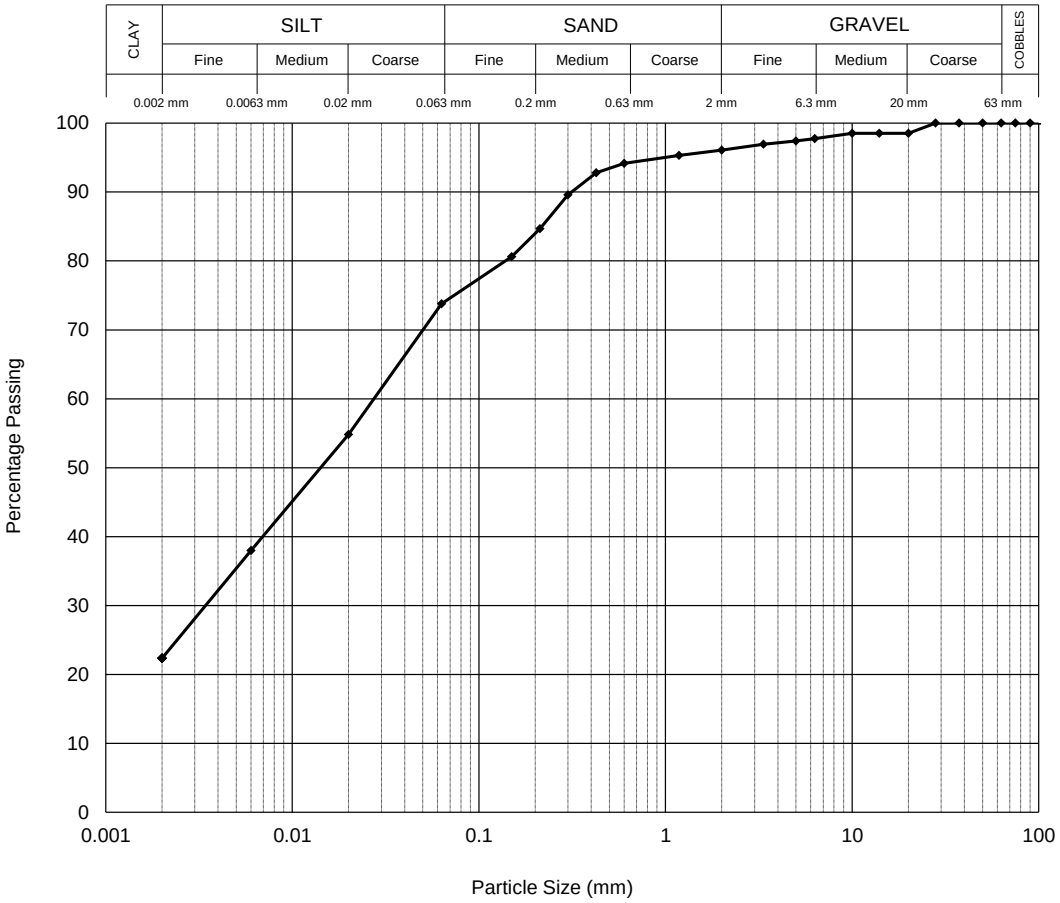
Location	BH1004
Sample Ref	16
Depth (m)	3.70
Sample Type	B

Description

Greyish brown slightly gravelly sandy clayey SILT.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve
BS EN ISO 17892-4 : 2016 : Clause 5.4 - Sedimentation by Pipette

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	99
14.0 mm	99
10.0 mm	99
6.30 mm	98
5.00 mm	97
3.35 mm	97
2.00 mm	96
1.18 mm	95
600 µm	94
425 µm	93
300 µm	90
212 µm	85
150 µm	81
63 µm	74



Sedimentation	
No Pre-treatment used	
Temp (°C)	25.0
Size	% Pass
20 µm	55
6 µm	38
2 µm	22

Particle Density 2.70(A) Mg/m³

Particle Proportions	
Cobbles	0.0
Gravel	3.9
Sand	22.3
Silt	51.4
Clay	22.4

Tested by MJ
Checked and Approved by

S Burke - Senior Technician
21/02/2024

Project Number:

GEO / 39814

Project Name:

MAYFIELD PHASE 1B
51001/03

GEOLABS
UKAS TESTING 1982

BS EN ISO 17892-4 : 2016

PARTICLE SIZE DISTRIBUTION

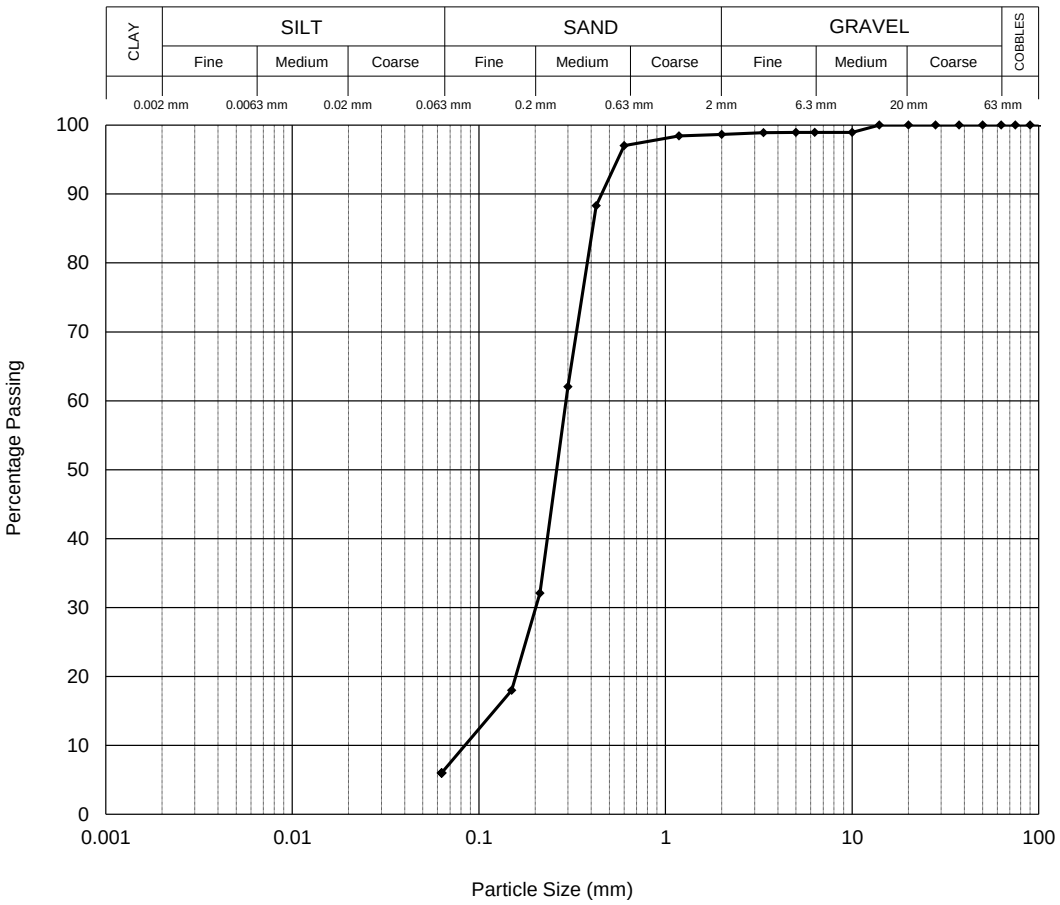
Location	BH1004
Sample Ref	25
Depth (m)	6.00-6.45
Sample Type	B

Description

Orangish brown slightly gravelly silty SAND.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	99
6.30 mm	99
5.00 mm	99
3.35 mm	99
2.00 mm	99
1.18 mm	98
600 µm	97
425 µm	88
300 µm	62
212 µm	32
150 µm	18
63 µm	6



Particle Proportions	
Cobbles	0.0
Gravel	1.3
Sand	92.7
Silt & Clay	6.0

Tested by MJ
Checked and Approved by

S Burke - Senior Technician
21/02/2024

Project Number:

GEO / 39814

Project Name:

MAYFIELD PHASE 1B
51001/03

GEOLABS

UKAS TESTING 1982

BS EN ISO 17892-4 : 2016

PARTICLE SIZE DISTRIBUTION

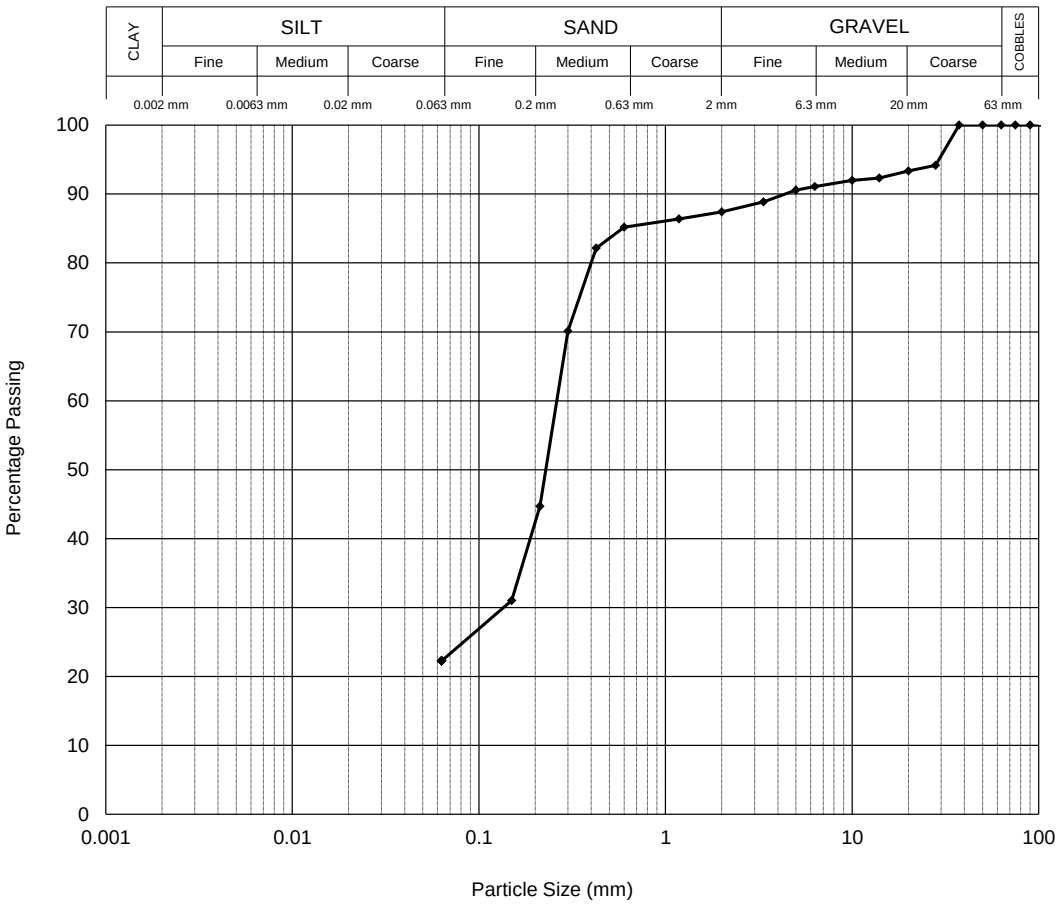
Location	BH1005
Depth (m)	3.00-3.45
Sample Type	B

Description

Orangish brown gravelly clayey silty SAND.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	94
20.0 mm	93
14.0 mm	92
10.0 mm	92
6.30 mm	91
5.00 mm	91
3.35 mm	89
2.00 mm	87
1.18 mm	86
600 µm	85
425 µm	82
300 µm	70
212 µm	45
150 µm	31
63 µm	22



Particle Proportions	
Cobbles	0.0
Gravel	12.6
Sand	65.1
Silt & Clay	22.3

Tested by DD
Checked and Approved by

S Burke - Senior Technician
21/02/2024

Project Number:

GEO / 39814

Project Name:

MAYFIELD PHASE 1B
51001/03

BS EN ISO 17892-4 : 2016

PARTICLE SIZE DISTRIBUTION

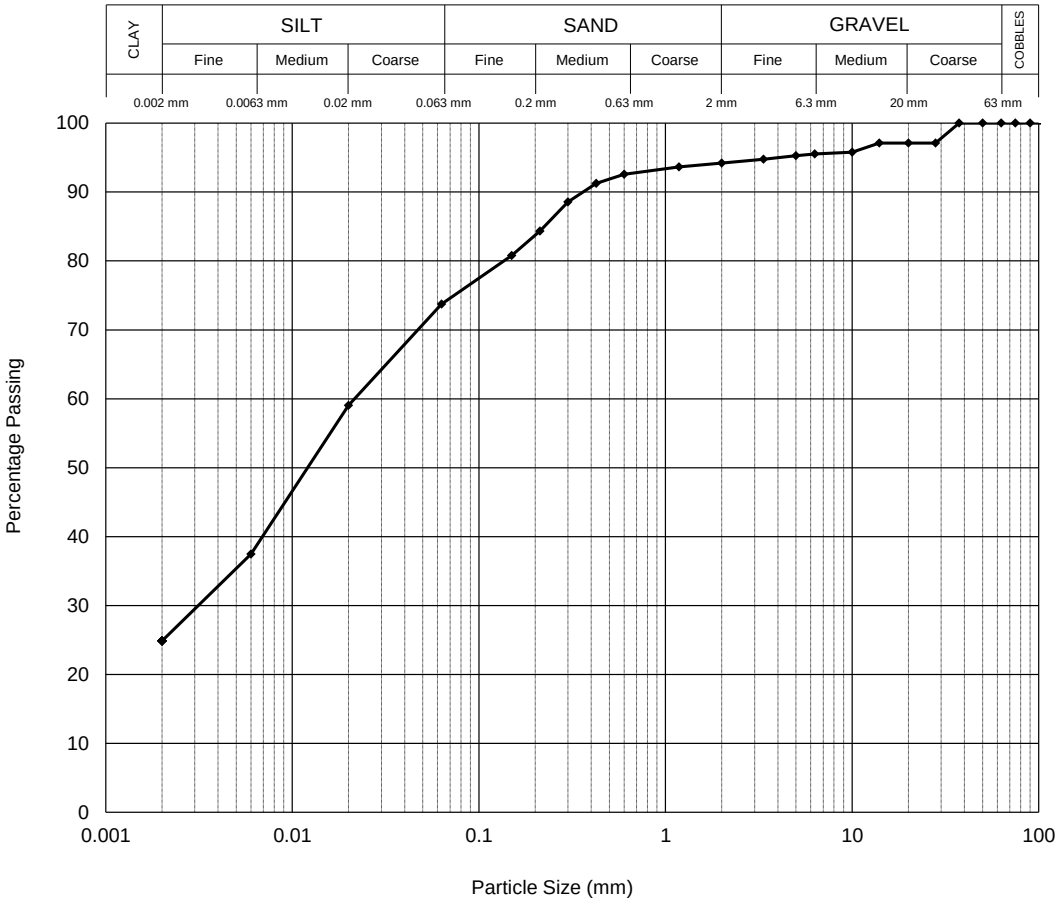
Location	TP1001
Sample Ref	9
Depth (m)	1.00
Sample Type	B

Description

Brown gravelly sandy clayey SILT.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve
BS EN ISO 17892-4 : 2016 : Clause 5.4 - Sedimentation by Pipette

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	97
20.0 mm	97
14.0 mm	97
10.0 mm	96
6.30 mm	96
5.00 mm	95
3.35 mm	95
2.00 mm	94
1.18 mm	94
600 µm	93
425 µm	91
300 µm	89
212 µm	84
150 µm	81
63 µm	74



Sedimentation	
No Pre-treatment used	
Temp (°C)	25.0
Size	% Pass
20 µm	59
6 µm	37
2 µm	25

Particle Density 2.70(A) Mg/m³

Particle Proportions	
Cobbles	0.0
Gravel	5.8
Sand	20.5
Silt	48.8
Clay	24.9

Tested by MJ
Checked and Approved by

S Burke - Senior Technician
21/02/2024

Project Number:

GEO / 39814

Project Name:

MAYFIELD PHASE 1B
51001/03

GEOLABS
UKAS TESTING 1982

BS EN ISO 17892-4 : 2016

PARTICLE SIZE DISTRIBUTION

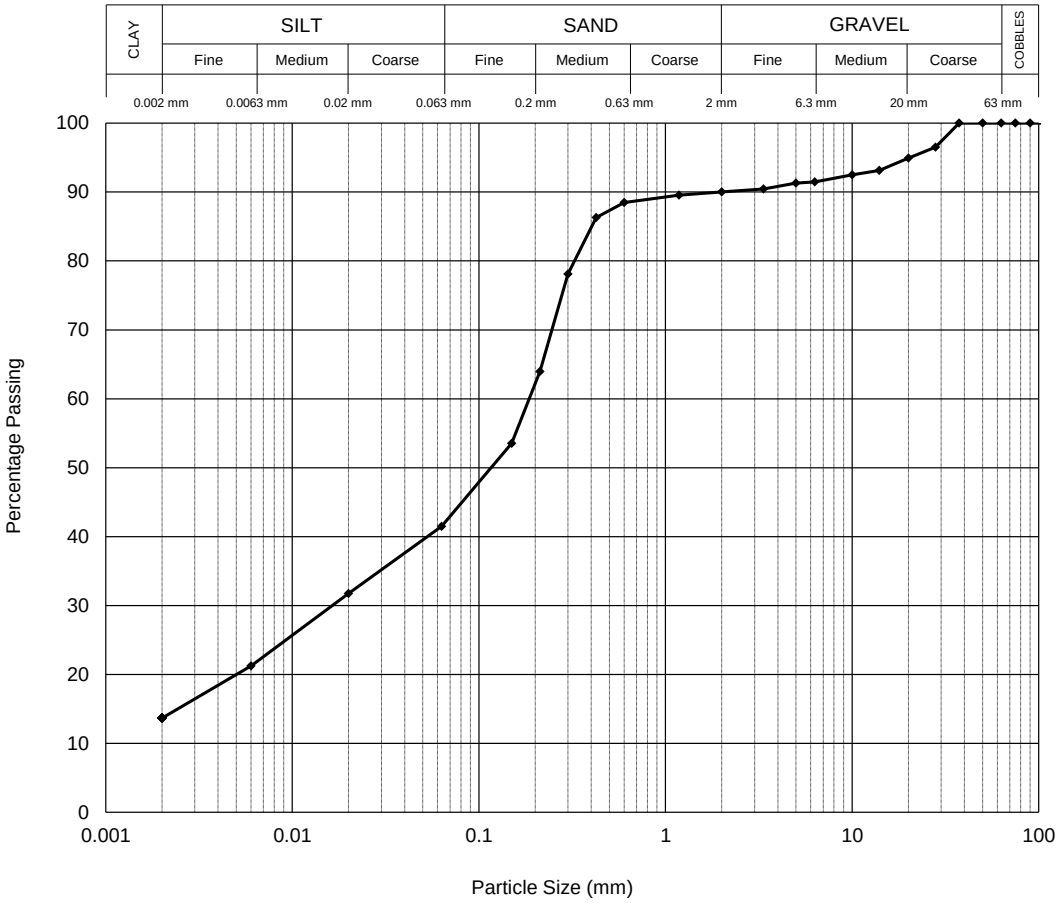
Location	TP1005
Sample Ref	15
Depth (m)	2.00
Sample Type	B

Description

Reddish brown gravelly clayey silty SAND.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve
BS EN ISO 17892-4 : 2016 : Clause 5.4 - Sedimentation by Pipette

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	97
20.0 mm	95
14.0 mm	93
10.0 mm	92
6.30 mm	91
5.00 mm	91
3.35 mm	90
2.00 mm	90
1.18 mm	90
600 µm	88
425 µm	86
300 µm	78
212 µm	64
150 µm	54
63 µm	41



Sedimentation	
No Pre-treatment used	
Temp (°C)	25.0
Size	% Pass
20 µm	32
6 µm	21
2 µm	14

Particle Density 2.70(A) Mg/m³

Particle Proportions	
Cobbles	0.0
Gravel	10.0
Sand	48.5
Silt	27.8
Clay	13.7

Tested by MJ
Checked and Approved by

S Burke - Senior Technician
21/02/2024

Project Number:

GEO / 39814

Project Name:

MAYFIELD PHASE 1B
51001/03

GEOLABS
UKAS TESTING 1982

BS EN ISO 17892-4 : 2016

PARTICLE SIZE DISTRIBUTION

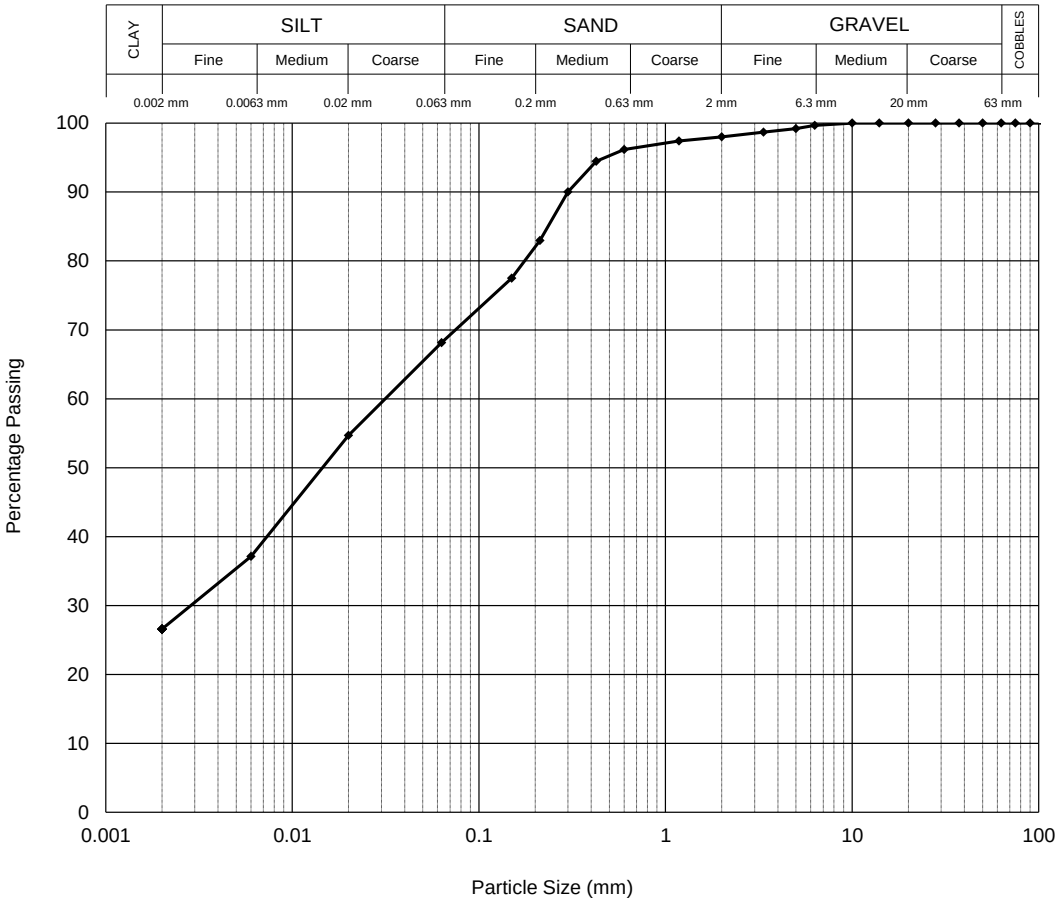
Location	TP1010
Sample Ref	15
Depth (m)	3.00
Sample Type	B

Description

Brown slightly gravelly sandy clayey SILT.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve
BS EN ISO 17892-4 : 2016 : Clause 5.4 - Sedimentation by Pipette

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	100
20.0 mm	100
14.0 mm	100
10.0 mm	100
6.30 mm	100
5.00 mm	99
3.35 mm	99
2.00 mm	98
1.18 mm	97
600 µm	96
425 µm	94
300 µm	90
212 µm	83
150 µm	78
63 µm	68



Sedimentation	
No Pre-treatment used	
Temp (°C)	25.0
Size	% Pass
20 µm	55
6 µm	37
2 µm	27

Particle Density 2.70(A) Mg/m³

Particle Proportions	
Cobbles	0.0
Gravel	2.0
Sand	29.9
Silt	41.5
Clay	26.6

Tested by MJ
Checked and Approved by

S Burke - Senior Technician
21/02/2024

Project Number:

GEO / 39814

Project Name:

MAYFIELD PHASE 1B
51001/03

GEOLABS
UKAS TESTING 1982

BS EN ISO 17892-4 : 2016

PARTICLE SIZE DISTRIBUTION

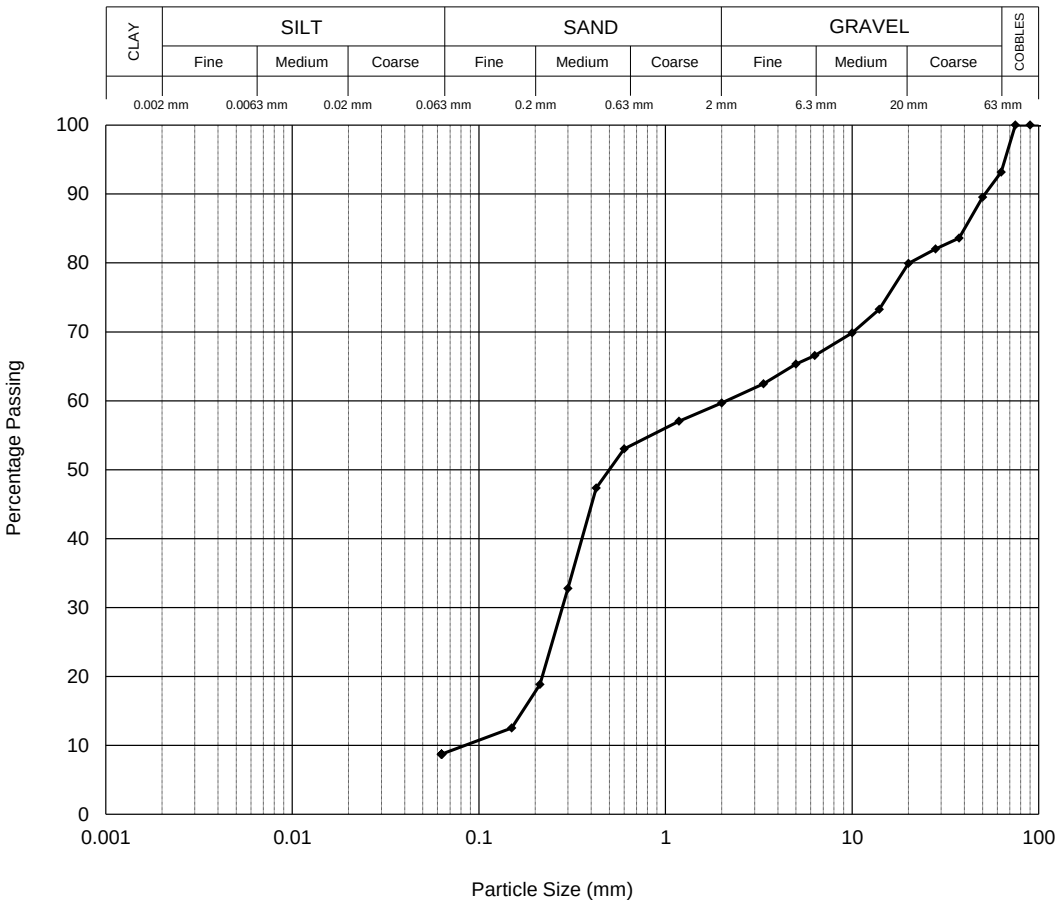
Location	TP1012
Sample Ref	16
Depth (m)	3.00
Sample Type	B

Description

Brown silty very gravelly SAND with occasional cobbles.

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	93
50.0 mm	90
37.5 mm	84
28.0 mm	82
20.0 mm	80
14.0 mm	73
10.0 mm	70
6.30 mm	67
5.00 mm	65
3.35 mm	62
2.00 mm	60
1.18 mm	57
600 µm	53
425 µm	47
300 µm	33
212 µm	19
150 µm	13
63 µm	9



Particle Proportions	
Cobbles	6.8
Gravel	33.5
Sand	50.9
Silt & Clay	8.8

Tested by MJ
Checked and Approved by

S Burke - Senior Technician
21/02/2024

Project Number:

GEO / 39814

Project Name:

MAYFIELD PHASE 1B
51001/03

GEOLABS
UKAS TESTING 1982

BS EN ISO 17892-8 : 2018

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION

Location	BH1004
Sample Ref	15
Depth (m)	3.00-3.45
Sample Type	UT

Description:

Very stiff dark brown gravelly sandy silty CLAY.

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	200.7
Diameter	(mm)	101.5
Water content	(%)	16.1
Bulk density	(Mg/m³)	2.32
Dry density	(Mg/m³)	2.00
Test Details		
Latex membrane thickness	(mm)	0.3
Specimen height prior to shearing	(mm)	200.6
Membrane correction	(kPa)	0.9
Mean rate of shear	(%/min)	2.0
Cell pressure	(kPa)	60
Strain at failure	(%)	15.0
Maximum deviator stress	(kPa)	344
Shear Stress Cu	(kPa)	172

Mode of failure



Orientation of the sample	Vertical
Distance from top of tube mm	80

Tested by PS
Checked and Approved by

S Burke

S Burke - Senior Technician
21/02/2024

Project Number:

GEO / 39814

Project Name:

MAYFIELD PHASE 1B
51001/03

GEOLABS
UKAS TESTING 1982

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006 In-house Technical Procedure TP35

DETERMINATION OF POINT LOAD STRENGTH ON ROCK

Sample details				Point Load test											
Borehole Ref.	Sample Ref.	Depth (m)	Description	D. Tested	Test type & Direction		Sample width W (mm)	Platen separation (mm) Start D	Platen separation (mm) End D'	Water Content (%)	Equiv. Diameter D_e (mm)	Failure Load P (kN)	I_s P/De^2 (MPa)	Correction Factor F	Point Load Index $I_{s(50)}$ (MPa)
BH1001	1	7.60-7.74	Extremely weak thinly laminated reddish brown fine to medium grained SANDSTONE. Highly to completely weathered	07/02/24	D	P	106.1	106.0	102.3		104.1	0.10	0.01	1.39	0.01
BH1001		10.63-10.80	Extremely weak thinly laminated reddish brown fine to medium grained SANDSTONE. Highly to completely weathered	08/02/24	D	L	105.5	105.0	102.1		103.5	0.12	0.01	1.39	0.01
BH1001	5	13.03-13.06	Extremely weak thinly laminated reddish brown fine to medium grained SANDSTONE. Highly to completely weathered	07/02/24	A	P	106.0	75.1	71.9		98.5	0.25	0.03	1.36	0.04
BH1001	11	22.38-22.46	Very weak thinly laminated reddish brown fine to medium grained SANDSTONE. Moderately to highly weathered	07/02/24	A	P	106.0	80.3	75.5		100.9	1.19	0.12	1.37	0.16
BH1002	14	7.67-7.75	Extremely weak thinly laminated reddish brown fine to medium grained SANDSTONE. Highly to completely weathered	07/02/24	A	P	105.8	80.1	75.6		100.9	0.26	0.03	1.37	0.04
BH1002	16	10.23-10.32	Extremely weak thinly laminated reddish brown fine to medium grained SANDSTONE. Moderately to highly weathered	07/02/24	D	L	106.1	105.8	102.7		104.2	0.32	0.03	1.39	0.04
BH1002	21	17.60-17.66	Extremely weak thinly laminated reddish brown fine to medium grained SANDSTONE. Highly to completely weathered	07/02/24	A	P	105.8	68.3	63.5		92.5	0.29	0.03	1.32	0.04
BH1002	25	23.50-23.62	Extremely weak thinly laminated reddish brown fine to medium grained SANDSTONE. Moderately to highly weathered	07/02/24	A	P	105.5	78.7	74.2		99.8	0.37	0.04	1.37	0.05
BH1003	28	9.11-9.17	Extremely weak thinly laminated reddish brown fine to medium grained SANDSTONE. Highly to completely weathered	07/02/24	A	P	106.0	56.3	52.4		84.1	0.13	0.02	1.26	0.03
BH1003		9.90-9.96	Very weak thinly laminated reddish brown fine to medium grained SANDSTONE. Moderately to highly weathered	12/02/24	A	P	104.6	70.8	65.3		93.3	0.40	0.05	1.32	0.07

(*) Sample failed on weakness

Test type and direction: **D** - Diametral **A** - Axial **B** - Block **I** - Irregular lump **P** - Perpendicular to planes of weakness **U** - Random or unknown orientation **L** - Parallel to planes of weakness

Checked and Approved by

IT

I Tabios (Head of Department)

Date: 16/02/2024

Project Number:

GEO / 39814

Project Name:

MAYFIELD PHASE 1B

51001/03

GEOLABS

UKAS TESTING 1982

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006 In-house Technical Procedure TP35

DETERMINATION OF POINT LOAD STRENGTH ON ROCK

Sample details				Point Load test											
Borehole Ref.	Sample Ref.	Depth (m)	Description	D. Tested	Test type & Direction		Sample width W (mm)	Platen separation (mm) Start D	Platen separation (mm) End D'	Water Content (%)	Equiv. Diameter D_e (mm)	Failure Load P (kN)	I_s P/De^2 (MPa)	Correction Factor F	Point Load Index $I_{s(50)}$ (MPa)
BH1003	32	15.43-15.50	Extremely weak thinly laminated reddish brown fine to medium grained SANDSTONE. Highly to completely weathered	07/02/24	A	P	106.1	70.0	65.2		93.9	0.15	0.02	1.33	0.03
BH1004		9.01-9.17	Extremely weak thinly laminated reddish brown fine to medium grained SANDSTONE. Highly to completely weathered	08/02/24	A	P	106.0	73.3	68.4		96.1	0.12	0.01	1.34	0.01
BH1004	39	11.88-12.12	Extremely weak thinly laminated reddish brown fine to medium grained SANDSTONE. Highly to completely weathered	07/02/24	I	P	106.0	73.1	68.6		96.2	0.17	0.02	1.34	0.03
BH1005		8.08-8.24	Extremely weak thinly laminated reddish brown fine to medium grained SANDSTONE. Highly to completely weathered	08/02/24	D	L	106.0	105.8	100.3		103.0	0.08	0.01	1.38	0.01
BH1005	52	10.82-10.87	Extremely weak thinly laminated reddish brown fine to medium grained SANDSTONE. Highly to completely weathered	07/02/24	I	L	102.3	60.5	56.1		85.5	0.08	0.01	1.27	0.01
BH1005	55	14.83-15.0	Extremely weak thinly laminated reddish brown fine to medium grained SANDSTONE. Highly to completely weathered	12/02/24	D	L	106.3	105.6	102.1		103.8	0.22	0.02	1.39	0.03
BH1005	55	14.90-15.70	Extremely weak thinly laminated reddish brown fine to medium grained SANDSTONE. Highly to completely weathered	12/02/24	A	P	106.1	80.1	76.2		101.5	0.43	0.04	1.37	0.05
BH1005	58	19.52-19.74	Extremely weak thinly laminated reddish brown fine to medium grained SANDSTONE. Highly to completely weathered	07/02/24	D	L	105.2	104.8	100.2		102.5	0.13	0.01	1.38	0.01

(*) Sample failed on weakness

Test type and direction: **D** - Diametral **A** - Axial **B** - Block **I** - Irregular lump **P** - Perpendicular to planes of weakness **U** - Random or unknown orientation **L** - Parallel to planes of weakness

Checked and Approved by

IT

I Tabios (Head of Department)

Date: 16/02/2024

Project Number:

GEO / 39814

Project Name:

MAYFIELD PHASE 1B

51001/03

GEOLABS

UKAS TESTING 1982

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Sample details				Density				Uniaxial Compression Test (LF0879C (1000kN) compression frame used)							
								Mean after prep.							
Borehole Ref.	Sample Ref.	Depth (m)	Description	MC (%)	Degree of Saturation (%)	Bulk (Mg/m³)	Dry (Mg/m³)	Diameter (mm)	Height (mm)	H/D Ratio	Load at Failure (kN)	UCS (MPa) 3 sig. fig.	Failure Sketch	D. Tested	Remarks
BH1001	9	19.78-20.00	Very weak thinly laminated orangish brown fine grained SANDSTONE. Fresh to slightly weathered	11	60.3	2.12	1.91	106.00	208.00	2.0	39.0	4.42		08/02/24	
BH1002	26	24.68-25.00	Very weak thinly laminated orangish brown fine grained SANDSTONE. Fresh to slightly weathered	14	74.4	2.15	1.89	105.30	279.00	2.6	41.8	4.8		08/02/24	
BH1004		16.59-16.87	Extremely weak thinly laminated orangish brown fine grained SANDSTONE. Fresh to slightly weathered	13	58.1	1.99	1.76	105.50	206.10	2.0	5.3	0.606		09/02/24	

Note: The dimensional requirements of flatness (<0.02 mm), perpendicularity (<0.05 / 50 mm) and straightness (0.3 mm deviation) are all met. Specific Gravity used for Degree of Saturation is assumed unless specified by the client.

Checked and Approved by

IT

I Tabios (Head of Department)

Date: 16/02/2024

Project Number:

GEO / 39814

Project Name:

MAYFIELD PHASE 1B
51001/03

GEOLABS

UKAS TESTING 1982

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Borehole Ref.:	BH1001
Sample Ref.:	9
Depth (m):	19.78-20.00

Description:
Very weak thinly laminated orangish brown fine grained SANDSTONE. Fresh to slightly weathered

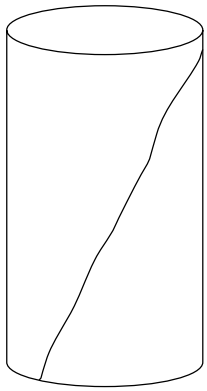
Diameter	106.00 mm
Height	208.00 mm
Bulk Density	2.12 Mg/m³
Dry Density	1.91 Mg/m³
Water Content	11 %

Degree of Saturation: 60.3 % Specific Gravity: 2.9 Mg/m³ (Assumed)

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

Date tested: 08/02/2024

Angle of foliation/Axis of loading: n/a
Angle of shear plane/Axis of loading: n/a

Sample type	C

Test results

Unconfined Compressive Strength Maximum load (kN): 39.00	4.42 MPa
Young's Modulus (tangential at 50% failure load)	n/a
Poisson's Ratio (tangential at 50% failure load)	n/a
Young's Modulus (secant at 10% failure load)	n/a
Poisson's Ratio (secant at 10% failure load)	n/a

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

Checked and Approved by

IT

I Tabios (Head of Department)

Date: 16/02/2024

Project Number:

GEO / 39814

Project Name:

MAYFIELD PHASE 1B
51001/03

GEOLABS

UKAS TESTING 1982

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Borehole Ref.:	BH1002
Sample Ref.:	26
Depth (m):	24.68-25.00

Description:
Very weak thinly laminated orangish brown fine grained SANDSTONE. Fresh to slightly weathered

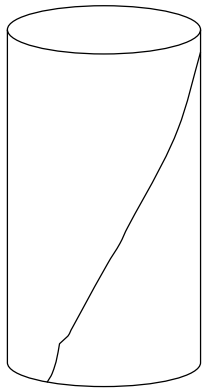
Diameter	105.30 mm
Height	279.00 mm
Bulk Density	2.15 Mg/m³
Dry Density	1.89 Mg/m³
Water Content	14 %

Degree of Saturation: 74.4 % Specific Gravity: 2.9 Mg/m³ (Assumed)

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

Date tested: 08/02/2024

Angle of foliation/Axis of loading: n/a
Angle of shear plane/Axis of loading: n/a

Sample type	C

Test results

Unconfined Compressive Strength Maximum load (kN): 41.80	4.8 MPa
Young's Modulus (tangential at 50% failure load)	n/a
Poisson's Ratio (tangential at 50% failure load)	n/a
Young's Modulus (secant at 10% failure load)	n/a
Poisson's Ratio (secant at 10% failure load)	n/a

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

Checked and Approved by

IT

I Tabios (Head of Department)

Date: 16/02/2024

Project Number:

GEO / 39814

Project Name:

MAYFIELD PHASE 1B
51001/03

GEOLABS

UKAS TESTING 1982

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

UNCONFINED COMPRESSIVE STRENGTH WITH YOUNG'S MODULUS AND POISSON'S RATIO

Borehole Ref.:	BH1004
Sample Ref.:	-
Depth (m):	16.59-16.87

Description:
Extremely weak thinly laminated orangish brown fine grained SANDSTONE.
Fresh to slightly weathered

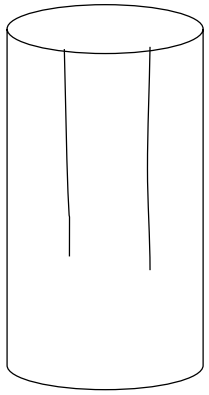
LF0879C (1000kN) compression frame used

Diameter	105.50 mm
Height	206.10 mm
Bulk Density	1.99 Mg/m³
Dry Density	1.76 Mg/m³
Water Content	13 %

Degree of Saturation: 58.1 % Specific Gravity: 2.9 Mg/m³ (Assumed)

Failure Sketch

Mode of failure: Axial splitting



Solid lines for material failures.
Dashed lines for apparent weakness failure.

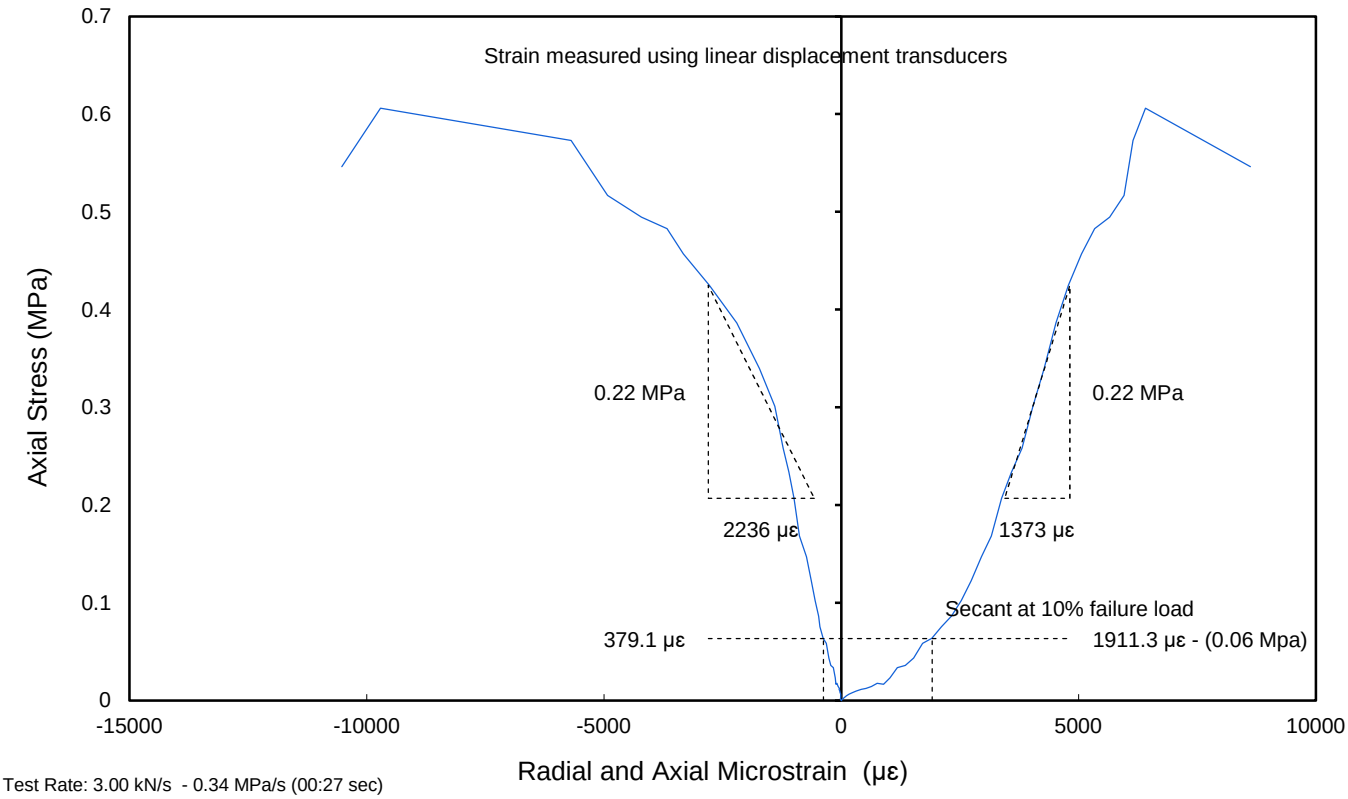
Angle of foliation/Axis of loading: n/a
Angle of shear plane/Axis of loading: n/a

Sample type	C

Date tested: 09/02/2024

Test results

Unconfined Compressive Strength (Maximum load (kN): 5.30)	0.606 MPa
Young's Modulus (tangential at 50% failure load)	0.159 GPa
Poisson's Ratio (tangential at 50% failure load)	1.63
Young's Modulus (secant at 10% failure load)	0.0333 GPa
Poisson's Ratio (secant at 10% failure load)	0.20



Test Rate: 3.00 kN/s - 0.34 MPa/s (00:27 sec)

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are all met.

Checked and Approved by

IT

I Tabios (Head of Department)

Date: 16/02/2024

Project Number:

GEO / 39814

Project Name:

MAYFIELD PHASE 1B
51001/03

TESTING RESTRICTION

The following tests have been scheduled on the below project. Those listed **CANNOT** be performed for the reason stated. If alternative samples are available for the restricted tests, please supply details.

Sample details					
Borehole Ref.	Sample Ref.	Depth (m)	Description	Tests restricted	Reason for restriction and comments
BH1001	1	6.50-8.00	n/a	Point load	No suitable specimen from top 1/3 of core. But there is a suitable specimen from the bottom 1/3 of the core.
BH1001	2	8.00-9.50	n/a	UCS with YM + PR	Sample is all broken up into untestable pieces/crumbs. No suitable specimen throughout the sample for either UCS and Point load.
BH1002	14	6.50-8.00	n/a	UCS	No suitable specimen throughout the sample for UCS. But there is a suitable specimen for Point load from the bottom 1/3 of the core.
BH1002	25	23.00-24.50	n/a	No Test Restriction but maybe an additional UCS testing, please read comments.	Scheduled for Point load only but there is a suitable specimen for UCS from the bottom 1/3 of core.
BH1003	28	8.00-9.50	n/a	UCS	No suitable specimen throughout the sample for UCS. But there are suitable specimens for Point load from the top and bottom 1/3 of the core.
BH1003	30	11.00-12.50	n/a	Point load	Sample is all broken up into untestable pieces/crumbs. No suitable specimen throughout the sample for either UCS and Point load.
BH1003	32	14.00-15.50	n/a	UCS with YM + PR	No suitable specimen throughout the sample for UCS. But there is a suitable specimen for Point load from the bottom 1/3 of the core.
BH1004	36	6.50-8.00	n/a	UCS	Sample is all broken up into untestable pieces/crumbs. No suitable specimen throughout the sample for either UCS and Point load.
BH1004	43	17.00-18.50	n/a	UCS with YM + PR	No suitable specimen throughout the sample for UCS. But there are suitable specimens for Point load from top, middle, and bottom 1/3 of the core.
BH1005	49	5.50-7.00	n/a	UCS with YM + PR	Sample is all broken up into untestable pieces/crumbs. No suitable specimen throughout the sample for either UCS and Point load.

Checked and Approved by

IT

I Tabios (Head of Department)

Date: 06/02/2024

Project Number:

GEO / 39814

Project Name:

MAYFIELD PHASE 1B

51001/03

TESTING RESTRICTION

The following tests have been scheduled on the below project. Those listed **CANNOT** be performed for the reason stated. If alternative samples are available for the restricted tests, please supply details.

Sample details					
Borehole Ref.	Sample Ref.	Depth (m)	Description	Tests restricted	Reason for restriction and comments
BH1005	55	14.50-16.00	n/a	UCS	No suitable specimen throughout the sample for UCS. But there are suitable specimens for Point load from top and bottom 1/3 of the core.

Checked and Approved by

IT

I Tabios (Head of Department)

Date: 08/02/2024

Project Number:

GEO / 39814

Project Name:

MAYFIELD PHASE 1B

51001/03

GEOLABS

Civic Earth Limited
Carvers Warehouse
77 Dale Street
Manchester
M1 2HG

e: kirsty.poore@civicearth.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 24-002208

Project / Site name:	Mayfield Phase 1B	**Samples received on:**	07/02/2024
Your job number:	51001 03	**Samples instructed on/ Analysis started on:**	08/02/2024
Your order number:	PO 0035	**Analysis completed by:**	15/02/2024
Report Issue Number:	1	**Report issued on:**	15/02/2024
Samples Analysed:	16 soil samples		

Signed:

Joanna Szwagrzak
Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 24-002208
Project / Site name: Mayfield Phase 1B
Your Order No: PO 0035

Lab Sample Number				112904	112905	112906	112907	112908
Sample Reference				BH1002	BH1002	BH1003	BH1003	BH1004
Sample Number				4	18	17	21	5
Depth (m)				0.50	5.00-5.45	4.00-4.45	6.00-6.45	1.00
Date Sampled				11/01/2024	11/01/2024	12/01/2024	12/01/2024	10/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	26
Moisture Content	%	0.01	NONE	8.9	17	14	16	16
Total mass of sample received	kg	0.1	NONE	0.2	0.2	0.4	0.4	0.5
General Inorganics								
pH (L099)	pH Units	N/A	MCERTS	12	10.1	10.6	9.9	9.7
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	59	86	350	71	350
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	29.3	43	177	35.4	176
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	69	6.5	6.6	5.8	8
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Heavy Metals / Metalloids								
Magnesium (leachate equivalent)	mg/l	2.5	NONE	< 2.5	3.1	< 2.5	< 2.5	< 2.5
Magnesium (water soluble)	mg/kg	5	NONE	< 5.0	6.1	< 5.0	< 5.0	< 5.0

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-002208
Project / Site name: Mayfield Phase 1B
Your Order No: PO 0035

Lab Sample Number				112909	112910	112911	112912	112913
Sample Reference				BH1004	BH1005	BH1005	TP1001	TP1005
Sample Number				19	10	18	14	11
Depth (m)				4.00-4.45	2.00-2.45	4.00-4.45	3.00	1.50
Date Sampled				10/01/2024	10/01/2024	10/01/2024	10/01/2024	10/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	15	11	17	12	6.9
Total mass of sample received	kg	0.1	NONE	0.3	0.6	0.4	0.7	0.5
General Inorganics								
pH (L099)	pH Units	N/A	MCERTS	7.9	8.9	8.9	8	8.6
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	190	610	62	180	130
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	93.6	306	31.2	91.8	64.3
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	2.9	7.2	4.3	1.9	4.3
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Heavy Metals / Metalloids								
Magnesium (leachate equivalent)	mg/l	2.5	NONE	8.4	9.8	2.9	9.8	7.8
Magnesium (water soluble)	mg/kg	5	NONE	17	20	5.7	20	16

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-002208
Project / Site name: Mayfield Phase 1B
Your Order No: PO 0035

Lab Sample Number				112914	112915	112916	112917	112918
Sample Reference				TP1008	TP1010	WS1002	WS1003	WS1004
Sample Number				15	9	2	9	7
Depth (m)				3.00	1.00	0.50	2.00	2.00
Date Sampled				11/01/2024	10/01/2024	19/01/2024	18/01/2024	19/01/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	69	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	13	10	5.4	15	21
Total mass of sample received	kg	0.1	NONE	0.5	0.3	0.4	0.5	0.6
General Inorganics								
pH (L099)	pH Units	N/A	MCERTS	8.2	10.4	9	5.8	7.9
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	160	2000	170	370	770
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	78.9	993	87.4	186	386
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	5.7	19	4.3	11	15
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Heavy Metals / Metalloids								
Magnesium (leachate equivalent)	mg/l	2.5	NONE	8.5	5.8	3.2	8.6	26
Magnesium (water soluble)	mg/kg	5	NONE	17	12	6.4	17	52

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number: 24-002208
Project / Site name: Mayfield Phase 1B
Your Order No: PO 0035

Lab Sample Number				112919
Sample Reference				WS1005
Sample Number				11
Depth (m)				2.50
Date Sampled				18/01/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	9.7
Total mass of sample received	kg	0.1	NONE	0.6

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.2
Water Soluble Sulphate as SO4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	200
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	97.7
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	4.9
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	< 2.0
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0

Heavy Metals / Metalloids

Magnesium (leachate equivalent)	mg/l	2.5	NONE	5.4
Magnesium (water soluble)	mg/kg	5	NONE	11

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

This certificate should not be reproduced, except in full, without the express permission of the laboratory.
The results included within the report relate only to the sample(s) submitted for testing.

