McLaren Construction Ltd

Manchester Airport

Building 401

Subgrade and Subbase Verification Report

Table of Revisions

Date	Revision No.	Comments
03 September 2023	-	Final Issue

Job Title	**Manchester Airport Building 401**		
Client	McLaren Construction		
Location	Manchester Airport		
Date	03 September 2023	**Revision**	-
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Appendix B - Aecom Building 401 Manchester Airport Civil Engineering Specification April 2022;
Appendix C - Ground Investigation Reports - Various;
Appendix D - Subgrade and Subbase Test Results (Various).

1. Scheme Introduction

McLaren Construction are working with Manchester Airport to provide a new facility at the airport. The new facility and site will be redeveloped to incorporate a single warehouse structure divided into three units with incorporated offices.

The the warehouse covers c.7,056m^2 occupying approximately one third of the site area. The remainder of the site comprises associated infrastructure, including lorry and car parking, two new access routes into site from Avro Way, and soft landscaping. The proposed development is shown in Figure 1.1.

In broad terms, the development of the site required the following stages:

- Demolition of the existing building 401 on the site;
- Demobilisation of the temporary structures of the airport bus depot;
- Site earthworks, including excavation levelling and landscaping for external areas;
- Installation of services and site drainage; and
- Construction of the new building and associated infrastructure.

The works were carried out in various stages and the demolition, bulk earthworks and general placement of materials occurred and were undertaken by others, prior to McLaren being involved. McLaren took over the site once it had generally been laid to levels and rolled to provide a pseudo competent running surface which was taken to be a 3% - 5% CBR.

McLaren Construction undertook subsequent minor earthworks, placement of materials for capping[1] and the placement of subbase materials to take the construction to 'underside of slab' construction; prior to the construction of the actual permanent finishes.

[1] In this instance, capping is to be taken as that granular material that is placed on the existing natural materials to act as an engineering 'capping or crust' below the subbase materials. It is not to be taken as a capping which is placed in pavement works to achieve a 15% CBR.

Figure 1.1 – Overall site layout.

2. Main Design Elements and Principles

2.1 Existing Ground Conditions

The existing ground conditions can be summarised as Figure 2.1 below.

Stratum	Typical Description	Top of Layer (m bgl)	Base of Layer (m bgl)	Layer Thickness (m)
Made Ground	Tarmacadam underlain by MADE GROUND comprised of sandy Gravel or gravelly Sand with frequent tarmacadam fragments. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded of sandstone and limestone. 0.7m thick concrete former loading dock encountered under Tarmacadam at BH101.	0	0.30 – 1.00	0.30 – 1.00
Glacial Till - Cohesive	Firm to very stiff consistency medium to high strength slightly gravelly silty CLAY. Gravel is fine to medium subangular to subrounded of various lithologies	0.30 – 1.00	1.20 – 6.00	0.65 – 4.00
Glacial Till - Granular	Dense to very dense slightly gravelly SAND with discrete bands of stiff Clay. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded of various lithologies.	1.20 – 4.70	1.40 – 6.00	0.20 – 2.00
Bollin Mudstone Member – Weathered (Mercia Mudstone)	Very weak to extremely weak weathered MUDSTONE recovered as stiff to very stiff consistency gravelly Clay. Gravel is fine to coarse subangular to angular of mudstone.	2.80 – 6.00	4.50 – 10.60	1.00 – 4.90
Bollin Mudstone Member (Mercia Mudstone)	Weak to extremely weak MUDSTONE. Distinct weathering noted.	4.50 – 10.60	25.00 (Base Not Proven)	20.50 (Base Not Proven)

Figure 2.1 – Summary of existing ground conditions

2.2 Subgrade Construction to Slabs and Pavement Construction

As part of the overall design and construction development, it was agreed between the designers that a minimum of 90mm of 6F2 would be placed under the subbase construction throughout the site. This would be placed if the natural materials within Figure 2.1 were encountered.

Throughout the siteworks, various thicknesses of 6F2 were placed as part of the overall earthworks construction process to achieve the finished levels. The 6F2 being sourced from the demolition works and stockpiles on site. These are shown in Figure 2.2 below.

Figure 2.2 – Overall GA of the site showing the footprint of the new 401 building and also the stockpiles of 6F2.

2.3 Building – Ground Bearing Floor Slab Construction and Criteria

The details of the ground bearing floor slab are shown in Figures 2.3 and 2.4. In short, there are three main criteria to be satisfied by the construction:

- A layer of Type 1 subbase that acts as a transition and distribution layer to the underlying subgrade; and
- The underlying subgrade construction (the details of which are noted above);
- A support to be provided (in total) of a modulus of subgrade reaction (k) of 0.05N/mm^2/mm. This equates to a CBR of 10% for the purposes of site control.