Analytical Report Number : 24-002208
Project / Site name: Mayfield Phase 1B

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
112904	BH1002	4	0.5	Brown clay and sand with gravel and vegetation
112905	BH1002	18	5.00-5.45	Brown sand
112906	BH1003	17	4.00-4.45	Brown sand with gravel
112907	BH1003	21	6.00-6.45	Brown sand with gravel
112908	BH1004	5	1	Brown sand with gravel and stones
112909	BH1004	19	4.00-4.45	Brown clay with gravel
112910	BH1005	10	2.00-2.45	Brown clay with gravel
112911	BH1005	18	4.00-4.45	Brown sand
112912	TP1001	14	3	Brown clay and sand with gravel
112913	TP1005	11	1.5	Brown clay and sand with gravel
112914	TP1008	15	3	Brown clay and sand with gravel
112915	TP1010	9	1	Brown loam and sand with rubble and glass
112916	WS1002	2	0.5	Brown gravely sand with stones
112917	WS1003	9	2	Brown clay and sand
112918	WS1004	7	2	Brown clay and sand with gravel
112919	WS1005	11	2.5	Brown clay and sand

Analytical Report Number : 24-002208
Project / Site name: Mayfield Phase 1B

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES	In-house method based on TRL 447	L038B	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08, 2:1 extraction	L078B	D	NONE
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser	In-house method	L082B	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Sample Deviation Report

Analytical Report Number : 24-002208
Project / Site name: Mayfield Phase 1B

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis.Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
BH1002	18	S	112905	c	Chloride, water soluble, in soil	L082B	c
BH1002	18	S	112905	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
BH1002	18	S	112905	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
BH1002	18	S	112905	c	pH in soil (automated)	L099	c
BH1002	4	S	112904	c	Chloride, water soluble, in soil	L082B	c
BH1002	4	S	112904	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
BH1002	4	S	112904	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
BH1002	4	S	112904	c	pH in soil (automated)	L099	c
BH1004	19	S	112909	c	Chloride, water soluble, in soil	L082B	c
BH1004	19	S	112909	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
BH1004	19	S	112909	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
BH1004	19	S	112909	c	pH in soil (automated)	L099	c
BH1004	5	S	112908	c	Chloride, water soluble, in soil	L082B	c
BH1004	5	S	112908	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
BH1004	5	S	112908	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
BH1004	5	S	112908	c	pH in soil (automated)	L099	c
BH1005	10	S	112910	c	Chloride, water soluble, in soil	L082B	c
BH1005	10	S	112910	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
BH1005	10	S	112910	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
BH1005	10	S	112910	c	pH in soil (automated)	L099	c
BH1005	18	S	112911	c	Chloride, water soluble, in soil	L082B	c
BH1005	18	S	112911	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
BH1005	18	S	112911	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
BH1005	18	S	112911	c	pH in soil (automated)	L099	c
TP1001	14	S	112912	c	Chloride, water soluble, in soil	L082B	c
TP1001	14	S	112912	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
TP1001	14	S	112912	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
TP1001	14	S	112912	c	pH in soil (automated)	L099	c
TP1005	11	S	112913	c	Chloride, water soluble, in soil	L082B	c
TP1005	11	S	112913	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
TP1005	11	S	112913	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
TP1005	11	S	112913	c	pH in soil (automated)	L099	c
TP1008	15	S	112914	c	Chloride, water soluble, in soil	L082B	c
TP1008	15	S	112914	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
TP1008	15	S	112914	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
TP1008	15	S	112914	c	pH in soil (automated)	L099	c
TP1010	9	S	112915	c	Chloride, water soluble, in soil	L082B	c
TP1010	9	S	112915	c	Water Soluble Nitrate (2:1) as N in soil	L078	c
TP1010	9	S	112915	c	Water Soluble Nitrate (2:1) as N in soil	L078B	c
TP1010	9	S	112915	c	pH in soil (automated)	L099	c

Appendix F
Contamination Assessment

Civic Earth Contamination Assessments

Civic Earth's rationale for the adoption of generic assessment criteria (GAC) in order to evaluate the risks posed to potential receptors from identified contamination at the site is outlined in the following sections. The potential receptors have been identified with reference to the Part 2A Contaminated Land Guidance and associated DEFRA guidance[1]. The potential receptors identified include human health, controlled waters, ecology and buildings/ structures if there is the potential for them to be adversely affected by exposure to contamination. The results of the contamination assessments for the site are set out in this appendix.

1.1 Risks to Human Health from Long Term Chronic Risks

The laboratory chemical analysis results have been compared against the Land Quality Management (LQM) / CIEH (Chartered Institute of Environmental Health) Suitable for Use Levels (S4ULs). The S4ULs have been generated based on a sandy loam soil type[2] and the Soil Organic Matter (SOM) content stated in the assessment tables (1%, 2.5% or 6% SOM). S4ULs for metals are presented for 6% SOM using suitably cautious inputs as S4ULs are not sensitive to SOM.

Where recorded contaminant concentrations for arsenic, cadmium, chromium VI, benzene and benzo(a)pyrene exceed the S4ULs, the results have subsequently been compared to the applicable Category 4 Screening Level (C4SL) published by DEFRA[3] to further assess risks. The C4SL for lead has been adopted as a screening level as no S4UL has been derived for lead.

Concentrations of cyanide above the laboratory reporting limit are assessed against a Soil Screening Value (SSV) developed by Atkins. Atkins have based this assessment criteria on acute exposure to a 0-6 year old child.

The Solubility Saturation Limit (SSL) and Vapour Saturation Limit (VSL) criteria are presented in the assessment tables and indicate the theoretical value at which non-aqueous phase liquid (NAPL) is expected to be present. If evidence of free product is observed during the site investigation, the SSL/VSL values are considered as part of the assessment. If no evidence of free product is noted during the site investigation, the SSL/VSL values are not considered within the assessment.

Where appropriate and the dataset is of an appropriate size, assessment of the selected GAC has been carried out against the 95th percentile of the sample mean, designated the US_{95} value, which is considered to represent a reasonable worst case scenario. Where datasets are normally distributed, the one sample t-test has been used to calculate the US_{95} value. In the case of non-parametric datasets, the Chebychev Theorem has been applied.

It is noted that the British Geological Society (BGS) has published background concentration levels for a number of organic and inorganic contaminants. In the event that the selected GAC is found to be exceeded, the risk may still be considered to be low and unlikely to meet the definition of contaminated land under Part 2A and potentially acceptable for use from a development perspective, if contaminant concentrations are below local background levels, assuming no other contributing factors.

A positive identification of asbestos fibres in a soil sample by the laboratory is considered sufficient to warrant additional assessment of risks.

1.2 Risks to Human Health from Dissolved Contaminants

Concentrations of organic contaminants detected above the laboratory reporting limit in shallow groundwater or perched waters have been assessed against groundwater vapour GAC (GACgwvap) developed by the Society of Brownfield Remediation Risk Assessment (SoBRA). The assessment criteria are generic and based on a reasonable worst case scenario assuming a sand soil type, SOM of 1% and groundwater depth of 0.65mbgl.

[1] DEFRA (2012) Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance.
[2] Environment Agency (2009) Updated Technical Background to CLEA Model. Science Report SC050021/SR3.
[3] CL:AIRE (2014) Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination. SP1010.

It is noted that the GACs are designed to be protective of dissolved phase contaminants and do not take account of the vapour risk from NAPL. Where there is evidence of mobile or residual NAPL, the vapour risks from NAPL will be considered separately.

1.3 Risks to Human Health from Ground Gases

Recorded flow rates and concentrations of carbon dioxide and methane are converted to Gas Screening Values (GSVs) in accordance with CIRIA C665[4]. Potential risks associated with ground gases are evaluated in accordance with CIRIA C665, BS 8485[5] and NHBC[6].

1.4 Risks to Controlled Waters

The laboratory chemical analysis results from eluted liquids (leachate analysis) and dissolved phase (groundwater analysis) have been compared against Environmental Quality Standards (EQS) and/or Drinking Water Values (DWVs) as an initial screen of water quality.

1.5 Risks to Plants and Vegetation

The risks to future plant growth i.e. phytotoxicity have been assessed for boron, copper, nickel and zinc where soil chemical analysis results have been compared against the limits for phytotoxic effect outlined in BS 3882[7].

1.6 Risks to Buried Water Supply Pipes

An assessment of new buried water supply pipe requirements has been undertaken in general accordance with the UK Water Industry Research (UKWIR) guidance and assessment criteria.

[4] CIRIA (2007) Assessing risks posed by hazardous ground gases to buildings. C665.
[5] British Standard Institution (2015+A1:2019) Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings. BS 8485.
[6] NHBC (2023) Hazardous ground gas – an essential guide for housebuilders. NF94.
[7] British Standard Institution (2015) Specification for Topsoil. BS 3882.

Table A: Human Health Data Assessment - Potential Risks to Human Health from Soils

Land Use Category:		Residential without Home Grown Produce						SOM:	2.5%
Stratum:		Made Ground						No. Samples	34
Determinand	S4UL mg/kg	SSL [VSL] mg/kg	Min recorded (mg/kg)	Max recorded (mg/kg)	No. Samples exceeding GAC	No. Samples exceeding SSL/VSL	Outliers Identified?	US_{95} incl. Outliers (mg/kg)	US_{95} excl. Outliers (mg/kg)
Arsenic	40	-	2.4	79	3	-	Yes	45.9	39.8
Beryllium	1.7	-	0.28	1.9	1	-	Yes	1.5	-
Boron	11,000	-	<0.2	3.4	0	-	Yes	1.77	-
Cadmium	85	-	<0.2	2.9	0	-	Yes	0.8	-
Chromium (III)	910	-	6.4	66	0	-	Yes	35.3	-
Chromium (VI)	6	-	<1.8	<1.8	0	-	No	*	-
Copper	7,100	-	7.8	320	0	-	Yes	120.5	-
Lead	310	-	11	520	4	-	No	408	-
Mercury	56	-	<0.3	3.2	0	-	Yes	1.89	-
Nickel	180	-	5	50	0	-	No	35.1	-
Selenium	430	-	<1	1.3	0	-	Yes	*	-
Vanadium	1,200	-	10	37	0	-	No	35.7	-
Zinc	40,000	-	15	430	0	-	Yes	208	-
Benzene	0.70	-	<0.005	<0.005	0	-	No	*	-
Toluene	1,900	-	<0.005	<0.005	0	-	No	*	-
Ethyl benzene	190	-	<0.005	<0.005	0	-	No	*	-
o-Xylene	210	-	<0.005	<0.005	0	-	No	*	-
m- & p-Xylene	180	-	<0.005	<0.005	0	-	No	*	-
Total Phenols	750	-	<1	3.6	0	-	No	*	-
Total Cyanide	34	-	<1	<1	0	-	No	*	-
Aliphatic EC5-6	78	-	<0.02	<0.02	0	-	No	*	-
Aliphatic EC >6-8	230	-	<0.02	<0.02	0	-	No	*	-
Aliphatic EC >8-10	65	-	<0.05	<0.05	0	-	No	*	-
Aliphatic EC >10-12	330	[118]	<1	3.4	0	0	No	1.89	-
Aliphatic EC >12-16	2,400	[59]	<2	12	0	0	No	9.83	-
Aliphatic EC >16-35	92,000	21	<8	908	0	19	No	40.3	-
Aromatic EC5-7	690	-	<0.01	<0.01	0	-	Yes	245.5	-
Aromatic EC >7-8	1,800	-	<0.01	<0.01	0	-	No	*	-
Aromatic EC >8-10	110	-	<0.05	<0.05	0	-	No	*	-
Aromatic EC >10-12	590	-	<1	6.6	0	-	Yes	*	-
Aromatic EC >12-16	2,300	419	<2	59	0	0	Yes	3.04	-
Aromatic EC >16-21	1,900	-	<10	300	0	-	Yes	25.5	-
Aromatic EC >21-35	1,900	-	<10	860	0	-	Yes	113.5	-
Acenaphthene	4,700	141	<0.05	9.3	0	0	No	278	-
Acenaphthylene	4,600	212	<0.05	0.89	0	0	Yes	7.9	-
Anthracene	35,000	-	<0.05	13	0	-	No	0.42	-
Benzo(a)anthracene	14	-	<0.05	35	2	-	Yes	9.09	-
Benzo(a)pyrene	3.2	-	<0.05	37	9	-	Yes	13.35	10.48
Benzo(b)fluoranthene	4.0	-	<0.05	45	9	-	Yes	11.7	11.8
Benzo(g,h,i)perylene	360	-	<0.05	22	0	-	Yes	13.7	-
Benzo(k)fluoranthene	110	-	<0.05	15	0	-	Yes	6.32	-
Chrysene	31	-	<0.05	39	1	-	Yes	9.36	-
Dibenzo(a,h)anthracene	0.32	-	<0.05	4.9	13	-	Yes	1.43	1.34
Fluoranthene	1,600	-	<0.05	78	0	-	Yes	35.05	-
Fluorene	3,800	76.5	<0.05	7.1	0	0	Yes	5.81	-
Indeno(1,2,3,cd)pyrene	46	-	<0.05	19	0	-	Yes	5.94	-
Naphthalene	5.6	-	<0.05	4.3	0	-	Yes	3.47	-
Phenanthrene	1,500	-	<0.05	45	0	-	Yes	33.75	-
Pyrene	3,800	-	<0.05	72	0	-	Yes	31	-
Asbestos in Soils	Number of Samples with Positive Asbestos ID				8	-	-	-	-

Notes:

A. Copyright Land Quality Management Limited, reproduced with permission. Publication Number S4UL3892. All rights reserved.

B. S4ULs for metals are presented for 6% SOM using suitably cautious inputs as S4ULs are not sensitive to SOM.

C. C4SL stated for lead.

D. S4UL for phenol relates to C_6H_5OH.

E. ATRISK^{soil} Soil Screening Value (SSV) stated for cyanide based on acute exposure to 0-6 year old child.

F. SSL = Solubility Saturation Limit. VSL = Volatile Saturation Limit.

Table B: Human Health Data Assessment - Potential Risks to Human Health from Soils

Land Use Category:		Residential without Home Grown Produce						SOM:	1.0%
Stratum:		Glacial Till						No. Samples	6
Determinand	S4UL mg/kg	SSL [VSL] mg/kg	Min recorded (mg/kg)	Max recorded (mg/kg)	No. Samples exceeding GAC	No. Samples exceeding SSL/VSL	Outliers Identified?	US_{95} incl. Outliers (mg/kg)	US_{95} excl. Outliers (mg/kg)
Arsenic	40	-	4.8	16	0	-	No	15.75	-
Beryllium	1.7	-	0.22	1.6	0	-	Yes	1.45	-
Boron	11,000	-	0.3	1.5	0	-	No	1.43	-
Cadmium	85	-	<0.2	<0.2	0	-	No	*	-
Chromium (III)	910	-	3.8	27	0	-	No	25.75	-
Chromium (VI)	6	-	<1.8	<1.8	0	-	No	*	-
Copper	7,100	-	5.3	54	0	-	No	49.75	-
Lead	310	-	3.3	99	0	-	No	96	-
Mercury	56	-	<0.3	0.3	0	-	Yes	0.15	-
Nickel	180	-	3.4	33	0	-	No	31.25	-
Selenium	430	-	<1	<1	0	-	No	-	-
Vanadium	1,200	-	7.7	30	0	-	No	29	-
Zinc	40,000	-	10	80	0	-	No	78	-
Benzene	0.38	-	<0.005	<0.005	0	-	No	*	-
Toluene	880	[869]	<0.005	<0.005	0	0	No	*	-
Ethyl benzene	83	-	<0.005	<0.005	0	-	No	*	-
o-Xylene	88	-	<0.005	<0.005	0	-	No	*	-
m- & p-Xylene	79	-	<0.005	<0.005	0	-	No	*	-
Total Phenols	750	-	<1	<1	0	-	No	*	-
Total Cyanide	34	-	<1	<1	0	-	No	*	-
Aliphatic EC5-6	42	-	<0.02	<0.02	0	-	No	*	-
Aliphatic EC >6-8	100	-	<0.02	<0.02	0	-	No	*	-
Aliphatic EC >8-10	27	-	<0.05	<0.05	0	-	No	*	-
Aliphatic EC >10-12	130	[48]	<1	1.7	0	0	Yes	*	-
Aliphatic EC >12-16	1,100	24	<2	4.3	0	0	Yes	*	-
Aliphatic EC >16-35	65,000	8.48	<16	19	0	1	Yes	*	-
Aromatic EC5-7	370	-	<0.01	<0.01	0	-	No	*	-
Aromatic EC >7-8	860	-	<0.01	<0.01	0	-	No	*	-
Aromatic EC >8-10	47	-	<0.05	<0.05	0	-	No	*	-
Aromatic EC >10-12	250	-	<1	1	0	-	Yes	*	-
Aromatic EC >12-16	1,800	-	<2	3.6	0	-	Yes	*	-
Aromatic EC >16-21	1,900	-	<10	<10	0	-	Yes	*	-
Aromatic EC >21-35	1,900	-	<10	22	0	-	Yes	*	-
Acenaphthene	3,000	57	<0.05	0.57	0	0	Yes	*	-
Acenaphthylene	2,900	86.1	<0.05	0.09	0	0	Yes	*	-
Anthracene	31,000	[1.17]	<0.05	0.65	0	0	Yes	*	-
Benzo(a)anthracene	11	-	<0.05	0.82	0	-	Yes	*	-
Benzo(a)pyrene	3.2	-	<0.05	0.8	0	-	Yes	*	-
Benzo(b)fluoranthene	3.9	-	<0.05	0.84	0	-	Yes	*	-
Benzo(g,h,i)perylene	360	-	<0.05	0.51	0	-	Yes	*	-
Benzo(k)fluoranthene	110	-	<0.05	0.39	0	-	Yes	*	-
Chrysene	30	-	<0.05	0.93	0	-	Yes	*	-
Dibenzo(a,h)anthracene	0.31	-	<0.05	0.1	0	-	Yes	*	-
Fluoranthene	1,500	-	<0.05	1.9	0	-	Yes	1.90	-
Fluorene	2,800	30.9	<0.05	0.46	0	0	Yes	*	-
Indeno(1,2,3,cd)pyrene	45	-	<0.05	0.45	0	-	Yes	*	-
Naphthalene	2.3	-	<0.05	0.47	0	-	No	0.44	-
Phenanthrene	1,300	36	<0.05	2.6	0	0	Yes	2.30	-
Pyrene	3,700	-	<0.05	1.9	0	-	Yes	1.83	-

Notes:

A. Copyright Land Quality Management Limited, reproduced with permission. Publication Number S4UL3892. All rights reserved.

B. S4ULs for metals are presented for 6% SOM using suitably cautious inputs as S4ULs are not sensitive to SOM.

C. C4SL stated for lead.

D. S4UL for phenol relates to C_6H_5OH.

E. ATRISK^{soil} Soil Screening Value (SSV) stated for cyanide based on acute exposure to 0-6 year old child.

F. SSL = Solubility Saturation Limit. VSL = Volatile Saturation Limit.

Table C: Human Health Data Assessment - Potential Groundwater Vapour Risk to Human Health from Groundwater					
Land Use Category:	**Residential**			**No. Samples**	3
Water Body / Stratum:	**Perched Water / Made Ground**				
Determinand	**GAC_{gwvap} (µg/l)**	**Minimum Recorded (µg/l)**	**Maximum Recorded (µg/l)**	**No. Samples exceeding GAC_{gwvap}**	**Outliers Identified?**
Benzene	210	<3	<3	0	No
Toluene	230,000	<3	<3	0	No
Ethylbenzene	10,000	<3	<3	0	No
Total xylene	9,500	<3	<3	0	No
Methyl tertiary butyl ether (MTBE)	83,000	<3	<3	0	No
TPH aromatic EC5 to EC7	210,000	<1	<1	0	No
TPH aromatic >EC7 to EC8	220,000	<1	<1	0	No
TPH aromatic >EC8 to EC10	1,900	<1	<1	0	No
TPH aromatic >EC10 to EC12	6,800	<10	<10	0	No
TPH aromatic >EC12 to EC16	39,000	<10	<10	0	No
TPH aliphatic EC5 to EC6	1,900	<1	<1	0	No
TPH aliphatic >EC6 to EC8	1,500	<1	<1	0	No
TPH aliphatic >EC8 to EC10	57	<1	<1	0	No
TPH aliphatic >EC10 to EC12	37	<10	15	0	Yes
Acenaphthene	170,000	<0.01	0.81	0	Yes
Acenaphthylene	220,000	<0.01	0.10	0	Yes
Fluorene	210,000	<0.01	0.44	0	Yes
Naphthalene	220	<0.01	1.00	0	Yes

Notes:
A. Criteria sourced from SoBRA (2017) *Development of Generic Assessment Criteria for Assessing Vapour Risks to Human Health from Volatile Contaminants in Groundwater.*
B. GAC for acenaphthene, acenaphythylene and fluorene exceed aqueous solubility. An assessment should be made for the potential presence of free product.
C. GAC for TPH aromatic EC5 to EC7 should be compared to the GAC for benzene to assess for potential genotoxic mutagenic effects.

Table D: Human Health Data Assessment - Potential Groundwater Vapour Risk to Human Health from Groundwater					
Land Use Category:	**Residential**			**No. Samples**	5
Water Body / Stratum:	**Principal Aquifer / Chester Sandstone Formation**				
Determinand	**GAC_{gwvap} (µg/l)**	**Minimum Recorded (µg/l)**	**Maximum Recorded (µg/l)**	**No. Samples exceeding GAC_{gwvap}**	**Outliers Identified?**
Benzene	210	<3	<3	0	No
Toluene	230,000	<3	<3	0	No
Ethylbenzene	10,000	<3	<3	0	No
Total xylene	9,500	<3	<3	0	No
Methyl tertiary butyl ether (MTBE)	83,000	<3	<3	0	No
TPH aromatic EC5 to EC7	210,000	<1	<1	0	No
TPH aromatic >EC7 to EC8	220,000	<1	<1	0	No
TPH aromatic >EC8 to EC10	1,900	<1	<1	0	No
TPH aromatic >EC10 to EC12	6,800	<10	<10	0	No
TPH aromatic >EC12 to EC16	39,000	<10	<10	0	No
TPH aliphatic EC5 to EC6	1,900	<1	<1	0	No
TPH aliphatic >EC6 to EC8	1,500	<1	<1	0	No
TPH aliphatic >EC8 to EC10	57	<1	<1	0	No
TPH aliphatic >EC10 to EC12	37	<10	<10	0	No
Acenaphthene	170,000	<0.01	<0.01	0	No
Acenaphthylene	220,000	<0.01	<0.01	0	No
Fluorene	210,000	<0.01	<0.01	0	No
Naphthalene	220	<0.01	<0.01	0	No

Notes:
A. Criteria sourced from SoBRA (2017) *Development of Generic Assessment Criteria for Assessing Vapour Risks to Human Health from Volatile Contaminants in Groundwater.*
B. GAC for acenaphthene, acenaphythylene and fluorene exceed aqueous solubility. An assessment should be made for the potential presence of free product.
C. GAC for TPH aromatic EC5 to EC7 should be compared to the GAC for benzene to assess for potential genotoxic mutagenic effects.

Table E: Controlled Waters Data Assessment - Potential Risks to Groundwater (Freshwater) from Soil Leachate							
Stratum	Made Ground					No. Samples	4 to 5
Determinand	EQS (µg/l) [Annual Average]	EQS (µg/l) [Max. Allowable]	Min recorded (µg/l)	Max recorded (µg/l)	Bioavailble Concentration (µg/l)	No. Samples exceeding EQS	Notes
Arsenic	50	*	5.2	67	-	1	A
Beryllium	*	15	<0.2	<0.2	-	0	H
Boron	2,000	*	28	160	-	0	G
Cadmium	0.25	1.5	<0.08	<0.08	-	0	A, C
Chromium (III)	4.7	32	<5	41	-	2	A
Chromium (VI)	3.4	*	<5.0	10	-	1	A
Copper	1.0	*	12	290	0.81 to 26.87	3	A
Lead	1.2	14	<1.0	34	0.06 to 1.98	1	A, B
Mercury	*	0.07	<0.007	0.1637	-	2	A
Nickel	4	34	1.1	62	0.27 to 62	1	A, B
Zinc	12.3	*	6.8	26	2.45 to 3.51	0	A, D
Total Phenols	7.7	46	1.6	5.3	-	0	A
Total Cyanide	1	5	1	5.5	-	2	E
Total TPH	*	10	<10	<10	-	0	I
Anthracene	0.1	0.1	<0.01	<0.01	-	0	A
Benzo(a)pyrene	0.00017	0.27	<0.01	<0.01	-	0	A
Benzo(b)fluoranthene	*	0.017	<0.01	<0.01	-	0	A, F
Benzo(k)fluoranthene	*	0.017	<0.01	<0.01	-	0	A, F
Benzo(ghi)perylene	*	0.0082	<0.01	<0.01	-	0	A, F
Fluoranthene	0.0063	0.12	<0.01	<0.01	-	0	A
Naphthalene	2	130	<0.01	<0.01	-	0	A
pH	*	6.0 to 9.0	8.0	10.9	-	2	G

Notes:

* No assessment criteria defined.

A. EQS outlined within Water Framework Directive 2015

B. Freshwater Annual Average EQS value for bioavailable fraction for lead, copper, nickel and zinc. Bioavailable fraction assessed using UKTAG Metal Bioavailability Tool (MBAT).

C. Cadium EQS based on hardness of 200mg/l or more.

D. Zinc EQS based on 10.9 µg/l plus ambient background concentration for "other freshwater" catchments not specified in list above.

E. EQS for free cyanide stated for total cyanide. Trigger concentration for laboratory to test for free cyanide is 1 µg/l (the EQS for free cyanide). If total cyanide is present, analysis for free cyanide is carried out.

F. The annual average EQS in water refer to the concentration of benzo(a)pyrene, on the toxicity of which they are based. Benzo(a)pyrene can be considered as a marker for the other PAHs.

G. Environment Agency Freshwaters Specific Pollutants and Operational Environmental Quality Standards

H. Dutch Indication Level of Serious Contamination

Table F: Controlled Waters Data Assessment - Potential Risks to Groundwater (Freshwater) from Dissolved Phase Contaminants							
Water Body	Perched Water - Made Ground					No. Samples	3 to 6
Determinand	EQS (µg/l) [Annual Average]	EQS (µg/l) [Max. Allowable]	Min recorded (µg/l)	Max recorded (µg/l)	Bioavailble Concentration (µg/l)	No. Samples exceeding EQS	Notes
Arsenic	50	*	2.84	3.4	-	0	A
Beryllium	*	15	<0.1	<0.1	-	0	J
Boron	2,000	*	<10	400	-	0	H
Cadmium	0.25	1.5	<0.02	0.23	-	0	A
Chromium (III)	4.7	32	19	230	-	3	A
Chromium (VI)	3.4	*	17	180	-	3	A
Copper	1.0	*	6	170	0.21 to 170	2	A
Lead	1.2	14	0.5	53	0.08 to 2.76	1	A, B
Mercury	*	0.07	<0.05	0.19	-	2	A
Nickel	4	34	3	20	0.99 to 20	1	A, B
Zinc	12.3	*	<0.5	27	<0.5 to 8.94	0	A, E
Total Phenols	7.7	46	<10	92	-	1	A
Total Cyanide	1	5	3.4	91	-	2	F
Free Cyanide	1	5	<1	<10	-	0	A, L
Total TPH	*	10	<10	280	-	1	K
Anthracene	0.1	0.1	<0.01	0.79	-	1	A
Benzo(a)pyrene	0.00017	0.27	<0.01	2.03	-	1	A
Benzo(b)fluoranthene	*	0.017	<0.01	2.2	-	1	A, G
Benzo(k)fluoranthene	*	0.017	<0.01	0.92	-	1	A, G
Benzo(ghi)perylene	*	0.0082	<0.01	1.24	-	1	A, G
Fluoranthene	0.0063	0.12	<0.01	4.3	-	1	A
Naphthalene	2	130	<0.01	1	-	0	A
Benzene	10	50	<3	<3	-	0	A
Toluene	74	380	<3	<3	-	0	A
Ammoniacal Nitrogen as N	*	750	48	3300	-	1	I
pH	*	6.0 to 9.0	8	12.7	-	0	H
Hardness (mg $CaCo_3$/l)	*	*	637	1800	-	-	-

Notes:

* No assessment criteria defined.

A. EQS outlined within Water Framework Directive 2015

B. Freshwater Annual Average EQS value for bioavailable fraction for lead, copper, nickel and zinc. Bioavailable fraction assessed using UKTAG Metal Bioavailability Tool (MBAT).

C. PAH is sum concentration of four PAH compounds (benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene and indeno(1,2,3-cd)pyrene.

D. Cadium EQS based on hardness of 200mg/l or more.

E. Zinc EQS based on 10.9 µg/l plus ambient background concentration for "other freshwater" catchments not specified in list above.

F. EQS for free cyanide stated for total cyanide. Trigger concentration for laboratory to test for free cyanide is 1 µg/l (the EQS for free cyanide). If total cyanide is present, analysis for free cyanide is carried out.

G. The annual average EQS in water refer to the concentration of benzo(a)pyrene, on the toxicity of which they are based. Benzo(a)pyrene can be considered as a marker for the other PAHs.

H. Environment Agency Freshwaters Specific Pollutants and Operational Environmental Quality Standards

I. Based on a 'moderate' quality river (Water Framework Directive 2015).

J. Dutch Indication Level of Serious Contamination

Table G: Controlled Waters Data Assessment - Potential Risks to Groundwater (Freshwater) from Dissolved Phase Contaminants							
Water Body	Principal Aquifer - Chester Sandstone Formation					No. Samples	5
Determinand	EQS (µg/l) [Annual Average]	EQS (µg/l) [Max. Allowable]	Min recorded (µg/l)	Max recorded (µg/l)	Bioavailble Concentration (µg/l)	No. Samples exceeding EQS	Notes
Arsenic	50	*	<0.4	1.5	-	0	A
Beryllium	*	15	<0.1	<0.1	-	0	J
Boron	2,000	*	110	340	-	0	H
Cadmium	0.25	1.5	0.05	0.09	-	0	A
Chromium (III)	4.7	32	<5.0	<5.0	-	0	A
Chromium (VI)	3.4	*	<5.0	<5.0	-	0	A
Copper	1.0	*	1.6	6.3	0.08 to 0.33	0	A
Lead	1.2	14	<0.2	<0.2	-	0	A, B
Mercury	*	0.07	<0.05	<0.05	-	0	A
Nickel	4	34	1.9	4.2	0.44 to 1.07	0	A, B
Zinc	12.3	*	2.6	16	1.22 to 8.39	0	A, E
Total Phenols	7.7	46	<10	<10	-	0	A
Total Cyanide	1	5	<10	<10	-	0	F
Free Cyanide	1	5	-	-	-	-	A
Total TPH	*	10	<10	<10	-	0	K
Anthracene	0.1	0.1	<0.01	<0.01	-	0	A
Benzo(a)pyrene	0.00017	0.27	<0.01	<0.01	-	0	A
Benzo(b)fluoranthene	*	0.017	<0.01	<0.01	-	0	A, G
Benzo(k)fluoranthene	*	0.017	<0.01	<0.01	-	0	A, G
Benzo(ghi)perylene	*	0.0082	<0.01	<0.01	-	0	A, G
Fluoranthene	0.0063	0.12	<0.01	<0.01	-	0	A
Naphthalene	2	130	<0.01	<0.01	-	0	A
Benzene	10	50	<3	<3	-	0	A
Toluene	74	380	<3	<3	-	0	A
Ammoniacal Nitrogen as N	*	750	18	67	-	0	I
pH	*	6.0 to 9.0	7.0	7.3	-	0	H
Hardness (mg $CaCo_3$/l)	*	*	447	966	-	-	-

Notes:

* No assessment criteria defined.

A. EQS outlined within Water Framework Directive 2015

B. Freshwater Annual Average EQS value for bioavailable fraction for lead, copper, nickel and zinc. Bioavailable fraction assessed using UKTAG Metal Bioavailability Tool (MBAT).

C. PAH is sum concentration of four PAH compounds (benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene and indeno(1,2,3-cd)pyrene.

D. Cadium EQS based on hardness of 200mg/l or more.

E. Zinc EQS based on 10.9 µg/l plus ambient background concentration for "other freshwater" catchments not specified in list above.

F. EQS for free cyanide stated for total cyanide. Trigger concentration for laboratory to test for free cyanide is 1 µg/l (the EQS for free cyanide). If total cyanide is present, analysis for free cyanide is carried out.

G. The annual average EQS in water refer to the concentration of benzo(a)pyrene, on the toxicity of which they are based. Benzo(a)pyrene can be considered as a marker for the other PAHs.

H. Environment Agency Freshwaters Specific Pollutants and Operational Environmental Quality Standards

I. Based on a 'moderate' quality river (Water Framework Directive 2015).

J. Dutch Indication Level of Serious Contamination

Table H: Controlled Waters Data Assessment - Potential Risks to Drinking Water from Dissolved Phase Contaminants						
Water Body		Perched Water - Made Ground			No. Samples	3 to 6
Determinand	Drinking Water Value (µg/l)	Min recorded (µg/l)	Max recorded (µg/l)	Bioavailble Concentration (µg/l)	No. Samples exceeding EQS	Notes
Arsenic	10	2.84	3.4	-	0	A
Boron	1,000	<10	400	-	0	A
Cadmium	5	<0.02	0.23	-	0	A
Chromium	50	19	230	-	1	A
Copper	2,000	6	170	0.21 to 170	0	A, B
Lead	10	0.5	53	0.08 to 2.76	0	A, B
Mercury	1	<0.05	0.19	-	0	A
Nickel	20	3	20	0.99 to 20	0	A, B
Selenium	10	4.1	19	-	1	A
Zinc	5,000	<0.5	27	<0.5 to 8.94	0	A, B
Total Phenols	0.5	<10	92	-	1	D
Total Cyanide	50	3.4	91	-	1	A
Total TPH	10	<10	280	-	1	D
TPH Aliphatic EC5-6	15,000	<1	<1	-	0	G
TPH Aliphatic EC>6-8	15,000	<1	<1	-	0	G
TPH Aliphatic EC>8-10	300	<1	<1	-	0	G
TPH Aliphatic EC>10-12	300	<10	<10	-	0	G
TPH Alipihatic EC>12-16	300	<10	<10	-	0	G
TPH Aromatic EC>5-7	10	<1	<1	-	0	G
TPH Aromatic EC>7-8	700	<1	<1	-	0	G
TPH Aromatic EC>8-10	300	<1	<1	-	0	G
TPH Aromatic EC>10-12	90	<10	15	-	0	G
TPH Aromatic EC>12-16	90	<10	30	-	0	G
TPH Aromatic EC>16-21	90	<10	120	-	1	G
TPH Aromatic EC>21-35	90	<10	280	-	1	G
PAH	0.1	<0.04	5.38	-	1	A, C
Benzo(a)pyrene	0.01	<0.01	2.03	-	1	A
Benzene	1	<3	<3	-	0	A
Toluene	700	<3	<3	-	0	E
Ethylbenzene	300	<3	<3	-	0	E
p & m-xylene	500	<3	<3	-	0	E, F
o-xylene	500	<3	<3	-	0	E, F
Ammoniacal Nitrogen as N	500	48	3300	-	2	A
pH	6.5 to 9.5	8	12.7	-	2	A
Total Sulphate (mg SO_4/l)	250	103	1690	-	1	A
Hardness (mg $CaCo_3$/l)	-	637	1800	-	-	-
Notes:						
* No assessment criteria defined.						
A. DWV outlined within the Water Supply (Water Quality) Regulations 2018.						
B. Bioavailable fraction assessed using UKTAG Metal Bioavailability Tool (MBAT).						
C. PAH is sum concentration of four PAH compounds [benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene and indeno(1,2,3-cd)py						
D. DWV outlined within the Water Supply (Water Quality) Regulations 1989.						
E. WHO Guidelines for Drinking Water Quality, 4th Edition 2017.						
F. DWV for p-xylene stated; DWV for o-xylene is 500µg/l.						
G. WHO Petroleum Products in Drinking Water, 2008						

Table I: Controlled Waters Data Assessment - Potential Risks to Drinking Water from Dissolved Phase Contaminants						
Water Body		Principal Aquifer - Chester Sandstone Formation			No. Samples	5
Determinand	Drinking Water Value (µg/l)	Min recorded (µg/l)	Max recorded (µg/l)	Bioavailble Concentration (µg/l)	No. Samples exceeding EQS	Notes
Arsenic	10	<0.4	1.5	-	0	A
Boron	1,000	110	340	-	0	A
Cadmium	5	0.05	0.09	-	0	A
Chromium	50	<5.0	<5.0	-	0	A
Copper	2,000	1.6	6.3	0.08 to 0.33	0	A, B
Lead	10	<0.2	<0.2	-	0	A, B
Mercury	1	<0.05	<0.05	-	0	A
Nickel	20	1.9	4.2	0.44 to 1.07	0	A, B
Selenium	10	2	6.2	-	0	A
Zinc	5,000	2.6	16	1.22 to 8.39	0	A, B
Total Phenols	0.5	<10	<10	-	0	D
Total Cyanide	50	<10	<10	-	0	A
Total TPH	10	<10	<10	-	0	D
TPH Aliphatic EC5-6	15,000	<1	<1	-	0	G
TPH Aliphatic EC>6-8	15,000	<1	<1	-	0	G
TPH Aliphatic EC>8-10	300	<1	<1	-	0	G
TPH Aliphatic EC>10-12	300	<10	<10	-	0	G
TPH Alipihatic EC>12-16	300	<10	<10	-	0	G
TPH Aromatic EC>5-7	10	<1	<1	-	0	G
TPH Aromatic EC>7-8	700	<1	<1	-	0	G
TPH Aromatic EC>8-10	300	<1	<1	-	0	G
TPH Aromatic EC>10-12	90	<10	<10	-	0	G
TPH Aromatic EC>12-16	90	<10	<10	-	0	G
TPH Aromatic EC>16-21	90	<10	<10	-	0	G
TPH Aromatic EC>21-35	90	<10	<10	-	0	G
PAH	0.1	<0.04	<0.04	-	0	A, C
Benzo(a)pyrene	0.01	<0.01	<0.01	-	0	A
Benzene	1	<3	<3	-	0	A
Toluene	700	<3	<3	-	0	E
Ethylbenzene	300	<3	<3	-	0	E
p & m-xylene	500	<3	<3	-	0	E, F
o-xylene	500	<3	<3	-	0	E, F
Ammoniacal Nitrogen as N	500	18	67	-	0	A
pH	6.5 to 9.5	7.0	7.3	-	0	A
Total Sulphate (mg SO_4/l)	250	220	563	-	3	A
Hardness (mg $CaCo_3$/l)	-	447	966	-	-	-
Notes:						
* No assessment criteria defined.						
A. DWV outlined within the Water Supply (Water Quality) Regulations 2018.						
B. Bioavailable fraction assessed using UKTAG Metal Bioavailability Tool (MBAT).						
C. PAH is sum concentration of four PAH compounds (benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene and indeno(1,2,3-cd)py						
D. DWV outlined within the Water Supply (Water Quality) Regulations 1989.						
E. WHO Guidelines for Drinking Water Quality, 4th Edition 2017.						
F. DWV for p-xylene stated; DWV for o-xylene is 500µg/l.						
G. WHO Petroleum Products in Drinking Water, 2008						

Table J: Soil Data Assessment - Potential Risks to Plants and Vegetation

Stratum:	Made Ground					No. Samples	34
Determinand	Assessment Threshold (mg/kg)	Min recorded (mg/kg)	Max recorded (mg/kg)	No. Samples exceeding GAC	Outliers Identified?	US_{95} incl. Outliers (mg/kg)	US_{95} excl. Outliers (mg/kg)
Boron (water soluble)	5	<0.2	3.4	0	Yes	1.77	-
Copper	135	7.8	320	2	Yes	120.50	-
Nickel	75	5	50	0	No	35.10	-
Zinc	200	15	430	2	Yes	208	149

Stratum:	Glacial Till					No. Samples	6
Determinand	Assessment Threshold (mg/kg)	Min recorded (mg/kg)	Max recorded (mg/kg)	No. Samples exceeding GAC	Outliers Identified?	US_{95} incl. Outliers (mg/kg)	US_{95} excl. Outliers (mg/kg)
Boron (water soluble)	5	0.3	1.5	0	No	1.43	-
Copper	135	5.3	54	0	No	49.75	-
Nickel	75	3.4	33	0	No	31.25	-
Zinc	200	10	80	0	No	78	-

Notes:

A. Copper, Nickel and Zinc thresholds based on BSI (2015) *Specification for Topsoil and Requirements for Use.* BS 3882:2015. Based on pH values 6-7

B. Limit for phytotoxic effect for boron stated. Based on Nable, Banuelos and Paull (1997). *Boron Toxicity.* Plant and Soil, Volume 193, pp. 181-198.

Table A: Soil Data Assessment - Potential Risks to Buried Water Supply Pipes

Materials Tested:	Existing ground materials (Made Ground)								
Test Group	**Testing Required**	**PE Threshold**	**Metal Pipes / Barrier Pipes**	**Laboratory Limit of Detection**	**Units**	**Testing Accredited**	**Max. Concentration at Proposed Pipe Depth**	**Maximum Site Concentration**	**Locations and Depths of Exceedances**
Total VOCs	Where Preliminary Risk Assessment has identified land potentially affected by contamination	0.5	Pass	-	mg/kg	-	-	-	-
Total BTEX & MTBE		0.1	Pass	0.025	mg/kg	MCERTS	<0.025	<0.025	N/A
Total SVOCs (excluding PAHs and those substances marked with *)		2	Pass	-	mg/kg	-	-	-	-
EC5-EC10 aliphatic and aromatic hydrocarbons		2	Pass	0.16	mg/kg	None	<0.16	<0.16	N/A
EC10-EC16 aliphatic and aromatic hydrocarbons		10	Pass	4	mg/kg	MCERTS	49.4	72.5	See Note 2
EC16-EC40 aliphatic and aromatic hydrocarbons		500	Pass	36	mg/kg	MCERTS	311	1342	BH1004 (0.2m), TP1010 (2.0m), WS1002 (1.5m)
Phenols* (from SVOC analysis) (Note 3)		2	Pass	1	mg/kg	MCERTS	<1	<1	N/A
Cresols and chlorinated phenols* (from SVOC analysis)		2	Pass	-	mg/kg	-	-	-	-
Ethers*	Only where identified	0.5	Pass	-	mg/kg	-	-	-	-
Nitrobenzene*		0.5	Pass	-	mg/kg	-	-	-	-
Ketones*		0.5	Pass	-	mg/kg	-	-	-	-
Aldehydes*		0.5	Pass	-	mg/kg	-	-	-	-
Amines		Fail	Pass	-	mg/kg	-	-	-	-
Corrosive	Conductivity, Redox & pH	Pass	See Note 1	N/A	Various	MCERTS	pH 8 to 11.2	pH '7.5 to 12.1	-

Notes:

Test Groups in accordance with Appendix G of UKWIR Guidance.

Water pipes are normally laid at 0.75m to 1.35m below finished ground level.

Presence of liquid phase free product in soil or groundwater to be noted.

Note 1 - for wrapped steel, corrosive if pH is less than 7 and conductivity is greater than 400µS/cm. For wrapped ductile iron, corrosive if pH is less than 5, Eh is not neutral and conductivity is greater than 400µS/cm. For copper, corrosive if pH is less than 5 and Eh is positive.

Appendix G

HazWaste Online Classification Reports

Waste Classification Report

HazWasteOnline™ classifies waste as either **hazardous** or **non-hazardous** based on its chemical composition, related legislation and the rules and data defined in the current UK or EU technical guidance (Appendix C) (note that HP 9 Infectious is not assessed). It is the responsibility of the classifier named below to:

a) understand the origin of the waste
b) select the correct List of Waste code(s)
c) confirm that the list of determinands, results and sampling plan are fit for purpose
d) select and justify the chosen metal species (Appendix B)
e) correctly apply moisture correction and other available corrections
f) add the meta data for their user-defined substances (Appendix A)
g) check that the classification engine is suitable with respect to the national destination of the waste (Appendix C)

To aid the reviewer, the laboratory results, assumptions and justifications managed by the classifier are highlighted in pale yellow.

ZR78W-WM2KU-BA0I2

Job name

24-78198_HWOL_Results

Description/Comments

i2 Analytical Report 24-78198

Project

51001/03

Site

Mayfield Phase 1B

Classified by

Name:
Kirsty Poore
Date:
21 Feb 2024 12:40 GMT
Telephone:
07983 740199

Company:
Civic Earth Limited
77 Dale Street
Manchester
M12HG

HazWasteOnline™ provides a two day, hazardous waste classification course that covers the use of the software and both basic and advanced waste classification techniques. Certification has to be renewed every 3 years.

HazWasteOnline™ Certification: **CERTIFIED**

Course	Date
Hazardous Waste Classification	05 Oct 2023

Next 3 year Refresher due by Oct 2026

Purpose of classification

2 - Material Characterisation

Address of the waste

Land off Baring Street **Post Code** M12 6HW

SIC for the process giving rise to the waste

41201 Construction of commercial buildings

Description of industry/producer giving rise to the waste

Redevelopment of former industrial site into residential-led development.

Description of the specific process, sub-process and/or activity that created the waste

Waste created during the excavation of soils during site investigation.

Description of the waste

Made Ground comprising predominantly clayey sandy gravel (brick and concrete).

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	BH1004-1-10012024-0.20	0.20m	Hazardous	HP 7, HP 11	3
2	BH1004-6-10012024-1.00	1.00m	Non Hazardous		7
3	BH1004-10-10012024-2.00	2.00m	Non Hazardous		10
4	BH1004-14-10012024-3.00	3.00m	Non Hazardous		13
5	BH1005-3-10012024-0.50	0.50m	Non Hazardous		16
6	BH1005-9-10012024-2.00	2.00m	Non Hazardous		19

Related documents

#	Name	Description
1	24-78198_HWOL_Results.hwol	i2 Analytical .hwol file used to populate the Job
2	Civic Earth Soil Suite 3 Waste Stream - i2	waste stream template used to create this Job

Report

Created by: Kirsty Poore

Created date: 21 Feb 2024 12:40 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	22
Appendix B: Rationale for selection of metal species	23
Appendix C: Version	24

Classification of sample: BH1004-1-10012024-0.20

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample name:
BH1004-1-10012024-0.20
Sample Depth:
0.20m m
Moisture content:
3.4%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.103%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.103%)

Determinands

Moisture content: 3.4% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		pH			PH		12.1	pH		12.1	pH	12.1 pH		
2		pH: acid/alkali reserve			ACID_ALK_RES		0.807	gNaOH		0.807	gNaOH	0.807 gNaOH		
3		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		**<LOD**
4		monohydric phenols			P1186		<1	mg/kg		<1	mg/kg	<0.0001 %		**<LOD**
5		antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		4.6	mg/kg	1.197	5.319	mg/kg	0.000532 %	✓	
6		arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		7.3	mg/kg	1.534	10.817	mg/kg	0.00108 %	✓	
7		barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		120	mg/kg	1.623	188.193	mg/kg	0.0188 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
8		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.69	mg/kg	2.775	1.85	mg/kg	0.000185 %	✓	
9		boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.5	mg/kg	3.22	1.555	mg/kg	0.000156 %	✓	
10		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2	mg/kg	1.142	<0.228	mg/kg	<0.0000228 %		<LOD
11		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.8	mg/kg	1.923	<3.462	mg/kg	<0.000346 %		<LOD
12		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		15	mg/kg	1.462	21.923	mg/kg	0.00219 %		
13		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		36	mg/kg	1.126	39.154	mg/kg	0.00392 %	✓	
14		lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	120	mg/kg		115.92	mg/kg	0.0116 %	✓	
15		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
16		nickel { nickel sulfate }	028-009-00-5	232-104-9	7786-81-4		14	mg/kg	2.637	35.659	mg/kg	0.00357 %	✓	
17		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
18		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		19	mg/kg	1.785	32.765	mg/kg	0.00328 %	✓	
19		zinc { zinc chloride }	030-003-00-2	231-592-0	7646-85-7		60	mg/kg	2.085	120.819	mg/kg	0.0121 %	✓	
20		TPH (C6 to C40) petroleum group			TPH		1070	mg/kg		1033.62	mg/kg	0.103 %	✓	
21		benzene	601-020-00-8	200-753-7	71-43-2		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
22		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
23		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
24		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
25		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
26		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
27		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
28		fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
29		phenanthrene		201-581-5	85-01-8		0.27	mg/kg		0.261	mg/kg	0.0000261 %	✓	
30		anthracene		204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
31		fluoranthene		205-912-4	206-44-0		0.43	mg/kg		0.415	mg/kg	0.0000415 %	✓	
32		pyrene		204-927-3	129-00-0		0.39	mg/kg		0.377	mg/kg	0.0000377 %	✓	
33		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.22	mg/kg		0.213	mg/kg	0.0000213 %	✓	
34		chrysene	601-048-00-0	205-923-4	218-01-9		0.23	mg/kg		0.222	mg/kg	0.0000222 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
35		benzo[b]fluoranthene				0.3	mg/kg		0.29	mg/kg	0.000029 %	✓	
		601-034-00-4	205-911-9	205-99-2									
36		benzo[k]fluoranthene				0.11	mg/kg		0.106	mg/kg	0.0000106 %	✓	
		601-036-00-5	205-916-6	207-08-9									
37		benzo[a]pyrene; benzo[def]chrysene				0.22	mg/kg		0.213	mg/kg	0.0000213 %	✓	
		601-032-00-3	200-028-5	50-32-8									
38	●	indeno[123-cd]pyrene				0.12	mg/kg		0.116	mg/kg	0.0000116 %	✓	
			205-893-2	193-39-5									
39		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-041-00-2	200-181-8	53-70-3									
40	●	benzo[ghi]perylene				0.15	mg/kg		0.145	mg/kg	0.0000145 %	✓	
			205-883-8	191-24-2									
41	●	coronene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			205-881-7	191-07-1									
42		asbestos				<			<		<		**ND**
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5									
43		xylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
										Total:	0.162 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
●	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"
Force this Hazardous property to non hazardous because No liquid phase present.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.103%)

HP 4: Irritant - skin irritation and eye damage "waste which on application can cause skin irritation or damage to the eye"
Force this Hazardous property to non hazardous because There are concrete fragments in the soil which when tested, generated pH results above 11.5. An acid alkali reserve test indicated that the pH is a weak pH (i.e. not well buffered) and the waste therefore may not be irritant or corrosive. The raised pH is caused by the presence of calcium hydroxide exposed during the sample preparation process. Natural carbonation would negate the raised pH after about 24 hours. Apart from the concrete, there are no other substances in the waste that could generate a high pH. Concrete is a mirror non-hazardous entry in the List of Waste: 17 01 01. Conclusion: The waste is strictly a mixed waste and the concrete component, coded 17 01 01 does not make the waste hazardous.

pH; pH "Assumed to be irritant/corrosive because of pH value"

Because of determinand:

pH: (conc.: 12.1 pH)

HP 8: Corrosive "waste which on application can cause skin corrosion"

Force this Hazardous property to non hazardous because There are concrete fragments in the soil which when tested, generated pH results above 11.5. An acid alkali reserve test indicated that the pH is a weak pH (i.e. not well buffered) and the waste therefore may not be irritant or corrosive. The raised pH is caused by the presence of calcium hydroxide exposed during the sample preparation process. Natural carbonation would negate the raised pH after about 24 hours. Apart from the concrete, there are no other substances in the waste that could generate a high pH. Concrete is a mirror non-hazardous entry in the List of Waste: 17 01 01. Conclusion: The waste is strictly a mixed waste and the concrete component, coded 17 01 01 does not make the waste hazardous.

pH; pH "Assumed to be irritant/corrosive because of pH value"

Because of determinand:

pH: (conc.: 12.1 pH)

Classification of sample: BH1004-6-10012024-1.00

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH1004-6-10012024-1.00
Sample Depth:
1.00m m
Moisture content:
10%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 10% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		9.2 pH		9.2 pH	9.2 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
3	monohydric phenols			P1186		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
4	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		<1 mg/kg	1.197	<1.197 mg/kg	<0.00012 %		<LOD
5	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		17 mg/kg	1.534	23.468 mg/kg	0.00235 %	✓	
6	barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		92 mg/kg	1.623	134.424 mg/kg	0.0134 %	✓	
7	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.91 mg/kg	2.775	2.273 mg/kg	0.000227 %	✓	
8	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.8 mg/kg	3.22	2.318 mg/kg	0.000232 %	✓	
9	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
10	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.8 mg/kg	1.923	<3.462 mg/kg	<0.000346 %		<LOD
11	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		18 mg/kg	1.462	26.308 mg/kg	0.00263 %		
12	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		62 mg/kg	1.126	62.825 mg/kg	0.00628 %	✓	
13	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	280 mg/kg		252 mg/kg	0.0252 %	✓	
14	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		1.3 mg/kg	1.353	1.584 mg/kg	0.000158 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
15		nickel { nickel sulfate }	028-009-00-5	232-104-9	7786-81-4		20	mg/kg	2.637	47.46	mg/kg	0.00475 %	✓	
16		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		1.3	mg/kg	2.554	2.988	mg/kg	0.000299 %	✓	
17		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		24	mg/kg	1.785	38.56	mg/kg	0.00386 %	✓	
18		zinc { zinc chloride }	030-003-00-2	231-592-0	7646-85-7		83	mg/kg	2.085	155.714	mg/kg	0.0156 %	✓	
19		TPH (C6 to C40) petroleum group			TPH		44	mg/kg		39.6	mg/kg	0.00396 %	✓	
20		benzene	601-020-00-8	200-753-7	71-43-2		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
21		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
22		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
23		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
24		naphthalene	601-052-00-2	202-049-5	91-20-3		0.06	mg/kg		0.054	mg/kg	0.0000054 %	✓	
25		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
26		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
27		fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
28		phenanthrene		201-581-5	85-01-8		0.16	mg/kg		0.144	mg/kg	0.0000144 %	✓	
29		anthracene		204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
30		fluoranthene		205-912-4	206-44-0		0.18	mg/kg		0.162	mg/kg	0.0000162 %	✓	
31		pyrene		204-927-3	129-00-0		0.2	mg/kg		0.18	mg/kg	0.000018 %	✓	
32		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.11	mg/kg		0.099	mg/kg	0.0000099 %	✓	
33		chrysene	601-048-00-0	205-923-4	218-01-9		0.11	mg/kg		0.099	mg/kg	0.0000099 %	✓	
34		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.13	mg/kg		0.117	mg/kg	0.0000117 %	✓	
35		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
36		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.11	mg/kg		0.099	mg/kg	0.0000099 %	✓	
37		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
38		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
39		benzo[ghi]perylene		205-883-8	191-24-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
40		coronene		205-881-7	191-07-1		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
41		asbestos	650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6		<			<		<		**ND**

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
				77536-67-5 12001-29-5							
42		xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
								Total:	0.0799 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No liquid phase present.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00396%)

Classification of sample: BH1004-10-10012024-2.00

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH1004-10-10012024-2.00
Sample Depth:
2.00m m
Moisture content:
9.4%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 9.4% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		9.2 pH		9.2 pH	9.2 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
3	monohydric phenols			P1186		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
4	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		3.2 mg/kg	1.197	3.471 mg/kg	0.000347 %	✓	
5	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		17 mg/kg	1.534	23.625 mg/kg	0.00236 %	✓	
6	barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		52 mg/kg	1.623	76.485 mg/kg	0.00765 %	✓	
7	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.48 mg/kg	2.775	1.207 mg/kg	0.000121 %	✓	
8	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.3 mg/kg	3.22	0.875 mg/kg	0.0000875 %	✓	
9	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
10	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.8 mg/kg	1.923	<3.462 mg/kg	<0.000346 %		<LOD
11	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		25 mg/kg	1.462	36.539 mg/kg	0.00365 %		
12	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		19 mg/kg	1.126	19.381 mg/kg	0.00194 %	✓	
13	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	40 mg/kg		36.24 mg/kg	0.00362 %	✓	
14	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3 mg/kg	1.353	<0.406 mg/kg	<0.0000406 %		<LOD

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
15		nickel { nickel sulfate }				18	mg/kg	2.637	42.999	mg/kg	0.0043 %	✓	
		028-009-00-5	232-104-9	7786-81-4									
16		selenium { nickel selenate }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		028-031-00-5	239-125-2	15060-62-5									
17		vanadium { divanadium pentaoxide; vanadium pentoxide }				26	mg/kg	1.785	42.052	mg/kg	0.00421 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
18		zinc { zinc chloride }				50	mg/kg	2.085	94.429	mg/kg	0.00944 %	✓	
		030-003-00-2	231-592-0	7646-85-7									
19		TPH (C6 to C40) petroleum group				12	mg/kg		10.872	mg/kg	0.00109 %	✓	
				TPH									
20		benzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
21		toluene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
22		ethylbenzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
23		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
24		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
25		acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-917-1	208-96-8									
26		acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-469-6	83-32-9									
27		fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-695-5	86-73-7									
28		phenanthrene				0.06	mg/kg		0.0544	mg/kg	0.00000544 %	✓	
			201-581-5	85-01-8									
29		anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			204-371-1	120-12-7									
30		fluoranthene				0.05	mg/kg		0.0453	mg/kg	0.00000453 %	✓	
			205-912-4	206-44-0									
31		pyrene				0.06	mg/kg		0.0544	mg/kg	0.00000544 %	✓	
			204-927-3	129-00-0									
32		benzo[a]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
33		chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
34		benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
35		benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
36		benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
37		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-893-2	193-39-5									
38		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
39		benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-883-8	191-24-2									
40		coronene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-881-7	191-07-1									
41		asbestos				<			<		<		ND
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
				77536-67-5 12001-29-5							
42		xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
								Total:	0.0399 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No liquid phase present.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00109%)

Classification of sample: BH1004-14-10012024-3.00

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH1004-14-10012024-3.00
Sample Depth:
3.00m m
Moisture content:
15%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 15% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		8.5 pH		8.5 pH	8.5 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<**LOD**
3	monohydric phenols			P1186		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
4	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		<1 mg/kg	1.197	<1.197 mg/kg	<0.00012 %		<**LOD**
5	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		5.8 mg/kg	1.534	7.562 mg/kg	0.000756 %	✓	
6	barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		100 mg/kg	1.623	137.995 mg/kg	0.0138 %	✓	
7	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		1 mg/kg	2.775	2.359 mg/kg	0.000236 %	✓	
8	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.7 mg/kg	3.22	1.916 mg/kg	0.000192 %	✓	
9	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<**LOD**
10	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.8 mg/kg	1.923	<3.462 mg/kg	<0.000346 %		<**LOD**
11	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		27 mg/kg	1.462	39.462 mg/kg	0.00395 %		
12	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		25 mg/kg	1.126	23.925 mg/kg	0.00239 %	✓	
13	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	14 mg/kg		11.9 mg/kg	0.00119 %	✓	
14	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3 mg/kg	1.353	<0.406 mg/kg	<0.0000406 %		<**LOD**

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
15		nickel { nickel sulfate }	028-009-00-5	232-104-9	7786-81-4		33	mg/kg	2.637	73.959	mg/kg	0.0074 %	✓	
16		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<**LOD**
17		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		26	mg/kg	1.785	39.453	mg/kg	0.00395 %	✓	
18		zinc { zinc chloride }	030-003-00-2	231-592-0	7646-85-7		61	mg/kg	2.085	108.082	mg/kg	0.0108 %	✓	
19		TPH (C6 to C40) petroleum group			TPH		28	mg/kg		23.8	mg/kg	0.00238 %	✓	
20		benzene	601-020-00-8	200-753-7	71-43-2		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
21		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
22		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
23		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
24		naphthalene	601-052-00-2	202-049-5	91-20-3		0.36	mg/kg		0.306	mg/kg	0.0000306 %	✓	
25		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
26		acenaphthene		201-469-6	83-32-9		0.57	mg/kg		0.484	mg/kg	0.0000484 %	✓	
27		fluorene		201-695-5	86-73-7		0.46	mg/kg		0.391	mg/kg	0.0000391 %	✓	
28		phenanthrene		201-581-5	85-01-8		2.6	mg/kg		2.21	mg/kg	0.000221 %	✓	
29		anthracene		204-371-1	120-12-7		0.65	mg/kg		0.553	mg/kg	0.0000553 %	✓	
30		fluoranthene		205-912-4	206-44-0		1.9	mg/kg		1.615	mg/kg	0.000162 %	✓	
31		pyrene		204-927-3	129-00-0		1.6	mg/kg		1.36	mg/kg	0.000136 %	✓	
32		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.78	mg/kg		0.663	mg/kg	0.0000663 %	✓	
33		chrysene	601-048-00-0	205-923-4	218-01-9		0.75	mg/kg		0.638	mg/kg	0.0000637 %	✓	
34		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.67	mg/kg		0.57	mg/kg	0.000057 %	✓	
35		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.25	mg/kg		0.213	mg/kg	0.0000212 %	✓	
36		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.52	mg/kg		0.442	mg/kg	0.0000442 %	✓	
37		indeno[123-cd]pyrene		205-893-2	193-39-5		0.24	mg/kg		0.204	mg/kg	0.0000204 %	✓	
38		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		0.07	mg/kg		0.0595	mg/kg	0.00000595 %	✓	
39		benzo[ghi]perylene		205-883-8	191-24-2		0.3	mg/kg		0.255	mg/kg	0.0000255 %	✓	
40		coronene		205-881-7	191-07-1		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
41		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
											Total:	0.0491 %		

Key	
	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No liquid phase present.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00238%)

Classification of sample: BH1005-3-10012024-0.50

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH1005-3-10012024-0.50
Sample Depth:
0.50m m
Moisture content:
12%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 12% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		pH			PH		11.7	pH		11.7	pH	11.7 pH		
2		pH: acid/alkali reserve			ACID_ALK_RES		0.351	gNaOH		0.351	gNaOH	0.351 gNaOH		
3		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
4		monohydric phenols			P1186		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
5		antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		4.8	mg/kg	1.197	5.057	mg/kg	0.000506 %	✓	
6		arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		25	mg/kg	1.534	33.745	mg/kg	0.00337 %	✓	
7		barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		220	mg/kg	1.623	314.304	mg/kg	0.0314 %	✓	
8		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.85	mg/kg	2.775	2.076	mg/kg	0.000208 %	✓	
9		boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		1	mg/kg	3.22	2.833	mg/kg	0.000283 %	✓	
10		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2	mg/kg	1.142	<0.228	mg/kg	<0.0000228 %		<**LOD**
11		chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.8	mg/kg	1.923	<3.462	mg/kg	<0.000346 %		<**LOD**
12		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		26	mg/kg	1.462	38	mg/kg	0.0038 %		
13		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		68	mg/kg	1.126	67.373	mg/kg	0.00674 %	✓	
14		lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	380	mg/kg		334.4	mg/kg	0.0334 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
15		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.3	mg/kg	1.353	0.357	mg/kg	0.0000357 %	✓	
16		nickel { nickel sulfate }	028-009-00-5	232-104-9	7786-81-4		19	mg/kg	2.637	44.085	mg/kg	0.00441 %	✓	
17		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
18		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		28	mg/kg	1.785	43.987	mg/kg	0.0044 %	✓	
19		zinc { zinc chloride }	030-003-00-2	231-592-0	7646-85-7		130	mg/kg	2.085	238.469	mg/kg	0.0238 %	✓	
20		TPH (C6 to C40) petroleum group			TPH		270	mg/kg		237.6	mg/kg	0.0238 %	✓	
21		benzene	601-020-00-8	200-753-7	71-43-2		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
22		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
23		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
24		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
25		naphthalene	601-052-00-2	202-049-5	91-20-3		2	mg/kg		1.76	mg/kg	0.000176 %	✓	
26		acenaphthylene		205-917-1	208-96-8		0.13	mg/kg		0.114	mg/kg	0.0000114 %	✓	
27		acenaphthene		201-469-6	83-32-9		3.8	mg/kg		3.344	mg/kg	0.000334 %	✓	
28		fluorene		201-695-5	86-73-7		2.8	mg/kg		2.464	mg/kg	0.000246 %	✓	
29		phenanthrene		201-581-5	85-01-8		22	mg/kg		19.36	mg/kg	0.00194 %	✓	
30		anthracene		204-371-1	120-12-7		5.4	mg/kg		4.752	mg/kg	0.000475 %	✓	
31		fluoranthene		205-912-4	206-44-0		26	mg/kg		22.88	mg/kg	0.00229 %	✓	
32		pyrene		204-927-3	129-00-0		23	mg/kg		20.24	mg/kg	0.00202 %	✓	
33		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		10	mg/kg		8.8	mg/kg	0.00088 %	✓	
34		chrysene	601-048-00-0	205-923-4	218-01-9		9.9	mg/kg		8.712	mg/kg	0.000871 %	✓	
35		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		10	mg/kg		8.8	mg/kg	0.00088 %	✓	
36		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		4.5	mg/kg		3.96	mg/kg	0.000396 %	✓	
37		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		9.3	mg/kg		8.184	mg/kg	0.000818 %	✓	
38		indeno[123-cd]pyrene		205-893-2	193-39-5		4.2	mg/kg		3.696	mg/kg	0.00037 %	✓	
39		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		0.97	mg/kg		0.854	mg/kg	0.0000854 %	✓	
40		benzo[ghi]perylene		205-883-8	191-24-2		5	mg/kg		4.4	mg/kg	0.00044 %	✓	
41		coronene		205-881-7	191-07-1		1.8	mg/kg		1.584	mg/kg	0.000158 %	✓	
42		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2]	95-47-6 [1] 106-42-3 [2]		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
			203-576-3 [3] 215-535-7 [4]	108-38-3 [3] 1330-20-7 [4]							
								Total:	0.15 %		

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
1		asbestos in identifiable pieces of suspected ACM				0.002 %		0.002 %	0.002 %		
				ACM_FRAG							
								Total:	0.002 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification
ACM	Asbestos Containing Materials

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"
Force this Hazardous property to non hazardous because No liquid phase present.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0238%)

HP 4: Irritant - skin irritation and eye damage "waste which on application can cause skin irritation or damage to the eye"
Force this Hazardous property to non hazardous because There are concrete fragments in the soil which when tested, generated pH results above 11.5. An acid alkali reserve test indicated that the pH is a weak pH (i.e. not well buffered) and the waste therefore may not be irritant or corrosive. The raised pH is caused by the presence of calcium hydroxide exposed during the sample preparation process. Natural carbonation would negate the raised pH after about 24 hours. Apart from the concrete, there are no other substances in the waste that could generate a high pH. Concrete is a mirror non-hazardous entry in the List of Waste: 17 01 01. Conclusion: The waste is strictly a mixed waste and the concrete component, coded 17 01 01 does not make the waste hazardous.

pH; pH "Assumed to be irritant/corrosive because of pH value"

Because of determinand:

pH: (conc.: 11.7 pH)

HP 8: Corrosive "waste which on application can cause skin corrosion"
Force this Hazardous property to non hazardous because There are concrete fragments in the soil which when tested, generated pH results above 11.5. An acid alkali reserve test indicated that the pH is a weak pH (i.e. not well buffered) and the waste therefore may not be irritant or corrosive. The raised pH is caused by the presence of calcium hydroxide exposed during the sample preparation process. Natural carbonation would negate the raised pH after about 24 hours. Apart from the concrete, there are no other substances in the waste that could generate a high pH. Concrete is a mirror non-hazardous entry in the List of Waste: 17 01 01. Conclusion: The waste is strictly a mixed waste and the concrete component, coded 17 01 01 does not make the waste hazardous.

pH; pH "Assumed to be irritant/corrosive because of pH value"

Because of determinand:

pH: (conc.: 11.7 pH)

Classification of sample: BH1005-9-10012024-2.00

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH1005-9-10012024-2.00
Sample Depth:
2.00m m
Moisture content:
12%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 12% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		10.4 pH		10.4 pH	10.4 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<**LOD**
3	monohydric phenols			P1186		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
4	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		2.8 mg/kg	1.197	2.95 mg/kg	0.000295 %	✓	
5	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		8.7 mg/kg	1.534	11.743 mg/kg	0.00117 %	✓	
6	barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		130 mg/kg	1.623	185.725 mg/kg	0.0186 %	✓	
7	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.58 mg/kg	2.775	1.417 mg/kg	0.000142 %	✓	
8	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.8 mg/kg	3.22	2.267 mg/kg	0.000227 %	✓	
9	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<**LOD**
10	chromium in chromium(VI) compounds { chromium(VI) oxide }	024-001-00-0	215-607-8	1333-82-0		<1.8 mg/kg	1.923	<3.462 mg/kg	<0.000346 %		<**LOD**
11	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		16 mg/kg	1.462	23.385 mg/kg	0.00234 %		
12	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		36 mg/kg	1.126	35.668 mg/kg	0.00357 %	✓	
13	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	150 mg/kg		132 mg/kg	0.0132 %	✓	
14	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.3 mg/kg	1.353	0.357 mg/kg	0.0000357 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
15		nickel { nickel sulfate }				14	mg/kg	2.637	32.484	mg/kg	0.00325 %	✓	
		028-009-00-5	232-104-9	7786-81-4									
16		selenium { nickel selenate }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		028-031-00-5	239-125-2	15060-62-5									
17		vanadium { divanadium pentaoxide; vanadium pentoxide }				19	mg/kg	1.785	29.848	mg/kg	0.00298 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
18		zinc { zinc chloride }				94	mg/kg	2.085	172.432	mg/kg	0.0172 %	✓	
		030-003-00-2	231-592-0	7646-85-7									
19		TPH (C6 to C40) petroleum group				350	mg/kg		308	mg/kg	0.0308 %	✓	
				TPH									
20		benzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
21		toluene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
22		ethylbenzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
23		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
24		naphthalene				0.6	mg/kg		0.528	mg/kg	0.0000528 %	✓	
		601-052-00-2	202-049-5	91-20-3									
25		acenaphthylene				0.22	mg/kg		0.194	mg/kg	0.0000194 %	✓	
			205-917-1	208-96-8									
26		acenaphthene				7.2	mg/kg		6.336	mg/kg	0.000634 %	✓	
			201-469-6	83-32-9									
27		fluorene				5.7	mg/kg		5.016	mg/kg	0.000502 %	✓	
			201-695-5	86-73-7									
28		phenanthrene				32	mg/kg		28.16	mg/kg	0.00282 %	✓	
			201-581-5	85-01-8									
29		anthracene				8.6	mg/kg		7.568	mg/kg	0.000757 %	✓	
			204-371-1	120-12-7									
30		fluoranthene				37	mg/kg		32.56	mg/kg	0.00326 %	✓	
			205-912-4	206-44-0									
31		pyrene				31	mg/kg		27.28	mg/kg	0.00273 %	✓	
			204-927-3	129-00-0									
32		benzo[a]anthracene				13	mg/kg		11.44	mg/kg	0.00114 %	✓	
		601-033-00-9	200-280-6	56-55-3									
33		chrysene				11	mg/kg		9.68	mg/kg	0.000968 %	✓	
		601-048-00-0	205-923-4	218-01-9									
34		benzo[b]fluoranthene				13	mg/kg		11.44	mg/kg	0.00114 %	✓	
		601-034-00-4	205-911-9	205-99-2									
35		benzo[k]fluoranthene				4.2	mg/kg		3.696	mg/kg	0.00037 %	✓	
		601-036-00-5	205-916-6	207-08-9									
36		benzo[a]pyrene; benzo[def]chrysene				11	mg/kg		9.68	mg/kg	0.000968 %	✓	
		601-032-00-3	200-028-5	50-32-8									
37		indeno[123-cd]pyrene				5.1	mg/kg		4.488	mg/kg	0.000449 %	✓	
			205-893-2	193-39-5									
38		dibenz[a,h]anthracene				1.3	mg/kg		1.144	mg/kg	0.000114 %	✓	
		601-041-00-2	200-181-8	53-70-3									
39		benzo[ghi]perylene				5.3	mg/kg		4.664	mg/kg	0.000466 %	✓	
			205-883-8	191-24-2									
40		coronene				2.3	mg/kg		2.024	mg/kg	0.000202 %	✓	
			205-881-7	191-07-1									
41		xylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
										Total:	0.111 %		

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
1		asbestos in identifiable pieces of suspected ACM				0.002 %		0.002 %	0.002 %		
				ACM_FRAG							
								Total:	0.002 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification
ACM	Asbestos Containing Materials

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No liquid phase present.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0308%)

Appendix A: Classifier defined and non GB MCL determinands

- **pH** (CAS Number: PH)

Description/Comments: Appendix C4
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

- **pH: acid/alkali reserve** (CAS Number: ACID_ALK_RES)

Description/Comments: Appendix C4; unit: grams of sodium hydroxide (equivalent) per 100g of substance required to adjust the pH to the appropriate value
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

- **salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex**

GB MCL index number: 006-007-00-5
Description/Comments: Conversion factor based on a worst case compound: sodium cyanide
Additional Hazard Statement(s): EUH032 >= 0.2 %
Reason for additional Hazards Statement(s):
20 Nov 2021 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

- **monohydric phenols** (CAS Number: P1186)

Description/Comments: Combined hazards statements from harmonised entries in CLP for phenol, cresols and xylenols (604-001-00-2, 604-004-00-9, 604-006-00-X)
Data source: CLP combined data
Data source date: 26 Mar 2019
Hazard Statements: Muta. 2; H341 , Acute Tox. 3; H331 , Acute Tox. 3; H311 , Acute Tox. 3; H301 , STOT RE 2; H373 , Skin Corr. 1B; H314 , Skin Corr. 1B; H314 >= 3 % , Skin Irrit. 2; H315 1 <= conc. < 3 % , Eye Irrit. 2; H319 1 <= conc. < 3 % , Aquatic Chronic 2; H411

- **chromium(III) oxide (worst case)** (EC Number: 215-160-9, CAS Number: 1308-38-9)

Description/Comments: Data from C&L Inventory Database
Data source: https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H332 , Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Resp. Sens. 1; H334 , Skin Sens. 1; H317 , Repr. 1B; H360FD , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **lead compounds with the exception of those specified elsewhere in this Annex (worst case)**

GB MCL index number: 082-001-00-6
Description/Comments: Worst Case: IARC considers lead compounds Group 2A; Probably carcinogenic to humans; Lead REACH Consortium, following MCL protocols, considers lead compounds from smelting industries, flue dust and similar to be Carcinogenic category 1A
Additional Hazard Statement(s): Carc. 1A; H350
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 1A; H350 hazard statement sourced from: IARC Group 2A (Sup 7, 87) 2006; Lead REACH Consortium www.reach-lead.eu/substanceinformation.html (worst case lead compounds). Review date 29/09/2015

- **TPH (C6 to C40) petroleum group** (CAS Number: TPH)

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: Flam. Liq. 3; H226 , Asp. Tox. 1; H304 , STOT RE 2; H373 , Muta. 1B; H340 , Carc. 1B; H350 , Repr. 2; H361d , Aquatic Chronic 2; H411

- **ethylbenzene** (EC Number: 202-849-4, CAS Number: 100-41-4)

GB MCL index number: 601-023-00-4
Description/Comments:
Additional Hazard Statement(s): Carc. 2; H351
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2B (77) 2000

- **acenaphthylene** (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 1; H330 , Acute Tox. 1; H310 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315

acenaphthene (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Aquatic Chronic 2; H411

fluorene (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

phenanthrene (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Carc. 2; H351 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Skin Irrit. 2; H315

anthracene (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

fluoranthene (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

pyrene (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

indeno[123-cd]pyrene (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Carc. 2; H351

benzo[ghi]perylene (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 23 Jul 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

coronene (EC Number: 205-881-7, CAS Number: 191-07-1)

Description/Comments: Data from C&L Inventory Database; no entries in Registered Substances or Pesticides Properties databases; SDS: Sigma Aldrich, 1907/2006 compliant, dated 2012 - no entries; IARC – Group 3, not carcinogenic.
Data source: http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=17010&HarmOnly=no?fc=true&lang=en
Data source date: 16 Jun 2014
Hazard Statements: STOT SE 2; H371

Appendix B: Rationale for selection of metal species

cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case as complex cyanides and those specified elsewhere in the annex are not likely to be present in this soil: [Note conversion factor based on a worst case compound: sodium cyanide].

antimony {antimony trioxide}

Worst case CLP species based on hazard statements/molecular weight and low solubility. Industrial sources include: flame retardants in electrical apparatus, textiles and coatings.

arsenic {arsenic pentoxide}

Worst case CLP species based on hazard statements/molecular weight. Industrial sources include: arsenates, weed killers, metal adhesives, insecticides, fungicides, wood preservatives, coloured gases, printing and dyeing.

barium {barium diboron tetraoxide}

Reasonable case CLP species based on site history, hazard statements/molecular weight. Noted that not enough metal and Cr(VI) present to make the worst case CLP (metal chromate) (noting concentrations not at hazardous levels in any case).

beryllium {beryllium oxide}

Reasonable case CLP species based on hazard statements/molecular weight. Industrial sources include: most common (non alloy) form, used in ceramics.

boron {diboron trioxide}

Reasonable case CLP species based on hazard statements/ molecular weight, physical form and low solubility. Industrial sources include: fluxing agent for glass/enamels; additive for fibre optics, borosilicate glass.

cadmium {cadmium oxide}

Reasonable case CLP species based on hazard statements/molecular weight, very low solubility in water. Industrial sources include: electroplating baths, electrodes for storage batteries, catalysts, ceramic glazes, phosphors, pigments and nematocides. Worst case compounds in CLP: cadmium sulphate, chloride, fluoride & iodide not expected as either very soluble and/or compound's industrial usage not related to site history.

chromium in chromium(VI) compounds {chromium(VI) oxide}

Reasonable case CLP species based on site history, hazard statements/molecular weight. Noted that not enough metal and Cr(VI) present to make the worst case CLP (metal chromate) (noting concentrations not at hazardous levels in any case).

chromium in chromium(III) compounds {chromium(III) oxide (worst case)}

Reasonable case species based on hazard statements/molecular weight. Industrial sources include: tanning, pigment in paint, inks and glass.

copper {dicopper oxide; copper (I) oxide}

Reasonable case CLP species based on hazard statements/molecular weight and insolubility in water. Industrial sources include: oxidised copper metal, brake pads, pigments, antifouling paints, fungicide. Worse case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected.

lead {lead compounds with the exception of those specified elsewhere in this Annex (worst case)}

Reasonable case CLP species based on site history, hazard statements/molecular weight. Noted that not enough metal and Cr(VI) present to make the worst case CLP (metal chromate) (noting concentrations not at hazardous levels in any case).

mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weight.

nickel {nickel sulfate}

Reasonable case CLP species based on hazard statements/molecular weight. Industrial sources include: copper refining, electroplating and rechargeable batteries. Worst case compounds in CLP not expected as either very soluble and/or compounds industrial useage not related to site history.

selenium {nickel selenate}

Worst case CLP species based on hazard statements/molecular weight.

vanadium {divanadium pentaoxide; vanadium pentoxide}

Worst case species.

zinc {zinc chloride}

Reasonable case CLP species based on site history, hazard statements/molecular weight. Noted that not enough metal and Cr(VI) present to make the worst case CLP (metal chromate) (noting concentrations not at hazardous levels in any case).

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.2.GB - Oct 2021
HazWasteOnline Classification Engine Version: 2024.30.5942.10989 (30 Jan 2024)
HazWasteOnline Database: 2024.26.5938.10982 (26 Jan 2024)

This classification utilises the following guidance and legislation:
WM3 v1.2.GB - Waste Classification - 1st Edition v1.2.GB - Oct 2021
CLP Regulation - Regulation 1272/2008/EC of 16 December 2008
1st ATP - Regulation 790/2009/EC of 10 August 2009
2nd ATP - Regulation 286/2011/EC of 10 March 2011
3rd ATP - Regulation 618/2012/EU of 10 July 2012
4th ATP - Regulation 487/2013/EU of 8 May 2013
Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013
5th ATP - Regulation 944/2013/EU of 2 October 2013
6th ATP - Regulation 605/2014/EU of 5 June 2014
WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014
Revised List of Waste 2014 - Decision 2014/955/EU of 18 December 2014
7th ATP - Regulation 2015/1221/EU of 24 July 2015
8th ATP - Regulation (EU) 2016/918 of 19 May 2016
9th ATP - Regulation (EU) 2016/1179 of 19 July 2016
10th ATP - Regulation (EU) 2017/776 of 4 May 2017
HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017
13th ATP - Regulation (EU) 2018/1480 of 4 October 2018
14th ATP - Regulation (EU) 2020/217 of 4 October 2019
15th ATP - Regulation (EU) 2020/1182 of 19 May 2020
The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020
The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1540 of 16th December 2020
GB MCL List - version 1.1 of 09 June 2021
GB MCL List v2.0 - version 2.0 of 20th October 2023

Waste Classification Report

HazWasteOnline™ classifies waste as either **hazardous** or **non-hazardous** based on its chemical composition, related legislation and the rules and data defined in the current UK or EU technical guidance (Appendix C) (note that HP 9 Infectious is not assessed). It is the responsibility of the classifier named below to:

a) understand the origin of the waste
b) select the correct List of Waste code(s)
c) confirm that the list of determinands, results and sampling plan are fit for purpose
d) select and justify the chosen metal species (Appendix B)
e) correctly apply moisture correction and other available corrections
f) add the meta data for their user-defined substances (Appendix A)
g) check that the classification engine is suitable with respect to the national destination of the waste (Appendix C)

To aid the reviewer, the laboratory results, assumptions and justifications managed by the classifier are highlighted in pale yellow.

226P8-2V2TX-1G3QW

Job name

24-78200_HWOL_Results

Description/Comments

i2 Analytical Report 24-78200

Project

51001/03

Site

Mayfield Phase 1B

Classified by

Name:
Kirsty Poore
Date:
21 Feb 2024 12:42 GMT
Telephone:
07983 740199

Company:
Civic Earth Limited
77 Dale Street
Manchester
M12HG

HazWasteOnline™ provides a two day, hazardous waste classification course that covers the use of the software and both basic and advanced waste classification techniques. Certification has to be renewed every 3 years.

HazWasteOnline™ Certification: **CERTIFIED**

Course	Date
Hazardous Waste Classification	05 Oct 2023

Next 3 year Refresher due by Oct 2026

Purpose of classification

2 - Material Characterisation

Address of the waste

Land off Baring Street **Post Code** M12 6HW

SIC for the process giving rise to the waste

41201 Construction of commercial buildings

Description of industry/producer giving rise to the waste

Redevelopment of former industrial site into residential-led development.

Description of the specific process, sub-process and/or activity that created the waste

Waste created during the excavation of soils during site investigation.

Description of the waste

Made Ground comprising predominantly clayey sandy gravel (brick and concrete).

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	TP1001-4-10012024-0.50	0.50m	Non Hazardous		3
2	TP1002-1-10012024-0.15	0.15m	Non Hazardous		6
3	TP1005-4-10012024-0.50	0.50m	Non Hazardous		9
4	TP1005-10-10012024-1.50	1.50m	Non Hazardous		12
5	TP1008-7-10012024-1.00	1.00m	Non Hazardous		15
6	TP1010-10-10012024-2.00	2.00m	Hazardous	HP 7, HP 11	18

Related documents

#	Name	Description
1	24-78200_HWOL_Results.hwol	i2 Analytical .hwol file used to populate the Job
2	Civic Earth Soil Suite 3 Waste Stream - i2	waste stream template used to create this Job

Report

Created by: Kirsty Poore

Created date: 21 Feb 2024 12:42 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	21
Appendix B: Rationale for selection of metal species	22
Appendix C: Version	23

Classification of sample: TP1001-4-10012024-0.50

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP1001-4-10012024-0.50
Sample Depth:
0.50m m
Moisture content:
12%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 12% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		8.2 pH		8.2 pH	8.2 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<**LOD**
3	monohydric phenols			P1186		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
4	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		4 mg/kg	1.197	4.214 mg/kg	0.000421 %	✓	
5	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		14 mg/kg	1.534	18.897 mg/kg	0.00189 %	✓	
6	barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		350 mg/kg	1.623	500.03 mg/kg	0.05 %	✓	
7	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		1.2 mg/kg	2.775	2.931 mg/kg	0.000293 %	✓	
8	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.7 mg/kg	3.22	1.983 mg/kg	0.000198 %	✓	
9	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<**LOD**
10	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8 mg/kg	2.27	<4.086 mg/kg	<0.000409 %		<**LOD**
11	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		23 mg/kg	1.462	33.616 mg/kg	0.00336 %		
12	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		46 mg/kg	1.126	45.576 mg/kg	0.00456 %	✓	
13	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	130 mg/kg		114.4 mg/kg	0.0114 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
14		mercury { mercury dichloride }				0.3	mg/kg	1.353	0.357	mg/kg	0.0000357 %	✓	
		080-010-00-X	231-299-8	7487-94-7									
15		nickel { nickel sulfate }				26	mg/kg	2.637	60.327	mg/kg	0.00603 %	✓	
		028-009-00-5	232-104-9	7786-81-4									
16		selenium { nickel selenate }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<**LOD**
		028-031-00-5	239-125-2	15060-62-5									
17		vanadium { divanadium pentaoxide; vanadium pentoxide }				33	mg/kg	1.785	51.842	mg/kg	0.00518 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
18		zinc { zinc chloride }				130	mg/kg	2.085	238.469	mg/kg	0.0238 %	✓	
		030-003-00-2	231-592-0	7646-85-7									
19		TPH (C6 to C40) petroleum group				125	mg/kg		110	mg/kg	0.011 %	✓	
				TPH									
20		benzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
21		toluene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
22		ethylbenzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
23		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		603-181-00-X	216-653-1	1634-04-4									
24		naphthalene				0.41	mg/kg		0.361	mg/kg	0.0000361 %	✓	
		601-052-00-2	202-049-5	91-20-3									
25		acenaphthylene				0.1	mg/kg		0.088	mg/kg	0.0000088 %	✓	
			205-917-1	208-96-8									
26		acenaphthene				2.9	mg/kg		2.552	mg/kg	0.000255 %	✓	
			201-469-6	83-32-9									
27		fluorene				1.5	mg/kg		1.32	mg/kg	0.000132 %	✓	
			201-695-5	86-73-7									
28		phenanthrene				17	mg/kg		14.96	mg/kg	0.0015 %	✓	
			201-581-5	85-01-8									
29		anthracene				3.1	mg/kg		2.728	mg/kg	0.000273 %	✓	
			204-371-1	120-12-7									
30		fluoranthene				21	mg/kg		18.48	mg/kg	0.00185 %	✓	
			205-912-4	206-44-0									
31		pyrene				20	mg/kg		17.6	mg/kg	0.00176 %	✓	
			204-927-3	129-00-0									
32		benzo[a]anthracene				7.9	mg/kg		6.952	mg/kg	0.000695 %	✓	
		601-033-00-9	200-280-6	56-55-3									
33		chrysene				8.3	mg/kg		7.304	mg/kg	0.00073 %	✓	
		601-048-00-0	205-923-4	218-01-9									
34		benzo[b]fluoranthene				9	mg/kg		7.92	mg/kg	0.000792 %	✓	
		601-034-00-4	205-911-9	205-99-2									
35		benzo[k]fluoranthene				3.2	mg/kg		2.816	mg/kg	0.000282 %	✓	
		601-036-00-5	205-916-6	207-08-9									
36		benzo[a]pyrene; benzo[def]chrysene				7.8	mg/kg		6.864	mg/kg	0.000686 %	✓	
		601-032-00-3	200-028-5	50-32-8									
37		indeno[123-cd]pyrene				3.7	mg/kg		3.256	mg/kg	0.000326 %	✓	
			205-893-2	193-39-5									
38		dibenz[a,h]anthracene				0.86	mg/kg		0.757	mg/kg	0.0000757 %	✓	
		601-041-00-2	200-181-8	53-70-3									
39		benzo[ghi]perylene				4.6	mg/kg		4.048	mg/kg	0.000405 %	✓	
			205-883-8	191-24-2									
40		coronene				1.6	mg/kg		1.408	mg/kg	0.000141 %	✓	
			205-881-7	191-07-1									
41		asbestos				<			<		<		**ND**
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
				77536-66-4 77536-68-6 77536-67-5 12001-29-5							
42		xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
								Total:	0.129 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No liquid phase present

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.011%)

Classification of sample: TP1002-1-10012024-0.15

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP1002-1-10012024-0.15
Sample Depth:
0.15m m
Moisture content:
14%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 14% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		10.3 pH		10.3 pH	10.3 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
3	monohydric phenols			P1186		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
4	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		4.2 mg/kg	1.197	4.324 mg/kg	0.000432 %	✓	
5	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		14 mg/kg	1.534	18.468 mg/kg	0.00185 %	✓	
6	barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		670 mg/kg	1.623	935.445 mg/kg	0.0935 %	✓	
7	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		1.2 mg/kg	2.775	2.864 mg/kg	0.000286 %	✓	
8	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.4 mg/kg	3.22	1.108 mg/kg	0.000111 %	✓	
9	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
10	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8 mg/kg	2.27	<4.086 mg/kg	<0.000409 %		<LOD
11	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		17 mg/kg	1.462	24.846 mg/kg	0.00248 %		
12	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		44 mg/kg	1.126	42.604 mg/kg	0.00426 %	✓	
13	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	460 mg/kg		395.6 mg/kg	0.0396 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
14		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
15		nickel { nickel sulfate }	028-009-00-5	232-104-9	7786-81-4		15	mg/kg	2.637	34.013	mg/kg	0.0034 %	✓	
16		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
17		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		26	mg/kg	1.785	39.917	mg/kg	0.00399 %	✓	
18		zinc { zinc chloride }	030-003-00-2	231-592-0	7646-85-7		140	mg/kg	2.085	250.976	mg/kg	0.0251 %	✓	
19		TPH (C6 to C40) petroleum group			TPH		<20	mg/kg		<20	mg/kg	<0.002 %		<LOD
20		benzene	601-020-00-8	200-753-7	71-43-2		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
21		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
22		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
23		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
24		naphthalene	601-052-00-2	202-049-5	91-20-3		0.13	mg/kg		0.112	mg/kg	0.0000112 %	✓	
25		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
26		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
27		fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
28		phenanthrene		201-581-5	85-01-8		0.33	mg/kg		0.284	mg/kg	0.0000284 %	✓	
29		anthracene		204-371-1	120-12-7		0.07	mg/kg		0.0602	mg/kg	0.00000602 %	✓	
30		fluoranthene		205-912-4	206-44-0		0.53	mg/kg		0.456	mg/kg	0.0000456 %	✓	
31		pyrene		204-927-3	129-00-0		0.55	mg/kg		0.473	mg/kg	0.0000473 %	✓	
32		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.28	mg/kg		0.241	mg/kg	0.0000241 %	✓	
33		chrysene	601-048-00-0	205-923-4	218-01-9		0.31	mg/kg		0.267	mg/kg	0.0000267 %	✓	
34		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.35	mg/kg		0.301	mg/kg	0.0000301 %	✓	
35		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.15	mg/kg		0.129	mg/kg	0.0000129 %	✓	
36		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.27	mg/kg		0.232	mg/kg	0.0000232 %	✓	
37		indeno[123-cd]pyrene		205-893-2	193-39-5		0.15	mg/kg		0.129	mg/kg	0.0000129 %	✓	
38		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
39		benzo[ghi]perylene		205-883-8	191-24-2		0.18	mg/kg		0.155	mg/kg	0.0000155 %	✓	
40		coronene		205-881-7	191-07-1		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
41		asbestos	650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5		<			<		<		ND

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
				77536-66-4 77536-68-6 77536-67-5 12001-29-5							
42		xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
								Total:	0.178 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP1005-4-10012024-0.50

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP1005-4-10012024-0.50
Sample Depth:
0.50m m
Moisture content:
10%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 10% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		9 pH		9 pH	9pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<**LOD**
3	monohydric phenols			P1186		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
4	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		<1 mg/kg	1.197	<1.197 mg/kg	<0.00012 %		<**LOD**
5	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		4.5 mg/kg	1.534	6.212 mg/kg	0.000621 %	✓	
6	barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		72 mg/kg	1.623	105.201 mg/kg	0.0105 %	✓	
7	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		1 mg/kg	2.775	2.498 mg/kg	0.00025 %	✓	
8	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		1.7 mg/kg	3.22	4.926 mg/kg	0.000493 %	✓	
9	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<**LOD**
10	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8 mg/kg	2.27	<4.086 mg/kg	<0.000409 %		<**LOD**
11	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		26 mg/kg	1.462	38 mg/kg	0.0038 %		
12	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		25 mg/kg	1.126	25.332 mg/kg	0.00253 %	✓	
13	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	11 mg/kg		9.9 mg/kg	0.00099 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
14		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
15		nickel { nickel sulfate }				25	mg/kg	2.637	59.325	mg/kg	0.00593 %	✓	
		028-009-00-5	232-104-9	7786-81-4									
16		selenium { nickel selenate }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		028-031-00-5	239-125-2	15060-62-5									
17		vanadium { divanadium pentaoxide; vanadium pentoxide }				19	mg/kg	1.785	30.527	mg/kg	0.00305 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
18		zinc { zinc chloride }				64	mg/kg	2.085	120.068	mg/kg	0.012 %	✓	
		030-003-00-2	231-592-0	7646-85-7									
19		TPH (C6 to C40) petroleum group				<20	mg/kg		<20	mg/kg	<0.002 %		<LOD
				TPH									
20		benzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
21		toluene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
22		ethylbenzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
23		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
24		naphthalene				0.08	mg/kg		0.072	mg/kg	0.0000072 %	✓	
		601-052-00-2	202-049-5	91-20-3									
25		acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-917-1	208-96-8									
26		acenaphthene				0.08	mg/kg		0.072	mg/kg	0.0000072 %	✓	
			201-469-6	83-32-9									
27		fluorene				0.07	mg/kg		0.063	mg/kg	0.0000063 %	✓	
			201-695-5	86-73-7									
28		phenanthrene				0.42	mg/kg		0.378	mg/kg	0.0000378 %	✓	
			201-581-5	85-01-8									
29		anthracene				0.1	mg/kg		0.09	mg/kg	0.000009 %	✓	
			204-371-1	120-12-7									
30		fluoranthene				0.5	mg/kg		0.45	mg/kg	0.000045 %	✓	
			205-912-4	206-44-0									
31		pyrene				0.45	mg/kg		0.405	mg/kg	0.0000405 %	✓	
			204-927-3	129-00-0									
32		benzo[a]anthracene				0.25	mg/kg		0.225	mg/kg	0.0000225 %	✓	
		601-033-00-9	200-280-6	56-55-3									
33		chrysene				0.24	mg/kg		0.216	mg/kg	0.0000216 %	✓	
		601-048-00-0	205-923-4	218-01-9									
34		benzo[b]fluoranthene				0.21	mg/kg		0.189	mg/kg	0.0000189 %	✓	
		601-034-00-4	205-911-9	205-99-2									
35		benzo[k]fluoranthene				0.12	mg/kg		0.108	mg/kg	0.0000108 %	✓	
		601-036-00-5	205-916-6	207-08-9									
36		benzo[a]pyrene; benzo[def]chrysene				0.18	mg/kg		0.162	mg/kg	0.0000162 %	✓	
		601-032-00-3	200-028-5	50-32-8									
37		indeno[123-cd]pyrene				0.09	mg/kg		0.081	mg/kg	0.0000081 %	✓	
			205-893-2	193-39-5									
38		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
39		benzo[ghi]perylene				0.11	mg/kg		0.099	mg/kg	0.0000099 %	✓	
			205-883-8	191-24-2									
40		coronene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-881-7	191-07-1									
41		asbestos				<			<		<		ND
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
				77536-66-4 77536-68-6 77536-67-5 12001-29-5							
42		xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		**<LOD**
								Total:	0.0436 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP1005-10-10012024-1.50

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP1005-10-10012024-1.50
Sample Depth:
1.50m m
Moisture content:
7.9%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 7.9% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		7.9 pH		7.9 pH	7.9 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
3	monohydric phenols			P1186		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
4	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		<1 mg/kg	1.197	<1.197 mg/kg	<0.00012 %		<LOD
5	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		4.8 mg/kg	1.534	6.781 mg/kg	0.000678 %	✓	
6	barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		110 mg/kg	1.623	164.474 mg/kg	0.0164 %	✓	
7	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.78 mg/kg	2.775	1.994 mg/kg	0.000199 %	✓	
8	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		1.5 mg/kg	3.22	4.448 mg/kg	0.000445 %	✓	
9	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
10	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8 mg/kg	2.27	<4.086 mg/kg	<0.000409 %		<LOD
11	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		16 mg/kg	1.462	23.385 mg/kg	0.00234 %		
12	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		13 mg/kg	1.126	13.48 mg/kg	0.00135 %	✓	
13	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	6.9 mg/kg		6.355 mg/kg	0.000635 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
14		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
15		nickel { nickel sulfate }	028-009-00-5	232-104-9	7786-81-4		17	mg/kg	2.637	41.283	mg/kg	0.00413 %	✓	
16		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
17		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		14	mg/kg	1.785	23.018	mg/kg	0.0023 %	✓	
18		zinc { zinc chloride }	030-003-00-2	231-592-0	7646-85-7		33	mg/kg	2.085	63.355	mg/kg	0.00634 %	✓	
19		TPH (C6 to C40) petroleum group			TPH		<20	mg/kg		<20	mg/kg	<0.002 %		<LOD
20		benzene	601-020-00-8	200-753-7	71-43-2		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
21		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
22		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
23		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
24		naphthalene	601-052-00-2	202-049-5	91-20-3		0.07	mg/kg		0.0645	mg/kg	0.00000645 %	✓	
25		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
26		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
27		fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
28		phenanthrene		201-581-5	85-01-8		0.09	mg/kg		0.0829	mg/kg	0.00000829 %	✓	
29		anthracene		204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
30		fluoranthene		205-912-4	206-44-0		0.11	mg/kg		0.101	mg/kg	0.0000101 %	✓	
31		pyrene		204-927-3	129-00-0		0.1	mg/kg		0.0921	mg/kg	0.00000921 %	✓	
32		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
33		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
34		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
35		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
36		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
37		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
38		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
39		benzo[ghi]perylene		205-883-8	191-24-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
40		coronene		205-881-7	191-07-1		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
41		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2]	95-47-6 [1] 106-42-3 [2]		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
			203-576-3 [3] 215-535-7 [4]	108-38-3 [3] 1330-20-7 [4]							
								Total:	0.0381 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP1008-7-10012024-1.00

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP1008-7-10012024-1.00
Sample Depth:
1.00m m
Moisture content:
14%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 14% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		8.6 pH		8.6 pH	8.6 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
3	monohydric phenols			P1186		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
4	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		3.4 mg/kg	1.197	3.5 mg/kg	0.00035 %	✓	
5	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		25 mg/kg	1.534	32.978 mg/kg	0.0033 %	✓	
6	barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		180 mg/kg	1.623	251.314 mg/kg	0.0251 %	✓	
7	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		1.5 mg/kg	2.775	3.58 mg/kg	0.000358 %	✓	
8	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.6 mg/kg	3.22	1.661 mg/kg	0.000166 %	✓	
9	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
10	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8 mg/kg	2.27	<4.086 mg/kg	<0.000409 %		<LOD
11	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		22 mg/kg	1.462	32.154 mg/kg	0.00322 %		
12	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		110 mg/kg	1.126	106.509 mg/kg	0.0107 %	✓	
13	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	170 mg/kg		146.2 mg/kg	0.0146 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
14		mercury { mercury dichloride }				0.3	mg/kg	1.353	0.349	mg/kg	0.0000349 %	✓	
		080-010-00-X	231-299-8	7487-94-7									
15		nickel { nickel sulfate }				31	mg/kg	2.637	70.294	mg/kg	0.00703 %	✓	
		028-009-00-5	232-104-9	7786-81-4									
16		selenium { nickel selenate }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<**LOD**
		028-031-00-5	239-125-2	15060-62-5									
17		vanadium { divanadium pentaoxide; vanadium pentoxide }				37	mg/kg	1.785	56.805	mg/kg	0.00568 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
18		zinc { zinc chloride }				140	mg/kg	2.085	250.976	mg/kg	0.0251 %	✓	
		030-003-00-2	231-592-0	7646-85-7									
19		TPH (C6 to C40) petroleum group				336	mg/kg		288.96	mg/kg	0.0289 %	✓	
				TPH									
20		benzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
21		toluene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
22		ethylbenzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
23		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		603-181-00-X	216-653-1	1634-04-4									
24		naphthalene				3.8	mg/kg		3.268	mg/kg	0.000327 %	✓	
		601-052-00-2	202-049-5	91-20-3									
25		acenaphthylene				0.89	mg/kg		0.765	mg/kg	0.0000765 %	✓	
			205-917-1	208-96-8									
26		acenaphthene				4.7	mg/kg		4.042	mg/kg	0.000404 %	✓	
			201-469-6	83-32-9									
27		fluorene				4.8	mg/kg		4.128	mg/kg	0.000413 %	✓	
			201-695-5	86-73-7									
28		phenanthrene				32	mg/kg		27.52	mg/kg	0.00275 %	✓	
			201-581-5	85-01-8									
29		anthracene				7.3	mg/kg		6.278	mg/kg	0.000628 %	✓	
			204-371-1	120-12-7									
30		fluoranthene				32	mg/kg		27.52	mg/kg	0.00275 %	✓	
			205-912-4	206-44-0									
31		pyrene				31	mg/kg		26.66	mg/kg	0.00267 %	✓	
			204-927-3	129-00-0									
32		benzo[a]anthracene				14	mg/kg		12.04	mg/kg	0.0012 %	✓	
		601-033-00-9	200-280-6	56-55-3									
33		chrysene				14	mg/kg		12.04	mg/kg	0.0012 %	✓	
		601-048-00-0	205-923-4	218-01-9									
34		benzo[b]fluoranthene				15	mg/kg		12.9	mg/kg	0.00129 %	✓	
		601-034-00-4	205-911-9	205-99-2									
35		benzo[k]fluoranthene				5.6	mg/kg		4.816	mg/kg	0.000482 %	✓	
		601-036-00-5	205-916-6	207-08-9									
36		benzo[a]pyrene; benzo[def]chrysene				13	mg/kg		11.18	mg/kg	0.00112 %	✓	
		601-032-00-3	200-028-5	50-32-8									
37		indeno[123-cd]pyrene				6	mg/kg		5.16	mg/kg	0.000516 %	✓	
			205-893-2	193-39-5									
38		dibenz[a,h]anthracene				1.5	mg/kg		1.29	mg/kg	0.000129 %	✓	
		601-041-00-2	200-181-8	53-70-3									
39		benzo[ghi]perylene				7.1	mg/kg		6.106	mg/kg	0.000611 %	✓	
			205-883-8	191-24-2									
40		coronene				2.5	mg/kg		2.15	mg/kg	0.000215 %	✓	
			205-881-7	191-07-1									
41		asbestos				<			<		<		**ND**
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
				77536-66-4 77536-68-6 77536-67-5 12001-29-5							
42		xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
								Total:	0.142 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No liquid phase present

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0289%)

Classification of sample: TP1010-10-10012024-2.00

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample name:
TP1010-10-10012024-2.00
Sample Depth:
2.00m m
Moisture content:
13%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 03 * (Soil and stones containing hazardous substances)

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1B; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.121%)

HP 11: Mutagenic "waste which may cause a mutation, that is a permanent change in the amount or structure of the genetic material in a cell"

Hazard Statements hit:

Muta. 1B; H340 "May cause genetic defects [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.121%)

Determinands

Moisture content: 13% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		8.7 pH		8.7 pH	8.7 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
3	monohydric phenols			P1186		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
4	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		2.4 mg/kg	1.197	2.5 mg/kg	0.00025 %	✓	
5	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		9.2 mg/kg	1.534	12.277 mg/kg	0.00123 %	✓	
6	barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		140 mg/kg	1.623	197.739 mg/kg	0.0198 %	✓	
7	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		1.1 mg/kg	2.775	2.656 mg/kg	0.000266 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
8		boron { diboron trioxide }				1.4	mg/kg	3.22	3.922	mg/kg	0.000392 %	✓	
		005-008-00-8	215-125-8	1303-86-2									
9		cadmium { cadmium oxide }				<0.2	mg/kg	1.142	<0.228	mg/kg	<0.0000228 %		<LOD
		048-002-00-0	215-146-2	1306-19-0									
10		chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1.8	mg/kg	2.27	<4.086	mg/kg	<0.000409 %		<LOD
		024-017-00-8											
11		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				19	mg/kg	1.462	27.77	mg/kg	0.00278 %		
			215-160-9	1308-38-9									
12		copper { dicopper oxide; copper (I) oxide }				56	mg/kg	1.126	54.853	mg/kg	0.00549 %	✓	
		029-002-00-X	215-270-7	1317-39-1									
13		lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }			1	52	mg/kg		45.24	mg/kg	0.00452 %	✓	
		082-001-00-6											
14		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
15		nickel { nickel sulfate }				22	mg/kg	2.637	50.466	mg/kg	0.00505 %	✓	
		028-009-00-5	232-104-9	7786-81-4									
16		selenium { nickel selenate }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		028-031-00-5	239-125-2	15060-62-5									
17		vanadium { divanadium pentaoxide; vanadium pentoxide }				30	mg/kg	1.785	46.593	mg/kg	0.00466 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
18		zinc { zinc chloride }				130	mg/kg	2.085	235.759	mg/kg	0.0236 %	✓	
		030-003-00-2	231-592-0	7646-85-7									
19		TPH (C6 to C40) petroleum group				1390	mg/kg		1209.3	mg/kg	0.121 %	✓	
				TPH									
20		benzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
21		toluene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
22		ethylbenzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
23		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
24		naphthalene				4.3	mg/kg		3.741	mg/kg	0.000374 %	✓	
		601-052-00-2	202-049-5	91-20-3									
25		acenaphthylene				0.76	mg/kg		0.661	mg/kg	0.0000661 %	✓	
			205-917-1	208-96-8									
26		acenaphthene				9.2	mg/kg		8.004	mg/kg	0.0008 %	✓	
			201-469-6	83-32-9									
27		fluorene				6	mg/kg		5.22	mg/kg	0.000522 %	✓	
			201-695-5	86-73-7									
28		phenanthrene				45	mg/kg		39.15	mg/kg	0.00392 %	✓	
			201-581-5	85-01-8									
29		anthracene				13	mg/kg		11.31	mg/kg	0.00113 %	✓	
			204-371-1	120-12-7									
30		fluoranthene				78	mg/kg		67.86	mg/kg	0.00679 %	✓	
			205-912-4	206-44-0									
31		pyrene				72	mg/kg		62.64	mg/kg	0.00626 %	✓	
			204-927-3	129-00-0									
32		benzo[a]anthracene				35	mg/kg		30.45	mg/kg	0.00305 %	✓	
		601-033-00-9	200-280-6	56-55-3									
33		chrysene				39	mg/kg		33.93	mg/kg	0.00339 %	✓	
		601-048-00-0	205-923-4	218-01-9									
34		benzo[b]fluoranthene				45	mg/kg		39.15	mg/kg	0.00392 %	✓	
		601-034-00-4	205-911-9	205-99-2									

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
35		benzo[k]fluoranthene				15	mg/kg		13.05	mg/kg	0.00131 %	✓	
		601-036-00-5	205-916-6	207-08-9									
36		benzo[a]pyrene; benzo[def]chrysene				37	mg/kg		32.19	mg/kg	0.00322 %	✓	
		601-032-00-3	200-028-5	50-32-8									
37	●	indeno[123-cd]pyrene				19	mg/kg		16.53	mg/kg	0.00165 %	✓	
			205-893-2	193-39-5									
38		dibenz[a,h]anthracene				4.9	mg/kg		4.263	mg/kg	0.000426 %	✓	
		601-041-00-2	200-181-8	53-70-3									
39	●	benzo[ghi]perylene				22	mg/kg		19.14	mg/kg	0.00191 %	✓	
			205-883-8	191-24-2									
40	●	coronene				8.6	mg/kg		7.482	mg/kg	0.000748 %	✓	
			205-881-7	191-07-1									
41		xylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
										Total:	0.229 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
●	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No liquid phase present

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.121%)

Appendix A: Classifier defined and non GB MCL determinands

pH (CAS Number: PH)

Description/Comments: Appendix C4
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex

GB MCL index number: 006-007-00-5
Description/Comments: Conversion factor based on a worst case compound: sodium cyanide
Additional Hazard Statement(s): EUH032 >= 0.2 %
Reason for additional Hazards Statement(s):
20 Nov 2021 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

monohydric phenols (CAS Number: P1186)

Description/Comments: Combined hazards statements from harmonised entries in CLP for phenol, cresols and xylenols (604-001-00-2, 604-004-00-9, 604-006-00-X)
Data source: CLP combined data
Data source date: 26 Mar 2019
Hazard Statements: Muta. 2; H341 , Acute Tox. 3; H331 , Acute Tox. 3; H311 , Acute Tox. 3; H301 , STOT RE 2; H373 , Skin Corr. 1B; H314 , Skin Corr. 1B; H314 >= 3 % , Skin Irrit. 2; H315 1 <= conc. < 3 % , Eye Irrit. 2; H319 1 <= conc. < 3 % , Aquatic Chronic 2; H411

chromium(III) oxide (worst case) (EC Number: 215-160-9, CAS Number: 1308-38-9)

Description/Comments: Data from C&L Inventory Database
Data source: https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H332 , Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Resp. Sens. 1; H334 , Skin Sens. 1; H317 , Repr. 1B; H360FD , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

lead compounds with the exception of those specified elsewhere in this Annex (worst case)

GB MCL index number: 082-001-00-6
Description/Comments: Worst Case: IARC considers lead compounds Group 2A; Probably carcinogenic to humans; Lead REACH Consortium, following MCL protocols, considers lead compounds from smelting industries, flue dust and similar to be Carcinogenic category 1A
Additional Hazard Statement(s): Carc. 1A; H350
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 1A; H350 hazard statement sourced from: IARC Group 2A (Sup 7, 87) 2006; Lead REACH Consortium www.reach-lead.eu/substanceinformation.html (worst case lead compounds). Review date 29/09/2015

TPH (C6 to C40) petroleum group (CAS Number: TPH)

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: Flam. Liq. 3; H226 , Asp. Tox. 1; H304 , STOT RE 2; H373 , Muta. 1B; H340 , Carc. 1B; H350 , Repr. 2; H361d , Aquatic Chronic 2; H411

ethylbenzene (EC Number: 202-849-4, CAS Number: 100-41-4)

GB MCL index number: 601-023-00-4
Description/Comments:
Additional Hazard Statement(s): Carc. 2; H351
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2B (77) 2000

acenaphthylene (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 1; H330 , Acute Tox. 1; H310 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315

acenaphthene (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Aquatic Chronic 2; H411

- **fluorene** (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **phenanthrene** (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Carc. 2; H351 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Skin Irrit. 2; H315

- **anthracene** (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **fluoranthene** (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **pyrene** (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **indeno[123-cd]pyrene** (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Carc. 2; H351

- **benzo[ghi]perylene** (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 23 Jul 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **coronene** (EC Number: 205-881-7, CAS Number: 191-07-1)

Description/Comments: Data from C&L Inventory Database; no entries in Registered Substances or Pesticides Properties databases; SDS: Sigma Aldrich, 1907/2006 compliant, dated 2012 - no entries; IARC – Group 3, not carcinogenic.
Data source: http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=17010&HarmOnly=no?fc=true&lang=en
Data source date: 16 Jun 2014
Hazard Statements: STOT SE 2; H371

Appendix B: Rationale for selection of metal species

cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case as complex cyanides and those specified elsewhere in the annex are not likely to be present in this soil: [Note conversion factor based on a worst case compound: sodium cyanide].

antimony {antimony trioxide}

Worst case CLP species based on hazard statements/molecular weight and low solubility. Industrial sources include: flame retardants in electrical apparatus, textiles and coatings.

arsenic {arsenic pentoxide}

Worst case CLP species based on hazard statements/molecular weight. Industrial sources include: arsenates, weed killers, metal adhesives, insecticides, fungicides, wood preservatives, coloured gases, printing and dyeing.

barium {barium diboron tetraoxide}

Reasonable case CLP species based on site history, hazard statements/molecular weight. Noted that not enough metal and Cr(VI) present to make the worst case CLP (metal chromate) (noting concentrations not at hazardous levels in any case).

beryllium {beryllium oxide}

Reasonable case CLP species based on hazard statements/molecular weight. Industrial sources include: most common (non alloy) form, used in ceramics.

boron {diboron trioxide}

Reasonable case CLP species based on hazard statements/ molecular weight, physical form and low solubility. Industrial sources include: fluxing agent for glass/enamels; additive for fibre optics, borosilicate glass.

cadmium {cadmium oxide}

Reasonable case CLP species based on hazard statements/molecular weight, very low solubility in water. Industrial sources include: electroplating baths, electrodes for storage batteries, catalysts, ceramic glazes, phosphors, pigments and nematocides. Worst case compounds in CLP: cadmium sulphate, chloride, fluoride & iodide not expected as either very soluble and/or compound's industrial usage not related to site history.

chromium in chromium(VI) compounds {chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex}

Worst case species based on hazard statements/molecular weight.

chromium in chromium(III) compounds {chromium(III) oxide (worst case)}

Reasonable case species based on hazard statements/molecular weight. Industrial sources include: tanning, pigment in paint, inks and glass.

copper {dicopper oxide; copper (I) oxide}

Reasonable case CLP species based on hazard statements/molecular weight and insolubility in water. Industrial sources include: oxidised copper metal, brake pads, pigments, antifouling paints, fungicide. Worse case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected.

lead {lead compounds with the exception of those specified elsewhere in this Annex (worst case)}

Reasonable case CLP species based on site history, hazard statements/molecular weight. Noted that not enough metal and Cr(VI) present to make the worst case CLP (metal chromate) (noting concentrations not at hazardous levels in any case).

mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weight.

nickel {nickel sulfate}

Reasonable case CLP species based on hazard statements/molecular weight. Industrial sources include: copper refining, electroplating and rechargeable batteries. Worst case compounds in CLP not expected as either very soluble and/or compounds industrial useage not related to site history.

selenium {nickel selenate}

Worst case CLP species based on hazard statements/molecular weight.

vanadium {divanadium pentaoxide; vanadium pentoxide}

Worst case species.

zinc {zinc chloride}

Reasonable case CLP species based on site history, hazard statements/molecular weight. Noted that not enough metal and Cr(VI) present to make the worst case CLP (metal chromate) (noting concentrations not at hazardous levels in any case).

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.2.GB - Oct 2021
HazWasteOnline Classification Engine Version: 2024.30.5942.10989 (30 Jan 2024)
HazWasteOnline Database: 2024.26.5938.10982 (26 Jan 2024)

This classification utilises the following guidance and legislation:
WM3 v1.2.GB - Waste Classification - 1st Edition v1.2.GB - Oct 2021
CLP Regulation - Regulation 1272/2008/EC of 16 December 2008
1st ATP - Regulation 790/2009/EC of 10 August 2009
2nd ATP - Regulation 286/2011/EC of 10 March 2011
3rd ATP - Regulation 618/2012/EU of 10 July 2012
4th ATP - Regulation 487/2013/EU of 8 May 2013
Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013
5th ATP - Regulation 944/2013/EU of 2 October 2013
6th ATP - Regulation 605/2014/EU of 5 June 2014
WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014
Revised List of Waste 2014 - Decision 2014/955/EU of 18 December 2014
7th ATP - Regulation 2015/1221/EU of 24 July 2015
8th ATP - Regulation (EU) 2016/918 of 19 May 2016
9th ATP - Regulation (EU) 2016/1179 of 19 July 2016
10th ATP - Regulation (EU) 2017/776 of 4 May 2017
HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017
13th ATP - Regulation (EU) 2018/1480 of 4 October 2018
14th ATP - Regulation (EU) 2020/217 of 4 October 2019
15th ATP - Regulation (EU) 2020/1182 of 19 May 2020
The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020
The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1540 of 16th December 2020
GB MCL List - version 1.1 of 09 June 2021
GB MCL List v2.0 - version 2.0 of 20th October 2023

Waste Classification Report

HazWasteOnline™ classifies waste as either **hazardous** or **non-hazardous** based on its chemical composition, related legislation and the rules and data defined in the current UK or EU technical guidance (Appendix C) (note that HP 9 Infectious is not assessed). It is the responsibility of the classifier named below to:

a) understand the origin of the waste
b) select the correct List of Waste code(s)
c) confirm that the list of determinands, results and sampling plan are fit for purpose
d) select and justify the chosen metal species (Appendix B)
e) correctly apply moisture correction and other available corrections
f) add the meta data for their user-defined substances (Appendix A)
g) check that the classification engine is suitable with respect to the national destination of the waste (Appendix C)

To aid the reviewer, the laboratory results, assumptions and justifications managed by the classifier are highlighted in pale yellow.

FD9EV-2LWIC-P20KP

Job name

24-78201_HWOL_Results

Description/Comments

i2 Analytical Report 24-78201

Project

51001/03

Site

Mayfield Phase 1B

Classified by

Name:
Kirsty Poore
Date:
21 Feb 2024 12:46 GMT
Telephone:
07983 740199

Company:
Civic Earth Limited
77 Dale Street
Manchester
M12HG

HazWasteOnline™ provides a two day, hazardous waste classification course that covers the use of the software and both basic and advanced waste classification techniques. Certification has to be renewed every 3 years.

HazWasteOnline™ Certification: **CERTIFIED**

Course	Date
Hazardous Waste Classification	05 Oct 2023

Next 3 year Refresher due by Oct 2026

Purpose of classification

2 - Material Characterisation

Address of the waste

Land off Baring Street **Post Code** M12 6HW

SIC for the process giving rise to the waste

41201 Construction of commercial buildings

Description of industry/producer giving rise to the waste

Redevelopment of former industrial site into residential-led development.

Description of the specific process, sub-process and/or activity that created the waste

Waste created during the excavation of soils during site investigation.

Description of the waste

Made Ground comprising predominantly clayey sandy gravel (brick and concrete).

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	TP1003-4-11012024-0.50	0.50m	Non Hazardous		3
2	TP1004-4-11012024-0.50	0.50m	Non Hazardous		6
3	TP1006-7-11012024-1.00	1.00m	Non Hazardous		9
4	TP1007-10-11012024-2.00	2.00m	Non Hazardous		12
5	TP1007-13-11012024-3.00	3.00m	Non Hazardous		15
6	TP1009-10-11012024-2.00	2.00m	Non Hazardous		18
7	TP1009-13-11012024-3.00	3.00m	Non Hazardous		21
8	TP1011-7-11012024-1.00	1.00m	Non Hazardous		24
9	TP1012-4-11012024-0.50	0.50m	Non Hazardous		27

Related documents

#	Name	Description
1	24-78201_HWOL_Results.hwol	i2 Analytical .hwol file used to populate the Job
2	Civic Earth Soil Suite 3 Waste Stream - i2	waste stream template used to create this Job

Report

Created by: Kirsty Poore

Created date: 21 Feb 2024 12:46 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	30
Appendix B: Rationale for selection of metal species	31
Appendix C: Version	32

Classification of sample: TP1003-4-11012024-0.50

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP1003-4-11012024-0.50
Sample Depth:
0.50m m
Moisture content:
8.1%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 8.1% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		10.1 pH		10.1 pH	10.1 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<**LOD**
3	monohydric phenols			P1186		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
4	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		1.8 mg/kg	1.197	1.98 mg/kg	0.000198 %	✓	
5	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		16 mg/kg	1.534	22.554 mg/kg	0.00226 %	✓	
6	barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		210 mg/kg	1.623	313.314 mg/kg	0.0313 %	✓	
7	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.51 mg/kg	2.775	1.301 mg/kg	0.00013 %	✓	
8	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.8 mg/kg	3.22	2.367 mg/kg	0.000237 %	✓	
9	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<**LOD**
10	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8 mg/kg	2.27	<4.086 mg/kg	<0.000409 %		<**LOD**
11	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		16 mg/kg	1.462	23.385 mg/kg	0.00234 %		
12	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		30 mg/kg	1.126	31.041 mg/kg	0.0031 %	✓	
13	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	57 mg/kg		52.383 mg/kg	0.00524 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
14		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
15		nickel { nickel sulfate }				11	mg/kg	2.637	26.654	mg/kg	0.00267 %	✓	
		028-009-00-5	232-104-9	7786-81-4									
16		selenium { nickel selenate }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		028-031-00-5	239-125-2	15060-62-5									
17		vanadium { divanadium pentaoxide; vanadium pentoxide }				21	mg/kg	1.785	34.452	mg/kg	0.00345 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
18		zinc { zinc chloride }				62	mg/kg	2.085	118.772	mg/kg	0.0119 %	✓	
		030-003-00-2	231-592-0	7646-85-7									
19		TPH (C6 to C40) petroleum group				490	mg/kg		450.31	mg/kg	0.045 %	✓	
				TPH									
20		benzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
21		toluene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
22		ethylbenzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
23		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
24		naphthalene				0.38	mg/kg		0.349	mg/kg	0.0000349 %	✓	
		601-052-00-2	202-049-5	91-20-3									
25		acenaphthylene				0.06	mg/kg		0.0551	mg/kg	0.00000551 %	✓	
			205-917-1	208-96-8									
26		acenaphthene				0.08	mg/kg		0.0735	mg/kg	0.00000735 %	✓	
			201-469-6	83-32-9									
27		fluorene				0.1	mg/kg		0.0919	mg/kg	0.00000919 %	✓	
			201-695-5	86-73-7									
28		phenanthrene				0.77	mg/kg		0.708	mg/kg	0.0000708 %	✓	
			201-581-5	85-01-8									
29		anthracene				0.16	mg/kg		0.147	mg/kg	0.0000147 %	✓	
			204-371-1	120-12-7									
30		fluoranthene				0.9	mg/kg		0.827	mg/kg	0.0000827 %	✓	
			205-912-4	206-44-0									
31		pyrene				0.93	mg/kg		0.855	mg/kg	0.0000855 %	✓	
			204-927-3	129-00-0									
32		benzo[a]anthracene				0.4	mg/kg		0.368	mg/kg	0.0000368 %	✓	
		601-033-00-9	200-280-6	56-55-3									
33		chrysene				0.52	mg/kg		0.478	mg/kg	0.0000478 %	✓	
		601-048-00-0	205-923-4	218-01-9									
34		benzo[b]fluoranthene				0.57	mg/kg		0.524	mg/kg	0.0000524 %	✓	
		601-034-00-4	205-911-9	205-99-2									
35		benzo[k]fluoranthene				0.23	mg/kg		0.211	mg/kg	0.0000211 %	✓	
		601-036-00-5	205-916-6	207-08-9									
36		benzo[a]pyrene; benzo[def]chrysene				0.45	mg/kg		0.414	mg/kg	0.0000414 %	✓	
		601-032-00-3	200-028-5	50-32-8									
37		indeno[123-cd]pyrene				0.36	mg/kg		0.331	mg/kg	0.0000331 %	✓	
			205-893-2	193-39-5									
38		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
39		benzo[ghi]perylene				0.41	mg/kg		0.377	mg/kg	0.0000377 %	✓	
			205-883-8	191-24-2									
40		coronene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-881-7	191-07-1									
41		asbestos				<			<		<		ND
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
				77536-66-4 77536-68-6 77536-67-5 12001-29-5							
42		xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
								Total:	0.109 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No liquid phase present.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.045%)

Classification of sample: TP1004-4-11012024-0.50

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP1004-4-11012024-0.50
Sample Depth:
0.50m m
Moisture content:
6%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 6% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		8.8 pH		8.8 pH	8.8 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
3	monohydric phenols			P1186		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
4	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		2 mg/kg	1.197	2.251 mg/kg	0.000225 %	✓	
5	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		8.1 mg/kg	1.534	11.679 mg/kg	0.00117 %	✓	
6	barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		1700 mg/kg	1.623	2594.309 mg/kg	0.259 %	✓	
7	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.45 mg/kg	2.775	1.174 mg/kg	0.000117 %	✓	
8	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.3 mg/kg	3.22	0.908 mg/kg	0.0000908 %	✓	
9	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		2.9 mg/kg	1.142	3.114 mg/kg	0.000311 %	✓	
10	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8 mg/kg	2.27	<4.086 mg/kg	<0.000409 %		<LOD
11	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		9.5 mg/kg	1.462	13.885 mg/kg	0.00139 %		
12	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		26 mg/kg	1.126	27.517 mg/kg	0.00275 %	✓	
13	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	84 mg/kg		78.96 mg/kg	0.0079 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
14		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.3	mg/kg	1.353	0.382	mg/kg	0.0000382 %	✓	
15		nickel { nickel sulfate }	028-009-00-5	232-104-9	7786-81-4		20	mg/kg	2.637	49.57	mg/kg	0.00496 %	✓	
16		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
17		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		13	mg/kg	1.785	21.815	mg/kg	0.00218 %	✓	
18		zinc { zinc chloride }	030-003-00-2	231-592-0	7646-85-7		160	mg/kg	2.085	313.512	mg/kg	0.0314 %	✓	
19		TPH (C6 to C40) petroleum group			TPH		68	mg/kg		63.92	mg/kg	0.00639 %	✓	
20		benzene	601-020-00-8	200-753-7	71-43-2		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
21		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
22		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
23		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
24		naphthalene	601-052-00-2	202-049-5	91-20-3		0.12	mg/kg		0.113	mg/kg	0.0000113 %	✓	
25		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
26		acenaphthene		201-469-6	83-32-9		0.09	mg/kg		0.0846	mg/kg	0.00000846 %	✓	
27		fluorene		201-695-5	86-73-7		0.07	mg/kg		0.0658	mg/kg	0.00000658 %	✓	
28		phenanthrene		201-581-5	85-01-8		0.71	mg/kg		0.667	mg/kg	0.0000667 %	✓	
29		anthracene		204-371-1	120-12-7		0.13	mg/kg		0.122	mg/kg	0.0000122 %	✓	
30		fluoranthene		205-912-4	206-44-0		0.96	mg/kg		0.902	mg/kg	0.0000902 %	✓	
31		pyrene		204-927-3	129-00-0		0.91	mg/kg		0.855	mg/kg	0.0000855 %	✓	
32		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.46	mg/kg		0.432	mg/kg	0.0000432 %	✓	
33		chrysene	601-048-00-0	205-923-4	218-01-9		0.5	mg/kg		0.47	mg/kg	0.000047 %	✓	
34		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.56	mg/kg		0.526	mg/kg	0.0000526 %	✓	
35		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.25	mg/kg		0.235	mg/kg	0.0000235 %	✓	
36		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.45	mg/kg		0.423	mg/kg	0.0000423 %	✓	
37		indeno[123-cd]pyrene		205-893-2	193-39-5		0.26	mg/kg		0.244	mg/kg	0.0000244 %	✓	
38		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
39		benzo[ghi]perylene		205-883-8	191-24-2		0.3	mg/kg		0.282	mg/kg	0.0000282 %	✓	
40		coronene		205-881-7	191-07-1		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
41		asbestos	650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5		<			<		<		ND

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
				77536-66-4 77536-68-6 77536-67-5 12001-29-5							
42		xylene									
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
								Total:	0.32 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No liquid phase present.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00639%)

Classification of sample: TP1006-7-11012024-1.00

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP1006-7-11012024-1.00
Sample Depth:
1.00m m
Moisture content:
10%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 10% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		11.2 pH		11.2 pH	11.2 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<**LOD**
3	monohydric phenols			P1186		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
4	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		4.9 mg/kg	1.197	5.279 mg/kg	0.000528 %	✓	
5	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		35 mg/kg	1.534	48.317 mg/kg	0.00483 %	✓	
6	barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		210 mg/kg	1.623	306.836 mg/kg	0.0307 %	✓	
7	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.89 mg/kg	2.775	2.223 mg/kg	0.000222 %	✓	
8	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		1.9 mg/kg	3.22	5.506 mg/kg	0.000551 %	✓	
9	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<**LOD**
10	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8 mg/kg	2.27	<4.086 mg/kg	<0.000409 %		<**LOD**
11	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		19 mg/kg	1.462	27.77 mg/kg	0.00278 %		
12	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		57 mg/kg	1.126	57.758 mg/kg	0.00578 %	✓	
13	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	180 mg/kg		162 mg/kg	0.0162 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
14		mercury { mercury dichloride }				0.6	mg/kg	1.353	0.731	mg/kg	0.0000731 %	✓	
		080-010-00-X	231-299-8	7487-94-7									
15		nickel { nickel sulfate }				15	mg/kg	2.637	35.595	mg/kg	0.00356 %	✓	
		028-009-00-5	232-104-9	7786-81-4									
16		selenium { nickel selenate }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<**LOD**
		028-031-00-5	239-125-2	15060-62-5									
17		vanadium { divanadium pentaoxide; vanadium pentoxide }				21	mg/kg	1.785	33.74	mg/kg	0.00337 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
18		zinc { zinc chloride }				140	mg/kg	2.085	262.65	mg/kg	0.0263 %	✓	
		030-003-00-2	231-592-0	7646-85-7									
19		TPH (C6 to C40) petroleum group				310	mg/kg		279	mg/kg	0.0279 %	✓	
				TPH									
20		benzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
21		toluene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
22		ethylbenzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
23		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		603-181-00-X	216-653-1	1634-04-4									
24		naphthalene				1.1	mg/kg		0.99	mg/kg	0.000099 %	✓	
		601-052-00-2	202-049-5	91-20-3									
25		acenaphthylene				0.16	mg/kg		0.144	mg/kg	0.0000144 %	✓	
			205-917-1	208-96-8									
26		acenaphthene				1.1	mg/kg		0.99	mg/kg	0.000099 %	✓	
			201-469-6	83-32-9									
27		fluorene				0.99	mg/kg		0.891	mg/kg	0.0000891 %	✓	
			201-695-5	86-73-7									
28		phenanthrene				7.3	mg/kg		6.57	mg/kg	0.000657 %	✓	
			201-581-5	85-01-8									
29		anthracene				1.6	mg/kg		1.44	mg/kg	0.000144 %	✓	
			204-371-1	120-12-7									
30		fluoranthene				8.7	mg/kg		7.83	mg/kg	0.000783 %	✓	
			205-912-4	206-44-0									
31		pyrene				8	mg/kg		7.2	mg/kg	0.00072 %	✓	
			204-927-3	129-00-0									
32		benzo[a]anthracene				3.9	mg/kg		3.51	mg/kg	0.000351 %	✓	
		601-033-00-9	200-280-6	56-55-3									
33		chrysene				3.8	mg/kg		3.42	mg/kg	0.000342 %	✓	
		601-048-00-0	205-923-4	218-01-9									
34		benzo[b]fluoranthene				4.2	mg/kg		3.78	mg/kg	0.000378 %	✓	
		601-034-00-4	205-911-9	205-99-2									
35		benzo[k]fluoranthene				1.8	mg/kg		1.62	mg/kg	0.000162 %	✓	
		601-036-00-5	205-916-6	207-08-9									
36		benzo[a]pyrene; benzo[def]chrysene				3.6	mg/kg		3.24	mg/kg	0.000324 %	✓	
		601-032-00-3	200-028-5	50-32-8									
37		indeno[123-cd]pyrene				1.8	mg/kg		1.62	mg/kg	0.000162 %	✓	
			205-893-2	193-39-5									
38		dibenz[a,h]anthracene				0.51	mg/kg		0.459	mg/kg	0.0000459 %	✓	
		601-041-00-2	200-181-8	53-70-3									
39		benzo[ghi]perylene				2	mg/kg		1.8	mg/kg	0.00018 %	✓	
			205-883-8	191-24-2									
40		coronene				0.97	mg/kg		0.873	mg/kg	0.0000873 %	✓	
			205-881-7	191-07-1									
41		asbestos				<			<		<		**ND**
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
				77536-66-4 77536-68-6 77536-67-5 12001-29-5							
42		xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
								Total:	0.128 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No liquid phase present.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0279%)

Classification of sample: TP1007-10-11012024-2.00

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP1007-10-11012024-2.00
Sample Depth:
2.00m m
Moisture content:
43%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 43% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		7.8 pH		7.8 pH	7.8 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
3	monohydric phenols			P1186		3.6 mg/kg		2.052 mg/kg	0.000205 %	✓	
4	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		4.4 mg/kg	1.197	3.002 mg/kg	0.0003 %	✓	
5	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		79 mg/kg	1.534	69.07 mg/kg	0.00691 %	✓	
6	barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		140 mg/kg	1.623	129.553 mg/kg	0.013 %	✓	
7	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		1.9 mg/kg	2.775	3.006 mg/kg	0.000301 %	✓	
8	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		1.7 mg/kg	3.22	3.12 mg/kg	0.000312 %	✓	
9	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
10	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8 mg/kg	2.27	<4.086 mg/kg	<0.000409 %		<LOD
11	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		47 mg/kg	1.462	68.693 mg/kg	0.00687 %		
12	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		320 mg/kg	1.126	205.362 mg/kg	0.0205 %	✓	
13	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	520 mg/kg		296.4 mg/kg	0.0296 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
14		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		3	mg/kg	1.353	2.314	mg/kg	0.000231 %	✓	
15		nickel { nickel sulfate }	028-009-00-5	232-104-9	7786-81-4		50	mg/kg	2.637	75.146	mg/kg	0.00751 %	✓	
16		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
17		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		35	mg/kg	1.785	35.614	mg/kg	0.00356 %	✓	
18		zinc { zinc chloride }	030-003-00-2	231-592-0	7646-85-7		140	mg/kg	2.085	166.345	mg/kg	0.0166 %	✓	
19		TPH (C6 to C40) petroleum group			TPH		160	mg/kg		91.2	mg/kg	0.00912 %	✓	
20		benzene	601-020-00-8	200-753-7	71-43-2		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
21		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
22		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
23		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
24		naphthalene	601-052-00-2	202-049-5	91-20-3		0.12	mg/kg		0.0684	mg/kg	0.00000684 %	✓	
25		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
26		acenaphthene		201-469-6	83-32-9		0.18	mg/kg		0.103	mg/kg	0.0000103 %	✓	
27		fluorene		201-695-5	86-73-7		0.4	mg/kg		0.228	mg/kg	0.0000228 %	✓	
28		phenanthrene		201-581-5	85-01-8		0.56	mg/kg		0.319	mg/kg	0.0000319 %	✓	
29		anthracene		204-371-1	120-12-7		0.48	mg/kg		0.274	mg/kg	0.0000274 %	✓	
30		fluoranthene		205-912-4	206-44-0		1.1	mg/kg		0.627	mg/kg	0.0000627 %	✓	
31		pyrene		204-927-3	129-00-0		1	mg/kg		0.57	mg/kg	0.000057 %	✓	
32		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.6	mg/kg		0.342	mg/kg	0.0000342 %	✓	
33		chrysene	601-048-00-0	205-923-4	218-01-9		0.54	mg/kg		0.308	mg/kg	0.0000308 %	✓	
34		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.6	mg/kg		0.342	mg/kg	0.0000342 %	✓	
35		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.17	mg/kg		0.0969	mg/kg	0.00000969 %	✓	
36		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.31	mg/kg		0.177	mg/kg	0.0000177 %	✓	
37		indeno[123-cd]pyrene		205-893-2	193-39-5		0.22	mg/kg		0.125	mg/kg	0.0000125 %	✓	
38		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
39		benzo[ghi]perylene		205-883-8	191-24-2		0.28	mg/kg		0.16	mg/kg	0.000016 %	✓	
40		coronene		205-881-7	191-07-1		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
41		asbestos	650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5		<			<		<		ND

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
				77536-66-4 77536-68-6 77536-67-5 12001-29-5							
42		xylene									
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
								Total:	0.116 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No liquid phase present.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00912%)

Classification of sample: TP1007-13-11012024-3.00

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP1007-13-11012024-3.00
Sample Depth:
3.00m m
Moisture content:
13%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 13% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		7.9 pH		7.9 pH	7.9 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<**LOD**
3	monohydric phenols			P1186		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
4	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		2 mg/kg	1.197	2.083 mg/kg	0.000208 %	✓	
5	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		5.1 mg/kg	1.534	6.806 mg/kg	0.000681 %	✓	
6	barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		15 mg/kg	1.623	21.186 mg/kg	0.00212 %	✓	
7	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.22 mg/kg	2.775	0.531 mg/kg	0.0000531 %	✓	
8	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.3 mg/kg	3.22	0.84 mg/kg	0.000084 %	✓	
9	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<**LOD**
10	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8 mg/kg	2.27	<4.086 mg/kg	<0.000409 %		<**LOD**
11	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		3.8 mg/kg	1.462	5.554 mg/kg	0.000555 %		
12	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		5.3 mg/kg	1.126	5.191 mg/kg	0.000519 %	✓	
13	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	3.3 mg/kg		2.871 mg/kg	0.000287 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
14		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
15		nickel { nickel sulfate }				3.4	mg/kg	2.637	7.799	mg/kg	0.00078 %	✓	
		028-009-00-5	232-104-9	7786-81-4									
16		selenium { nickel selenate }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		028-031-00-5	239-125-2	15060-62-5									
17		vanadium { divanadium pentaoxide; vanadium pentoxide }				7.7	mg/kg	1.785	11.959	mg/kg	0.0012 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
18		zinc { zinc chloride }				10	mg/kg	2.085	18.135	mg/kg	0.00181 %	✓	
		030-003-00-2	231-592-0	7646-85-7									
19		TPH (C6 to C40) petroleum group				<20	mg/kg		<20	mg/kg	<0.002 %		<LOD
				TPH									
20		benzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
21		toluene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
22		ethylbenzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
23		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
24		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
25		acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-917-1	208-96-8									
26		acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-469-6	83-32-9									
27		fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-695-5	86-73-7									
28		phenanthrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-581-5	85-01-8									
29		anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			204-371-1	120-12-7									
30		fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-912-4	206-44-0									
31		pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			204-927-3	129-00-0									
32		benzo[a]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
33		chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
34		benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
35		benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
36		benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
37		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-893-2	193-39-5									
38		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
39		benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-883-8	191-24-2									
40		coronene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-881-7	191-07-1									
41		xylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2]	95-47-6 [1] 106-42-3 [2]									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
			203-576-3 [3] 215-535-7 [4]	108-38-3 [3] 1330-20-7 [4]							
								Total:	0.0114 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP1009-10-11012024-2.00

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP1009-10-11012024-2.00
Sample Depth:
2.00m m
Moisture content:
15%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 15% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		pH			PH		7.5	pH		7.5	pH	7.5 pH		
2		cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
3		monohydric phenols			P1186		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
4		antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		2.5	mg/kg	1.197	2.544	mg/kg	0.000254 %	✓	
5		arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		2.7	mg/kg	1.534	3.52	mg/kg	0.000352 %	✓	
6		barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		87	mg/kg	1.623	120.056	mg/kg	0.012 %	✓	
7		beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.78	mg/kg	2.775	1.84	mg/kg	0.000184 %	✓	
8		boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.8	mg/kg	3.22	2.19	mg/kg	0.000219 %	✓	
9		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2	mg/kg	1.142	<0.228	mg/kg	<0.0000228 %		<**LOD**
10		chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8	mg/kg	2.27	<4.086	mg/kg	<0.000409 %		<**LOD**
11		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		24	mg/kg	1.462	35.077	mg/kg	0.00351 %		
12		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		9	mg/kg	1.126	8.613	mg/kg	0.000861 %	✓	
13		lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	15	mg/kg		12.75	mg/kg	0.00128 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
14		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
15		nickel { nickel sulfate }	028-009-00-5	232-104-9	7786-81-4		18	mg/kg	2.637	40.341	mg/kg	0.00403 %	✓	
16		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
17		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		30	mg/kg	1.785	45.522	mg/kg	0.00455 %	✓	
18		zinc { zinc chloride }	030-003-00-2	231-592-0	7646-85-7		54	mg/kg	2.085	95.68	mg/kg	0.00957 %	✓	
19		TPH (C6 to C40) petroleum group			TPH		12	mg/kg		10.2	mg/kg	0.00102 %	✓	
20		benzene	601-020-00-8	200-753-7	71-43-2		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
21		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
22		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
23		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
24		naphthalene	601-052-00-2	202-049-5	91-20-3		0.19	mg/kg		0.161	mg/kg	0.0000161 %	✓	
25		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
26		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
27		fluorene		201-695-5	86-73-7		0.05	mg/kg		0.0425	mg/kg	0.00000425 %	✓	
28		phenanthrene		201-581-5	85-01-8		0.27	mg/kg		0.23	mg/kg	0.000023 %	✓	
29		anthracene		204-371-1	120-12-7		0.06	mg/kg		0.051	mg/kg	0.0000051 %	✓	
30		fluoranthene		205-912-4	206-44-0		0.15	mg/kg		0.128	mg/kg	0.0000128 %	✓	
31		pyrene		204-927-3	129-00-0		0.16	mg/kg		0.136	mg/kg	0.0000136 %	✓	
32		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.06	mg/kg		0.051	mg/kg	0.0000051 %	✓	
33		chrysene	601-048-00-0	205-923-4	218-01-9		0.07	mg/kg		0.0595	mg/kg	0.00000595 %	✓	
34		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
35		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
36		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
37		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
38		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
39		benzo[ghi]perylene		205-883-8	191-24-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
40		coronene		205-881-7	191-07-1		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
41		asbestos	650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5		<			<		<		ND

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
				77536-66-4 77536-68-6 77536-67-5 12001-29-5							
42		xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
								Total:	0.039 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No liquid phase present.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00102%)

Classification of sample: TP1009-13-11012024-3.00

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP1009-13-11012024-3.00
Sample Depth:
3.00m m
Moisture content:
14%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 14% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		8.1 pH		8.1 pH	8.1 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
3	monohydric phenols			P1186		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
4	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		2.2 mg/kg	1.197	2.265 mg/kg	0.000226 %	✓	
5	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		8.1 mg/kg	1.534	10.685 mg/kg	0.00107 %	✓	
6	barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		84 mg/kg	1.623	117.28 mg/kg	0.0117 %	✓	
7	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.9 mg/kg	2.775	2.148 mg/kg	0.000215 %	✓	
8	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		1.2 mg/kg	3.22	3.323 mg/kg	0.000332 %	✓	
9	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
10	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8 mg/kg	2.27	<4.086 mg/kg	<0.000409 %		<LOD
11	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		22 mg/kg	1.462	32.154 mg/kg	0.00322 %		
12	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		22 mg/kg	1.126	21.302 mg/kg	0.00213 %	✓	
13	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	18 mg/kg		15.48 mg/kg	0.00155 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
14		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
15		nickel { nickel sulfate }				25	mg/kg	2.637	56.689	mg/kg	0.00567 %	✓	
		028-009-00-5	232-104-9	7786-81-4									
16		selenium { nickel selenate }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		028-031-00-5	239-125-2	15060-62-5									
17		vanadium { divanadium pentaoxide; vanadium pentoxide }				24	mg/kg	1.785	36.846	mg/kg	0.00368 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
18		zinc { zinc chloride }				59	mg/kg	2.085	105.769	mg/kg	0.0106 %	✓	
		030-003-00-2	231-592-0	7646-85-7									
19		TPH (C6 to C40) petroleum group				15	mg/kg		12.9	mg/kg	0.00129 %	✓	
				TPH									
20		benzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
21		toluene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
22		ethylbenzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
23		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
24		naphthalene				0.15	mg/kg		0.129	mg/kg	0.0000129 %	✓	
		601-052-00-2	202-049-5	91-20-3									
25		acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-917-1	208-96-8									
26		acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-469-6	83-32-9									
27		fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-695-5	86-73-7									
28		phenanthrene				0.21	mg/kg		0.181	mg/kg	0.0000181 %	✓	
			201-581-5	85-01-8									
29		anthracene				0.05	mg/kg		0.043	mg/kg	0.0000043 %	✓	
			204-371-1	120-12-7									
30		fluoranthene				0.15	mg/kg		0.129	mg/kg	0.0000129 %	✓	
			205-912-4	206-44-0									
31		pyrene				0.15	mg/kg		0.129	mg/kg	0.0000129 %	✓	
			204-927-3	129-00-0									
32		benzo[a]anthracene				0.06	mg/kg		0.0516	mg/kg	0.00000516 %	✓	
		601-033-00-9	200-280-6	56-55-3									
33		chrysene				0.08	mg/kg		0.0688	mg/kg	0.00000688 %	✓	
		601-048-00-0	205-923-4	218-01-9									
34		benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
35		benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
36		benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
37		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-893-2	193-39-5									
38		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
39		benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-883-8	191-24-2									
40		coronene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-881-7	191-07-1									
41		xylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-022-00-9	202-422-2 [1] 203-396-5 [2]	95-47-6 [1] 106-42-3 [2]									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
			203-576-3 [3] 215-535-7 [4]	108-38-3 [3] 1330-20-7 [4]							
								Total:	0.0428 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No liquid phase present.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00129%)

Classification of sample: TP1011-7-11012024-1.00

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP1011-7-11012024-1.00
Sample Depth:
1.00m m
Moisture content:
8.9%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 8.9% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		10.4 pH		10.4 pH	10.4 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
3	monohydric phenols			P1186		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
4	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		4.5 mg/kg	1.197	4.908 mg/kg	0.000491 %	✓	
5	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		31 mg/kg	1.534	43.318 mg/kg	0.00433 %	✓	
6	barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		210 mg/kg	1.623	310.587 mg/kg	0.0311 %	✓	
7	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.82 mg/kg	2.775	2.073 mg/kg	0.000207 %	✓	
8	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		1 mg/kg	3.22	2.933 mg/kg	0.000293 %	✓	
9	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
10	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8 mg/kg	2.27	<4.086 mg/kg	<0.000409 %		<LOD
11	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		17 mg/kg	1.462	24.846 mg/kg	0.00248 %		
12	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		51 mg/kg	1.126	52.31 mg/kg	0.00523 %	✓	
13	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	150 mg/kg		136.65 mg/kg	0.0137 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
14		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.5	mg/kg	1.353	0.617	mg/kg	0.0000617 %	✓	
15		nickel { nickel sulfate }	028-009-00-5	232-104-9	7786-81-4		16	mg/kg	2.637	38.432	mg/kg	0.00384 %	✓	
16		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<**LOD**
17		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		20	mg/kg	1.785	32.526	mg/kg	0.00325 %	✓	
18		zinc { zinc chloride }	030-003-00-2	231-592-0	7646-85-7		130	mg/kg	2.085	246.87	mg/kg	0.0247 %	✓	
19		TPH (C6 to C40) petroleum group			TPH		220	mg/kg		200.42	mg/kg	0.02 %	✓	
20		benzene	601-020-00-8	200-753-7	71-43-2		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
21		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
22		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
23		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
24		naphthalene	601-052-00-2	202-049-5	91-20-3		0.94	mg/kg		0.856	mg/kg	0.0000856 %	✓	
25		acenaphthylene		205-917-1	208-96-8		0.15	mg/kg		0.137	mg/kg	0.0000137 %	✓	
26		acenaphthene		201-469-6	83-32-9		1.3	mg/kg		1.184	mg/kg	0.000118 %	✓	
27		fluorene		201-695-5	86-73-7		0.88	mg/kg		0.802	mg/kg	0.0000802 %	✓	
28		phenanthrene		201-581-5	85-01-8		8.2	mg/kg		7.47	mg/kg	0.000747 %	✓	
29		anthracene		204-371-1	120-12-7		1.6	mg/kg		1.458	mg/kg	0.000146 %	✓	
30		fluoranthene		205-912-4	206-44-0		8.4	mg/kg		7.652	mg/kg	0.000765 %	✓	
31		pyrene		204-927-3	129-00-0		7.8	mg/kg		7.106	mg/kg	0.000711 %	✓	
32		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		3.6	mg/kg		3.28	mg/kg	0.000328 %	✓	
33		chrysene	601-048-00-0	205-923-4	218-01-9		3.5	mg/kg		3.188	mg/kg	0.000319 %	✓	
34		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		3.7	mg/kg		3.371	mg/kg	0.000337 %	✓	
35		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		1.6	mg/kg		1.458	mg/kg	0.000146 %	✓	
36		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		3.1	mg/kg		2.824	mg/kg	0.000282 %	✓	
37		indeno[123-cd]pyrene		205-893-2	193-39-5		1.5	mg/kg		1.366	mg/kg	0.000137 %	✓	
38		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		0.42	mg/kg		0.383	mg/kg	0.0000383 %	✓	
39		benzo[ghi]perylene		205-883-8	191-24-2		1.8	mg/kg		1.64	mg/kg	0.000164 %	✓	
40		coronene		205-881-7	191-07-1		0.72	mg/kg		0.656	mg/kg	0.0000656 %	✓	
41		asbestos in identifiable pieces of suspected ACM			ACM_FRAG		<0.001	%		<0.001	%	<0.001 %		<**LOD**

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
42		xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
								Total:	0.116 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification
ACM	Asbestos Containing Materials

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No liquid phase present.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.02%)

Classification of sample: TP1012-4-11012024-0.50

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
TP1012-4-11012024-0.50
Sample Depth:
0.50m m
Moisture content:
14%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 14% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		8.6 pH		8.6 pH	8.6 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
3	monohydric phenols			P1186		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
4	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		4 mg/kg	1.197	4.118 mg/kg	0.000412 %	✓	
5	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		27 mg/kg	1.534	35.617 mg/kg	0.00356 %	✓	
6	barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		110 mg/kg	1.623	153.58 mg/kg	0.0154 %	✓	
7	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.94 mg/kg	2.775	2.244 mg/kg	0.000224 %	✓	
8	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.6 mg/kg	3.22	1.661 mg/kg	0.000166 %	✓	
9	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
10	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8 mg/kg	2.27	<4.086 mg/kg	<0.000409 %		<LOD
11	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		17 mg/kg	1.462	24.846 mg/kg	0.00248 %		
12	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		59 mg/kg	1.126	57.128 mg/kg	0.00571 %	✓	
13	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	140 mg/kg		120.4 mg/kg	0.012 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
14		mercury { mercury dichloride }				0.4	mg/kg	1.353	0.466	mg/kg	0.0000466 %	✓	
		080-010-00-X	231-299-8	7487-94-7									
15		nickel { nickel sulfate }				17	mg/kg	2.637	38.548	mg/kg	0.00385 %	✓	
		028-009-00-5	232-104-9	7786-81-4									
16		selenium { nickel selenate }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<**LOD**
		028-031-00-5	239-125-2	15060-62-5									
17		vanadium { divanadium pentaoxide; vanadium pentoxide }				21	mg/kg	1.785	32.24	mg/kg	0.00322 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
18		zinc { zinc chloride }				90	mg/kg	2.085	161.342	mg/kg	0.0161 %	✓	
		030-003-00-2	231-592-0	7646-85-7									
19		TPH (C6 to C40) petroleum group				260	mg/kg		223.6	mg/kg	0.0224 %	✓	
				TPH									
20		benzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
21		toluene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
22		ethylbenzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
23		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		603-181-00-X	216-653-1	1634-04-4									
24		naphthalene				0.59	mg/kg		0.507	mg/kg	0.0000507 %	✓	
		601-052-00-2	202-049-5	91-20-3									
25		acenaphthylene				0.16	mg/kg		0.138	mg/kg	0.0000138 %	✓	
			205-917-1	208-96-8									
26		acenaphthene				0.45	mg/kg		0.387	mg/kg	0.0000387 %	✓	
			201-469-6	83-32-9									
27		fluorene				0.39	mg/kg		0.335	mg/kg	0.0000335 %	✓	
			201-695-5	86-73-7									
28		phenanthrene				3.1	mg/kg		2.666	mg/kg	0.000267 %	✓	
			201-581-5	85-01-8									
29		anthracene				0.74	mg/kg		0.636	mg/kg	0.0000636 %	✓	
			204-371-1	120-12-7									
30		fluoranthene				5	mg/kg		4.3	mg/kg	0.00043 %	✓	
			205-912-4	206-44-0									
31		pyrene				4.9	mg/kg		4.214	mg/kg	0.000421 %	✓	
			204-927-3	129-00-0									
32		benzo[a]anthracene				2.5	mg/kg		2.15	mg/kg	0.000215 %	✓	
		601-033-00-9	200-280-6	56-55-3									
33		chrysene				2.2	mg/kg		1.892	mg/kg	0.000189 %	✓	
		601-048-00-0	205-923-4	218-01-9									
34		benzo[b]fluoranthene				2.9	mg/kg		2.494	mg/kg	0.000249 %	✓	
		601-034-00-4	205-911-9	205-99-2									
35		benzo[k]fluoranthene				0.87	mg/kg		0.748	mg/kg	0.0000748 %	✓	
		601-036-00-5	205-916-6	207-08-9									
36		benzo[a]pyrene; benzo[def]chrysene				2.3	mg/kg		1.978	mg/kg	0.000198 %	✓	
		601-032-00-3	200-028-5	50-32-8									
37		indeno[123-cd]pyrene				1.1	mg/kg		0.946	mg/kg	0.0000946 %	✓	
			205-893-2	193-39-5									
38		dibenz[a,h]anthracene				0.23	mg/kg		0.198	mg/kg	0.0000198 %	✓	
		601-041-00-2	200-181-8	53-70-3									
39		benzo[ghi]perylene				1.3	mg/kg		1.118	mg/kg	0.000112 %	✓	
			205-883-8	191-24-2									
40		coronene				0.56	mg/kg		0.482	mg/kg	0.0000482 %	✓	
			205-881-7	191-07-1									
41		asbestos				<			<		<		**ND**
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
				77536-66-4 77536-68-6 77536-67-5 12001-29-5							
42		xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
								Total:	0.0891 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No liquid phase present.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0224%)

Appendix A: Classifier defined and non GB MCL determinands

- **pH** (CAS Number: PH)

Description/Comments: Appendix C4
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

- **salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex**

GB MCL index number: 006-007-00-5
Description/Comments: Conversion factor based on a worst case compound: sodium cyanide
Additional Hazard Statement(s): EUH032 >= 0.2 %
Reason for additional Hazards Statement(s):
20 Nov 2021 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

- **monohydric phenols** (CAS Number: P1186)

Description/Comments: Combined hazards statements from harmonised entries in CLP for phenol, cresols and xylenols (604-001-00-2, 604-004-00-9, 604-006-00-X)
Data source: CLP combined data
Data source date: 26 Mar 2019
Hazard Statements: Muta. 2; H341 , Acute Tox. 3; H331 , Acute Tox. 3; H311 , Acute Tox. 3; H301 , STOT RE 2; H373 , Skin Corr. 1B; H314 , Skin Corr. 1B; H314 >= 3 % , Skin Irrit. 2; H315 1 <= conc. < 3 % , Eye Irrit. 2; H319 1 <= conc. < 3 % , Aquatic Chronic 2; H411

- **chromium(III) oxide (worst case)** (EC Number: 215-160-9, CAS Number: 1308-38-9)

Description/Comments: Data from C&L Inventory Database
Data source: https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H332 , Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Resp. Sens. 1; H334 , Skin Sens. 1; H317 , Repr. 1B; H360FD , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **lead compounds with the exception of those specified elsewhere in this Annex (worst case)**

GB MCL index number: 082-001-00-6
Description/Comments: Worst Case: IARC considers lead compounds Group 2A; Probably carcinogenic to humans; Lead REACH Consortium, following MCL protocols, considers lead compounds from smelting industries, flue dust and similar to be Carcinogenic category 1A
Additional Hazard Statement(s): Carc. 1A; H350
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 1A; H350 hazard statement sourced from: IARC Group 2A (Sup 7, 87) 2006; Lead REACH Consortium www.reach-lead.eu/substanceinformation.html (worst case lead compounds). Review date 29/09/2015

- **TPH (C6 to C40) petroleum group** (CAS Number: TPH)

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: Flam. Liq. 3; H226 , Asp. Tox. 1; H304 , STOT RE 2; H373 , Muta. 1B; H340 , Carc. 1B; H350 , Repr. 2; H361d , Aquatic Chronic 2; H411

- **ethylbenzene** (EC Number: 202-849-4, CAS Number: 100-41-4)

GB MCL index number: 601-023-00-4
Description/Comments:
Additional Hazard Statement(s): Carc. 2; H351
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2B (77) 2000

- **acenaphthylene** (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 1; H330 , Acute Tox. 1; H310 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315

- **acenaphthene** (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Aquatic Chronic 2; H411

fluorene (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

phenanthrene (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Carc. 2; H351 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Skin Irrit. 2; H315

anthracene (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

fluoranthene (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

pyrene (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

indeno[123-cd]pyrene (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Carc. 2; H351

benzo[ghi]perylene (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 23 Jul 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

coronene (EC Number: 205-881-7, CAS Number: 191-07-1)

Description/Comments: Data from C&L Inventory Database; no entries in Registered Substances or Pesticides Properties databases; SDS: Sigma Aldrich, 1907/2006 compliant, dated 2012 - no entries; IARC – Group 3, not carcinogenic.
Data source: http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=17010&HarmOnly=no?fc=true&lang=en
Data source date: 16 Jun 2014
Hazard Statements: STOT SE 2; H371

asbestos in identifiable pieces of suspected ACM (CAS Number: ACM_FRAG)

Description/Comments: Enter the concentration of asbestos relative to the suspected ACM not the whole waste
Data source: WM3 v1, Chapter 3.1
Data source date: 31 May 2015
Hazard Statements: Carc. 1A; H350 , STOT RE 1; H372

Appendix B: Rationale for selection of metal species

cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case as complex cyanides and those specified elsewhere in the annex are not likely to be present in this soil: [Note conversion factor based on a worst case compound: sodium cyanide].

antimony {antimony trioxide}

Worst case CLP species based on hazard statements/molecular weight and low solubility. Industrial sources include: flame retardants in electrical apparatus, textiles and coatings.

arsenic {arsenic pentoxide}

Worst case CLP species based on hazard statements/molecular weight. Industrial sources include: arsenates, weed killers, metal adhesives, insecticides, fungicides, wood preservatives, coloured gases, printing and dyeing.

barium {barium diboron tetraoxide}

Reasonable case CLP species based on site history, hazard statements/molecular weight. Noted that not enough metal and Cr(VI) present to make the worst case CLP (metal chromate) (noting concentrations not at hazardous levels in any case).

beryllium {beryllium oxide}

Reasonable case CLP species based on hazard statements/molecular weight. Industrial sources include: most common (non alloy) form, used in ceramics.

boron {diboron trioxide}

Reasonable case CLP species based on hazard statements/ molecular weight, physical form and low solubility. Industrial sources include: fluxing agent for glass/enamels; additive for fibre optics, borosilicate glass.

cadmium {cadmium oxide}

Reasonable case CLP species based on hazard statements/molecular weight, very low solubility in water. Industrial sources include: electroplating baths, electrodes for storage batteries, catalysts, ceramic glazes, phosphors, pigments and nematocides. Worst case compounds in CLP: cadmium sulphate, chloride, fluoride & iodide not expected as either very soluble and/or compound's industrial usage not related to site history.

chromium in chromium(VI) compounds {chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex}

Worst case species based on hazard statements/molecular weight.

chromium in chromium(III) compounds {chromium(III) oxide (worst case)}

Reasonable case species based on hazard statements/molecular weight. Industrial sources include: tanning, pigment in paint, inks and glass.

copper {dicopper oxide; copper (I) oxide}

Reasonable case CLP species based on hazard statements/molecular weight and insolubility in water. Industrial sources include: oxidised copper metal, brake pads, pigments, antifouling paints, fungicide. Worse case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected.

lead {lead compounds with the exception of those specified elsewhere in this Annex (worst case)}

Reasonable case CLP species based on site history, hazard statements/molecular weight. Noted that not enough metal and Cr(VI) present to make the worst case CLP (metal chromate) (noting concentrations not at hazardous levels in any case).

mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weight.

nickel {nickel sulfate}

Reasonable case CLP species based on hazard statements/molecular weight. Industrial sources include: copper refining, electroplating and rechargeable batteries. Worst case compounds in CLP not expected as either very soluble and/or compounds industrial useage not related to site history.

selenium {nickel selenate}

Worst case CLP species based on hazard statements/molecular weight.

vanadium {divanadium pentaoxide; vanadium pentoxide}

Worst case species.

zinc {zinc chloride}

Reasonable case CLP species based on site history, hazard statements/molecular weight. Noted that not enough metal and Cr(VI) present to make the worst case CLP (metal chromate) (noting concentrations not at hazardous levels in any case).

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.2.GB - Oct 2021
HazWasteOnline Classification Engine Version: 2024.30.5942.10989 (30 Jan 2024)
HazWasteOnline Database: 2024.26.5938.10982 (26 Jan 2024)

This classification utilises the following guidance and legislation:
WM3 v1.2.GB - Waste Classification - 1st Edition v1.2.GB - Oct 2021
CLP Regulation - Regulation 1272/2008/EC of 16 December 2008
1st ATP - Regulation 790/2009/EC of 10 August 2009
2nd ATP - Regulation 286/2011/EC of 10 March 2011
3rd ATP - Regulation 618/2012/EU of 10 July 2012
4th ATP - Regulation 487/2013/EU of 8 May 2013
Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013
5th ATP - Regulation 944/2013/EU of 2 October 2013
6th ATP - Regulation 605/2014/EU of 5 June 2014
WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014
Revised List of Waste 2014 - Decision 2014/955/EU of 18 December 2014
7th ATP - Regulation 2015/1221/EU of 24 July 2015
8th ATP - Regulation (EU) 2016/918 of 19 May 2016
9th ATP - Regulation (EU) 2016/1179 of 19 July 2016
10th ATP - Regulation (EU) 2017/776 of 4 May 2017
HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017
13th ATP - Regulation (EU) 2018/1480 of 4 October 2018
14th ATP - Regulation (EU) 2020/217 of 4 October 2019
15th ATP - Regulation (EU) 2020/1182 of 19 May 2020
The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020
The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1540 of 16th December 2020
GB MCL List - version 1.1 of 09 June 2021
GB MCL List v2.0 - version 2.0 of 20th October 2023

Waste Classification Report

HazWasteOnline™ classifies waste as either **hazardous** or **non-hazardous** based on its chemical composition, related legislation and the rules and data defined in the current UK or EU technical guidance (Appendix C) (note that HP 9 Infectious is not assessed). It is the responsibility of the classifier named below to:

a) understand the origin of the waste
b) select the correct List of Waste code(s)
c) confirm that the list of determinands, results and sampling plan are fit for purpose
d) select and justify the chosen metal species (Appendix B)
e) correctly apply moisture correction and other available corrections
f) add the meta data for their user-defined substances (Appendix A)
g) check that the classification engine is suitable with respect to the national destination of the waste (Appendix C)

To aid the reviewer, the laboratory results, assumptions and justifications managed by the classifier are highlighted in pale yellow.

V0GLU-OBZIS-YKIDG

Job name

24-78202_HWOL_Results

Description/Comments

i2 Analytical Report 24-78202

Project

51001/03

Site

Mayfield Phase 1B

Classified by

Name:
Kirsty Poore
Date:
21 Feb 2024 12:48 GMT
Telephone:
07983 740199

Company:
Civic Earth Limited
77 Dale Street
Manchester
M12HG

HazWasteOnline™ provides a two day, hazardous waste classification course that covers the use of the software and both basic and advanced waste classification techniques. Certification has to be renewed every 3 years.

HazWasteOnline™ Certification: **CERTIFIED**

Course	Date
Hazardous Waste Classification	05 Oct 2023

Next 3 year Refresher due by Oct 2026

Purpose of classification

2 - Material Characterisation

Address of the waste

Land off Baring Street **Post Code** M12 6HW

SIC for the process giving rise to the waste

41201 Construction of commercial buildings

Description of industry/producer giving rise to the waste

Redevelopment of former industrial site into residential-led development.

Description of the specific process, sub-process and/or activity that created the waste

Waste created during the excavation of soils during site investigation.

Description of the waste

Made Ground comprising predominantly clayey sandy gravel (brick and concrete).

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	BH1002-1-11012024-0.20	0.20m	Non Hazardous		3
2	BH1002-15-11012024-4.00	4.00m	Non Hazardous		6
3	BH1001-5-11012024-1.00	1.00m	Non Hazardous		9
4	BH1001-12-11012024-3.00	3.00m	Non Hazardous		12

Related documents

#	Name	Description
1	24-78202_HWOL_Results.hwol	i2 Analytical .hwol file used to populate the Job
2	Civic Earth Soil Suite 3 Waste Stream - i2	waste stream template used to create this Job

Report

Created by: Kirsty Poore

Created date: 21 Feb 2024 12:48 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	15
Appendix B: Rationale for selection of metal species	16
Appendix C: Version	17

Classification of sample: BH1002-1-11012024-0.20

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH1002-1-11012024-0.20
Sample Depth:
0.20m m
Moisture content:
12%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 12% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		9.6 pH		9.6 pH	9.6 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<**LOD**
3	monohydric phenols			P1186		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
4	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		6.4 mg/kg	1.197	6.742 mg/kg	0.000674 %	✓	
5	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		41 mg/kg	1.534	55.342 mg/kg	0.00553 %	✓	
6	barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		210 mg/kg	1.623	300.018 mg/kg	0.03 %	✓	
7	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		1.2 mg/kg	2.775	2.931 mg/kg	0.000293 %	✓	
8	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		1.6 mg/kg	3.22	4.534 mg/kg	0.000453 %	✓	
9	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<**LOD**
10	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8 mg/kg	2.27	<4.086 mg/kg	<0.000409 %		<**LOD**
11	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		21 mg/kg	1.462	30.693 mg/kg	0.00307 %		
12	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		65 mg/kg	1.126	64.401 mg/kg	0.00644 %	✓	
13	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	260 mg/kg		228.8 mg/kg	0.0229 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
14		mercury { mercury dichloride }				0.7	mg/kg	1.353	0.834	mg/kg	0.0000834 %	✓	
		080-010-00-X	231-299-8	7487-94-7									
15		nickel { nickel sulfate }				18	mg/kg	2.637	41.765	mg/kg	0.00418 %	✓	
		028-009-00-5	232-104-9	7786-81-4									
16		selenium { nickel selenate }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<**LOD**
		028-031-00-5	239-125-2	15060-62-5									
17		vanadium { divanadium pentaoxide; vanadium pentoxide }				25	mg/kg	1.785	39.274	mg/kg	0.00393 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
18		zinc { zinc chloride }				180	mg/kg	2.085	330.188	mg/kg	0.033 %	✓	
		030-003-00-2	231-592-0	7646-85-7									
19		TPH (C6 to C40) petroleum group				196	mg/kg		172.48	mg/kg	0.0172 %	✓	
				TPH									
20		benzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
21		toluene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
22		ethylbenzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
23		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		603-181-00-X	216-653-1	1634-04-4									
24		naphthalene				1.2	mg/kg		1.056	mg/kg	0.000106 %	✓	
		601-052-00-2	202-049-5	91-20-3									
25		acenaphthylene				0.24	mg/kg		0.211	mg/kg	0.0000211 %	✓	
			205-917-1	208-96-8									
26		acenaphthene				2.8	mg/kg		2.464	mg/kg	0.000246 %	✓	
			201-469-6	83-32-9									
27		fluorene				2.3	mg/kg		2.024	mg/kg	0.000202 %	✓	
			201-695-5	86-73-7									
28		phenanthrene				16	mg/kg		14.08	mg/kg	0.00141 %	✓	
			201-581-5	85-01-8									
29		anthracene				3.8	mg/kg		3.344	mg/kg	0.000334 %	✓	
			204-371-1	120-12-7									
30		fluoranthene				17	mg/kg		14.96	mg/kg	0.0015 %	✓	
			205-912-4	206-44-0									
31		pyrene				15	mg/kg		13.2	mg/kg	0.00132 %	✓	
			204-927-3	129-00-0									
32		benzo[a]anthracene				7.2	mg/kg		6.336	mg/kg	0.000634 %	✓	
		601-033-00-9	200-280-6	56-55-3									
33		chrysene				7.1	mg/kg		6.248	mg/kg	0.000625 %	✓	
		601-048-00-0	205-923-4	218-01-9									
34		benzo[b]fluoranthene				7.9	mg/kg		6.952	mg/kg	0.000695 %	✓	
		601-034-00-4	205-911-9	205-99-2									
35		benzo[k]fluoranthene				2.6	mg/kg		2.288	mg/kg	0.000229 %	✓	
		601-036-00-5	205-916-6	207-08-9									
36		benzo[a]pyrene; benzo[def]chrysene				6.5	mg/kg		5.72	mg/kg	0.000572 %	✓	
		601-032-00-3	200-028-5	50-32-8									
37		indeno[123-cd]pyrene				2.9	mg/kg		2.552	mg/kg	0.000255 %	✓	
			205-893-2	193-39-5									
38		dibenz[a,h]anthracene				0.72	mg/kg		0.634	mg/kg	0.0000634 %	✓	
		601-041-00-2	200-181-8	53-70-3									
39		benzo[ghi]perylene				3.5	mg/kg		3.08	mg/kg	0.000308 %	✓	
			205-883-8	191-24-2									
40		coronene				1.2	mg/kg		1.056	mg/kg	0.000106 %	✓	
			205-881-7	191-07-1									
41		asbestos				<			<		<		**ND**
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
				77536-66-4 77536-68-6 77536-67-5 12001-29-5							
42		xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
								Total:	0.137 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No liquid phase present.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0172%)

Classification of sample: BH1002-15-11012024-4.00

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH1002-15-11012024-4.00
Sample Depth:
4.00m m
Moisture content:
9.6%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 9.6% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		9 pH		9 pH	9pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
3	monohydric phenols			P1186		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
4	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		6.1 mg/kg	1.197	6.601 mg/kg	0.00066 %	✓	
5	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		17 mg/kg	1.534	23.573 mg/kg	0.00236 %	✓	
6	barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		140 mg/kg	1.623	205.467 mg/kg	0.0205 %	✓	
7	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.49 mg/kg	2.775	1.229 mg/kg	0.000123 %	✓	
8	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.6 mg/kg	3.22	1.746 mg/kg	0.000175 %	✓	
9	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
10	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8 mg/kg	2.27	<4.086 mg/kg	<0.000409 %		<LOD
11	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		12 mg/kg	1.462	17.539 mg/kg	0.00175 %		
12	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		26 mg/kg	1.126	26.463 mg/kg	0.00265 %	✓	
13	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	64 mg/kg		57.856 mg/kg	0.00579 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
14		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
15		nickel { nickel sulfate }	028-009-00-5	232-104-9	7786-81-4		7	mg/kg	2.637	16.685	mg/kg	0.00167 %	✓	
16		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
17		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		12	mg/kg	1.785	19.366	mg/kg	0.00194 %	✓	
18		zinc { zinc chloride }	030-003-00-2	231-592-0	7646-85-7		76	mg/kg	2.085	143.215	mg/kg	0.0143 %	✓	
19		TPH (C6 to C40) petroleum group			TPH		16	mg/kg		14.464	mg/kg	0.00145 %	✓	
20		benzene	601-020-00-8	200-753-7	71-43-2		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
21		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
22		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
23		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
24		naphthalene	601-052-00-2	202-049-5	91-20-3		0.09	mg/kg		0.0814	mg/kg	0.00000814 %	✓	
25		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
26		acenaphthene		201-469-6	83-32-9		0.23	mg/kg		0.208	mg/kg	0.0000208 %	✓	
27		fluorene		201-695-5	86-73-7		0.14	mg/kg		0.127	mg/kg	0.0000127 %	✓	
28		phenanthrene		201-581-5	85-01-8		1.3	mg/kg		1.175	mg/kg	0.000118 %	✓	
29		anthracene		204-371-1	120-12-7		0.27	mg/kg		0.244	mg/kg	0.0000244 %	✓	
30		fluoranthene		205-912-4	206-44-0		1.7	mg/kg		1.537	mg/kg	0.000154 %	✓	
31		pyrene		204-927-3	129-00-0		1.6	mg/kg		1.446	mg/kg	0.000145 %	✓	
32		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.76	mg/kg		0.687	mg/kg	0.0000687 %	✓	
33		chrysene	601-048-00-0	205-923-4	218-01-9		0.79	mg/kg		0.714	mg/kg	0.0000714 %	✓	
34		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.87	mg/kg		0.786	mg/kg	0.0000786 %	✓	
35		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.35	mg/kg		0.316	mg/kg	0.0000316 %	✓	
36		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.77	mg/kg		0.696	mg/kg	0.0000696 %	✓	
37		indeno[123-cd]pyrene		205-893-2	193-39-5		0.38	mg/kg		0.344	mg/kg	0.0000344 %	✓	
38		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
39		benzo[ghi]perylene		205-883-8	191-24-2		0.39	mg/kg		0.353	mg/kg	0.0000353 %	✓	
40		coronene		205-881-7	191-07-1		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
41		asbestos	650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5		<			<		<		ND

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
				77536-66-4 77536-68-6 77536-67-5 12001-29-5							
42		xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
								Total:	0.0553 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No liquid phase present.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00145%)

Classification of sample: BH1001-5-11012024-1.00

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH1001-5-11012024-1.00
Sample Depth:
1.00m m
Moisture content:
14%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 14% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		10.4 pH		10.4 pH	10.4 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<**LOD**
3	monohydric phenols			P1186		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
4	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		<1 mg/kg	1.197	<1.197 mg/kg	<0.00012 %		<**LOD**
5	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		9.7 mg/kg	1.534	12.796 mg/kg	0.00128 %	✓	
6	barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		290 mg/kg	1.623	404.894 mg/kg	0.0405 %	✓	
7	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.74 mg/kg	2.775	1.766 mg/kg	0.000177 %	✓	
8	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		3.4 mg/kg	3.22	9.415 mg/kg	0.000941 %	✓	
9	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<**LOD**
10	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8 mg/kg	2.27	<4.086 mg/kg	<0.000409 %		<**LOD**
11	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		19 mg/kg	1.462	27.77 mg/kg	0.00278 %		
12	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		39 mg/kg	1.126	37.762 mg/kg	0.00378 %	✓	
13	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	100 mg/kg		86 mg/kg	0.0086 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
14		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
15		nickel { nickel sulfate }				33	mg/kg	2.637	74.829	mg/kg	0.00748 %	✓	
		028-009-00-5	232-104-9	7786-81-4									
16		selenium { nickel selenate }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		028-031-00-5	239-125-2	15060-62-5									
17		vanadium { divanadium pentaoxide; vanadium pentoxide }				26	mg/kg	1.785	39.917	mg/kg	0.00399 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
18		zinc { zinc chloride }				96	mg/kg	2.085	172.098	mg/kg	0.0172 %	✓	
		030-003-00-2	231-592-0	7646-85-7									
19		TPH (C6 to C40) petroleum group				186	mg/kg		159.96	mg/kg	0.016 %	✓	
				TPH									
20		benzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
21		toluene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
22		ethylbenzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
23		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
24		naphthalene				0.1	mg/kg		0.086	mg/kg	0.0000086 %	✓	
		601-052-00-2	202-049-5	91-20-3									
25		acenaphthylene				0.07	mg/kg		0.0602	mg/kg	0.00000602 %	✓	
			205-917-1	208-96-8									
26		acenaphthene				0.25	mg/kg		0.215	mg/kg	0.0000215 %	✓	
			201-469-6	83-32-9									
27		fluorene				0.2	mg/kg		0.172	mg/kg	0.0000172 %	✓	
			201-695-5	86-73-7									
28		phenanthrene				2.1	mg/kg		1.806	mg/kg	0.000181 %	✓	
			201-581-5	85-01-8									
29		anthracene				0.56	mg/kg		0.482	mg/kg	0.0000482 %	✓	
			204-371-1	120-12-7									
30		fluoranthene				3.4	mg/kg		2.924	mg/kg	0.000292 %	✓	
			205-912-4	206-44-0									
31		pyrene				3.6	mg/kg		3.096	mg/kg	0.00031 %	✓	
			204-927-3	129-00-0									
32		benzo[a]anthracene				1.7	mg/kg		1.462	mg/kg	0.000146 %	✓	
		601-033-00-9	200-280-6	56-55-3									
33		chrysene				1.8	mg/kg		1.548	mg/kg	0.000155 %	✓	
		601-048-00-0	205-923-4	218-01-9									
34		benzo[b]fluoranthene				2.1	mg/kg		1.806	mg/kg	0.000181 %	✓	
		601-034-00-4	205-911-9	205-99-2									
35		benzo[k]fluoranthene				0.7	mg/kg		0.602	mg/kg	0.0000602 %	✓	
		601-036-00-5	205-916-6	207-08-9									
36		benzo[a]pyrene; benzo[def]chrysene				1.9	mg/kg		1.634	mg/kg	0.000163 %	✓	
		601-032-00-3	200-028-5	50-32-8									
37		indeno[123-cd]pyrene				1.2	mg/kg		1.032	mg/kg	0.000103 %	✓	
			205-893-2	193-39-5									
38		dibenz[a,h]anthracene				0.39	mg/kg		0.335	mg/kg	0.0000335 %	✓	
		601-041-00-2	200-181-8	53-70-3									
39		benzo[ghi]perylene				1.9	mg/kg		1.634	mg/kg	0.000163 %	✓	
			205-883-8	191-24-2									
40		coronene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-881-7	191-07-1									
41		asbestos				<			<		<		ND
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
				77536-66-4 77536-68-6 77536-67-5 12001-29-5							
42		xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		**<LOD**
								Total:	0.106 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No liquid phase present.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.016%)

Classification of sample: BH1001-12-11012024-3.00

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH1001-12-11012024-3.00
Sample Depth:
3.00m m
Moisture content:
12%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 12% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		9.6 pH		9.6 pH	9.6 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
3	monohydric phenols			P1186		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
4	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		1.6 mg/kg	1.197	1.686 mg/kg	0.000169 %	✓	
5	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		2.4 mg/kg	1.534	3.24 mg/kg	0.000324 %	✓	
6	barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		64 mg/kg	1.623	91.434 mg/kg	0.00914 %	✓	
7	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.28 mg/kg	2.775	0.684 mg/kg	0.0000684 %	✓	
8	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.6 mg/kg	3.22	1.7 mg/kg	0.00017 %	✓	
9	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
10	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8 mg/kg	2.27	<4.086 mg/kg	<0.000409 %		<LOD
11	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		6.4 mg/kg	1.462	9.354 mg/kg	0.000935 %		
12	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		7.8 mg/kg	1.126	7.728 mg/kg	0.000773 %	✓	
13	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	11 mg/kg		9.68 mg/kg	0.000968 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
14		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
15		nickel { nickel sulfate }	028-009-00-5	232-104-9	7786-81-4		5	mg/kg	2.637	11.601	mg/kg	0.00116 %	✓	
16		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
17		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		10	mg/kg	1.785	15.71	mg/kg	0.00157 %	✓	
18		zinc { zinc chloride }	030-003-00-2	231-592-0	7646-85-7		15	mg/kg	2.085	27.516	mg/kg	0.00275 %	✓	
19		TPH (C6 to C40) petroleum group			TPH		<20	mg/kg		<20	mg/kg	<0.002 %		<LOD
20		benzene	601-020-00-8	200-753-7	71-43-2		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
21		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
22		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
23		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
24		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
25		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
26		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
27		fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
28		phenanthrene		201-581-5	85-01-8		0.16	mg/kg		0.141	mg/kg	0.0000141 %	✓	
29		anthracene		204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
30		fluoranthene		205-912-4	206-44-0		0.26	mg/kg		0.229	mg/kg	0.0000229 %	✓	
31		pyrene		204-927-3	129-00-0		0.26	mg/kg		0.229	mg/kg	0.0000229 %	✓	
32		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.11	mg/kg		0.0968	mg/kg	0.00000968 %	✓	
33		chrysene	601-048-00-0	205-923-4	218-01-9		0.13	mg/kg		0.114	mg/kg	0.0000114 %	✓	
34		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.17	mg/kg		0.15	mg/kg	0.000015 %	✓	
35		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.07	mg/kg		0.0616	mg/kg	0.00000616 %	✓	
36		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.12	mg/kg		0.106	mg/kg	0.0000106 %	✓	
37		indeno[123-cd]pyrene		205-893-2	193-39-5		0.08	mg/kg		0.0704	mg/kg	0.00000704 %	✓	
38		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
39		benzo[ghi]perylene		205-883-8	191-24-2		0.09	mg/kg		0.0792	mg/kg	0.00000792 %	✓	
40		coronene		205-881-7	191-07-1		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
41		asbestos	650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5		<			<		<		ND

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
				77536-66-4 77536-68-6 77536-67-5 12001-29-5							
42		xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
								Total:	0.0212 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Appendix A: Classifier defined and non GB MCL determinands

pH (CAS Number: PH)

Description/Comments: Appendix C4
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex

GB MCL index number: 006-007-00-5
Description/Comments: Conversion factor based on a worst case compound: sodium cyanide
Additional Hazard Statement(s): EUH032 >= 0.2 %
Reason for additional Hazards Statement(s):
20 Nov 2021 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

monohydric phenols (CAS Number: P1186)

Description/Comments: Combined hazards statements from harmonised entries in CLP for phenol, cresols and xylenols (604-001-00-2, 604-004-00-9, 604-006-00-X)
Data source: CLP combined data
Data source date: 26 Mar 2019
Hazard Statements: Muta. 2; H341 , Acute Tox. 3; H331 , Acute Tox. 3; H311 , Acute Tox. 3; H301 , STOT RE 2; H373 , Skin Corr. 1B; H314 , Skin Corr. 1B; H314 >= 3 % , Skin Irrit. 2; H315 1 <= conc. < 3 % , Eye Irrit. 2; H319 1 <= conc. < 3 % , Aquatic Chronic 2; H411

chromium(III) oxide (worst case) (EC Number: 215-160-9, CAS Number: 1308-38-9)

Description/Comments: Data from C&L Inventory Database
Data source: https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H332 , Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Resp. Sens. 1; H334 , Skin Sens. 1; H317 , Repr. 1B; H360FD , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

lead compounds with the exception of those specified elsewhere in this Annex (worst case)

GB MCL index number: 082-001-00-6
Description/Comments: Worst Case: IARC considers lead compounds Group 2A; Probably carcinogenic to humans; Lead REACH Consortium, following MCL protocols, considers lead compounds from smelting industries, flue dust and similar to be Carcinogenic category 1A
Additional Hazard Statement(s): Carc. 1A; H350
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 1A; H350 hazard statement sourced from: IARC Group 2A (Sup 7, 87) 2006; Lead REACH Consortium www.reach-lead.eu/substanceinformation.html (worst case lead compounds). Review date 29/09/2015

TPH (C6 to C40) petroleum group (CAS Number: TPH)

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: Flam. Liq. 3; H226 , Asp. Tox. 1; H304 , STOT RE 2; H373 , Muta. 1B; H340 , Carc. 1B; H350 , Repr. 2; H361d , Aquatic Chronic 2; H411

ethylbenzene (EC Number: 202-849-4, CAS Number: 100-41-4)

GB MCL index number: 601-023-00-4
Description/Comments:
Additional Hazard Statement(s): Carc. 2; H351
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2B (77) 2000

acenaphthylene (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 1; H330 , Acute Tox. 1; H310 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315

acenaphthene (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Aquatic Chronic 2; H411

- **fluorene** (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **phenanthrene** (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Carc. 2; H351 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Skin Irrit. 2; H315

- **anthracene** (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **fluoranthene** (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **pyrene** (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **indeno[123-cd]pyrene** (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Carc. 2; H351

- **benzo[ghi]perylene** (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 23 Jul 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **coronene** (EC Number: 205-881-7, CAS Number: 191-07-1)

Description/Comments: Data from C&L Inventory Database; no entries in Registered Substances or Pesticides Properties databases; SDS: Sigma Aldrich, 1907/2006 compliant, dated 2012 - no entries; IARC – Group 3, not carcinogenic.
Data source: http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=17010&HarmOnly=no?fc=true&lang=en
Data source date: 16 Jun 2014
Hazard Statements: STOT SE 2; H371

Appendix B: Rationale for selection of metal species

cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case as complex cyanides and those specified elsewhere in the annex are not likely to be present in this soil: [Note conversion factor based on a worst case compound: sodium cyanide].

antimony {antimony trioxide}

Worst case CLP species based on hazard statements/molecular weight and low solubility. Industrial sources include: flame retardants in electrical apparatus, textiles and coatings.

arsenic {arsenic pentoxide}

Worst case CLP species based on hazard statements/molecular weight. Industrial sources include: arsenates, weed killers, metal adhesives, insecticides, fungicides, wood preservatives, coloured gases, printing and dyeing.

barium {barium diboron tetraoxide}

Reasonable case CLP species based on site history, hazard statements/molecular weight. Noted that not enough metal and Cr(VI) present to make the worst case CLP (metal chromate) (noting concentrations not at hazardous levels in any case).

beryllium {beryllium oxide}

Reasonable case CLP species based on hazard statements/molecular weight. Industrial sources include: most common (non alloy) form, used in ceramics.

boron {diboron trioxide}

Reasonable case CLP species based on hazard statements/ molecular weight, physical form and low solubility. Industrial sources include: fluxing agent for glass/enamels; additive for fibre optics, borosilicate glass.

cadmium {cadmium oxide}

Reasonable case CLP species based on hazard statements/molecular weight, very low solubility in water. Industrial sources include: electroplating baths, electrodes for storage batteries, catalysts, ceramic glazes, phosphors, pigments and nematocides. Worst case compounds in CLP: cadmium sulphate, chloride, fluoride & iodide not expected as either very soluble and/or compound's industrial usage not related to site history.

chromium in chromium(VI) compounds {chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex}

Worst case species.

chromium in chromium(III) compounds {chromium(III) oxide (worst case)}

Reasonable case species based on hazard statements/molecular weight. Industrial sources include: tanning, pigment in paint, inks and glass.

copper {dicopper oxide; copper (I) oxide}

Reasonable case CLP species based on hazard statements/molecular weight and insolubility in water. Industrial sources include: oxidised copper metal, brake pads, pigments, antifouling paints, fungicide. Worse case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected.

lead {lead compounds with the exception of those specified elsewhere in this Annex (worst case)}

Reasonable case CLP species based on site history, hazard statements/molecular weight. Noted that not enough metal and Cr(VI) present to make the worst case CLP (metal chromate) (noting concentrations not at hazardous levels in any case).

mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weight.

nickel {nickel sulfate}

Reasonable case CLP species based on hazard statements/molecular weight. Industrial sources include: copper refining, electroplating and rechargeable batteries. Worst case compounds in CLP not expected as either very soluble and/or compounds industrial useage not related to site history.

selenium {nickel selenate}

Worst case CLP species based on hazard statements/molecular weight.

vanadium {divanadium pentaoxide; vanadium pentoxide}

Worst case species.

zinc {zinc chloride}

Reasonable case CLP species based on site history, hazard statements/molecular weight. Noted that not enough metal and Cr(VI) present to make the worst case CLP (metal chromate) (noting concentrations not at hazardous levels in any case).

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.2.GB - Oct 2021
HazWasteOnline Classification Engine Version: 2024.30.5942.10989 (30 Jan 2024)
HazWasteOnline Database: 2024.26.5938.10982 (26 Jan 2024)

This classification utilises the following guidance and legislation:
WM3 v1.2.GB - Waste Classification - 1st Edition v1.2.GB - Oct 2021
CLP Regulation - Regulation 1272/2008/EC of 16 December 2008
1st ATP - Regulation 790/2009/EC of 10 August 2009
2nd ATP - Regulation 286/2011/EC of 10 March 2011
3rd ATP - Regulation 618/2012/EU of 10 July 2012
4th ATP - Regulation 487/2013/EU of 8 May 2013
Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013
5th ATP - Regulation 944/2013/EU of 2 October 2013
6th ATP - Regulation 605/2014/EU of 5 June 2014
WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014
Revised List of Waste 2014 - Decision 2014/955/EU of 18 December 2014
7th ATP - Regulation 2015/1221/EU of 24 July 2015
8th ATP - Regulation (EU) 2016/918 of 19 May 2016
9th ATP - Regulation (EU) 2016/1179 of 19 July 2016
10th ATP - Regulation (EU) 2017/776 of 4 May 2017
HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017
13th ATP - Regulation (EU) 2018/1480 of 4 October 2018
14th ATP - Regulation (EU) 2020/217 of 4 October 2019
15th ATP - Regulation (EU) 2020/1182 of 19 May 2020
The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020
The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1540 of 16th December 2020
GB MCL List - version 1.1 of 09 June 2021
GB MCL List v2.0 - version 2.0 of 20th October 2023

Waste Classification Report

HazWasteOnline™ classifies waste as either **hazardous** or **non-hazardous** based on its chemical composition, related legislation and the rules and data defined in the current UK or EU technical guidance (Appendix C) (note that HP 9 Infectious is not assessed). It is the responsibility of the classifier named below to:

a) understand the origin of the waste
b) select the correct List of Waste code(s)
c) confirm that the list of determinands, results and sampling plan are fit for purpose
d) select and justify the chosen metal species (Appendix B)
e) correctly apply moisture correction and other available corrections
f) add the meta data for their user-defined substances (Appendix A)
g) check that the classification engine is suitable with respect to the national destination of the waste (Appendix C)

To aid the reviewer, the laboratory results, assumptions and justifications managed by the classifier are highlighted in pale yellow.

LF5VI-FRQ76-Z2CUF

Job name

24-78340_HWOL_Results

Description/Comments

i2 Analytical Report 24-78340

Project

51001/03

Site

Mayfield Phase 1B

Classified by

Name:
Kirsty Poore
Date:
21 Feb 2024 12:50 GMT
Telephone:
07983 740199

Company:
Civic Earth Limited
77 Dale Street
Manchester
M12HG

HazWasteOnline™ provides a two day, hazardous waste classification course that covers the use of the software and both basic and advanced waste classification techniques. Certification has to be renewed every 3 years.

HazWasteOnline™ Certification: **CERTIFIED**

Course	Date
Hazardous Waste Classification	05 Oct 2023

Next 3 year Refresher due by Oct 2026

Purpose of classification

2 - Material Characterisation

Address of the waste

Land off Baring Street **Post Code** M12 6HW

SIC for the process giving rise to the waste

41201 Construction of commercial buildings

Description of industry/producer giving rise to the waste

Redevelopment of former industrial site into residential-led development.

Description of the specific process, sub-process and/or activity that created the waste

Waste created during the excavation of soils during site investigation.

Description of the waste

Made Ground comprising predominantly clayey sandy gravel (brick and concrete).

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	BH1003-1-12012024-0.20	0.20m	Non Hazardous		3
2	BH1003-5-12012024-1.00	1.00m	Hazardous	HP 7	6
3	BH1003-15-12012024-4.00	4.00m	Non Hazardous		9

Related documents

#	Name	Description
1	24-78340_HWOL_Results.hwol	i2 Analytical .hwol file used to populate the Job
2	Civic Earth Soil Suite 3 Waste Stream - i2	waste stream template used to create this Job

Report

Created by: Kirsty Poore

Created date: 21 Feb 2024 12:50 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	12
Appendix B: Rationale for selection of metal species	13
Appendix C: Version	14

Classification of sample: BH1003-1-12012024-0.20

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH1003-1-12012024-0.20
Sample Depth:
0.20m m
Moisture content:
9.6%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 9.6% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		10.6 pH		10.6 pH	10.6 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<**LOD**
3	monohydric phenols			P1186		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
4	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		2.6 mg/kg	1.197	2.814 mg/kg	0.000281 %	✓	
5	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		8.6 mg/kg	1.534	11.925 mg/kg	0.00119 %	✓	
6	barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		550 mg/kg	1.623	807.19 mg/kg	0.0807 %	✓	
7	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.37 mg/kg	2.775	0.928 mg/kg	0.0000928 %	✓	
8	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.7 mg/kg	3.22	2.038 mg/kg	0.000204 %	✓	
9	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.7 mg/kg	1.142	0.723 mg/kg	0.0000723 %	✓	
10	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8 mg/kg	2.27	<4.086 mg/kg	<0.000409 %		<**LOD**
11	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		10 mg/kg	1.462	14.616 mg/kg	0.00146 %		
12	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		17 mg/kg	1.126	17.303 mg/kg	0.00173 %	✓	
13	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	43 mg/kg		38.872 mg/kg	0.00389 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
14		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
15		nickel { nickel sulfate }	028-009-00-5	232-104-9	7786-81-4		8.9	mg/kg	2.637	21.214	mg/kg	0.00212 %	✓	
16		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
17		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		11	mg/kg	1.785	17.752	mg/kg	0.00178 %	✓	
18		zinc { zinc chloride }	030-003-00-2	231-592-0	7646-85-7		74	mg/kg	2.085	139.446	mg/kg	0.0139 %	✓	
19		TPH (C6 to C40) petroleum group			TPH		188	mg/kg		169.952	mg/kg	0.017 %	✓	
20		benzene	601-020-00-8	200-753-7	71-43-2		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
21		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
22		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
23		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
24		naphthalene	601-052-00-2	202-049-5	91-20-3		0.28	mg/kg		0.253	mg/kg	0.0000253 %	✓	
25		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
26		acenaphthene		201-469-6	83-32-9		0.26	mg/kg		0.235	mg/kg	0.0000235 %	✓	
27		fluorene		201-695-5	86-73-7		0.18	mg/kg		0.163	mg/kg	0.0000163 %	✓	
28		phenanthrene		201-581-5	85-01-8		1.4	mg/kg		1.266	mg/kg	0.000127 %	✓	
29		anthracene		204-371-1	120-12-7		0.3	mg/kg		0.271	mg/kg	0.0000271 %	✓	
30		fluoranthene		205-912-4	206-44-0		1.6	mg/kg		1.446	mg/kg	0.000145 %	✓	
31		pyrene		204-927-3	129-00-0		1.5	mg/kg		1.356	mg/kg	0.000136 %	✓	
32		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.71	mg/kg		0.642	mg/kg	0.0000642 %	✓	
33		chrysene	601-048-00-0	205-923-4	218-01-9		0.82	mg/kg		0.741	mg/kg	0.0000741 %	✓	
34		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.85	mg/kg		0.768	mg/kg	0.0000768 %	✓	
35		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.31	mg/kg		0.28	mg/kg	0.000028 %	✓	
36		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.62	mg/kg		0.56	mg/kg	0.000056 %	✓	
37		indeno[123-cd]pyrene		205-893-2	193-39-5		0.34	mg/kg		0.307	mg/kg	0.0000307 %	✓	
38		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		0.08	mg/kg		0.0723	mg/kg	0.00000723 %	✓	
39		benzo[ghi]perylene		205-883-8	191-24-2		0.4	mg/kg		0.362	mg/kg	0.0000362 %	✓	
40		coronene		205-881-7	191-07-1		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
41		asbestos in identifiable pieces of suspected ACM			ACM_FRAG		<0.001	%		<0.001	%	<0.001 %		<LOD

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
42		xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
								Total:	0.127 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification
ACM	Asbestos Containing Materials

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No liquid phase present.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.017%)

Classification of sample: BH1003-5-12012024-1.00

Hazardous Mixed Waste
Classified as **17 05 04**
and **17 06 05 ***
in the List of Waste

Sample details

Sample name:
BH1003-5-12012024-1.00
Sample Depth:
1.00m m
Moisture content:
13%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
Entry: 17 06 05 * (Construction materials containing asbestos) }

Hazard properties

HP 7: Carcinogenic "waste which induces cancer or increases its incidence"

Hazard Statements hit:

Carc. 1A; H350 "May cause cancer [state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard]."

Because of determinand:

asbestos in identifiable pieces of suspected ACM: (conc.: 0.954%)

Determinands

Moisture content: 13% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		11.1 pH		11.1 pH	11.1 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<**LOD**
3	monohydric phenols			P1186		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
4	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		3.2 mg/kg	1.197	3.333 mg/kg	0.000333 %	✓	
5	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		6.9 mg/kg	1.534	9.208 mg/kg	0.000921 %	✓	
6	barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		470 mg/kg	1.623	663.838 mg/kg	0.0664 %	✓	
7	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.61 mg/kg	2.775	1.473 mg/kg	0.000147 %	✓	
8	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.7 mg/kg	3.22	1.961 mg/kg	0.000196 %	✓	
9	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		1 mg/kg	1.142	0.994 mg/kg	0.0000994 %	✓	
10	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8 mg/kg	2.27	<4.086 mg/kg	<0.000409 %		<**LOD**

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
11		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		15	mg/kg	1.462	21.923	mg/kg	0.00219 %		
12		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		17	mg/kg	1.126	16.652	mg/kg	0.00167 %	✓	
13		lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	41	mg/kg		35.67	mg/kg	0.00357 %	✓	
14		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		**<LOD**
15		nickel { nickel sulfate }	028-009-00-5	232-104-9	7786-81-4		11	mg/kg	2.637	25.233	mg/kg	0.00252 %	✓	
16		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		**<LOD**
17		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		19	mg/kg	1.785	29.509	mg/kg	0.00295 %	✓	
18		zinc { zinc chloride }	030-003-00-2	231-592-0	7646-85-7		60	mg/kg	2.085	108.812	mg/kg	0.0109 %	✓	
19		TPH (C6 to C40) petroleum group			TPH		57	mg/kg		49.59	mg/kg	0.00496 %	✓	
20		benzene	601-020-00-8	200-753-7	71-43-2		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		**<LOD**
21		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		**<LOD**
22		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		**<LOD**
23		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		**<LOD**
24		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
25		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		**<LOD**
26		acenaphthene		201-469-6	83-32-9		0.12	mg/kg		0.104	mg/kg	0.0000104 %	✓	
27		fluorene		201-695-5	86-73-7		0.09	mg/kg		0.0783	mg/kg	0.00000783 %	✓	
28		phenanthrene		201-581-5	85-01-8		1.2	mg/kg		1.044	mg/kg	0.000104 %	✓	
29		anthracene		204-371-1	120-12-7		0.22	mg/kg		0.191	mg/kg	0.0000191 %	✓	
30		fluoranthene		205-912-4	206-44-0		1.5	mg/kg		1.305	mg/kg	0.000131 %	✓	
31		pyrene		204-927-3	129-00-0		1.4	mg/kg		1.218	mg/kg	0.000122 %	✓	
32		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.69	mg/kg		0.6	mg/kg	0.00006 %	✓	
33		chrysene	601-048-00-0	205-923-4	218-01-9		0.68	mg/kg		0.592	mg/kg	0.0000592 %	✓	
34		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.71	mg/kg		0.618	mg/kg	0.0000618 %	✓	
35		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.28	mg/kg		0.244	mg/kg	0.0000244 %	✓	
36		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.6	mg/kg		0.522	mg/kg	0.0000522 %	✓	
37		indeno[123-cd]pyrene		205-893-2	193-39-5		0.29	mg/kg		0.252	mg/kg	0.0000252 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
38		dibenz[a,h]anthracene				0.07	mg/kg		0.0609	mg/kg	0.00000609 %	✓	
		601-041-00-2	200-181-8	53-70-3									
39	●	benzo[ghi]perylene				0.37	mg/kg		0.322	mg/kg	0.0000322 %	✓	
			205-883-8	191-24-2									
40	●	coronene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			205-881-7	191-07-1									
41		xylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
										Total:	0.0985 %		

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
1	●	asbestos in identifiable pieces of suspected ACM				0.954	%		0.954	%	0.954 %		
				ACM_FRAG									
										Total:	0.954 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Hazardous result
●	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification
ACM	Asbestos Containing Materials

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No liquid phase present.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00496%)

Classification of sample: BH1003-15-12012024-4.00

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH1003-15-12012024-4.00
Sample Depth:
4.00m m
Moisture content:
16%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 16% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		9.7 pH		9.7 pH	9.7 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
3	monohydric phenols			P1186		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
4	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		1.9 mg/kg	1.197	1.911 mg/kg	0.000191 %	✓	
5	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		5.3 mg/kg	1.534	6.829 mg/kg	0.000683 %	✓	
6	barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		190 mg/kg	1.623	259.106 mg/kg	0.0259 %	✓	
7	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.42 mg/kg	2.775	0.979 mg/kg	0.0000979 %	✓	
8	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.7 mg/kg	3.22	1.893 mg/kg	0.000189 %	✓	
9	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
10	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8 mg/kg	2.27	<4.086 mg/kg	<0.000409 %		<LOD
11	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		11 mg/kg	1.462	16.077 mg/kg	0.00161 %		
12	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		12 mg/kg	1.126	11.349 mg/kg	0.00113 %	✓	
13	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	53 mg/kg		44.52 mg/kg	0.00445 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
14		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
15		nickel { nickel sulfate }	028-009-00-5	232-104-9	7786-81-4		7.7	mg/kg	2.637	17.054	mg/kg	0.00171 %	✓	
16		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
17		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		14	mg/kg	1.785	20.994	mg/kg	0.0021 %	✓	
18		zinc { zinc chloride }	030-003-00-2	231-592-0	7646-85-7		41	mg/kg	2.085	71.791	mg/kg	0.00718 %	✓	
19		TPH (C6 to C40) petroleum group			TPH		<20	mg/kg		<20	mg/kg	<0.002 %		<LOD
20		benzene	601-020-00-8	200-753-7	71-43-2		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
21		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
22		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
23		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
24		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
25		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
26		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
27		fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
28		phenanthrene		201-581-5	85-01-8		0.14	mg/kg		0.118	mg/kg	0.0000118 %	✓	
29		anthracene		204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
30		fluoranthene		205-912-4	206-44-0		0.26	mg/kg		0.218	mg/kg	0.0000218 %	✓	
31		pyrene		204-927-3	129-00-0		0.27	mg/kg		0.227	mg/kg	0.0000227 %	✓	
32		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.15	mg/kg		0.126	mg/kg	0.0000126 %	✓	
33		chrysene	601-048-00-0	205-923-4	218-01-9		0.14	mg/kg		0.118	mg/kg	0.0000118 %	✓	
34		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.15	mg/kg		0.126	mg/kg	0.0000126 %	✓	
35		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.07	mg/kg		0.0588	mg/kg	0.00000588 %	✓	
36		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.12	mg/kg		0.101	mg/kg	0.0000101 %	✓	
37		indeno[123-cd]pyrene		205-893-2	193-39-5		0.07	mg/kg		0.0588	mg/kg	0.00000588 %	✓	
38		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
39		benzo[ghi]perylene		205-883-8	191-24-2		0.08	mg/kg		0.0672	mg/kg	0.00000672 %	✓	
40		coronene		205-881-7	191-07-1		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
41		asbestos in identifiable pieces of suspected ACM			ACM_FRAG		<0.001	%		<0.001	%	<0.001 %		<LOD

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
42		xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
								Total:	0.0494 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification
ACM	Asbestos Containing Materials

Appendix A: Classifier defined and non GB MCL determinands

- **pH** (CAS Number: PH)

Description/Comments: Appendix C4
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

- **salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex**

GB MCL index number: 006-007-00-5
Description/Comments: Conversion factor based on a worst case compound: sodium cyanide
Additional Hazard Statement(s): EUH032 >= 0.2 %
Reason for additional Hazards Statement(s):
20 Nov 2021 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

- **monohydric phenols** (CAS Number: P1186)

Description/Comments: Combined hazards statements from harmonised entries in CLP for phenol, cresols and xylenols (604-001-00-2, 604-004-00-9, 604-006-00-X)
Data source: CLP combined data
Data source date: 26 Mar 2019
Hazard Statements: Muta. 2; H341 , Acute Tox. 3; H331 , Acute Tox. 3; H311 , Acute Tox. 3; H301 , STOT RE 2; H373 , Skin Corr. 1B; H314 , Skin Corr. 1B; H314 >= 3 % , Skin Irrit. 2; H315 1 <= conc. < 3 % , Eye Irrit. 2; H319 1 <= conc. < 3 % , Aquatic Chronic 2; H411

- **chromium(III) oxide (worst case)** (EC Number: 215-160-9, CAS Number: 1308-38-9)

Description/Comments: Data from C&L Inventory Database
Data source: https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H332 , Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Resp. Sens. 1; H334 , Skin Sens. 1; H317 , Repr. 1B; H360FD , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **lead compounds with the exception of those specified elsewhere in this Annex (worst case)**

GB MCL index number: 082-001-00-6
Description/Comments: Worst Case: IARC considers lead compounds Group 2A; Probably carcinogenic to humans; Lead REACH Consortium, following MCL protocols, considers lead compounds from smelting industries, flue dust and similar to be Carcinogenic category 1A
Additional Hazard Statement(s): Carc. 1A; H350
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 1A; H350 hazard statement sourced from: IARC Group 2A (Sup 7, 87) 2006; Lead REACH Consortium www.reach-lead.eu/substanceinformation.html (worst case lead compounds). Review date 29/09/2015

- **TPH (C6 to C40) petroleum group** (CAS Number: TPH)

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: Flam. Liq. 3; H226 , Asp. Tox. 1; H304 , STOT RE 2; H373 , Muta. 1B; H340 , Carc. 1B; H350 , Repr. 2; H361d , Aquatic Chronic 2; H411

- **ethylbenzene** (EC Number: 202-849-4, CAS Number: 100-41-4)

GB MCL index number: 601-023-00-4
Description/Comments:
Additional Hazard Statement(s): Carc. 2; H351
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2B (77) 2000

- **acenaphthylene** (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 1; H330 , Acute Tox. 1; H310 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315

- **acenaphthene** (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Aquatic Chronic 2; H411

fluorene (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

phenanthrene (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Carc. 2; H351 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Skin Irrit. 2; H315

anthracene (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

fluoranthene (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

pyrene (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

indeno[123-cd]pyrene (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Carc. 2; H351

benzo[ghi]perylene (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 23 Jul 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

coronene (EC Number: 205-881-7, CAS Number: 191-07-1)

Description/Comments: Data from C&L Inventory Database; no entries in Registered Substances or Pesticides Properties databases; SDS: Sigma Aldrich, 1907/2006 compliant, dated 2012 - no entries; IARC – Group 3, not carcinogenic.
Data source: http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=17010&HarmOnly=no?fc=true&lang=en
Data source date: 16 Jun 2014
Hazard Statements: STOT SE 2; H371

asbestos in identifiable pieces of suspected ACM (CAS Number: ACM_FRAG)

Description/Comments: Enter the concentration of asbestos relative to the suspected ACM not the whole waste
Data source: WM3 v1, Chapter 3.1
Data source date: 31 May 2015
Hazard Statements: Carc. 1A; H350 , STOT RE 1; H372

Appendix B: Rationale for selection of metal species

cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case as complex cyanides and those specified elsewhere in the annex are not likely to be present in this soil: [Note conversion factor based on a worst case compound: sodium cyanide].

antimony {antimony trioxide}

Worst case CLP species based on hazard statements/molecular weight and low solubility. Industrial sources include: flame retardants in electrical apparatus, textiles and coatings.

arsenic {arsenic pentoxide}

Worst case CLP species based on hazard statements/molecular weight. Industrial sources include: arsenates, weed killers, metal adhesives, insecticides, fungicides, wood preservatives, coloured gases, printing and dyeing.

barium {barium diboron tetraoxide}

Reasonable case CLP species based on site history, hazard statements/molecular weight. Noted that not enough metal and Cr(VI) present to make the worst case CLP (metal chromate) (noting concentrations not at hazardous levels in any case).

beryllium {beryllium oxide}

Reasonable case CLP species based on hazard statements/molecular weight. Industrial sources include: most common (non alloy) form, used in ceramics.

boron {diboron trioxide}

Reasonable case CLP species based on hazard statements/ molecular weight, physical form and low solubility. Industrial sources include: fluxing agent for glass/enamels; additive for fibre optics, borosilicate glass.

cadmium {cadmium oxide}

Reasonable case CLP species based on hazard statements/molecular weight, very low solubility in water. Industrial sources include: electroplating baths, electrodes for storage batteries, catalysts, ceramic glazes, phosphors, pigments and nematocides. Worst case compounds in CLP: cadmium sulphate, chloride, fluoride & iodide not expected as either very soluble and/or compound's industrial usage not related to site history.

chromium in chromium(VI) compounds {chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex}

Worst case species based on hazard statements/molecular weight.

chromium in chromium(III) compounds {chromium(III) oxide (worst case)}

Reasonable case species based on hazard statements/molecular weight. Industrial sources include: tanning, pigment in paint, inks and glass.

copper {dicopper oxide; copper (I) oxide}

Reasonable case CLP species based on hazard statements/molecular weight and insolubility in water. Industrial sources include: oxidised copper metal, brake pads, pigments, antifouling paints, fungicide. Worse case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected.

lead {lead compounds with the exception of those specified elsewhere in this Annex (worst case)}

Reasonable case CLP species based on site history, hazard statements/molecular weight. Noted that not enough metal and Cr(VI) present to make the worst case CLP (metal chromate) (noting concentrations not at hazardous levels in any case).

mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weight.

nickel {nickel sulfate}

Reasonable case CLP species based on hazard statements/molecular weight. Industrial sources include: copper refining, electroplating and rechargeable batteries. Worst case compounds in CLP not expected as either very soluble and/or compounds industrial useage not related to site history.

selenium {nickel selenate}

Worst case CLP species based on hazard statements/molecular weight.

vanadium {divanadium pentaoxide; vanadium pentoxide}

Worst case species.

zinc {zinc chloride}

Reasonable case CLP species based on site history, hazard statements/molecular weight. Noted that not enough metal and Cr(VI) present to make the worst case CLP (metal chromate) (noting concentrations not at hazardous levels in any case).

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.2.GB - Oct 2021
HazWasteOnline Classification Engine Version: 2024.30.5942.10989 (30 Jan 2024)
HazWasteOnline Database: 2024.26.5938.10982 (26 Jan 2024)

This classification utilises the following guidance and legislation:
WM3 v1.2.GB - Waste Classification - 1st Edition v1.2.GB - Oct 2021
CLP Regulation - Regulation 1272/2008/EC of 16 December 2008
1st ATP - Regulation 790/2009/EC of 10 August 2009
2nd ATP - Regulation 286/2011/EC of 10 March 2011
3rd ATP - Regulation 618/2012/EU of 10 July 2012
4th ATP - Regulation 487/2013/EU of 8 May 2013
Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013
5th ATP - Regulation 944/2013/EU of 2 October 2013
6th ATP - Regulation 605/2014/EU of 5 June 2014
WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014
Revised List of Waste 2014 - Decision 2014/955/EU of 18 December 2014
7th ATP - Regulation 2015/1221/EU of 24 July 2015
8th ATP - Regulation (EU) 2016/918 of 19 May 2016
9th ATP - Regulation (EU) 2016/1179 of 19 July 2016
10th ATP - Regulation (EU) 2017/776 of 4 May 2017
HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017
13th ATP - Regulation (EU) 2018/1480 of 4 October 2018
14th ATP - Regulation (EU) 2020/217 of 4 October 2019
15th ATP - Regulation (EU) 2020/1182 of 19 May 2020
The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020
The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1540 of 16th December 2020
GB MCL List - version 1.1 of 09 June 2021
GB MCL List v2.0 - version 2.0 of 20th October 2023

Waste Classification Report

HazWasteOnline™ classifies waste as either **hazardous** or **non-hazardous** based on its chemical composition, related legislation and the rules and data defined in the current UK or EU technical guidance (Appendix C) (note that HP 9 Infectious is not assessed). It is the responsibility of the classifier named below to:

a) understand the origin of the waste
b) select the correct List of Waste code(s)
c) confirm that the list of determinands, results and sampling plan are fit for purpose
d) select and justify the chosen metal species (Appendix B)
e) correctly apply moisture correction and other available corrections
f) add the meta data for their user-defined substances (Appendix A)
g) check that the classification engine is suitable with respect to the national destination of the waste (Appendix C)

To aid the reviewer, the laboratory results, assumptions and justifications managed by the classifier are highlighted in pale yellow.

4X5HR-7M7DA-QXBOM

Job name

24-79122_HWOL_Results

Description/Comments

i2 Analytical Report 24-79122

Project

51001/03

Site

Mayfield Phase 1B

Classified by

Name:
Kirsty Poore
Date:
31 Jan 2024 10:07 GMT
Telephone:
07983 740199

Company:
Civic Earth Limited
77 Dale Street
Manchester
M12HG

HazWasteOnline™ provides a two day, hazardous waste classification course that covers the use of the software and both basic and advanced waste classification techniques. Certification has to be renewed every 3 years.

HazWasteOnline™ Certification: **CERTIFIED**

Course	Date
Hazardous Waste Classification	05 Oct 2023

Next 3 year Refresher due by Oct 2026

Purpose of classification

2 - Material Characterisation

Address of the waste

Land off Baring Street **Post Code** M12 6HW

SIC for the process giving rise to the waste

41201 Construction of commercial buildings

Description of industry/producer giving rise to the waste

Redevelopment of former industrial site into residential-led development.

Description of the specific process, sub-process and/or activity that created the waste

Waste created during the excavation of soils during site investigation.

Description of the waste

Made Ground comprising predominantly clayey sandy gravel (brick and concrete).

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	WS1008-2-18012024-0.50	0.50m	Non Hazardous		3
2	WS1005-2-18012024-0.50	0.50m	Non Hazardous		6
3	WS1005-5-18012024-1.00	1.00m	Non Hazardous		9
4	WS1006-5-18012024-1.00	1.00m	Non Hazardous		12
5	WS1003-1-18012024-0.20	0.20m	Non Hazardous		15
6	WS1003-2-18012024-0.50	0.50m	Non Hazardous		18
7	WS1009-2-18012024-0.50	0.50m	Non Hazardous		21

Related documents

#	Name	Description
1	24-79122_HWOL_Results.hwol	i2 Analytical .hwol file used to populate the Job
2	Civic Earth Soil Suite 3 Waste Stream - i2	waste stream template used to create this Job

Report

Created by: Kirsty Poore

Created date: 31 Jan 2024 10:07 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	24
Appendix B: Rationale for selection of metal species	25
Appendix C: Version	26

Classification of sample: WS1008-2-18012024-0.50

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS1008-2-18012024-0.50
Sample Depth:
0.50m m
Moisture content:
13%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 13% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		10.1 pH		10.1 pH	10.1 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
3	monohydric phenols			P1186		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
4	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		2.1 mg/kg	1.197	2.187 mg/kg	0.000219 %	✓	
5	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		5.9 mg/kg	1.534	7.873 mg/kg	0.000787 %	✓	
6	barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		110 mg/kg	1.623	155.366 mg/kg	0.0155 %	✓	
7	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.52 mg/kg	2.775	1.256 mg/kg	0.000126 %	✓	
8	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.9 mg/kg	3.22	2.521 mg/kg	0.000252 %	✓	
9	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
10	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8 mg/kg	2.27	<4.086 mg/kg	<0.000409 %		<LOD
11	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		9.2 mg/kg	1.462	13.446 mg/kg	0.00134 %		
12	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		17 mg/kg	1.126	16.652 mg/kg	0.00167 %	✓	
13	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	20 mg/kg		17.4 mg/kg	0.00174 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
14		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
15		nickel { nickel sulfate }				10	mg/kg	2.637	22.939	mg/kg	0.00229 %	✓	
		028-009-00-5	232-104-9	7786-81-4									
16		selenium { nickel selenate }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		028-031-00-5	239-125-2	15060-62-5									
17		vanadium { divanadium pentaoxide; vanadium pentoxide }				16	mg/kg	1.785	24.85	mg/kg	0.00248 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
18		zinc { zinc chloride }				34	mg/kg	2.085	61.66	mg/kg	0.00617 %	✓	
		030-003-00-2	231-592-0	7646-85-7									
19		TPH (C6 to C40) petroleum group				<20	mg/kg		<20	mg/kg	<0.002 %		<LOD
				TPH									
20		benzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
21		toluene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
22		ethylbenzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
23		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
24		naphthalene				0.17	mg/kg		0.148	mg/kg	0.0000148 %	✓	
		601-052-00-2	202-049-5	91-20-3									
25		acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-917-1	208-96-8									
26		acenaphthene				0.05	mg/kg		0.0435	mg/kg	0.00000435 %	✓	
			201-469-6	83-32-9									
27		fluorene				0.05	mg/kg		0.0435	mg/kg	0.00000435 %	✓	
			201-695-5	86-73-7									
28		phenanthrene				0.36	mg/kg		0.313	mg/kg	0.0000313 %	✓	
			201-581-5	85-01-8									
29		anthracene				0.08	mg/kg		0.0696	mg/kg	0.00000696 %	✓	
			204-371-1	120-12-7									
30		fluoranthene				0.55	mg/kg		0.479	mg/kg	0.0000479 %	✓	
			205-912-4	206-44-0									
31		pyrene				0.5	mg/kg		0.435	mg/kg	0.0000435 %	✓	
			204-927-3	129-00-0									
32		benzo[a]anthracene				0.22	mg/kg		0.191	mg/kg	0.0000191 %	✓	
		601-033-00-9	200-280-6	56-55-3									
33		chrysene				0.23	mg/kg		0.2	mg/kg	0.00002 %	✓	
		601-048-00-0	205-923-4	218-01-9									
34		benzo[b]fluoranthene				0.24	mg/kg		0.209	mg/kg	0.0000209 %	✓	
		601-034-00-4	205-911-9	205-99-2									
35		benzo[k]fluoranthene				0.11	mg/kg		0.0957	mg/kg	0.00000957 %	✓	
		601-036-00-5	205-916-6	207-08-9									
36		benzo[a]pyrene; benzo[def]chrysene				0.22	mg/kg		0.191	mg/kg	0.0000191 %	✓	
		601-032-00-3	200-028-5	50-32-8									
37		indeno[123-cd]pyrene				0.14	mg/kg		0.122	mg/kg	0.0000122 %	✓	
			205-893-2	193-39-5									
38		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
39		benzo[ghi]perylene				0.15	mg/kg		0.13	mg/kg	0.000013 %	✓	
			205-883-8	191-24-2									
40		coronene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-881-7	191-07-1									
41		asbestos				<			<		<		ND
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
				77536-66-4 77536-68-6 77536-67-5 12001-29-5							
42		xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		**<LOD**
								Total:	0.0359 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS1005-2-18012024-0.50

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS1005-2-18012024-0.50
Sample Depth:
0.50m m
Moisture content:
17%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 17% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		10.6 pH		10.6 pH	10.6 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
3	monohydric phenols			P1186		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
4	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		2.6 mg/kg	1.197	2.583 mg/kg	0.000258 %	✓	
5	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		14 mg/kg	1.534	17.824 mg/kg	0.00178 %	✓	
6	barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		160 mg/kg	1.623	215.597 mg/kg	0.0216 %	✓	
7	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.58 mg/kg	2.775	1.336 mg/kg	0.000134 %	✓	
8	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		1.3 mg/kg	3.22	3.474 mg/kg	0.000347 %	✓	
9	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
10	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8 mg/kg	2.27	<4.086 mg/kg	<0.000409 %		<LOD
11	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		15 mg/kg	1.462	21.923 mg/kg	0.00219 %		
12	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		27 mg/kg	1.126	25.231 mg/kg	0.00252 %	✓	
13	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	84 mg/kg		69.72 mg/kg	0.00697 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
14		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
15		nickel { nickel sulfate }	028-009-00-5	232-104-9	7786-81-4		15	mg/kg	2.637	32.827	mg/kg	0.00328 %	✓	
16		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
17		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		22	mg/kg	1.785	32.597	mg/kg	0.00326 %	✓	
18		zinc { zinc chloride }	030-003-00-2	231-592-0	7646-85-7		83	mg/kg	2.085	143.603	mg/kg	0.0144 %	✓	
19		TPH (C6 to C40) petroleum group			TPH		172	mg/kg		142.76	mg/kg	0.0143 %	✓	
20		benzene	601-020-00-8	200-753-7	71-43-2		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
21		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
22		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
23		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
24		naphthalene	601-052-00-2	202-049-5	91-20-3		1.1	mg/kg		0.913	mg/kg	0.0000913 %	✓	
25		acenaphthylene		205-917-1	208-96-8		0.19	mg/kg		0.158	mg/kg	0.0000158 %	✓	
26		acenaphthene		201-469-6	83-32-9		1.4	mg/kg		1.162	mg/kg	0.000116 %	✓	
27		fluorene		201-695-5	86-73-7		1.2	mg/kg		0.996	mg/kg	0.0000996 %	✓	
28		phenanthrene		201-581-5	85-01-8		9.2	mg/kg		7.636	mg/kg	0.000764 %	✓	
29		anthracene		204-371-1	120-12-7		2.1	mg/kg		1.743	mg/kg	0.000174 %	✓	
30		fluoranthene		205-912-4	206-44-0		10	mg/kg		8.3	mg/kg	0.00083 %	✓	
31		pyrene		204-927-3	129-00-0		9.5	mg/kg		7.885	mg/kg	0.000789 %	✓	
32		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		4.1	mg/kg		3.403	mg/kg	0.00034 %	✓	
33		chrysene	601-048-00-0	205-923-4	218-01-9		4.3	mg/kg		3.569	mg/kg	0.000357 %	✓	
34		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		4.3	mg/kg		3.569	mg/kg	0.000357 %	✓	
35		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		1.4	mg/kg		1.162	mg/kg	0.000116 %	✓	
36		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		3.7	mg/kg		3.071	mg/kg	0.000307 %	✓	
37		indeno[123-cd]pyrene		205-893-2	193-39-5		2.1	mg/kg		1.743	mg/kg	0.000174 %	✓	
38		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		0.49	mg/kg		0.407	mg/kg	0.0000407 %	✓	
39		benzo[ghi]perylene		205-883-8	191-24-2		2.4	mg/kg		1.992	mg/kg	0.000199 %	✓	
40		coronene		205-881-7	191-07-1		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
41		asbestos	650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5		<			<		<		ND

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
				77536-66-4 77536-68-6 77536-67-5 12001-29-5							
42		xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
								Total:	0.0767 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No liquid phase present.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0143%)

Classification of sample: WS1005-5-18012024-1.00

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS1005-5-18012024-1.00
Sample Depth:
1.00m m
Moisture content:
18%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 18% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		8 pH		8 pH	8pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
3	monohydric phenols			P1186		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
4	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		3.4 mg/kg	1.197	3.338 mg/kg	0.000334 %	✓	
5	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		16 mg/kg	1.534	20.124 mg/kg	0.00201 %	✓	
6	barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		97 mg/kg	1.623	129.131 mg/kg	0.0129 %	✓	
7	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		1.6 mg/kg	2.775	3.641 mg/kg	0.000364 %	✓	
8	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.5 mg/kg	3.22	1.32 mg/kg	0.000132 %	✓	
9	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
10	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8 mg/kg	2.27	<4.086 mg/kg	<0.000409 %		<LOD
11	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		20 mg/kg	1.462	29.231 mg/kg	0.00292 %		
12	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		54 mg/kg	1.126	49.854 mg/kg	0.00499 %	✓	
13	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	99 mg/kg		81.18 mg/kg	0.00812 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
14		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.3	mg/kg	1.353	0.333	mg/kg	0.0000333 %	✓	
15		nickel { nickel sulfate }	028-009-00-5	232-104-9	7786-81-4		26	mg/kg	2.637	56.214	mg/kg	0.00562 %	✓	
16		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
17		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		30	mg/kg	1.785	43.916	mg/kg	0.00439 %	✓	
18		zinc { zinc chloride }	030-003-00-2	231-592-0	7646-85-7		72	mg/kg	2.085	123.07	mg/kg	0.0123 %	✓	
19		TPH (C6 to C40) petroleum group			TPH		<20	mg/kg		<20	mg/kg	<0.002 %		<LOD
20		benzene	601-020-00-8	200-753-7	71-43-2		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
21		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
22		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
23		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
24		naphthalene	601-052-00-2	202-049-5	91-20-3		0.31	mg/kg		0.254	mg/kg	0.0000254 %	✓	
25		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
26		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
27		fluorene		201-695-5	86-73-7		0.05	mg/kg		0.041	mg/kg	0.0000041 %	✓	
28		phenanthrene		201-581-5	85-01-8		0.24	mg/kg		0.197	mg/kg	0.0000197 %	✓	
29		anthracene		204-371-1	120-12-7		0.07	mg/kg		0.0574	mg/kg	0.00000574 %	✓	
30		fluoranthene		205-912-4	206-44-0		0.3	mg/kg		0.246	mg/kg	0.0000246 %	✓	
31		pyrene		204-927-3	129-00-0		0.28	mg/kg		0.23	mg/kg	0.000023 %	✓	
32		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.14	mg/kg		0.115	mg/kg	0.0000115 %	✓	
33		chrysene	601-048-00-0	205-923-4	218-01-9		0.14	mg/kg		0.115	mg/kg	0.0000115 %	✓	
34		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.17	mg/kg		0.139	mg/kg	0.0000139 %	✓	
35		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
36		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.13	mg/kg		0.107	mg/kg	0.0000107 %	✓	
37		indeno[123-cd]pyrene		205-893-2	193-39-5		0.08	mg/kg		0.0656	mg/kg	0.00000656 %	✓	
38		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
39		benzo[ghi]perylene		205-883-8	191-24-2		0.11	mg/kg		0.0902	mg/kg	0.00000902 %	✓	
40		coronene		205-881-7	191-07-1		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
41		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2]	95-47-6 [1] 106-42-3 [2]		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
			203-576-3 [3] 215-535-7 [4]	108-38-3 [3] 1330-20-7 [4]							
								Total:	0.0573 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS1006-5-18012024-1.00

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS1006-5-18012024-1.00
Sample Depth:
1.00m m
Moisture content:
16%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 16% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		8.4 pH		8.4 pH	8.4 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
3	monohydric phenols			P1186		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
4	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		7.2 mg/kg	1.197	7.24 mg/kg	0.000724 %	✓	
5	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		55 mg/kg	1.534	70.865 mg/kg	0.00709 %	✓	
6	barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		200 mg/kg	1.623	272.743 mg/kg	0.0273 %	✓	
7	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		1.4 mg/kg	2.775	3.264 mg/kg	0.000326 %	✓	
8	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.5 mg/kg	3.22	1.352 mg/kg	0.000135 %	✓	
9	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
10	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8 mg/kg	2.27	<4.086 mg/kg	<0.000409 %		<LOD
11	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		66 mg/kg	1.462	96.463 mg/kg	0.00965 %		
12	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		90 mg/kg	1.126	85.117 mg/kg	0.00851 %	✓	
13	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	310 mg/kg		260.4 mg/kg	0.026 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
14		mercury { mercury dichloride }				1.3	mg/kg	1.353	1.478	mg/kg	0.000148 %	✓	
		080-010-00-X	231-299-8	7487-94-7									
15		nickel { nickel sulfate }				20	mg/kg	2.637	44.296	mg/kg	0.00443 %	✓	
		028-009-00-5	232-104-9	7786-81-4									
16		selenium { nickel selenate }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		028-031-00-5	239-125-2	15060-62-5									
17		vanadium { divanadium pentaoxide; vanadium pentoxide }				26	mg/kg	1.785	38.988	mg/kg	0.0039 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
18		zinc { zinc chloride }				260	mg/kg	2.085	455.259	mg/kg	0.0455 %	✓	
		030-003-00-2	231-592-0	7646-85-7									
19		TPH (C6 to C40) petroleum group				53	mg/kg		44.52	mg/kg	0.00445 %	✓	
				TPH									
20		benzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
21		toluene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
22		ethylbenzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
23		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
24		naphthalene				2.4	mg/kg		2.016	mg/kg	0.000202 %	✓	
		601-052-00-2	202-049-5	91-20-3									
25		acenaphthylene				0.13	mg/kg		0.109	mg/kg	0.0000109 %	✓	
			205-917-1	208-96-8									
26		acenaphthene				1.4	mg/kg		1.176	mg/kg	0.000118 %	✓	
			201-469-6	83-32-9									
27		fluorene				1	mg/kg		0.84	mg/kg	0.000084 %	✓	
			201-695-5	86-73-7									
28		phenanthrene				7.1	mg/kg		5.964	mg/kg	0.000596 %	✓	
			201-581-5	85-01-8									
29		anthracene				1.5	mg/kg		1.26	mg/kg	0.000126 %	✓	
			204-371-1	120-12-7									
30		fluoranthene				6.5	mg/kg		5.46	mg/kg	0.000546 %	✓	
			205-912-4	206-44-0									
31		pyrene				6.7	mg/kg		5.628	mg/kg	0.000563 %	✓	
			204-927-3	129-00-0									
32		benzo[a]anthracene				2.7	mg/kg		2.268	mg/kg	0.000227 %	✓	
		601-033-00-9	200-280-6	56-55-3									
33		chrysene				3.1	mg/kg		2.604	mg/kg	0.00026 %	✓	
		601-048-00-0	205-923-4	218-01-9									
34		benzo[b]fluoranthene				2.5	mg/kg		2.1	mg/kg	0.00021 %	✓	
		601-034-00-4	205-911-9	205-99-2									
35		benzo[k]fluoranthene				1.3	mg/kg		1.092	mg/kg	0.000109 %	✓	
		601-036-00-5	205-916-6	207-08-9									
36		benzo[a]pyrene; benzo[def]chrysene				2.4	mg/kg		2.016	mg/kg	0.000202 %	✓	
		601-032-00-3	200-028-5	50-32-8									
37		indeno[123-cd]pyrene				1.3	mg/kg		1.092	mg/kg	0.000109 %	✓	
			205-893-2	193-39-5									
38		dibenz[a,h]anthracene				0.35	mg/kg		0.294	mg/kg	0.0000294 %	✓	
		601-041-00-2	200-181-8	53-70-3									
39		benzo[ghi]perylene				1.7	mg/kg		1.428	mg/kg	0.000143 %	✓	
			205-883-8	191-24-2									
40		coronene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-881-7	191-07-1									
41		asbestos				<			<		<		ND
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
				77536-66-4 77536-68-6 77536-67-5 12001-29-5							
42		xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
								Total:	0.143 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No liquid phase present.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00445%)

Classification of sample: WS1003-1-18012024-0.20

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS1003-1-18012024-0.20
Sample Depth:
0.20m m
Moisture content:
8.4%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 8.4% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		10.3 pH		10.3 pH	10.3 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
3	monohydric phenols			P1186		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
4	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		2.2 mg/kg	1.197	2.412 mg/kg	0.000241 %	✓	
5	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		14 mg/kg	1.534	19.67 mg/kg	0.00197 %	✓	
6	barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		120 mg/kg	1.623	178.452 mg/kg	0.0178 %	✓	
7	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.66 mg/kg	2.775	1.678 mg/kg	0.000168 %	✓	
8	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.8 mg/kg	3.22	2.36 mg/kg	0.000236 %	✓	
9	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
10	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8 mg/kg	2.27	<4.086 mg/kg	<0.000409 %		<LOD
11	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		15 mg/kg	1.462	21.923 mg/kg	0.00219 %		
12	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		29 mg/kg	1.126	29.908 mg/kg	0.00299 %	✓	
13	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	97 mg/kg		88.852 mg/kg	0.00889 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
14		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<**LOD**
		080-010-00-X	231-299-8	7487-94-7									
15		nickel { nickel sulfate }				14	mg/kg	2.637	33.813	mg/kg	0.00338 %	✓	
		028-009-00-5	232-104-9	7786-81-4									
16		selenium { nickel selenate }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<**LOD**
		028-031-00-5	239-125-2	15060-62-5									
17		vanadium { divanadium pentaoxide; vanadium pentoxide }				20	mg/kg	1.785	32.705	mg/kg	0.00327 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
18		zinc { zinc chloride }				70	mg/kg	2.085	133.66	mg/kg	0.0134 %	✓	
		030-003-00-2	231-592-0	7646-85-7									
19		TPH (C6 to C40) petroleum group				<20	mg/kg		<20	mg/kg	<0.002 %		<**LOD**
				TPH									
20		benzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
21		toluene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
22		ethylbenzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
23		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		603-181-00-X	216-653-1	1634-04-4									
24		naphthalene				0.38	mg/kg		0.348	mg/kg	0.0000348 %	✓	
		601-052-00-2	202-049-5	91-20-3									
25		acenaphthylene				0.07	mg/kg		0.0641	mg/kg	0.00000641 %	✓	
			205-917-1	208-96-8									
26		acenaphthene				0.17	mg/kg		0.156	mg/kg	0.0000156 %	✓	
			201-469-6	83-32-9									
27		fluorene				0.14	mg/kg		0.128	mg/kg	0.0000128 %	✓	
			201-695-5	86-73-7									
28		phenanthrene				1.2	mg/kg		1.099	mg/kg	0.00011 %	✓	
			201-581-5	85-01-8									
29		anthracene				0.28	mg/kg		0.256	mg/kg	0.0000256 %	✓	
			204-371-1	120-12-7									
30		fluoranthene				1.8	mg/kg		1.649	mg/kg	0.000165 %	✓	
			205-912-4	206-44-0									
31		pyrene				1.8	mg/kg		1.649	mg/kg	0.000165 %	✓	
			204-927-3	129-00-0									
32		benzo[a]anthracene				0.81	mg/kg		0.742	mg/kg	0.0000742 %	✓	
		601-033-00-9	200-280-6	56-55-3									
33		chrysene				0.88	mg/kg		0.806	mg/kg	0.0000806 %	✓	
		601-048-00-0	205-923-4	218-01-9									
34		benzo[b]fluoranthene				0.86	mg/kg		0.788	mg/kg	0.0000788 %	✓	
		601-034-00-4	205-911-9	205-99-2									
35		benzo[k]fluoranthene				0.34	mg/kg		0.311	mg/kg	0.0000311 %	✓	
		601-036-00-5	205-916-6	207-08-9									
36		benzo[a]pyrene; benzo[def]chrysene				0.71	mg/kg		0.65	mg/kg	0.000065 %	✓	
		601-032-00-3	200-028-5	50-32-8									
37		indeno[123-cd]pyrene				0.44	mg/kg		0.403	mg/kg	0.0000403 %	✓	
			205-893-2	193-39-5									
38		dibenz[a,h]anthracene				0.11	mg/kg		0.101	mg/kg	0.0000101 %	✓	
		601-041-00-2	200-181-8	53-70-3									
39		benzo[ghi]perylene				0.47	mg/kg		0.431	mg/kg	0.0000431 %	✓	
			205-883-8	191-24-2									
40		coronene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			205-881-7	191-07-1									
41		asbestos				<			<		<		**ND**
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
				77536-66-4 77536-68-6 77536-67-5 12001-29-5							
42		xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		**<LOD**
								Total:	0.0585 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS1003-2-18012024-0.50

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS1003-2-18012024-0.50
Sample Depth:
0.50m m
Moisture content:
9.6%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 9.6% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		9.1 pH		9.1 pH	9.1 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
3	monohydric phenols			P1186		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
4	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		3.1 mg/kg	1.197	3.355 mg/kg	0.000335 %	✓	
5	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		15 mg/kg	1.534	20.799 mg/kg	0.00208 %	✓	
6	barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		100 mg/kg	1.623	146.762 mg/kg	0.0147 %	✓	
7	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.71 mg/kg	2.775	1.781 mg/kg	0.000178 %	✓	
8	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.6 mg/kg	3.22	1.746 mg/kg	0.000175 %	✓	
9	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
10	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8 mg/kg	2.27	<4.086 mg/kg	<0.000409 %		<LOD
11	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		16 mg/kg	1.462	23.385 mg/kg	0.00234 %		
12	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		37 mg/kg	1.126	37.659 mg/kg	0.00377 %	✓	
13	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	87 mg/kg		78.648 mg/kg	0.00786 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
14		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
15		nickel { nickel sulfate }	028-009-00-5	232-104-9	7786-81-4		14	mg/kg	2.637	33.37	mg/kg	0.00334 %	✓	
16		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
17		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		20	mg/kg	1.785	32.276	mg/kg	0.00323 %	✓	
18		zinc { zinc chloride }	030-003-00-2	231-592-0	7646-85-7		80	mg/kg	2.085	150.753	mg/kg	0.0151 %	✓	
19		TPH (C6 to C40) petroleum group			TPH		46	mg/kg		41.584	mg/kg	0.00416 %	✓	
20		benzene	601-020-00-8	200-753-7	71-43-2		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
21		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
22		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
23		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
24		naphthalene	601-052-00-2	202-049-5	91-20-3		0.47	mg/kg		0.425	mg/kg	0.0000425 %	✓	
25		acenaphthylene		205-917-1	208-96-8		0.09	mg/kg		0.0814	mg/kg	0.00000814 %	✓	
26		acenaphthene		201-469-6	83-32-9		0.21	mg/kg		0.19	mg/kg	0.000019 %	✓	
27		fluorene		201-695-5	86-73-7		0.23	mg/kg		0.208	mg/kg	0.0000208 %	✓	
28		phenanthrene		201-581-5	85-01-8		1.4	mg/kg		1.266	mg/kg	0.000127 %	✓	
29		anthracene		204-371-1	120-12-7		0.31	mg/kg		0.28	mg/kg	0.000028 %	✓	
30		fluoranthene		205-912-4	206-44-0		1.9	mg/kg		1.718	mg/kg	0.000172 %	✓	
31		pyrene		204-927-3	129-00-0		1.9	mg/kg		1.718	mg/kg	0.000172 %	✓	
32		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.82	mg/kg		0.741	mg/kg	0.0000741 %	✓	
33		chrysene	601-048-00-0	205-923-4	218-01-9		0.93	mg/kg		0.841	mg/kg	0.0000841 %	✓	
34		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.84	mg/kg		0.759	mg/kg	0.0000759 %	✓	
35		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.39	mg/kg		0.353	mg/kg	0.0000353 %	✓	
36		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.8	mg/kg		0.723	mg/kg	0.0000723 %	✓	
37		indeno[123-cd]pyrene		205-893-2	193-39-5		0.45	mg/kg		0.407	mg/kg	0.0000407 %	✓	
38		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		0.1	mg/kg		0.0904	mg/kg	0.00000904 %	✓	
39		benzo[ghi]perylene		205-883-8	191-24-2		0.51	mg/kg		0.461	mg/kg	0.0000461 %	✓	
40		coronene		205-881-7	191-07-1		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
41		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2]	95-47-6 [1] 106-42-3 [2]		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
			203-576-3 [3] 215-535-7 [4]	108-38-3 [3] 1330-20-7 [4]							
								Total:	0.0593 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No liquid phase present.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00416%)

Classification of sample: WS1009-2-18012024-0.50

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS1009-2-18012024-0.50
Sample Depth:
0.50m m
Moisture content:
11%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 11% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		10.1 pH		10.1 pH	10.1 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
3	monohydric phenols			P1186		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
4	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		3.3 mg/kg	1.197	3.516 mg/kg	0.000352 %	✓	
5	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		11 mg/kg	1.534	15.017 mg/kg	0.0015 %	✓	
6	barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		160 mg/kg	1.623	231.182 mg/kg	0.0231 %	✓	
7	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.62 mg/kg	2.775	1.531 mg/kg	0.000153 %	✓	
8	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.6 mg/kg	3.22	1.719 mg/kg	0.000172 %	✓	
9	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
10	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8 mg/kg	2.27	<4.086 mg/kg	<0.000409 %		<LOD
11	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		14 mg/kg	1.462	20.462 mg/kg	0.00205 %		
12	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		29 mg/kg	1.126	29.059 mg/kg	0.00291 %	✓	
13	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	100 mg/kg		89 mg/kg	0.0089 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
14		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
15		nickel { nickel sulfate }				14	mg/kg	2.637	32.853	mg/kg	0.00329 %	✓	
		028-009-00-5	232-104-9	7786-81-4									
16		selenium { nickel selenate }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		028-031-00-5	239-125-2	15060-62-5									
17		vanadium { divanadium pentaoxide; vanadium pentoxide }				22	mg/kg	1.785	34.954	mg/kg	0.0035 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
18		zinc { zinc chloride }				100	mg/kg	2.085	185.522	mg/kg	0.0186 %	✓	
		030-003-00-2	231-592-0	7646-85-7									
19		TPH (C6 to C40) petroleum group				180	mg/kg		160.2	mg/kg	0.016 %	✓	
				TPH									
20		benzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
21		toluene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
22		ethylbenzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
23		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
24		naphthalene				3.3	mg/kg		2.937	mg/kg	0.000294 %	✓	
		601-052-00-2	202-049-5	91-20-3									
25		acenaphthylene				0.15	mg/kg		0.134	mg/kg	0.0000134 %	✓	
			205-917-1	208-96-8									
26		acenaphthene				9.3	mg/kg		8.277	mg/kg	0.000828 %	✓	
			201-469-6	83-32-9									
27		fluorene				7.1	mg/kg		6.319	mg/kg	0.000632 %	✓	
			201-695-5	86-73-7									
28		phenanthrene				37	mg/kg		32.93	mg/kg	0.00329 %	✓	
			201-581-5	85-01-8									
29		anthracene				10	mg/kg		8.9	mg/kg	0.00089 %	✓	
			204-371-1	120-12-7									
30		fluoranthene				34	mg/kg		30.26	mg/kg	0.00303 %	✓	
			205-912-4	206-44-0									
31		pyrene				28	mg/kg		24.92	mg/kg	0.00249 %	✓	
			204-927-3	129-00-0									
32		benzo[a]anthracene				13	mg/kg		11.57	mg/kg	0.00116 %	✓	
		601-033-00-9	200-280-6	56-55-3									
33		chrysene				12	mg/kg		10.68	mg/kg	0.00107 %	✓	
		601-048-00-0	205-923-4	218-01-9									
34		benzo[b]fluoranthene				11	mg/kg		9.79	mg/kg	0.000979 %	✓	
		601-034-00-4	205-911-9	205-99-2									
35		benzo[k]fluoranthene				5.8	mg/kg		5.162	mg/kg	0.000516 %	✓	
		601-036-00-5	205-916-6	207-08-9									
36		benzo[a]pyrene; benzo[def]chrysene				10	mg/kg		8.9	mg/kg	0.00089 %	✓	
		601-032-00-3	200-028-5	50-32-8									
37		indeno[123-cd]pyrene				5.9	mg/kg		5.251	mg/kg	0.000525 %	✓	
			205-893-2	193-39-5									
38		dibenz[a,h]anthracene				1.4	mg/kg		1.246	mg/kg	0.000125 %	✓	
		601-041-00-2	200-181-8	53-70-3									
39		benzo[ghi]perylene				5.9	mg/kg		5.251	mg/kg	0.000525 %	✓	
			205-883-8	191-24-2									
40		coronene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-881-7	191-07-1									
41		asbestos				<			<		<		ND
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
				77536-66-4 77536-68-6 77536-67-5 12001-29-5							
42		xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
								Total:	0.0988 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No liquid phase present.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.016%)

Appendix A: Classifier defined and non GB MCL determinands

- **pH** (CAS Number: PH)

Description/Comments: Appendix C4
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

- **salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex**

GB MCL index number: 006-007-00-5
Description/Comments: Conversion factor based on a worst case compound: sodium cyanide
Additional Hazard Statement(s): EUH032 >= 0.2 %
Reason for additional Hazards Statement(s):
20 Nov 2021 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

- **monohydric phenols** (CAS Number: P1186)

Description/Comments: Combined hazards statements from harmonised entries in CLP for phenol, cresols and xylenols (604-001-00-2, 604-004-00-9, 604-006-00-X)
Data source: CLP combined data
Data source date: 26 Mar 2019
Hazard Statements: Muta. 2; H341 , Acute Tox. 3; H331 , Acute Tox. 3; H311 , Acute Tox. 3; H301 , STOT RE 2; H373 , Skin Corr. 1B; H314 , Skin Corr. 1B; H314 >= 3 % , Skin Irrit. 2; H315 1 <= conc. < 3 % , Eye Irrit. 2; H319 1 <= conc. < 3 % , Aquatic Chronic 2; H411

- **chromium(III) oxide (worst case)** (EC Number: 215-160-9, CAS Number: 1308-38-9)

Description/Comments: Data from C&L Inventory Database
Data source: https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H332 , Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Resp. Sens. 1; H334 , Skin Sens. 1; H317 , Repr. 1B; H360FD , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **lead compounds with the exception of those specified elsewhere in this Annex (worst case)**

GB MCL index number: 082-001-00-6
Description/Comments: Worst Case: IARC considers lead compounds Group 2A; Probably carcinogenic to humans; Lead REACH Consortium, following MCL protocols, considers lead compounds from smelting industries, flue dust and similar to be Carcinogenic category 1A
Additional Hazard Statement(s): Carc. 1A; H350
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 1A; H350 hazard statement sourced from: IARC Group 2A (Sup 7, 87) 2006; Lead REACH Consortium www.reach-lead.eu/substanceinformation.html (worst case lead compounds). Review date 29/09/2015

- **TPH (C6 to C40) petroleum group** (CAS Number: TPH)

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: Flam. Liq. 3; H226 , Asp. Tox. 1; H304 , STOT RE 2; H373 , Muta. 1B; H340 , Carc. 1B; H350 , Repr. 2; H361d , Aquatic Chronic 2; H411

- **ethylbenzene** (EC Number: 202-849-4, CAS Number: 100-41-4)

GB MCL index number: 601-023-00-4
Description/Comments:
Additional Hazard Statement(s): Carc. 2; H351
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2B (77) 2000

- **acenaphthylene** (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 1; H330 , Acute Tox. 1; H310 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315

- **acenaphthene** (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Aquatic Chronic 2; H411

- **fluorene** (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **phenanthrene** (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Carc. 2; H351 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Skin Irrit. 2; H315

- **anthracene** (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **fluoranthene** (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **pyrene** (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **indeno[123-cd]pyrene** (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Carc. 2; H351

- **benzo[ghi]perylene** (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 23 Jul 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **coronene** (EC Number: 205-881-7, CAS Number: 191-07-1)

Description/Comments: Data from C&L Inventory Database; no entries in Registered Substances or Pesticides Properties databases; SDS: Sigma Aldrich, 1907/2006 compliant, dated 2012 - no entries; IARC – Group 3, not carcinogenic.
Data source: http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=17010&HarmOnly=no?fc=true&lang=en
Data source date: 16 Jun 2014
Hazard Statements: STOT SE 2; H371

Appendix B: Rationale for selection of metal species

cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case as complex cyanides and those specified elsewhere in the annex are not likely to be present in this soil: [Note conversion factor based on a worst case compound: sodium cyanide].

antimony {antimony trioxide}

Worst case CLP species based on hazard statements/molecular weight and low solubility. Industrial sources include: flame retardants in electrical apparatus, textiles and coatings.

arsenic {arsenic pentoxide}

Worst case CLP species based on hazard statements/molecular weight. Industrial sources include: arsenates, weed killers, metal adhesives, insecticides, fungicides, wood preservatives, coloured gases, printing and dyeing.

barium {barium diboron tetraoxide}

Reasonable case CLP species based on site history, hazard statements/molecular weight. Noted that not enough metal and Cr(VI) present to make the worst case CLP (metal chromate) (noting concentrations not at hazardous levels in any case).

beryllium {beryllium oxide}

Reasonable case CLP species based on hazard statements/molecular weight. Industrial sources include: most common (non alloy) form, used in ceramics.

boron {diboron trioxide}

Reasonable case CLP species based on hazard statements/ molecular weight, physical form and low solubility. Industrial sources include: fluxing agent for glass/enamels; additive for fibre optics, borosilicate glass.

cadmium {cadmium oxide}

Reasonable case CLP species based on hazard statements/molecular weight, very low solubility in water. Industrial sources include: electroplating baths, electrodes for storage batteries, catalysts, ceramic glazes, phosphors, pigments and nematocides. Worst case compounds in CLP: cadmium sulphate, chloride, fluoride & iodide not expected as either very soluble and/or compound's industrial usage not related to site history.

chromium in chromium(VI) compounds {chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex}

Worst case species based on hazard statements/molecular weight.

chromium in chromium(III) compounds {chromium(III) oxide (worst case)}

Reasonable case species based on hazard statements/molecular weight. Industrial sources include: tanning, pigment in paint, inks and glass.

copper {dicopper oxide; copper (I) oxide}

Reasonable case CLP species based on hazard statements/molecular weight and insolubility in water. Industrial sources include: oxidised copper metal, brake pads, pigments, antifouling paints, fungicide. Worse case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected.

lead {lead compounds with the exception of those specified elsewhere in this Annex (worst case)}

Reasonable case CLP species based on site history, hazard statements/molecular weight. Noted that not enough metal and Cr(VI) present to make the worst case CLP (metal chromate) (noting concentrations not at hazardous levels in any case).

mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weight.

nickel {nickel sulfate}

Reasonable case CLP species based on hazard statements/molecular weight. Industrial sources include: copper refining, electroplating and rechargeable batteries. Worst case compounds in CLP not expected as either very soluble and/or compounds industrial useage not related to site history.

selenium {nickel selenate}

Worst case CLP species based on hazard statements/molecular weight.

vanadium {divanadium pentaoxide; vanadium pentoxide}

Worst case species.

zinc {zinc chloride}

Reasonable case CLP species based on site history, hazard statements/molecular weight. Noted that not enough metal and Cr(VI) present to make the worst case CLP (metal chromate) (noting concentrations not at hazardous levels in any case).

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.2.GB - Oct 2021
HazWasteOnline Classification Engine Version: 2024.30.5942.10989 (30 Jan 2024)
HazWasteOnline Database: 2024.26.5938.10982 (26 Jan 2024)

This classification utilises the following guidance and legislation:
WM3 v1.2.GB - Waste Classification - 1st Edition v1.2.GB - Oct 2021
CLP Regulation - Regulation 1272/2008/EC of 16 December 2008
1st ATP - Regulation 790/2009/EC of 10 August 2009
2nd ATP - Regulation 286/2011/EC of 10 March 2011
3rd ATP - Regulation 618/2012/EU of 10 July 2012
4th ATP - Regulation 487/2013/EU of 8 May 2013
Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013
5th ATP - Regulation 944/2013/EU of 2 October 2013
6th ATP - Regulation 605/2014/EU of 5 June 2014
WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014
Revised List of Waste 2014 - Decision 2014/955/EU of 18 December 2014
7th ATP - Regulation 2015/1221/EU of 24 July 2015
8th ATP - Regulation (EU) 2016/918 of 19 May 2016
9th ATP - Regulation (EU) 2016/1179 of 19 July 2016
10th ATP - Regulation (EU) 2017/776 of 4 May 2017
HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017
13th ATP - Regulation (EU) 2018/1480 of 4 October 2018
14th ATP - Regulation (EU) 2020/217 of 4 October 2019
15th ATP - Regulation (EU) 2020/1182 of 19 May 2020
The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020
The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1540 of 16th December 2020
GB MCL List - version 1.1 of 09 June 2021
GB MCL List v2.0 - version 2.0 of 20th October 2023

Waste Classification Report

HazWasteOnline™ classifies waste as either **hazardous** or **non-hazardous** based on its chemical composition, related legislation and the rules and data defined in the current UK or EU technical guidance (Appendix C) (note that HP 9 Infectious is not assessed). It is the responsibility of the classifier named below to:

a) understand the origin of the waste
b) select the correct List of Waste code(s)
c) confirm that the list of determinands, results and sampling plan are fit for purpose
d) select and justify the chosen metal species (Appendix B)
e) correctly apply moisture correction and other available corrections
f) add the meta data for their user-defined substances (Appendix A)
g) check that the classification engine is suitable with respect to the national destination of the waste (Appendix C)

To aid the reviewer, the laboratory results, assumptions and justifications managed by the classifier are highlighted in pale yellow.

SJX3X-IFWYO-SD297

Job name

24-79387_HWOL_Results

Description/Comments

i2 Analytical Report 24-79387

Project

51001/03

Site

Mayfield Phase 1B

Classified by

Name:
Kirsty Poore
Date:
21 Feb 2024 12:53 GMT
Telephone:
07983 740199

Company:
Civic Earth Limited
77 Dale Street
Manchester
M12HG

HazWasteOnline™ provides a two day, hazardous waste classification course that covers the use of the software and both basic and advanced waste classification techniques. Certification has to be renewed every 3 years.

HazWasteOnline™ Certification: **CERTIFIED**

Course	Date
Hazardous Waste Classification	05 Oct 2023

Next 3 year Refresher due by Oct 2026

Purpose of classification

2 - Material Characterisation

Address of the waste

Land off Baring Street **Post Code** M12 6HW

SIC for the process giving rise to the waste

41201 Construction of commercial buildings

Description of industry/producer giving rise to the waste

Redevelopment of former industrial site into residential-led development.

Description of the specific process, sub-process and/or activity that created the waste

Waste created during the excavation of soils during site investigation.

Description of the waste

Made Ground comprising predominantly clayey sandy gravel (brick and concrete).

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	WS1004-3-19012024-0.80	0.80m	Non Hazardous		3
2	WS1004-6-19012024-2.00	2.00m	Non Hazardous		6
3	WS1007-3-19012024-0.70	0.70m	Non Hazardous		9
4	WS1002-5-19012024-1.50	1.50m	Non Hazardous		12
5	WS1001-3-19012024-1.00	1.00m	Non Hazardous		15

Related documents

#	Name	Description
1	24-79387_HWOL_Results.hwol	i2 Analytical .hwol file used to populate the Job
2	Civic Earth Soil Suite 3 Waste Stream - i2	waste stream template used to create this Job

Report

Created by: Kirsty Poore

Created date: 21 Feb 2024 12:53 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	18
Appendix B: Rationale for selection of metal species	19
Appendix C: Version	20

Classification of sample: WS1004-3-19012024-0.80

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS1004-3-19012024-0.80
Sample Depth:
0.80m m
Moisture content:
17%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 17% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		8.2 pH		8.2 pH	8.2 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<**LOD**
3	monohydric phenols			P1186		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
4	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		2 mg/kg	1.197	1.987 mg/kg	0.000199 %	✓	
5	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		8 mg/kg	1.534	10.185 mg/kg	0.00102 %	✓	
6	barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		120 mg/kg	1.623	161.698 mg/kg	0.0162 %	✓	
7	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		1.1 mg/kg	2.775	2.534 mg/kg	0.000253 %	✓	
8	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.6 mg/kg	3.22	1.603 mg/kg	0.00016 %	✓	
9	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<**LOD**
10	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8 mg/kg	2.27	<4.086 mg/kg	<0.000409 %		<**LOD**
11	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		26 mg/kg	1.462	38 mg/kg	0.0038 %		
12	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		27 mg/kg	1.126	25.231 mg/kg	0.00252 %	✓	
13	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	23 mg/kg		19.09 mg/kg	0.00191 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
14		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
15		nickel { nickel sulfate }				30	mg/kg	2.637	65.653	mg/kg	0.00657 %	✓	
		028-009-00-5	232-104-9	7786-81-4									
16		selenium { nickel selenate }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		028-031-00-5	239-125-2	15060-62-5									
17		vanadium { divanadium pentaoxide; vanadium pentoxide }				29	mg/kg	1.785	42.969	mg/kg	0.0043 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
18		zinc { zinc chloride }				60	mg/kg	2.085	103.809	mg/kg	0.0104 %	✓	
		030-003-00-2	231-592-0	7646-85-7									
19		TPH (C6 to C40) petroleum group				<20	mg/kg		<20	mg/kg	<0.002 %		<LOD
				TPH									
20		benzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
21		toluene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
22		ethylbenzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
23		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
24		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
25		acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-917-1	208-96-8									
26		acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-469-6	83-32-9									
27		fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-695-5	86-73-7									
28		phenanthrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-581-5	85-01-8									
29		anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			204-371-1	120-12-7									
30		fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-912-4	206-44-0									
31		pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			204-927-3	129-00-0									
32		benzo[a]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
33		chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
34		benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
35		benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
36		benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
37		indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-893-2	193-39-5									
38		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
39		benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-883-8	191-24-2									
40		coronene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-881-7	191-07-1									
41		asbestos				<			<		<		ND
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
				77536-66-4 77536-68-6 77536-67-5 12001-29-5							
42		polychlorobiphenyls; PCB				<0.012 mg/kg		<0.012 mg/kg	<0.0000012 %		<**LOD**
		602-039-00-4	215-648-1	1336-36-3							
43		xylene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]							
									Total:		0.0504 %

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: WS1004-6-19012024-2.00

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS1004-6-19012024-2.00
Sample Depth:
2.00m m
Moisture content:
25%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 25% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		7.8 pH		7.8 pH	7.8 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
3	monohydric phenols			P1186		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
4	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		5.4 mg/kg	1.197	4.848 mg/kg	0.000485 %	✓	
5	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		39 mg/kg	1.534	44.866 mg/kg	0.00449 %	✓	
6	barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		150 mg/kg	1.623	182.641 mg/kg	0.0183 %	✓	
7	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		1.5 mg/kg	2.775	3.122 mg/kg	0.000312 %	✓	
8	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.5 mg/kg	3.22	1.207 mg/kg	0.000121 %	✓	
9	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<LOD
10	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8 mg/kg	2.27	<4.086 mg/kg	<0.000409 %		<LOD
11	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		29 mg/kg	1.462	42.385 mg/kg	0.00424 %		
12	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		140 mg/kg	1.126	118.218 mg/kg	0.0118 %	✓	
13	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	220 mg/kg		165 mg/kg	0.0165 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
14		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		3.2	mg/kg	1.353	3.248	mg/kg	0.000325 %	✓	
15		nickel { nickel sulfate }	028-009-00-5	232-104-9	7786-81-4		39	mg/kg	2.637	77.123	mg/kg	0.00771 %	✓	
16		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
17		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		33	mg/kg	1.785	44.183	mg/kg	0.00442 %	✓	
18		zinc { zinc chloride }	030-003-00-2	231-592-0	7646-85-7		110	mg/kg	2.085	171.973	mg/kg	0.0172 %	✓	
19		TPH (C6 to C40) petroleum group			TPH		35	mg/kg		26.25	mg/kg	0.00263 %	✓	
20		benzene	601-020-00-8	200-753-7	71-43-2		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
21		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
22		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
23		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
24		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
25		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
26		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
27		fluorene		201-695-5	86-73-7		0.11	mg/kg		0.0825	mg/kg	0.00000825 %	✓	
28		phenanthrene		201-581-5	85-01-8		0.29	mg/kg		0.218	mg/kg	0.0000218 %	✓	
29		anthracene		204-371-1	120-12-7		0.14	mg/kg		0.105	mg/kg	0.0000105 %	✓	
30		fluoranthene		205-912-4	206-44-0		0.44	mg/kg		0.33	mg/kg	0.000033 %	✓	
31		pyrene		204-927-3	129-00-0		0.4	mg/kg		0.3	mg/kg	0.00003 %	✓	
32		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.21	mg/kg		0.158	mg/kg	0.0000158 %	✓	
33		chrysene	601-048-00-0	205-923-4	218-01-9		0.2	mg/kg		0.15	mg/kg	0.000015 %	✓	
34		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.21	mg/kg		0.158	mg/kg	0.0000158 %	✓	
35		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.07	mg/kg		0.0525	mg/kg	0.00000525 %	✓	
36		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.15	mg/kg		0.113	mg/kg	0.0000113 %	✓	
37		indeno[123-cd]pyrene		205-893-2	193-39-5		0.08	mg/kg		0.06	mg/kg	0.000006 %	✓	
38		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
39		benzo[ghi]perylene		205-883-8	191-24-2		0.1	mg/kg		0.075	mg/kg	0.0000075 %	✓	
40		coronene		205-881-7	191-07-1		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
41		asbestos	650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5		<			<		<		ND

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
				77536-66-4 77536-68-6 77536-67-5 12001-29-5							
42		xylene									
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
								Total:	0.0897 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No liquid phase present.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00263%)

Classification of sample: WS1007-3-19012024-0.70

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS1007-3-19012024-0.70
Sample Depth:
0.70m m
Moisture content:
14%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 14% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	pH			PH		10	pH		10	pH	10pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<**LOD**
3	monohydric phenols			P1186		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
4	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		4.9	mg/kg	1.197	5.045	mg/kg	0.000504 %	✓	
5	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		30	mg/kg	1.534	39.574	mg/kg	0.00396 %	✓	
6	barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		190	mg/kg	1.623	265.275	mg/kg	0.0265 %	✓	
7	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.85	mg/kg	2.775	2.029	mg/kg	0.000203 %	✓	
8	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		0.7	mg/kg	3.22	1.938	mg/kg	0.000194 %	✓	
9	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2	mg/kg	1.142	<0.228	mg/kg	<0.0000228 %		<**LOD**
10	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8	mg/kg	2.27	<4.086	mg/kg	<0.000409 %		<**LOD**
11	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		19	mg/kg	1.462	27.77	mg/kg	0.00278 %		
12	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		51	mg/kg	1.126	49.381	mg/kg	0.00494 %	✓	
13	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	160	mg/kg		137.6	mg/kg	0.0138 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
14		mercury { mercury dichloride }				0.4	mg/kg	1.353	0.466	mg/kg	0.0000466 %	✓	
		080-010-00-X	231-299-8	7487-94-7									
15		nickel { nickel sulfate }				16	mg/kg	2.637	36.281	mg/kg	0.00363 %	✓	
		028-009-00-5	232-104-9	7786-81-4									
16		selenium { nickel selenate }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<**LOD**
		028-031-00-5	239-125-2	15060-62-5									
17		vanadium { divanadium pentaoxide; vanadium pentoxide }				23	mg/kg	1.785	35.311	mg/kg	0.00353 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
18		zinc { zinc chloride }				130	mg/kg	2.085	233.049	mg/kg	0.0233 %	✓	
		030-003-00-2	231-592-0	7646-85-7									
19		TPH (C6 to C40) petroleum group				163	mg/kg		140.18	mg/kg	0.014 %	✓	
				TPH									
20		benzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
21		toluene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
22		ethylbenzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
23		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
		603-181-00-X	216-653-1	1634-04-4									
24		naphthalene				0.17	mg/kg		0.146	mg/kg	0.0000146 %	✓	
		601-052-00-2	202-049-5	91-20-3									
25		acenaphthylene				0.06	mg/kg		0.0516	mg/kg	0.00000516 %	✓	
			205-917-1	208-96-8									
26		acenaphthene				0.51	mg/kg		0.439	mg/kg	0.0000439 %	✓	
			201-469-6	83-32-9									
27		fluorene				0.39	mg/kg		0.335	mg/kg	0.0000335 %	✓	
			201-695-5	86-73-7									
28		phenanthrene				3.5	mg/kg		3.01	mg/kg	0.000301 %	✓	
			201-581-5	85-01-8									
29		anthracene				0.79	mg/kg		0.679	mg/kg	0.0000679 %	✓	
			204-371-1	120-12-7									
30		fluoranthene				4.6	mg/kg		3.956	mg/kg	0.000396 %	✓	
			205-912-4	206-44-0									
31		pyrene				4.4	mg/kg		3.784	mg/kg	0.000378 %	✓	
			204-927-3	129-00-0									
32		benzo[a]anthracene				2.2	mg/kg		1.892	mg/kg	0.000189 %	✓	
		601-033-00-9	200-280-6	56-55-3									
33		chrysene				2.2	mg/kg		1.892	mg/kg	0.000189 %	✓	
		601-048-00-0	205-923-4	218-01-9									
34		benzo[b]fluoranthene				2.4	mg/kg		2.064	mg/kg	0.000206 %	✓	
		601-034-00-4	205-911-9	205-99-2									
35		benzo[k]fluoranthene				0.99	mg/kg		0.851	mg/kg	0.0000851 %	✓	
		601-036-00-5	205-916-6	207-08-9									
36		benzo[a]pyrene; benzo[def]chrysene				2.2	mg/kg		1.892	mg/kg	0.000189 %	✓	
		601-032-00-3	200-028-5	50-32-8									
37		indeno[123-cd]pyrene				0.97	mg/kg		0.834	mg/kg	0.0000834 %	✓	
			205-893-2	193-39-5									
38		dibenz[a,h]anthracene				0.28	mg/kg		0.241	mg/kg	0.0000241 %	✓	
		601-041-00-2	200-181-8	53-70-3									
39		benzo[ghi]perylene				1.2	mg/kg		1.032	mg/kg	0.000103 %	✓	
			205-883-8	191-24-2									
40		coronene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			205-881-7	191-07-1									
41		asbestos				<			<		<		**ND**
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
				77536-66-4 77536-68-6 77536-67-5 12001-29-5							
42		xylene									
		601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
								Total:	0.101 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No liquid phase present.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.014%)

Classification of sample: WS1002-5-19012024-1.50

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS1002-5-19012024-1.50
Sample Depth:
1.50m m
Moisture content:
16%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 16% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		9.7 pH		9.7 pH	9.7 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
3	monohydric phenols			P1186		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
4	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		11 mg/kg	1.197	11.061 mg/kg	0.00111 %	✓	
5	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		14 mg/kg	1.534	18.038 mg/kg	0.0018 %	✓	
6	barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		710 mg/kg	1.623	968.239 mg/kg	0.0968 %	✓	
7	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.88 mg/kg	2.775	2.052 mg/kg	0.000205 %	✓	
8	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		1.3 mg/kg	3.22	3.516 mg/kg	0.000352 %	✓	
9	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.7 mg/kg	1.142	0.672 mg/kg	0.0000672 %	✓	
10	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8 mg/kg	2.27	<4.086 mg/kg	<0.000409 %		<LOD
11	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		20 mg/kg	1.462	29.231 mg/kg	0.00292 %		
12	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		42 mg/kg	1.126	39.721 mg/kg	0.00397 %	✓	
13	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	250 mg/kg		210 mg/kg	0.021 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
14		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
15		nickel { nickel sulfate }	028-009-00-5	232-104-9	7786-81-4		18	mg/kg	2.637	39.867	mg/kg	0.00399 %	✓	
16		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
17		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		37	mg/kg	1.785	55.484	mg/kg	0.00555 %	✓	
18		zinc { zinc chloride }	030-003-00-2	231-592-0	7646-85-7		430	mg/kg	2.085	752.929	mg/kg	0.0753 %	✓	
19		TPH (C6 to C40) petroleum group			TPH		780	mg/kg		655.2	mg/kg	0.0655 %	✓	
20		benzene	601-020-00-8	200-753-7	71-43-2		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
21		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
22		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
23		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
24		naphthalene	601-052-00-2	202-049-5	91-20-3		0.41	mg/kg		0.344	mg/kg	0.0000344 %	✓	
25		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
26		acenaphthene		201-469-6	83-32-9		0.62	mg/kg		0.521	mg/kg	0.0000521 %	✓	
27		fluorene		201-695-5	86-73-7		0.28	mg/kg		0.235	mg/kg	0.0000235 %	✓	
28		phenanthrene		201-581-5	85-01-8		4.9	mg/kg		4.116	mg/kg	0.000412 %	✓	
29		anthracene		204-371-1	120-12-7		0.88	mg/kg		0.739	mg/kg	0.0000739 %	✓	
30		fluoranthene		205-912-4	206-44-0		5.9	mg/kg		4.956	mg/kg	0.000496 %	✓	
31		pyrene		204-927-3	129-00-0		5.2	mg/kg		4.368	mg/kg	0.000437 %	✓	
32		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		2.9	mg/kg		2.436	mg/kg	0.000244 %	✓	
33		chrysene	601-048-00-0	205-923-4	218-01-9		3.2	mg/kg		2.688	mg/kg	0.000269 %	✓	
34		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		3.3	mg/kg		2.772	mg/kg	0.000277 %	✓	
35		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		1.4	mg/kg		1.176	mg/kg	0.000118 %	✓	
36		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		3	mg/kg		2.52	mg/kg	0.000252 %	✓	
37		indeno[123-cd]pyrene		205-893-2	193-39-5		1.5	mg/kg		1.26	mg/kg	0.000126 %	✓	
38		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		0.4	mg/kg		0.336	mg/kg	0.0000336 %	✓	
39		benzo[ghi]perylene		205-883-8	191-24-2		1.8	mg/kg		1.512	mg/kg	0.000151 %	✓	
40		coronene		205-881-7	191-07-1		1.4	mg/kg		1.176	mg/kg	0.000118 %	✓	
41		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2]	95-47-6 [1] 106-42-3 [2]		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
			203-576-3 [3] 215-535-7 [4]	108-38-3 [3] 1330-20-7 [4]							
								Total:	0.283 %		

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
1		asbestos in identifiable pieces of suspected ACM				0.006 %		0.006 %	0.006 %		
				ACM_FRAG							
								Total:	0.006 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification
ACM	Asbestos Containing Materials

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No liquid phase present.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0655%)

Classification of sample: WS1001-3-19012024-1.00

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
WS1001-3-19012024-1.00
Sample Depth:
1.00m m
Moisture content:
13%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 13% Wet Weight Moisture Correction applied (MC)

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	pH			PH		8.8 pH		8.8 pH	8.8 pH		
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<**LOD**
3	monohydric phenols			P1186		<1 mg/kg		<1 mg/kg	<0.0001 %		<**LOD**
4	antimony { antimony trioxide }	051-005-00-X	215-175-0	1309-64-4		3 mg/kg	1.197	3.124 mg/kg	0.000312 %	✓	
5	arsenic { arsenic pentoxide }	033-004-00-6	215-116-9	1303-28-2		12 mg/kg	1.534	16.014 mg/kg	0.0016 %	✓	
6	barium { barium diboron tetraoxide }	056-005-00-3	237-222-4	13701-59-2		180 mg/kg	1.623	254.236 mg/kg	0.0254 %	✓	
7	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.96 mg/kg	2.775	2.318 mg/kg	0.000232 %	✓	
8	boron { diboron trioxide }	005-008-00-8	215-125-8	1303-86-2		<0.2 mg/kg	3.22	<0.644 mg/kg	<0.0000644 %		<**LOD**
9	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2 mg/kg	1.142	<0.228 mg/kg	<0.0000228 %		<**LOD**
10	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8 mg/kg	2.27	<4.086 mg/kg	<0.000409 %		<**LOD**
11	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		21 mg/kg	1.462	30.693 mg/kg	0.00307 %		
12	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		33 mg/kg	1.126	32.324 mg/kg	0.00323 %	✓	
13	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	57 mg/kg		49.59 mg/kg	0.00496 %	✓	

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
14		mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
		080-010-00-X	231-299-8	7487-94-7									
15		nickel { nickel sulfate }				17	mg/kg	2.637	38.997	mg/kg	0.0039 %	✓	
		028-009-00-5	232-104-9	7786-81-4									
16		selenium { nickel selenate }				<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
		028-031-00-5	239-125-2	15060-62-5									
17		vanadium { divanadium pentaoxide; vanadium pentoxide }				30	mg/kg	1.785	46.593	mg/kg	0.00466 %	✓	
		023-001-00-8	215-239-8	1314-62-1									
18		zinc { zinc chloride }				66	mg/kg	2.085	119.693	mg/kg	0.012 %	✓	
		030-003-00-2	231-592-0	7646-85-7									
19		TPH (C6 to C40) petroleum group				109	mg/kg		94.83	mg/kg	0.00948 %	✓	
				TPH									
20		benzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
21		toluene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
22		ethylbenzene				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
23		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
		603-181-00-X	216-653-1	1634-04-4									
24		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
25		acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-917-1	208-96-8									
26		acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-469-6	83-32-9									
27		fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-695-5	86-73-7									
28		phenanthrene				0.46	mg/kg		0.4	mg/kg	0.00004 %	✓	
			201-581-5	85-01-8									
29		anthracene				0.1	mg/kg		0.087	mg/kg	0.0000087 %	✓	
			204-371-1	120-12-7									
30		fluoranthene				0.76	mg/kg		0.661	mg/kg	0.0000661 %	✓	
			205-912-4	206-44-0									
31		pyrene				0.73	mg/kg		0.635	mg/kg	0.0000635 %	✓	
			204-927-3	129-00-0									
32		benzo[a]anthracene				0.38	mg/kg		0.331	mg/kg	0.0000331 %	✓	
		601-033-00-9	200-280-6	56-55-3									
33		chrysene				0.4	mg/kg		0.348	mg/kg	0.0000348 %	✓	
		601-048-00-0	205-923-4	218-01-9									
34		benzo[b]fluoranthene				0.45	mg/kg		0.391	mg/kg	0.0000391 %	✓	
		601-034-00-4	205-911-9	205-99-2									
35		benzo[k]fluoranthene				0.12	mg/kg		0.104	mg/kg	0.0000104 %	✓	
		601-036-00-5	205-916-6	207-08-9									
36		benzo[a]pyrene; benzo[def]chrysene				0.33	mg/kg		0.287	mg/kg	0.0000287 %	✓	
		601-032-00-3	200-028-5	50-32-8									
37		indeno[123-cd]pyrene				0.18	mg/kg		0.157	mg/kg	0.0000157 %	✓	
			205-893-2	193-39-5									
38		dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
39		benzo[ghi]perylene				0.2	mg/kg		0.174	mg/kg	0.0000174 %	✓	
			205-883-8	191-24-2									
40		coronene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-881-7	191-07-1									
41		asbestos				<			<		<		ND
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
				77536-66-4 77536-68-6 77536-67-5 12001-29-5							
42		xylene 601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<**LOD**
								Total:	0.0703 %		

Key

	User supplied data
	Determinand values ignored for classification, see column 'Conc. Not Used' for reason
	Determinand defined or amended by HazWasteOnline (see Appendix A)
	Speciated Deteminand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous property to non hazardous because No liquid phase present.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00948%)

Appendix A: Classifier defined and non GB MCL determinands

pH (CAS Number: PH)

Description/Comments: Appendix C4
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex

GB MCL index number: 006-007-00-5
Description/Comments: Conversion factor based on a worst case compound: sodium cyanide
Additional Hazard Statement(s): EUH032 >= 0.2 %
Reason for additional Hazards Statement(s):
20 Nov 2021 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

monohydric phenols (CAS Number: P1186)

Description/Comments: Combined hazards statements from harmonised entries in CLP for phenol, cresols and xylenols (604-001-00-2, 604-004-00-9, 604-006-00-X)
Data source: CLP combined data
Data source date: 26 Mar 2019
Hazard Statements: Muta. 2; H341 , Acute Tox. 3; H331 , Acute Tox. 3; H311 , Acute Tox. 3; H301 , STOT RE 2; H373 , Skin Corr. 1B; H314 , Skin Corr. 1B; H314 >= 3 % , Skin Irrit. 2; H315 1 <= conc. < 3 % , Eye Irrit. 2; H319 1 <= conc. < 3 % , Aquatic Chronic 2; H411

chromium(III) oxide (worst case) (EC Number: 215-160-9, CAS Number: 1308-38-9)

Description/Comments: Data from C&L Inventory Database
Data source: https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H332 , Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Resp. Sens. 1; H334 , Skin Sens. 1; H317 , Repr. 1B; H360FD , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

lead compounds with the exception of those specified elsewhere in this Annex (worst case)

GB MCL index number: 082-001-00-6
Description/Comments: Worst Case: IARC considers lead compounds Group 2A; Probably carcinogenic to humans; Lead REACH Consortium, following MCL protocols, considers lead compounds from smelting industries, flue dust and similar to be Carcinogenic category 1A
Additional Hazard Statement(s): Carc. 1A; H350
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 1A; H350 hazard statement sourced from: IARC Group 2A (Sup 7, 87) 2006; Lead REACH Consortium www.reach-lead.eu/substanceinformation.html (worst case lead compounds). Review date 29/09/2015

TPH (C6 to C40) petroleum group (CAS Number: TPH)

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: Flam. Liq. 3; H226 , Asp. Tox. 1; H304 , STOT RE 2; H373 , Muta. 1B; H340 , Carc. 1B; H350 , Repr. 2; H361d , Aquatic Chronic 2; H411

ethylbenzene (EC Number: 202-849-4, CAS Number: 100-41-4)

GB MCL index number: 601-023-00-4
Description/Comments:
Additional Hazard Statement(s): Carc. 2; H351
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2B (77) 2000

acenaphthylene (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 1; H330 , Acute Tox. 1; H310 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315

acenaphthene (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Aquatic Chronic 2; H411

fluorene (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

phenanthrene (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Carc. 2; H351 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Skin Irrit. 2; H315

anthracene (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

fluoranthene (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

pyrene (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

indeno[123-cd]pyrene (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Carc. 2; H351

benzo[ghi]perylene (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 23 Jul 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

coronene (EC Number: 205-881-7, CAS Number: 191-07-1)

Description/Comments: Data from C&L Inventory Database; no entries in Registered Substances or Pesticides Properties databases; SDS: Sigma Aldrich, 1907/2006 compliant, dated 2012 - no entries; IARC – Group 3, not carcinogenic.
Data source: http://clp-inventory.echa.europa.eu/SummaryOfClassAndLabelling.aspx?SubstanceID=17010&HarmOnly=no?fc=true&lang=en
Data source date: 16 Jun 2014
Hazard Statements: STOT SE 2; H371

polychlorobiphenyls; PCB (EC Number: 215-648-1, CAS Number: 1336-36-3)

GB MCL index number: 602-039-00-4
Description/Comments: Worst Case: IARC considers PCB Group 1; Carcinogenic to humans;

POP specific threshold from ATP1 (Regulation 756/2010/EU) to POPs Regulation (Regulation 850/2004/EC). Where applicable, the calculation method laid down in European standards EN 12766-1 and EN 12766-2 shall be applied.
Additional Hazard Statement(s): Carc. 1A; H350
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 1A; H350 hazard statement sourced from: IARC Group 1 (23, Sup 7, 100C) 2012

Appendix B: Rationale for selection of metal species

cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case as complex cyanides and those specified elsewhere in the annex are not likely to be present in this soil: [Note conversion factor based on a worst case compound: sodium cyanide].

antimony {antimony trioxide}

Worst case CLP species based on hazard statements/molecular weight and low solubility. Industrial sources include: flame retardants in electrical apparatus, textiles and coatings.

arsenic {arsenic pentoxide}

Worst case CLP species based on hazard statements/molecular weight. Industrial sources include: arsenates, weed killers, metal adhesives, insecticides, fungicides, wood preservatives, coloured gases, printing and dyeing.

barium {barium diboron tetraoxide}

Reasonable case CLP species based on site history, hazard statements/molecular weight. Noted that not enough metal and Cr(VI) present to make the worst case CLP (metal chromate) (noting concentrations not at hazardous levels in any case).

beryllium {beryllium oxide}

Reasonable case CLP species based on hazard statements/molecular weight. Industrial sources include: most common (non alloy) form, used in ceramics.

boron {diboron trioxide}

Reasonable case CLP species based on hazard statements/ molecular weight, physical form and low solubility. Industrial sources include: fluxing agent for glass/enamels; additive for fibre optics, borosilicate glass.

cadmium {cadmium oxide}

Reasonable case CLP species based on hazard statements/molecular weight, very low solubility in water. Industrial sources include: electroplating baths, electrodes for storage batteries, catalysts, ceramic glazes, phosphors, pigments and nematocides. Worst case compounds in CLP: cadmium sulphate, chloride, fluoride & iodide not expected as either very soluble and/or compound's industrial usage not related to site history.

chromium in chromium(VI) compounds {chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex}

Worst case species based on hazard statements/molecular weight.

chromium in chromium(III) compounds {chromium(III) oxide (worst case)}

Reasonable case species based on hazard statements/molecular weight. Industrial sources include: tanning, pigment in paint, inks and glass.

copper {dicopper oxide; copper (I) oxide}

Reasonable case CLP species based on hazard statements/molecular weight and insolubility in water. Industrial sources include: oxidised copper metal, brake pads, pigments, antifouling paints, fungicide. Worse case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected.

lead {lead compounds with the exception of those specified elsewhere in this Annex (worst case)}

Reasonable case CLP species based on site history, hazard statements/molecular weight. Noted that not enough metal and Cr(VI) present to make the worst case CLP (metal chromate) (noting concentrations not at hazardous levels in any case).

mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weight.

nickel {nickel sulfate}

Reasonable case CLP species based on hazard statements/molecular weight. Industrial sources include: copper refining, electroplating and rechargeable batteries. Worst case compounds in CLP not expected as either very soluble and/or compounds industrial useage not related to site history.

selenium {nickel selenate}

Worst case CLP species based on hazard statements/molecular weight.

vanadium {divanadium pentaoxide; vanadium pentoxide}

Worst case species.

zinc {zinc chloride}

Reasonable case CLP species based on site history, hazard statements/molecular weight. Noted that not enough metal and Cr(VI) present to make the worst case CLP (metal chromate) (noting concentrations not at hazardous levels in any case).

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.2.GB - Oct 2021
HazWasteOnline Classification Engine Version: 2024.30.5942.10989 (30 Jan 2024)
HazWasteOnline Database: 2024.26.5938.10982 (26 Jan 2024)

This classification utilises the following guidance and legislation:
WM3 v1.2.GB - Waste Classification - 1st Edition v1.2.GB - Oct 2021
CLP Regulation - Regulation 1272/2008/EC of 16 December 2008
1st ATP - Regulation 790/2009/EC of 10 August 2009
2nd ATP - Regulation 286/2011/EC of 10 March 2011
3rd ATP - Regulation 618/2012/EU of 10 July 2012
4th ATP - Regulation 487/2013/EU of 8 May 2013
Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013
5th ATP - Regulation 944/2013/EU of 2 October 2013
6th ATP - Regulation 605/2014/EU of 5 June 2014
WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014
Revised List of Waste 2014 - Decision 2014/955/EU of 18 December 2014
7th ATP - Regulation 2015/1221/EU of 24 July 2015
8th ATP - Regulation (EU) 2016/918 of 19 May 2016
9th ATP - Regulation (EU) 2016/1179 of 19 July 2016
10th ATP - Regulation (EU) 2017/776 of 4 May 2017
HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017
13th ATP - Regulation (EU) 2018/1480 of 4 October 2018
14th ATP - Regulation (EU) 2020/217 of 4 October 2019
15th ATP - Regulation (EU) 2020/1182 of 19 May 2020
The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020
The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1540 of 16th December 2020
GB MCL List - version 1.1 of 09 June 2021
GB MCL List v2.0 - version 2.0 of 20th October 2023

Appendix H
Risk Assessment Methodology

Civic Earth

Civic Earth Risk Assessment Methodology

Civic Earth's risk assessment methodology is based on the CIRIA C552 (2001) Contaminated Land Risk Assessment – A Guide to Good Practice[1].

The assessment approach is to quantify the potential risk at Phase 1 Stage via risk estimation and risk evaluation. This defines the overall risk category that can be used to identify likely actions to address the potential risk or undertake further risk evaluation.

The methodology is a qualitative approach and is undertaken for each identified potential contaminant linkage (source-pathway-receptor) identified for the site in accordance with the October 2020 Land Contamination Risk Management Guidance (LCRM)[2].

The methodology requires the classification of the following:

- The magnitude of the consequence (severity) of a risk occurring; and
- The magnitude of the probability (likelihood) of a risk occurring.

The potential consequences of contamination risks occurring at a site are classified in accordance with Table 1 below, which is based on CIRIA guidance[1].

Table 1: Classification of Consequence Ratings

Classification	Definition of Consequence	Examples
Severe	Short-term (acute) risks to human health. Short-term (acute) risk of pollution of sensitive water resource or ecosystem Catastrophic damage to crops/building/property/infrastructure, including off-site soils	High concentration of cyanide on the surface of an informal recreation area Major spillage of contaminants from site into controlled waters Explosion causing building collapse
Medium	Long-term (chronic) risks to human health Long-term (chronic) pollution of sensitive water resource Significant change in an ecosystem/contamination of off-site soils	Concentrations of a contaminant on site exceeding the generic or site specific assessment criteria Leaching of contaminants from a site into a major or minor aquifer Death of species within a designated nature reserve
Mild	Pollution of non-sensitive water resource Significant damage to crops/buildings/property/infrastructure Damage to an ecosystem or sensitive buildings/structures/services	Pollution of a non-classified groundwater Damage to a building rendering it unsafe to occupy (e.g. foundation damage resulting in instability)
Minor	Easily preventable non-permanent effects Harm, although not necessarily significant harm, which may result in financial loss or expenditure resolve Easily repairable effects of damage to	Presence of contamination at concentrations which require the use of personal protective equipment during site work Loss of plants in a landscaping scheme/discolouration of concrete

[1] CIRIA, (2001). Contaminated Land Risk Assessment. A Guide to Good Practice. CIRIA C552.

[2] Environment Agency (2020). *Land Contamination Risk Management (LCRM).*

	building/structures/services	

The potential probability of the risks being realised are classified in accordance with the ratings set out in Table 2, which are based on CIRIA guidance[1]. It should be noted that where a potential contaminant linkage has not been identified the likelihood is considered to be negligible.

Table 2: Classification of Probability Ratings

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

In accordance with C552, the risk classification for each potential contaminant linkage are classified in accordance with the matrix of consequence and probability set out in Table 3. The definition for the risk classifications are presented in Table 4.

Table 3: Risk Classification Matrix

		Consequence			
		Severe	Medium	Mild	Minor
Probability	High Likelihood	Very High	High	Moderate	Moderate/Low
	Likely	High	Moderate	Moderate/Low	Low
	Low Likelihood	Moderate	Moderate/Low	Low	Very Low
	Unlikely	Moderate/Low	Low	Very Low	Very Low

Table 4: Risk Classification Definitions

Classification	Definition
Very High	There is a high probability that severe harm could arise to a designated receptor from the identified hazard or there is evidence that severe harm is currently happening. This risk, if realised, is likely to result in substantial liability. Urgent investigation (if not already undertaken) and remediation are likely to be required.
High	Harm is likely to arise to a designated receptor from the identified hazard. Realisation of the risk is likely to result in substantial liability. Urgent investigation (if not already undertaken) and remediation are likely to be required.
Moderate	It is possible that harm could arise to a designated receptor from the identified hazard. However, it is either relatively unlikely that such harm would be severe or if any harm were to occur it is more than likely that the harm would be relatively mild. Urgent investigation (if not already undertaken) is normally required to clarify the potential risk and to determine the potential liability. Some remedial works may be required in the longer term.
Low	It is possible that harm could arise to a designated receptor from the identified hazard, but it is considered likely

	that this harm, if realised, would at worse normally be mild.
Very Low	There is a low possibility that harm could arise to a designated receptor from the identified hazard. In the event of such harm being realised it is not likely to be severe.

Civic Earth

Manchester

Carver's Warehouse
77 Dale Street
Manchester M1 2HG

+44 (0)161 228 6757

London

Reeds Wharf
33 Mill Street
London SE1 2AX

+44 (0)20 7253 2977

Leeds

1 Saw Mill Street
Water Lane
Leeds, LS11 5WE

+44 (0)113 2025 130

Glasgow

35 Virginia Street
Glasgow G1 2TN

+44 (0)141 370 1829

civicearth.com

Appendix 13.3 - Remediation Method Statement. Civic Earth. 2024

Civic Earth

Job Title
Mayfield Phase 1B

Prepared for
LandsecU+I

Report Type
Remediation Method Statement

Date
6 June 2024



Contents

1. Introduction 4
2. Site Context 5
2.1 Site Location 5
2.2 Site Description 5
2.3 Proposed Development 6
3. Summary of Conceptual Site Model 7
3.1 Introduction 7
3.2 Ground Model Summary 7
3.3 Contamination Assessment Summary 7
4. Remediation Strategy 9
4.1 Introduction 9
4.2 Watching Brief and Discovery Strategy 9
4.3 Tannery Watching Brief 10
4.4 Removal of Gross Contamination Hotspots 11
4.5 Borehole Decomissioning 12
4.6 Material Management 12
4.7 Mitigation of Risks to Controlled Waters during Enabling and Construction Works 14
4.8 Capping Layers for Areas of Soft Landscaping 14
4.9 Buried Water Supply Pipes 15
4.10 General Requirements 15
5. Validation and Verification 17
5.1 Remediation Validation Requirements 17
5.2 Verification Plan 17
5.3 Verification Reporting 17

Plates

Plate 1: Approximate Site Location Plan (©OpenStreetMap Contributors) 5
Plate 2: Conceptual Sketch for Proposed Redevelopment (Shedkm Architects Limited Stage 01 Report) 6
Plate 3. Location of Historical Tannery (Highlighted Orange) in Northwest of Site 10
Plate 4. Gross Contamination Hotspots (Red = TPH, Green = Asbestos) 11

Appendices

Appendix A: Tannery Watching Brief

Appendix B: Chemical Acceptability Criteria for Site Won Material Reuse below Buildings/Hardstanding

Appendix C: Chemical Acceptability Criteria for Site Won Material Reuse below Soft Landscaping Capping

Appendix D: Chemical Acceptability Criteria for Capping Soils/Growth Medium

Appendix E: Verification Plan

Remediation Method Statement

Prepared by	**Kirsty Poore MSc MSci (Hons) CGeol FGS ARSM ROGEP**
Reviewed by	Dan Matthews BEng CSci CEnv MIEnvSc
Report Ref.	51001-CE-02-XX-R-G-1003
Issued	06/06/2024
Status	P01

This report is the copyright of Civic Earth and is for the sole use of the person/organisation to whom it is addressed. It may not be used or referred to in whole or in part by anyone else without the express agreement of Civic Earth. Civic Earth do not accept liability for any loss or damage arising from any unauthorised use of this report. Civic Earth is a trading name of Civic Earth Ltd (registered number 14897633), which is a limited company registered in England, registered address Carver's Warehouse, 77 Dale Street, Manchester M1 2HG.

© Civic Earth 2024

1. Introduction

Civic Earth Limited was appointed by Civic Engineers on behalf of LandsecU+I (the Client) to produce a Remediation Method Statement (RMS) for the proposed redevelopment of the Mayfield Phase 1B development area (herein referred to as "the site"). The Phase 1B development area forms part of the wider Mayfield Development.

A desk study was previously carried out for the wider Mayfield Development by BuroHappold Engineering (BuroHappold) in 2017[1], which included the site. A ground investigation was subsequently carried out across the wider Mayfield Development, including the site, by ROC Consulting (ROC) in 2020[2]. A site specific Phase 1 Desk Study and Data Review report was produced by Civic Earth in November 2023[3] and a supplementary site investigation undertaken by Civic Earth in January 2024, the results of which were reported in a Supplementary Site Investigation Report[4].

The above reports have been used as supporting information in the preparation of this RMS, and reference should be made to the reports for full details of the investigations and assessments completed for the site.

This report, which has been produced in general accordance with Environment Agency (EA) guidance[5], provides a summary of the conceptual site model and presents a remediation strategy and verification plan as well as recommendations with respect to materials management and related health and safety requirements.

The remediation strategy outlines the remediation requirements for the enabling works and follow-on construction phase development, which is understood to comprise the construction of two high rise, predominantly residential, plots (Plot J and Plot K) with areas of communal landscaping. Should the final proposed development change then this document should be updated to reflect the change in the development.

It is recommended that this report is submitted to the Local Planning Authority to support the Planning Application for the site.

The appointed Contractor(s) will produce a Remediation Implementation Plan(s) for the site on the basis of this RMS. An interim verification report should be produced following completion of the agreed remediation works for the enabling works and a final verification report on completion of the agreed remediation works for the construction phase. These reports should be submitted to the Local Planning Authority.

[1] BuroHappold (2017) *Mayfield Regeneration. Geoenvironmental and Geotechnical Desk Study Report*. Reference 035548 Revision 0. 10 August 2017.
[2] ROC (2020) *Mayfield Park. Phase 2 Site Investigation.* Reference 4153-ROC-XX-XX-RP-ES-P2SI1 Revision R1. 22 December 2020.
[3] Civic Earth (2023) *Mayfield Phase 1B. Phase 1 Desk Study and Data Review.* Reference 51001-CE-02-XX-R-G-1001. Revision P02. 16 November 2023.
[4] Civic Earth (2024) *Mayfield Phase 1B. Supplementary Site Investigation Report.* Reference 51001-CE-02-XX-R-G-1002. 21 March 2024.
[5] Environment Agency (2023) Land Contamination Risk Management (LCRM), Stage 3 Remediation and Verification. Accessed online 20 May 2024 (https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm/lcrm-stage-3-remediation-and-verification)

2. Site Context

2.1 Site Location

The site is located off Hoyle Street in Manchester. The approximate postcode for the site is M12 6HW. The National Grid coordinates for the approximate centre of the site are 385200E, 397499N and the site is approximately 1.43 ha in size. The site location is illustrated in Plate 1.

Plate 1: Approximate Site Location Plan (©OpenStreetMap Contributors)



2.2 Site Description

The site is roughly rectangular is shape and bounded to the north by Mayfield Park, to the east by Hoyle Street, to the south by Mancunian Way (A635) and to the west by the Phase 1A area of the Mayfield Development. The site is currently an unoccupied parcel of land following completion of a programme of earthworks across parts of the wider Mayfield Development. It is understood from Civic Engineers that the site was used as a stockpiling and soil remediation area during the works; earthworks were carried out across Mayfield Park to the north and the Phase 1A area to the west, however, it is understood that no earthworks were carried out within the site. Dense vegetation was previously located along the southern and eastern site boundaries which was cleared during vegetation clearance works prior to commencement of site investigation works. Evidence of the previous site buildings' ground slabs and cobblestone roads were also observed during a site walkover to support the desk study[3].

Current ground level ranges from approximately +37.5m above ordnance Datum (mOD) in the western third of the site to approximately +42mOD (approximate street level) in the east of the site, with a gentle slope down towards the northern site boundary from the access route off Hoyle Street. A brick retaining wall, orientated north-south, separates the lower western area of the site and extends two thirds of the way into the site from the south boundary. A structural engineer from Civic Engineers Limited advised that the retaining wall is likely to have been a basement retaining wall given the presence of a cobbled access route to the east of the wall, and likely to be of brick and mortar construction. An electrical substation is located towards the northern end of the retaining wall. A second, smaller retaining wall was observed to the west of the main retaining wall, with a historical access route from Mancunian Way to the east of this second wall at a higher ground level.

2.3 Proposed Development

It is understood that the current proposals for the redevelopment of the site include the construction of two high-rise, predominantly residential plots (Plot J and K) with partial lower ground floor beneath each plot. The locations of the plots within the site are illustrated in Plate 2.

Proposed finished floor levels of the Plot J structure are currently indicated to range between +39.0mOD and +41.7mOD. Proposed finished floor levels of the Plot K structure are currently indicated to range between +36.17mOD in the north and +40.5mOD. Up to approximately 3m of cut is proposed within Plot J with limited areas of landraise (up to approximately 1m). Up to approximately 3.5m of cut is proposed within Plot K with up to approximately 2m of landraise (primarily where the existing basement level is infilled to proposed ground level).

Plate 2: Conceptual Sketch for Proposed Redevelopment (Shedkm Architects Limited Stage 01 Report)



3. Summary of Conceptual Site Model

3.1 Introduction

This section should be read in conjunction with the ROC site investigation[2] and Civic Earth Supplementary Site Investigation Report[4] which includes more detailed information on the site context. A summary of the pertinent information is presented in the following sections.

3.2 Ground Model Summary

The ground conditions across the site were found to comprise a variable thickness of Made Ground (between 0.45m and 5.00m) overlying superficial deposits of Alluvium and Glacial Till. The deposits of Alluvium were recorded during the ROC investigation only[2] four locations between 37.20mOD and 24.28mOD, and ranged between 0.80m and 2.10m in thickness. Deposits of Glacial Till were recorded between 41.69mOD and 36.00mOD and ranged between 0.80m and 2.40m in thickness. The bedrock of the Chester Sandstone Formation was encountered between 38.51mOD and 28.37mOD.

Indicative contour plots for the upper level of the sandstone bedrock for Plot J suggest that the top of the Chester Sandstone Formation slopes gently downwards from the northwest of the plot towards the southeast and towards the northeast, whilst the contours for Plot K suggest that the top of the bedrock slopes gently downwards from the central east of the plot (at the boundary with Plot J) towards the southwest and northeast. Small 'headlands' within the sandstone are indicated by the contour plots, which could be as a result of ancient natural weather process associated with the nearby River Medlock, or potentially as a result of historical excavation of basements/below ground structures

Perched water was encountered in the Made Ground and Glacial Till which is variable in level and appears to be limited in nature, confined by surrounding cohesive deposits. The Principal aquifer was recorded in the Chester Sandstone Formation between approximately +30.65mOD and +29.70mOD.

3.3 Contamination Assessment Summary

3.3.1 Risks to Human Health

A total of 40 soil samples were submitted for chemical analysis and the results compared against human health GAC for a "residential without home grown produce" end use. Assessment of the Made Ground indicated that contaminant concentrations are generally below their respective assessment thresholds with the exception of heavy metals and polyaromatic hydrocarbons (PAHs). In addition, asbestos was detected in 8 of the Made Ground soil samples. The results of the assessment of the natural soils indicated that the contaminant concentrations recorded are below their respective GAC. Assessment of contaminant concentrations from a total of 8 perched water and Principal aquifer groundwater samples indicated a low risk to human health via vapour intrusion.

Based on the findings of the investigation, there was considered to be a potential risk to future site users and construction workers from the Made Ground soils due to the elevated concentrations of heavy metals and PAHs and the presence of asbestos and a capping layer required in areas of proposed soft landscaping.

3.3.2 Risks from Ground Gases

Ground gas monitoring recorded methane and carbon dioxide concentrations below 1%v/v and 5%v/v respectively with negligible flow rate (<0.1l/h) recorded. The calculated GSVs correlated to Characteristic Situation CS1 where no ground gas protection measures are considered to be required.

3.3.3 Risks to Controlled Waters

A total of 5 Made Ground leachate samples, 3 perched water samples (plus 3 for total and free cyanide analysis only) and 5 Principal aquifer samples were analysed. The results of the Made Ground leachate assessment against freshwater Environmental Quality Standards (EQS) indicated that concentrations of heavy metals, total cyanide and pH have the potential to leachate at elevated concentrations. The results of the perched water analysis also reflected elevated concentrations of these contaminants, as well as elevated concentrations of total phenols, total TPH, PAHs and ammoniacal nitrogen in WS1007. The results of the Principal aquifer EQS assessment indicated

that the contaminant concentrations were below their respective assessment thresholds.

Elevated concentrations were recorded against the UK Drinking Water Values (DWV) assessment criteria in the perched water; however, the perched water was not considered to be a likely supply of drinking water. Elevated sulphate concentrations were recorded in the Principal Aquifer against the DWV; however, sulphate was considered unlikely to be a driver for remediation and it was noted that concentrations recorded were approximately three times lower in the Principal aquifer than the perched water.

The risks to controlled waters were considered to be low on the basis that:

- Elevated contaminant concentrations recorded in the perched water were not reflected in the deeper Principal aquifer (which is considered to be in continuity to a degree with the River Medlock) which suggested limited existing contaminant migration from the Made Ground / perched water to the Principal aquifer;
- The discontinuous nature of the perched water and presence of cohesive Glacial Till deposits beneath areas of the site were considered to mitigate lateral and vertical contaminant migration;
- The proposed excavation and removal of large volumes of the Made Ground in Plot J (and to some extent in Plot K) to construct the proposed lower ground floor levels will result in the partial removal of the source of contamination from site; and
- The proposed hardstanding and buildings across the majority of the site will limit infiltration and therefore reduce the potential for contaminant migration.

Notwithstanding the above, hotspots of gross hydrocarbon contamination at borehole WS1007, trial pit TP1010, borehole BH1004 and ROC "Hydrocarbon Hotspot #2" were identified which were considered to present a potential risk to controlled waters. It was recommended that these hotspots be removed and treated for re-use and/or removed from site to reduce the potential for migration of contamination into the underlying Principal aquifer and nearby River Medlock.

The risks to controlled waters from foundation activities i.e. piling were considered to be low assuming appropriate piling techniques are adopted. It was recommended that a Piling Works Risk Assessment is completed to demonstrate that the selected piling methodology will not lead to the creation of new pathways for contaminant migration.

3.3.4 Risks to Plants and Vegetation

Localised elevated concentrations of zinc were recorded at WS1002 and WS1006 within the Made Ground which were considered to present a risk to proposed plant and vegetation growth. In addition, it was considered likely that the composition of the Made Ground is unlikely to be a suitable growth medium with high proportions of brick and concrete gravel and cobbles observed during the site investigation.

3.3.5 Risks to Buried Water Supply Pipes

Due to the recorded concentrations of contaminants at the site, it was anticipated that barrier pipes will be required for new buried water supply pipes. Completion of a United Utilities Risk Assessment including sampling of soils at depth and location of proposed water supply pipes was recommended.

3.3.6 Preliminary Waste Characterisation

The preliminary waste assessment indicated that the majority of the material tested would be characterised as non-hazardous material and therefore considered to be acceptable to a non-hazardous waste facility; some material may be acceptable at an inert waste facility (subject to WAC testing). However, 3 out of the 40 soil samples were characterised as hazardous material (BH1003 due to asbestos at >0.1% by weight, and BH1004 and TP1010 due to elevated TPH).

4. Remediation Strategy

4.1 Introduction

The following activities form the remediation strategy for the enabling works and follow-on construction phase development:

1. **Enabling Works**

- Watching brief and discovery strategy;
- Watching brief for tannery related material during earthworks works within the western extent of the site;
- Decommissioning of existing borehole monitoring wells;
- Removal of hotspots of gross hydrocarbon and asbestos contamination;
- Appropriate material management of arisings associated with enabling works for re-use and/or disposal including off-site disposal to appropriately licenced waste facilities; and
- Mitigation of risks to controlled waters during enabling works including appropriate management of stockpiles, controlling surface water run-off and appropriate discharge / disposal of perched groundwater.

2. **Construction Phase**

- Watching brief and discovery strategy;
- Provision of soil capping layer in areas of soft landscaping;
- Appropriate material management of arisings associated with construction works (i.e. foundation works) for re-use and/or disposal including off-site disposal to appropriately licenced waste facilities;
- Mitigation of risks to controlled waters during construction works including appropriate management of stockpiles, controlling surface water run-off and appropriate discharge / disposal of perched groundwater; and
- Selection and installation of appropriate materials for buried water supply pipes.

It is noted that should the final construction-phase development not progress after the completion of the enabling works phase, then testing should be undertaken of the formation level soils and assessed against applicable screening criteria (assumed vacant secure with trespasser use) to assess whether temporary capping is required. Should measures be required, this can be undertaken in accordance with the watching brief and discovery strategy.

4.2 Watching Brief and Discovery Strategy

A watching brief will be put in place during enabling works and construction works by the Contractor(s). Should areas of unexpected contamination, including asbestos and gross hydrocarbon contamination, be encountered or suspected, a qualified geoenvironmental engineer will be informed and the risk associated with the contamination assessed. Where necessary, an appropriate remediation strategy will be devised and implemented.

The regulators should be informed of additional areas of contamination so identified and be provided with the risk assessment and proposed remediation methodology for agreement before undertaking such works. Appropriate verification works to be completed if remedial measures are required will also be identified and agreed.

The following discovery strategy, in the event of unexpected contaminated being encountered, is recommended:

- Work to cease in that area.
- Notify geoenvironmental engineer to attend site and sample material. Notify Contaminated Land Officer at the Local Authority, as appropriate.
- Geoenvironmental engineer to supervise the excavation of contaminated material, which should be placed

in a bunded area and covered to prevent rainwater infiltration.

- Soil samples should be obtained by the geoenvironmental engineer from both the excavated material and the soils in the sides and base of the excavation to demonstrate that the full area of contamination has been excavated. If appropriate, in-situ testing should be undertaken on the sides and base of the excavation to assess the presence of residual contamination in the soils.
- On receipt of chemical test results, the soils may be appropriately classified for treatment or disposal and dealt with accordingly.
- Detailed records, including photographs and duty of care records, of the excavations, stockpile sizes, source and location should be kept and regularly updated to allow materials to be easily tracked from excavation until disposal off site.
- Backfilling to be undertaken with material certificated as suitable for the proposed end land use.

4.3 Tannery Watching Brief

The regulatory agreed tannery watching brief, outlined in the ROC Remediation Strategy for Mayfield Park[6] and reproduced in Appendix A, will be implemented during the enabling works phase and construction works phase for works within the west of the site where the historical tannery encroached onto the site. The location of the historical tannery is illustrated in Plate 3.

Plate 3. Location of Historical Tannery (Highlighted Orange) in Northwest of Site



In summary, the tannery watching brief and discovery strategy includes visual inspection of soils for the presence of animal bones, animal hair, animal carcass or flesh, animal hides and significant quantities of deleterious or organic rich materials or sludge. Should any of the above be encountered, operations are to cease, and the excavation backfilled with at least 1m thickness of unimpacted material, and the location and spatial extent recorded. The impacted area is then to be investigated, removed and remediated in accordance with the guidance

[6] ROC (2021) *Mayfield Park, Mayfield, Manchester. Phase 3A Remediation Strategy*. Reference 4153-ROC-XX-XX-RP-ES-P3RS1. Revision 2. 16 March 2021.

document "Guidance on assessing risk of Tannery Contamination on building land" with appropriate approvals and sanctions from regulatory authorities[7].

4.4 Removal of Gross Contamination Hotspots

A hotspot of hydrocarbon contamination, referred to as "Hydrocarbon Hotspot #2", was identified by ROC at exploratory holes WS401, WS404 and TP409 during the ROC site investigation[2], considered to be associated with a (now removed) above ground fuel storage tank (AST). The AST was formerly contained in a brick and concrete bund which remains in-situ adjacent to the electrical substation. In addition gross TPH contamination was identified at borehole BH1004 (at 0.20mbgl) and trial pit TP1010 (at 2.00mbgl), and hazardous concentrations of asbestos were identified at 1.00mbgl in BH1003 during the Civic Earth supplementary site investigation[4]. The locations of the gross contamination hotspots are illustrated in Plate 4.

The strategy for the remediation of Hydrocarbon Hotspot #2 is outlined in the regulatory approved ROC strategy for Mayfield Park[6]. The ROC strategy recommended that impacted Made Ground deposits and natural shallow soils are locally removed and replaced. Additionally, it was recommended that the existing AST tank base (and associated infrastructure) be grubbed out with any impacted Made Ground and natural strata beneath and within the immediate vicinity (a 5m buffer) also removed. It was also noted that it would be prudent to confirm the extent of any associated pipework and other remnant infrastructure from around the AST base in advance of demolition to remove any residual liquid fuel product so as to prevent accidental release during demolition works. It was also noted that there is the potential for below ground fuel interceptor tanks to be present in the area which will also require removal and disposal

Plate 4. Gross Contamination Hotspots (Red = TPH, Green = Asbestos)



On the basis of the above, the following will be undertaken to remediate the Hydrocarbon Hotspot #2:

- Inspection and confirmation of the extent of infrastructure associated with the former AST will be undertaken and removal works will be carried out under a watching brief. Any residual free product / liquid fuel product will be collected and disposed of from site following appropriate laboratory analysis

[7] PHE (2014) *Guidance on assessing risk of anthrax on building land*. September 2014.

and waste disposal protocols.

- Removal of the AST slab will be carried out under a watching brief and excavation on an initial area of 5m x 5m around the hotspot location followed by visual and laboratory verification testing of the sides and base of the excavation will be carried out to confirm removal of the gross contamination i.e. total TPH concentration of less than 1,000mg/kg (hazardous waste thresholds).

The process for the removal of the remaining hydrocarbon and asbestos hotspots will be carried out in accordance with the same methodology as outlined above; an initial area of 5m x 5m will be excavated around the hotspot location followed by visual and laboratory verification testing of the sides and base of the excavation to confirm removal of the gross contamination i.e. asbestos concentration in soil at less than 0.1% and total TPH concentration of less than 1,000mg/kg (hazardous waste thresholds).

Each hotspot area and methodology for investigation and inspection will be set out in the Remediation Contractor's Remediation Implementation Plan. In addition, details of how the material will be either re-used on-site or removed from site to an appropriately licensed waste facility will be set out in the Remediation Contractor's Remediation Implementation Plan. Further details on material management are outlined in Section 4.6.

4.5 Borehole Decomissioning

Monitoring wells installed as part of the ROC and Civic Earth site investigations will be decommissioned prior to commencement of significant earthworks. The monitoring wells will be decommissioned in accordance with EA guidance[8], to include removal of headworks and backfill of the monitoring well from base to top with low permeability material i.e. bentonite/cement grout. Backfilling will be carried out via tremie pipe (where wells are deeper than 3m in depth), or via funnel and compacted with a rod or similar (where wells are shallower than 3m).

4.6 Material Management

The Contractor will be responsible for the material management and waste classification. The "waste hierarchy" should be used to rank waste management options according to what is best for the environment. Top priority should be given to preventing waste in the first place, for example during pre-construction and planning stages of a new development. However, if waste is created, priority should be given to preparing it for re-use, then recycling, then recovery, and last of all for disposal.

4.6.1 Re-use, Recycling and Recovery

In order to minimise the volume of soil being disposed to landfill facilities, it is prudent to consider material management options prior to waste disposal.

Based on the results of the ROC[2] and Civic Earth[4] assessments, it is considered that the Made Ground material excavated could be re-used on site below capping or hardstanding, subject to compliance with the watching briefs, final finish levels and the capping layer formation level, under the CL:AIRE[9] protocol (with the exception of the material which has been identified as gross contamination hotspots as outlined in Section 4.4). The CL:AIRE protocol would require a Material Management Plan (MMP) to be produced which details where materials will arise from and how they will be used within the limits of the Code of Practice. The process would require sign off by a Qualified Person in advance of works commencing and a final validation report to be produced.

It is noted that the CL:AIRE protocol is not applicable to soils that pose harm to human health or the environment and as such, should additional gross contamination in the Made Ground in addition to the hotspots outlined in Section 4.4 be encountered during earthworks, this material would unlikely be suitable for re-use and should be selectively excavated and disposed of from site.

Uncontaminated clean, naturally occurring arisings (such as the sandstone bedrock) may be re-used within the site under the CL:AIRE protocol or re-used off-site under direct transfer under the CL:AIRE protocol. Additionally, screening of uncontaminated (inert) granular soils may permit the re-use of this material on site or off-site under

[8] Environment Agency (2012) *Good practice for decommissioning redundant boreholes and wells.*
[9] CL:AIRE (2011). The Definition of Waste: Development Industry Code of Practice. Version 2

the WRAP protocol[10], where the protocol sets out end waste criteria for the production and use of aggregates from inert waste; where the criteria are met, the aggregates would typically be regarded as having been fully recovered and ceased to be waste.

If off-site disposal of excavated soils is unavoidable, the Contractor will be responsible for the appropriate classification of the waste (see Section 4.6.4)

4.6.2 Waste Handling

All material intended for off-site disposal should be transported and disposed in accordance with the Environmental Protection (Duty of Care) Regulations, 1991, and the Landfill (England and Wales) Regulations, 2002 (as amended). Waste legislation stipulates that hazardous are not hazardous waste should be pre-treated prior to disposal. Pre-treatment can be undertaken either at the site of origin or may be carried out at a licenced off-site facility and can include selective segregation of soils conducted on site.

4.6.3 Re-use of Site Won Material

It is envisaged that the majority of material to be excavated to achieve the formation level will require off-site disposal based on the overall 'cut' across the site, with some potential opportunity for re-use of material on site where levels will be raised.

Should excavated material be re-used on site, it will need to be done in compliance with a site specific earthworks specification in order to meet the requirements for engineered fill under appropriate protocols as discussed in Section 4.6.1.

If material is placed below areas of buildings and/or hardstanding i.e. not within areas of soft landscaping, the material will be subject to chemical analysis at a frequency of **1 sample per 500m^3** to check no sources of contamination are being introduced to site soils during the earthworks process. The chemical soil specification for placement of site-won material below buildings and/or hardstanding is outlined in Appendix B. It is noted that the chemical specification criteria outlined in Appendix B has gained regulatory approval as part of the ROC Enabling Works Remediation Strategy for Phase 1A of the wider Mayfield Development[11].

If material is to be re-used below areas of soft landscaping (below capping), then it will subject to chemical leachate analysis at a frequency of **1 sample per 500m^3** and screened against EGS and DWVs on a precautionary basis. Should exceedances of these criteria be recorded then it may be feasible for this material to be re-used in these areas subject to further risk assessment and/or mitigation measures which would be require regulatory agreement. The chemical leachate specification for placement of site-won material below areas of soft landscaping is outlined in Appendix C.

The Contractor will take samples of material proposed as backfill at the required frequency of 1 sample per 500m^3 for chemical analysis. The results of this testing should be compared against the values prescribed in the above-mentioned specification prior to use on site and non-compliant material is to be disposed of off-site.

4.6.4 Material Disposal

The Contractor is responsible for characterising the waste for offsite disposal. Information to support the characterisation of the Made Ground material is provided in the ROC[2] and Civic Earth[4] reports and should be referred to for full information. It is anticipated that further testing of material may be required to characterise the material for off-site disposal, which will be the responsibility of the Contractor.

4.6.5 Importation of Material for Bulk Earthworks

Based on the currently proposed cut and fill analysis, the import of material for use in the bulk earthworks is not anticipated to be required. However, should importation of material be required, the material will be required to meet the chemical acceptability screening criteria outlined in Appendix B. Compliance testing at a frequency of **1**

[10] WRAP & EA (2023), *Quality Protocol: Aggregates from Inert Waste*. Accessed online (https://www.gov.uk/government/publications/quality-protocol-production-of-aggregates-from-inert-waste). Published October 2013.
[11] ROC (2021) *Phase 3a Remediation Strategy, Plots O, M and N*. 15 January 2021. Revision 2. Reference 4153-ROC-XX-XX-RP-ES-P3RS1

per 500m³ will be required. It is noted that chemical compliance testing of imported Primary Aggregate would not be required.

4.7 Mitigation of Risks to Controlled Waters during Enabling and Construction Works

The following measures that were previously agreed for the Phase 1A area will be put in place to mitigate the potential impact to controlled waters (i.e. the underlying Principal aquifer of the bedrock and the River Medlock to the north of the site) during groundworks, where contaminants in the underlying soils may be mobilised to a greater extent than naturally occurs:

- Special precautionary measures will be required when working in close proximity to the riverbank. Access to the riverbank should be restricted by way of fencing and / or rails and that access to the riverbank beyond protective barriers should not be permitted unless appropriate risk assessments have been undertaken and alternative safety measures employed. Any works undertaken within close proximity of the river are subject to submission of adequate risk assessments to the Environment Agency and require approval before commencing works.
- A strategy for the appropriate management of stockpiles including stockpiling in designated areas away from drainage channels, segregation of different types of material (e.g. Made Ground and natural soils), and controlling surface water run-off with bunds, liners and coverings etc. will be developed by the Contractor(s) to ensure that no untreated waters emanating from the site enter the River Medlock and the underlying Principal aquifer. This requirement will apply to areas of both clean and potentially contaminated soils as allowing even clean sediment ingress into the Medlock could create build up in the channel, water turbidity and reduction in water quality.
- Excavated soils will also be appropriately stored with preventative measures against nuisance odours to protect human health during temporary storage on site. The Contractor will document handling and storage protocols for potentially contaminated soils.
- Hydrological modelling undertaken by BuroHappold in support of the planning consent at the time for the adjacent Phase 1A area indicated that the area is at risk of flooding during a 1 in 25 and 1 in 100-year scenarios. In order mitigate against flood waters entering the site from the Medlock (and potential for subsequent sediment rich / contaminated water flows back into the channel) temporary flood defence measures may require construction in stages to protect the site for flooding and backwash risks.
- Appropriate management and discharge/disposal of perched groundwater encountered in excavations and water used during enabling works (e.g. for dust suppression and wheel washing). Temporary drainage systems to be designed and implemented so that they capture waterborne pollution prior to entering any existing drainage systems.
- Appropriate storage of all hazardous liquids, chemicals and materials where materials are to be stored in accordance with the Control of Substances Hazardous to Health (COSHH) Regulations.
- The enabling and construction works should be undertaken in accordance with CIRA 741[12].

In addition, it is recommended that prior to construction of buildings a Piling Works Risk Assessment is carried out for the site to demonstrate that the selected foundation technique will not lead to the creation of new pathways for contaminant migration.

4.8 Capping Layers for Areas of Soft Landscaping

Where soft landscaping is proposed, capping layers will be required to mitigate the potential risks to human health. In addition, the capping layers will provide a suitable growth medium for plants and vegetation. To comply with BRE 465[13], capping layers for the site will need to meet the following criteria:

- 600mm of imported soil with a minimum 150mm topsoil (including 50mm turf/sod); or
- 450mm imported soil with a minimum of 150mm topsoil (including 50mm turf/sod) over a geotextile

[12] CIRIA (2015). *Environmental Good Practice on Site Guide*. 4th Edition.
[13] BRE (2004) *Cover systems for land regeneration - thickness design of cover systems for contaminated land*. BRE 465.

membrane.

It is noted that the thickness of the capping layer may need to be increased for trees/large shrubs where the thickness is specified by the landscape architect.

The material imported to form the capping layers will be uncontaminated soil from a known and reputable source. The capping soils will meet the chemical criteria for human health with respect to the residential (without home grown produce consumption) end use. The chemical specification is set out in Appendix D.

In addition, imported topsoil is required to meet the requirements of BS 3882[14] and imported subsoil is required to meet the requirements for BS 8601[15]. The material should be free from propagules of aggressive weeds, free from obvious signs of contamination e.g. staining, free phase hydrocarbon, coal, non-odorous such that it could be considered a statutory nuisance and free from unsuitable material/foreign bodies e.g. brick, glass, pipework.

Once placed, the capping soils will be sampled and chemical tested by a suitably qualified geoenvironmental engineer to confirm that the material complies with the specifications in Appendix D at a frequency of **1 sample per 250m^3, with a minimum of three samples per source**. Inspection pits will also be dug through the placed material to confirm the thickness meets the minimum requirements.

To protect the integrity of the capping layers, placement should commence after installation of foundations and drainage works.

In areas where soft landscaping is proposed at podium levels or within concrete planters, where no contact is made with the underlying Made Ground, imported topsoil/subsoil will be required to provide a suitable growth medium; however, no minimum thickness is required from a protection of human health perspective.

4.9 Buried Water Supply Pipes

Completion of a United Utilities Risk Assessment including sampling of soils at depth and location of proposed water supply pipes will be required, and the completed risk assessment including location plan, soil chemical analysis results and required pipe type will be required for submission to United Utilities for review.

4.10 General Requirements

Asbestos fibres and asbestos containing material (ACM), including one area where ACM was recorded at >0.1% by weight, were encountered, in the Made Ground and there is the potential for further asbestos containing material to be encountered during groundworks. Works will be undertaken in accordance with the current asbestos regulations and guidance[16,17,18,19]. All construction persons should be properly briefed on the identification of asbestos material and, where encountered, earthworks should cease whilst risks are properly considered. The regular damping down of excavations and excavated soils would also be prudent in such instances to prevent dust generation and release from any asbestos contaminated soils.

Precautions will be taken to minimise exposure of workers and the general public to potentially harmful substances during earthworks. The risks to contractors can be controlled through the implementation of site safety procedures and the use of suitable personal protective equipment (PPE). Attention should also be paid to restricting possible off-site nuisance such as dust and odour emissions. These measures should include (and not be limited to):

- Any sources of contamination uncovered during site development works should be brought to the immediate attention of a geoenvironmental consultant for consideration and comment. As required, the findings and recommendations of the current assessment may require amendment to reflect changes in site condition.
- All excavated materials stockpiled should be periodically dampened down to control dust release.

[14] British Standards (2015) *Specification for Topsoil and Requirements for Use*. BS3882:2015.
[15] British Standards Institute (2013) *Specification for Subsoil and Requirements for Use*.
[16] HSG247 (2006) Asbestos: The licensed contractors' guide
[17] HSE (2012). Managing and working with asbestos - Control of Asbestos Regulations 2012 - Approved Code of Practice and guidance.
[18] Health and Safety Executive (2012). The Control of Asbestos Regulations
[19] Health & Safety Executive (2012). Asbestos: The Survey Guide. HSG 264.

Similarly, the disposal of any material from site should be completed using covered wagons.

- During redevelopment the workforce will need to adopt full HSE measures to ensure that the elevated concentrations of contaminants requiring cover, treatment and/or removal are dealt with according to current guidelines and codes of practice. Suitably experienced and competent staff should be employed to carry out the on-site remediation.

Site personnel are not permitted to enter unstable excavations, nor excavations in which contamination is present, nor unsupported excavations deeper than 1.2m, in accordance with standard HSE protocols.

5. Validation and Verification

5.1 Remediation Validation Requirements

This RMS will require validation records to be collated on completion of the enabling works remediation works and on completion of the construction phase remediation works, as outlined in Section 4.1. The verification reports should be submitted to and approved by the Local Authority.

Based on the remediation strategy outlined in Section 4, it is anticipated that the verification evidence will comprise:

1. **Enabling Works Phase**

    - Site inspection records, photographs and laboratory testing should unexpected contamination be encountered under the watching brief and tannery watching brief;
    - Borehole decommissioning records;
    - Site inspection records, photographs and laboratory testing for contamination hotspot removal works;
    - General site inspection records and photographs during cut and fill and material re-use works;
    - As-built drawings including final earthworks levels and volumes;
    - Material management procedures (permits, exemptions, MMP etc.) and records detailing material re-use and import locations, as appropriate;
    - Duty of Care records for disposal of asbestos contaminating materials and surplus arisings including WAC testing certificates, waste haulier permits, waste recipient permits and volumes of materials disposed of by each haulier / to each facility;

2. **Construction Phase**

    - Site inspection records, photographs and laboratory testing should unexpected contamination be encountered under the watching brief;
    - As-built drawings;
    - United Utilities water supply pipe risk assessment, specification of water supply pipework and confirmation from United Utilities of their acceptance of the material used;
    - Site inspection records, photographs and laboratory testing for capping layer and/or growth medium material importation and construction, confirming compliance with the relevant import specification.

5.2 Verification Plan

A Verification Plan which details the remedial requirements and verification information required to confirm that the remediation of the site is carried out in compliance with this RMS is presented in Appendix E.

5.3 Verification Reporting

Verification Reports will be required following completion of the enabling works phase and following completion of the construction phase, which will include the information set out in Section 5.1 and the Verification Plan. The Verification Reports should be submitted to and approved by the Local Planning Authority.

Appendix A

Tannery Watching Brief

COMPLEX CHALLENGES ...
MADE SIMPLE

Former Tannery Site, Risk Mitigation Note

The following note has been prepared for all contractors to review and adhere with when completing any excavations or works that may break ground in the area of the former Ardwick Tannery (see Fig 1.0 below for location).



Fig 1.0 : Portion of site containing former Tannery operation.

Ground contamination assessments have identified this portion of the site was formerly used as a Tannery and a residual risk of animal by product encounter may be present in this area. Investigations completed to date in this area have failed to identify any such presence, however all contractors are obliged to follow the requirements of this briefing note and adopt a Tannery Contamination **Watching Brief & Discovery Strategy** the scope of which is provided overleaf.

Tannery Contamination: Watching Brief & Discovery Strategy

1) All proposed works that may break ground in the area of the former Tannery (as defined on Fig 1.0 of this note) will be subject to a watching brief.

2) This watching brief applies to all machine and hand dug activities in this area (regardless of purpose, scale or depth) and will continue until natural strata is encountered in excavations (either weathered Sandstone bedrock or natural clays / sands).

3) Persons working on any such excavations shall visually inspect soils for the presence of the following materials:

   - Animal bones
   - Animal hair
   - Animal carcase or flesh
   - Animal hides
   - Significant quantities of deleterious or organic rich materials or sludge

4) Where materials or contaminants similar to those outlined in point 3 are noted contractors shall immediately cease all operations and complete the following steps:

   - Cease all excavations and move all site personnel to a safe distance.
   - Immediately backfill and cover impacted material with arisings from excavations to at least a 1m thickness with unimpacted material.
   - Whilst backfilling excavations the site manager should be alerted to the discovery.
   - As required deploy any temporary mitigation measure to stabilise adjacent land or structures (e.g., if working in close proximity to the River Medlock walls or culvert) without disturbing the affected area).
   - Record the affected area both in terms of its location and spatial extent
   - As required adjust and reroute site operations away from the affected area

5) Once these immediate actions are undertaken the affected area shall be cordoned off from site operations with appropriate barriers and signage (similar to mitigation measures employed when areas of Asbestos or other grossly contaminated soils are revealed during site works).

6) RoC Consulting and the site Resident Engineer shall be informed as soon as is reasonably practicable to attend site and further discuss the discovered material and remediation measures. In addition, notification may also be required to Manchester City Councils Environmental Protection Div, the Environment Agency and the HSE (depending on the extent / severity of contamination)

7) All future works in the affected area to further investigate, remove and remediate shall be completed in accordance with guidance document “Guidance on assessing risk of Tannery Contamination on building land” with appropriate approvals and sanctions from regulatory authorities.

It is recommended construction contractors review and incorporate the requirements of this briefing noted into all excavation permits being issued for the area indicated in Fig 1.0 with all operatives briefed as to their obligations under this strategy. Any questions or clarifications should be brought to the attention of RoC Consulting or the site Resident Engineer.

Appendix B

Chemical Acceptability Criteria for Site Won Material Reuse below Buildings/Hardstanding

Table 1.1 Mayfield Masterplan Soil Screening Values
For site won material reuse beneath areas of building / hard standing (i.e. not landscaping)

Determinand (mg/kg)		Determinand (mg/kg)	
Heavy Metals		**Petroleum Hydrocarbons**	
Arsenic [3]	170	TPH C5-C6 Aliphatic [2]	9500
Beryllium [2]	63	TPH C>6-C8 Aliphatic [2]	150000
Boron [2]	460000	TPH C>8-C10 Aliphatic [2]	14000
Cadmium [1]	560	TPH C>10-C12 Aliphatic [2]	21000
Chromium (III) [2]	33000	TPH C>12-C16 Aliphatic [2]	25000
Chromium (VI) [2]	220	TPH C>16-C35 Aliphatic [2]	450000
Copper [2]	44000	TPH C>35-C44 Aliphatic [2]	450000
Mercury (Elemental) [1]	25.8	TPH C>5-C7 Aromatic [2]	76000
Mercury (Inorganic) [1]	240	TPH C>7-C8 Aromatic [2]	87000
Mercury (Methylmercury) [1]	68	TPH C>8-C10 Aromatic [2]	7200
Nickel [2]	3400	TPH C>10-C12 Aromatic [2]	9200
Selenium [1]	1800	TPH C>12-C16 Aromatic [2]	10000
Vanadium [2]	5000	TPH C>16-C21 Aromatic [2]	7600
Zinc [2]	170000	TPH C>21-C35 Aromatic [2]	7800
Polyaromatic Hydrocarbons		TPH C>35-C44 Aromatic [2]	7800
Acenaphthene [2]	29000	TPH C>44-C70 Ali and Aro [2]	7800
Acenaphthylene [2]	29000	**BTEX Compounds**	
Anthracene [2]	150000	Benzene [2]	110
Benzo(a)anthracene [2]	49	Toluene [2]	87000
Benzo(a)pyrene [1]	10	Ethylbenzene [2]	17000
Benzo(b)fluoranthene [2]	13	**Other Substances**	
Benzo(g,h,i)perylene [2]	1400	Asbestos ID	0.10%
Benzo(k)fluoranthene [2]	370	References :	
Chrysene [2]	93	1) Environment Agency C4SL HCVS with changes to exposure parameters (2014)	
Dibenz(a,h)anthracene [2]	1.1	2) LQM / CIEH Generic Assessment Criteria (Nov 2014)	
Fluoranthene [2]	6300	3) EIC/AGS/CL:AIRE Soil Generic Assessment Criteria (Dec 2009)	
Fluorene [2]	20000		
Indeno(1,2,3-cd)pyrene [2]	150		
Naphthalene [2]	1200		
Phenanthrene [2]	6200		
Pyrene [2]	15000		
Benzene [2]	110		

Appendix C

Chemical Acceptability Criteria for Site Won Material Reuse below Soft Landscaping Capping

Civic Earth

Chemical Acceptability Criteria for Site Won Material Reuse below Soft Landscaping Capping - Leachate EQS			
Determinand	**EQS (µg/l) [Annual Average]**	**EQS (µg/l) [Max. Allowable]**	**Notes**
Arsenic	50	*	A
Beryllium	*	15	J
Boron	2,000	*	H
Cadmium	0.25	1.5	A
Chromium (III)	4.7	32	A
Chromium (VI)	3.4	*	A
Copper	1.0	*	A
Lead	1.2	14	A, B
Mercury	*	0.07	A
Nickel	4	34	A, B
Zinc	12.3	*	A, E
Total Phenols	7.7	46	A
Total Cyanide	1	5	F
Free Cyanide	1	5	A
Total TPH	*	10	K
Anthracene	0.1	0.1	A
Benzo(a)pyrene	0.00017	0.27	A
Benzo(b)fluoranthene	*	0.017	A, G
Benzo(k)fluoranthene	*	0.017	A, G
Benzo(ghi)perylene	*	0.0082	A, G
Fluoranthene	0.0063	0.12	A
Naphthalene	2	130	A
Benzene	10	50	A
Toluene	74	380	A
Ammoniacal Nitrogen as N	*	750	I
pH	*	6.0 to 9.0	H

Notes:

* No assessment criteria defined.

A. EQS outlined within Water Framework Directive 2015

B. Freshwater Annual Average EQS value for bioavailable fraction for lead, copper, nickel and zinc. Bioavailable fraction assessed using UKTAG Metal Bioavailability Tool (MBAT).

C. PAH is sum concentration of four PAH compounds [benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene and indeno(1,2,3-cd)pyre

D. Cadium EQS based on hardness of 200mg/l or more.

E. Zinc EQS based on 10.9 µg/l plus ambient background concentration for other freshwater catchment

F. EQS for free cyanide stated for total cyanide. Laboratory limit of detection for total cyanide is 1 µg/l (the EQS for free cyanide). If total cyanide is present, analysis for free cyanide is carried out.

G. The annual average EQS in water refer to the concentration of benzo(a)pyrene, on the toxicity of which they are based. Benzo(a)pyrene can be considered as a marker for the other PAHs.

H. Environment Agency Freshwaters Specific Pollutants and Operational Environmental Quality Standards

I. Based on a 'moderate' quality river (Water Framework Directive 2015).

J. Dutch Indication Level of Serious Contamination

Chemical Acceptability Criteria for Site Won Material Reuse below Soft Landscaping Capping - Leachate DWV		
Determinand	**Drinking Water Value (µg/l)**	**Notes**
Arsenic	10	A
Boron	1,000	A
Cadmium	5	A
Chromium	50	A
Copper	2,000	A, B
Lead	10	A, B
Mercury	1	A
Nickel	20	A, B
Selenium	10	A
Zinc	5,000	A, B
Total Phenols	0.5	D
Total Cyanide	50	A
Total TPH	10	D
TPH Aliphatic EC5-6	15,000	G
TPH Aliphatic EC>6-8	15,000	G
TPH Aliphatic EC>8-10	300	G
TPH Aliphatic EC>10-12	300	G
TPH Alipihatic EC>12-16	300	G
TPH Aromatic EC>5-7	10	G
TPH Aromatic EC>7-8	700	G
TPH Aromatic EC>8-10	300	G
TPH Aromatic EC>10-12	90	G
TPH Aromatic EC>12-16	90	G
TPH Aromatic EC>16-21	90	G
TPH Aromatic EC>21-35	90	G
PAH	0.1	A, C
Benzo(a)pyrene	0.01	A
Benzene	1	A
Toluene	700	E
Ethylbenzene	300	E
p & m-xylene	500	E, F
o-xylene	500	E, F
Ammoniacal Nitrogen as N	500	A
pH	6.5 to 9.5	A
Total Sulphate (mg SO_4/l)	250	A
Notes:		
* No assessment criteria defined.		
A. DWV outlined within the Water Supply (Water Quality) Regulations 2018.		
B. Bioavailable fraction assessed using UKTAG Metal Bioavailability Tool (MBAT).		
C. PAH is sum concentration of four PAH compounds (benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene and indeno(1,2,3-cd)pyrene.		
D. DWV outlined within the Water Supply (Water Quality) Regulations 1989.		
E. WHO Guidelines for Drinking Water Quality, 4th Edition 2017.		
F. DWV for p-xylene stated; DWV for o-xylene is 500µg/l.		
G. WHO Petroleum Products in Drinking Water, 2008		

Appendix D

Chemical Acceptability Criteria for Capping Soils/Growth Medium

Soil Screening Values
For use in Public Open Space

Determinand (mg/kg)		Determinand (mg/kg)	
Heavy Metals		**Petroleum Hydrocarbons**	
Arsenic	170	TPH C5-C6 Aliphatic	95000
Beryllium	63	TPH C>6-C8 Aliphatic	150000
Boron	460000	TPH C>8-C10 Aliphatic	14000
Cadmium	560	TPH C>10-C12 Aliphatic	21000
Chromium (III)	33000	TPH C>12-C16 Aliphatic	25000
Chromium (VI)	220	TPH C>16-C35 Aliphatic	450000
Copper	44000	TPH C>35-C44 Aliphatic	450000
Mercury (Elemental)	25.8	TPH C>5-C7 Aromatic (Benzene)	76000
Mercury (Inorganic)	240	TPH C>7-C8 Aromatic (Toluene)	87000
Mercury (Methylmercury)	68	TPH C>8-C10 Aromatic	7200
Nickel	3400	TPH C>10-C12 Aromatic	9200
Selenium	1800	TPH C>12-C16 Aromatic	10000
Vanadium	5000	TPH C>16-C21 Aromatic	7600
Zinc	170000	TPH C>21-C35 Aromatic	7800
Polyaromatic Hydrocarbons		TPH C>35-C44 Aromatic	7800
Acenaphthene	29000	TPH C>44-C70 Ali and Aro	7800
Acenaphthylene	29000	**BTEX Compounds**	
Anthracene*	150000	Benzene	110
Benzo(a)anthracene*	49	Toluene	87000
Benzo(a)pyrene*"	10	Ethylbenzene	17000
Benzo(b)fluoranthene"	13	**Other Substances**	
Benzo(g,h,i)perylene*"	1400	Asbestos ID	ND
Benzo(k)fluoranthene*"	370		
Chrysene*	93		
Dibenz(a,h)anthracene	1.1		
Fluoranthene*"	6300		
Fluorene	20000		
Indeno(1,2,3-cd)pyrene*"	150		
Naphthalene*	1200		
Phenanthrene*	6200		
Pyrene	15000		
Benzene	110		

Appendix E
Verification Plan

Item	Remedial Requirements	Development Phase	Site Attendance by Qualified Geoenvironmental Engineer	Supporting Documentation
General	With reference to the Civic Earth RMS, the site's remediation requirements are as follows: **Enabling Works** - Watching brief and discovery strategy; - Decommissioning of existing borehole monitoring wells; - Tannery watching brief for earthworks works within the western extent of the site; - Removal of hotspots of gross hydrocarbon and asbestos contamination; - Appropriate material management of arisings associated with enabling works for re-use and/or disposal including off-site disposal to appropriately licenced waste facilities; - Mitigation of risks to controlled waters during enabling works including appropriate management of stockpiles, controlling surface water run-off and appropriate discharge / disposal of perched groundwater; and **Construction Phase** - Watching brief and discovery strategy; - Provision of soil capping layer in areas of soft landscaping; - Appropriate material management of arisings associated with construction works (i.e. foundation works) for re-use and/or disposal including off-site disposal to appropriately licenced waste facilities; - Mitigation of risks to controlled waters during construction works including appropriate management of stockpiles, controlling surface water run-off and appropriate discharge / disposal of perched groundwater; and - Selection and installation of appropriate materials for buried water supply pipes. Amendments will be made as appropriate to account for differing ground conditions encountered during the progress of remedial works.	Enabling Phase & Construction Phase	Watching brief to be carried out by Earthworks and Main Works Contractors Attendance by Geoenvironmental Engineer should unexpected contamination be encountered	1. Civic Earth Remediation Method Statement 2. Remediation Contractor Remediation Implementation Plan 3. Information to be provided during / post enabling phase and construction phase: - As detailed in sections below
Watching Brief and Discovery Strategy	A watching brief should be in place during earthworks and construction works by the Contractor. Should areas of unexpected contamination, including free product and Asbestos, be encountered or suspected, a qualified geoenvironmental engineer will be informed and the risk associated with the contamination assessed in accordance with the discovery strategy outlined in the Civic Earth RMS.	Enabling Phase & Construction Phase	Attendance by Geoenvironmental Engineer should unexpected contamination be encountered to inspect the potential contamination and take samples for chemical laboratory analysis.	Records of site visit and photographs. Chemical test results. Correspondence with and approval of revised remediation strategy with regulator, if applicable. Duty of care records for disposal of material.
Tannery Watching Brief	The regulatory agreed tannery watching brief (Appendix A) will be implemented during the enabling works phase and construction works phase for works within the west of the site where the historical tannery encroached onto the site. The tannery watching brief and discovery strategy includes visual inspection of soils for the presence of animal bones, animal hair, animal carcass or flesh, animal hides and significant quantities of deleterious or organic rich materials or sludge. Should any of the above be encountered, operations are to cease, and the excavation backfilled with at least 1m thickness of unimpacted material, and the location and spatial extent recorded. The impacted area is then to be investigated, removed and remediated in accordance with the guidance document "Guidance on assessing risk of Tannery Contamination on building land" with appropriate approvals and sanctions from regulatory authorities.	Enabling Phase & Construction Phase	Attendance by a suitably qualified Geoenvironmental Engineer should tannery contamination be encountered.	Records of site visit and photographs. Chemical test results. Correspondence with and approval of revised remediation strategy with regulator, if applicable. Duty of care records for disposal of material.
Borehole Decomissioning	The existing monitoring wells will be decommissioned in accordance with EA guidance (*Good practice for decommissioning redundant boreholes and wells*).	Enabling Phase	Visits may be undertaken if third party supervision is required by the Client.	Records of decommissioning including photographs, specification for backfill

Item	Remedial Requirements	Development Phase	Site Attendance by Qualified Geoenvironmental Engineer	Supporting Documentation
	Decommissioning works will include the removal of headworks and backfill of the monitoring wells from base to top with a low permeability material i.e. bentonite/cement grout. Decomissioning works will be carried out prior to commencement of significant groundworks.			material and well records (well condition, depth prior to backfilling, well diameter and volume of backfill used).
Removal of Gross Hydrocarbon Hotspots	"Hydrocarbon Hotspot #2", BH1004, TP1010 and BH1003. Remediation will include inspection and confirmation of the extent of infrastructure associated with the former AST at Hydrocarbon Hotspot #2 will be undertaken and removal works will be carried out under a watching brief. Any residual free product / liquid fuel product will be collected and disposed of from site following appropriate laboratory analysis and waste disposal protocols. Removal of the AST slab will also be carried out under a watching brief Excavation of each hotspot to be undertaken on an initial area of 5m x 5m around the hotspot location followed by visual and laboratory verification testing of the sides and base of the excavation will be carried out to confirm removal of the gross contamination i.e. total TPH concentration of less than 1,000mg/kg (hazardous waste threshold), total PAH of less than 100mg/kg (inert waste threshold) and less than 0.1% asbestos by weight (hazardous waste threshold). Each hotspot area and methodology for investigation and inspection will be set out in the Remediation Contractor's Remediation Implementation Plan. In addition, details of how the material will be either re-used on-site or removed from site to an appropriately licensed waste facility will be set out in the Remediation Contractor's Remediation Implementation Plan.	Enabling Phase	Attendance by Geoenvironmental Engineer to: Visually inspect excavation signs for removal of gross contamination. Take samples of sides and base for chemical analysis to confirm removal of grossly impacted soils.	Site visit records of material excavation and validation testing visits including photographs. Chemical test results. Hotspot excavation extend drawings. Duty of care records for disposal of waste.
Material Management	The Contractor will be responsible for the material management and waste classification. It is considered that the Made Ground material (excluding the identified hotspots) excavated could be re-used on site below capping or hardstanding, subject to final finish levels and the capping layer formation level, under the CL:AIRE protocol. The CL:AIRE protocol requires a Material Management Plan (MMP) to be produced which details where materials will arise from and how they will be used within the limits of the Code of Practice. The process would require sign off by a Qualified Person in advance of works commencing and a final validation report to be produced. If material is placed below areas of buildings and/or hardstanding i.e. not within areas of soft landscaping, the material will be subject to chemical analysis at a frequency of **1 sample per 500m³** to check no sources of contamination are being introduced to site soils during the earthworks process. The chemical soil specification for placement of site-won material below buildings and/or hardstanding is outlined in Appendix B. If material is to be re-used below areas of soft landscaping (below capping), then it will subject to chemical leachate analysis at a frequency of **1 sample per 500m³** and screened against EGS and DWVs on a precautionary basis. Should exceedances of these criteria be recorded then it may be feasible for this material to be re-used in these areas subject to further risk assessment and/or mitigation measures which would be require regulatory agreement. The chemical leachate specification for placement of site-won material below areas of soft landscaping is outlined in Appendix C	Enabling Phase & Construction Phase	Visits may be required should additional classification of arisings be required prior to disposal. If material imported for use in bulk earthworks that is not Primary Aggregate, sampling and verification testing at a frequency of 1 per 500m³ will be carried out.	Duty of care records for disposal of waste, pumped perched water / groundwater and laboratory test results. Evidence of material management procedures in place including permits, exemptions, MMP, waste haulier permits, waste facility permits. Imported material for bulk earthworks – Appendix B import specification and site records and laboratory test results for compliance testing.

Item	Remedial Requirements	Development Phase	Site Attendance by Qualified Geoenvironmental Engineer	Supporting Documentation
	Uncontaminated clean, naturally occurring arisings may be re-used within the site under the CL:AIRE protocol or re-used off-site under direct transfer under the CL:AIRE protocol. Additionally, screening of uncontaminated granular soils may permit the re-use of this material on site or off-site under the WRAP protocol. All material bound for disposal to landfill will require characterisation in accordance with the Hazardous Waste Regulations 2005 and disposal in accordance with the requirements of the Landfill Regulations (2002, as amended) and the Environmental Protection (Duty of Care) Regulations, 1991. Importation of material for use in the bulk earthworks is not anticipated to be required. However, should importation of material be required, the material will be required to meet the applicable chemical acceptability screening criteria (see Appendix B). Compliance testing at a frequency of 1 per 500m^3 will be required. It is noted that chemical compliance testing of imported Primary Aggregate would not be required			
Mitigation of Risks to Controlled Waters	Appropriate management of stockpiles including stockpiling in designated areas away from drainage channels, segregation of different types of material (e.g. Made Ground and natural soils), and controlling surface water run-off with bunds, liners and coverings. Excavated soils will also be appropriately stored with preventative measures against nuisance odours to protect human health during temporary storage on site. Appropriate management and discharge/ disposal of perched groundwater encountered in excavations and water used during enabling works (e.g. for dust suppression and wheel washing). Temporary drainage systems to be designed and implemented so that they capture waterborne pollution prior to entering any existing drainage systems. Appropriate storage of all hazardous liquids, chemicals and materials where materials are to be stored in accordance with the Control of Substances Hazardous to Health (COSHH) Regulations. Special precautionary measures will be required when working in close proximity to the riverbank. Access to the riverbank should be restricted by way of fencing and / or rails and that access to the riverbank beyond protective barriers should not be permitted unless appropriate risk assessments have been undertaken and alternative safety measures employed. Any works undertaken within close proximity of the river are subject to submission of adequate risk assessments to the Environment Agency and require approval before commencing works. A strategy for the appropriate management of stockpiles including stockpiling in designated areas away from drainage channels, segregation of different types of material (e.g. Made Ground and natural soils), and controlling surface water run-off with bunds, liners and coverings etc. will be developed by the Contractor(s) to ensure that no untreated waters emanating from the site enter the River Medlock and the underlying Principal aquifer. This requirement will apply to areas of both clean and potentially contaminated soils as allowing even clean sediment ingress into the Medlock could create build up in the channel, water turbidity and reduction in water quality. Hydrological modelling undertaken by BuroHappold in support of the planning consent at the time for the adjacent Phase 1A area indicated that the area is at risk of flooding during a 1 in 25 and 1 in 100-year scenarios. In order mitigate against flood waters entering the site from the Medlock (and potential for subsequent sediment rich / contaminated water flows back into the channel) temporary flood defence	Enabling Phase & Construction Phase	Visits may be undertaken if third party supervision is required by the Client.	Contractor documentation of material and groundwater handling, storage and discharge protocols including strategy for management of stockpiles. Risk assessments and evidence of regulatory approval for works in proximity to riverbank. Drawings of temporary flood defence measures, as appropriate. Photographs of measures put in place.

Item	Remedial Requirements	Development Phase	Site Attendance by Qualified Geoenvironmental Engineer	Supporting Documentation
	measures may require construction in stages to protect the site for flooding and backwash risks.			
Capping Layers	Capping layers for the site will meet the following criteria: - 600mm of imported soil with a minimum 150mm topsoil (including 50mm turf/sod); or - 450mm imported soil with a minimum of 150mm topsoil (including 50mm turf/sod) over a geotextile membrane. Thickness of the capping layer may be increased for trees/large shrubs where the thickness is specified by the landscape architect. The material imported to form the capping layers will be uncontaminated soil from a known and reputable source. The capping soils will meet the chemical criteria for human health with respect to the residential (with home grown produce consumption) end use. The chemical specification is set out in Appendix C of the Civic Earth RMS. Once placed, the capping soils will be sampled and chemical tested by a suitably qualified geoenvironmental engineer to confirm that the material complies with the specifications outlined Appendix C at a frequency of 1 sample per 250m^3, with a minimum of three samples per source. Inspection pits will also be dug through the placed material to confirm the thickness meets the minimum requirements.	Construction Phase	Attendance by Geoenvironmental Engineer to: Validate construction of capping layer. Take samples of imported material for chemical analysis at a frequency of 1 per 250m3 (per material type) and a minimum of 3 samples per source (per material type).	Material source certificates and pre-import chemical test data, to be provided by the Contractor. Site visit records of verification visits including photographs. Chemical test results. As-built landscape layout drawings.
Buried Water Supply Pipes	Completion of a United Utilities Risk Assessment including sampling of soils at depth and location of proposed water supply pipes will be required. Completed risk assessment including location plan, soil chemical analysis results and required pipe type will be required for submission to United Utilities for review.	Construction Phase	Visits may be undertaken if third party supervision is required by the Client.	United Utilities Risk Assessment. Confirmation of pipework material choice by United Utilities. Photographs of pipework installation. Specification of pipework installed.

Civic Earth

Manchester

Carver's Warehouse
77 Dale Street
Manchester M1 2HG

+44 (0)161 228 6757

London

Reeds Wharf
33 Mill Street
London SE1 2AX

+44 (0)20 7253 2977

Leeds

1 Saw Mill Street
Water Lane
Leeds, LS11 5WE

+44 (0)113 2025 130

Glasgow

35 Virginia Street
Glasgow G1 2TN

+44 (0)141 370 1829

civicearth.com

Appendix 13.4 - Technical Note. Civic Earth. 2024

Prepared by:	Dan Matthews	Project Ref.:	51001-02
Subject:	Mayfield Phase 1B – Hoyle Street Bellmouth and western pavement, and Land to East of Hoyle Street	Date:	05/12/24
Document Ref.:	51001-CE-02-XX-R-G-1004	Revision:	P01

Introduction

Civic Earth have previously produced the following reports with respect the Phase 1B area of the Mayfield Development:

- Civic Earth (2023) Mayfield Phase 1B. Phase 1 Desk Study and Data Review. Reference 51001-CE-02-XX-R-G-1001. Revision P02. 16 November 2023. (Ref. 1)
- Civic Earth (2024) Mayfield Phase 1B. Supplementary Site Investigation Report. Reference 51001-CE-02-XX-R-G-1002. 21 March 2024. (Ref. 2)
- Civic Earth (2024) Mayfield Phase 1B. Remediation Method Statement. Reference 51001-CE-02-XX-R-G-1003. 6 June 2024. (Ref. 3)

It is noted that the site boundary for these reports did not include some areas that are within the red line boundary for the proposed development of Phase 1B, as indicated in the Plate below.



Area A (Yellow)

It is understood that this area was remediated as part of the development of Mayfield Park – the following report should be referred to for further details:

- E3P (2021) Mayfield Parks and Plots M, N and O. Validation Report. Reference 14-575-R1-Rev 1. November 2021 (Ref. 4)

Area B (Orange)

This area currently comprises Mancunian Way and therefore was not included in the investigations undertaken by Civic Earth. Whilst there appears to be some variation in site boundaries due to overlay of current and historical mapping, the historical mapping (see Ref 1) indicates that this area has predominantly comprised roads since the earliest available mapping dated 1851.

Area C (Red - subject area)

This area comprises the bellmouth and western pavement of Hoyle Street and a small parcel of land to the east of Hoyle Street, and is the subject area of this technical note. Whilst not included within the Civic Earth Phase 1B assessments area, this area was included in a Desk Study Report undertaken by Civic Earth for the Phase 3 area of the wide Mayfield development in 2024:

- Civic Earth (2024) Mayfield Phase 3. Phase 1 Desk Study. Reference 51001-CE-03-XX-R-G-1001. Revision P01. 1 March 2024. (Ref. 5)

A summary of the findings of this desk study[5] relevant to Area C is presented below, the full report should be referred to for further details.

Summary of Desk Study[5] information for Area C based on Phase 3 Desk Study Report

The area comprises the southern bellmouth and western pavement of Hoyle Street and a small area of soft/hand landscaping to the east of Hoyle Street. Historical mapping indicates that in the late 1800s/early 1900s the area comprised New York Street (which later became Hoyle Street) and residential housing to the east of New York Street. The residential housing is indiciated to no longer be present by 1948 and the site is indicated to be in its current configuration by 1968. Mapping suggests the area to the east of Hoyle Street comprises of hard standing, but aerial photography suggests that part of this area is soft landscaping.

Published geology, hydrogeology and hydrology are generally similar to the Phase 1B area to the west of Hoyle Street. Published geology comprises of Til (Diamicton), which is a Secondary Undifferentiated aquifer, over Bedrock of the Chester Formation (Sandstone), which is a Principal aquifer. The Groundsure report identifies an area of Made Ground in northern and central parts of Area C. In addition, Made Ground is anticipated to be present associated with historical development of the area. As identified for Phase 1B, the river Medlock is located to the north of the site.

It is noted that the Groundsure Geo + Enviro Insight report identifies a record for a ground cavity / sinkhole incident on Mancunian Way approximately 80m southwest of the site. The record is dated August 2016 and identified as 12m in diameter and 'opened in torrential downpours, possible former culvert collapse'. It is understood the road has since been repaired and the road is operational.

Summary of Preliminary Conceptual Site Model

The preliminary qualitative risk assessment[5] indicated that there is generally a low to moderate risk to the identified receptors (including future site users, construction workers, off site residents, controlled waters, buildings/infrastructure/services and plants/vegetation) from potential contamination associated with the current and former uses of the site and surrounding areas, and potential Made Ground.

Summary of Recommendations and Anticipated Remediation Requirements

The Phase 3 Desk Study report[5] recommended that an intrusive ground investigation be undertaken to assess for the identified contaminants of concern, to evaluate the potential contaminant linkages through soil, leachate and groundwater sampling, and enable a robust remediation strategy to be developed, if required.

It is understood that these investigation works have not been undertaken at this stage. However, it is noted that a site investigation has been undertaken for the main site area[2], and a remediation method statement[3] has been prepared. Whilst site investigation would be required within Area C to confirm ground conditions and to evaluate the identified potential contaminant linkages, based on the available desk based information and the associated conceptual site model for Area C[5], it is anticipated that similar remediation measures would be required for Area C to those identified for the wider Phase 1B site. These include soil capping layers in soft landscaping, appropriate material management and handling, appropriate selection of water supply pipe material and implementation of a watching brief and discovery strategy during the works.