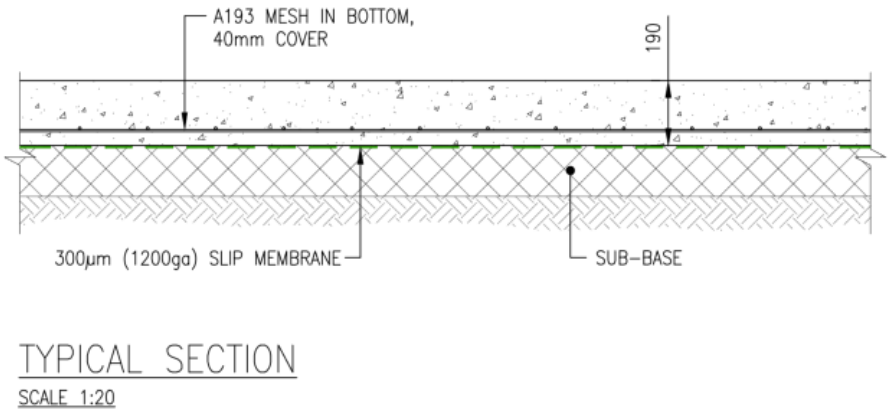


Figure 2.3 – General section of the ground bearing floor slab construction.

FLOOR DESIGN – GROUND SUPPORTED SLAB	
SLAB THICKNESS	190mm
REINFORCEMENT	1No LAYER A193 MESH IN BOTTOM, 40mm COVER
CONCRETE STRENGTH	C32/40 (CYLINDER/CUBE)
'k' VALUE FOR DESIGN PURPOSES	0.05N/mm^2/mm
FLOOR FLATNESS CLASSIFICATION	FM2 to CONCRETE SOCIETY TR34 4th EDITION
DESIGN LOADS	MAXIMUM RACK LEG LOAD = 100kN
	MAXIMUM UDL = 50kN/m^2
RACKING BASEPLATE DIMENSIONS	100mm x 100mm (ASSUMED CONTACT AREA)
BACK-TO-BACK LEG SPACING	MINIMUM 300mm
SINGLE LEG CENTRE TO JOINT	MINIMUM 150mm
BACK-TO-BACK LEG CENTRE TO JOINT	MINIMUM 150mm

Figure 2.4 – Performance criteria of the underlying subbase and subgrade pavement construction for the ground bearing floor slab to the building

2.4 External Areas - Subgrade Construction and Criteria

The details of the external works areas are shown in Figures 2.5 to 2.9. In short, there are three main criteria to be satisfied by the construction:

- A layer of Type 1 subbase that acts as a transition and distribution layer to the underlying subgrade of 150mm thickness; and

- The underlying subgrade construction is to have a CBR of 3%[2] and above; and
- The Type 1 stone subbase material is to have a CBR of 30% proven.

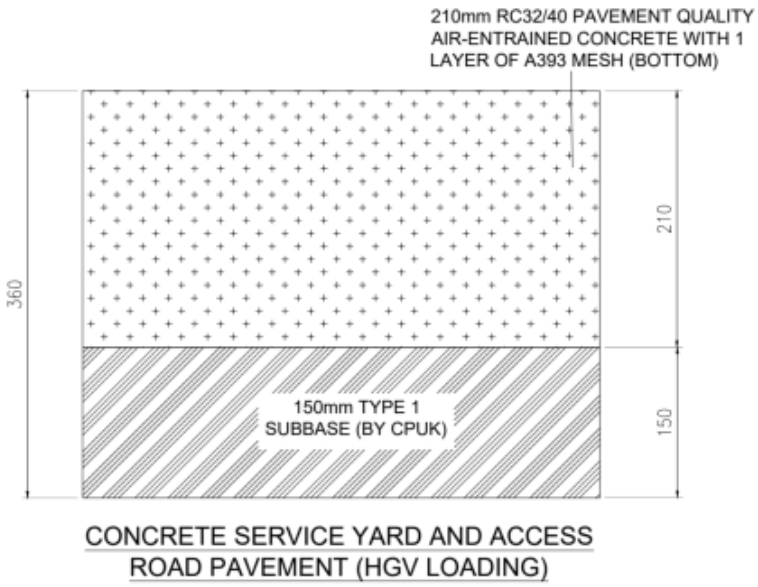
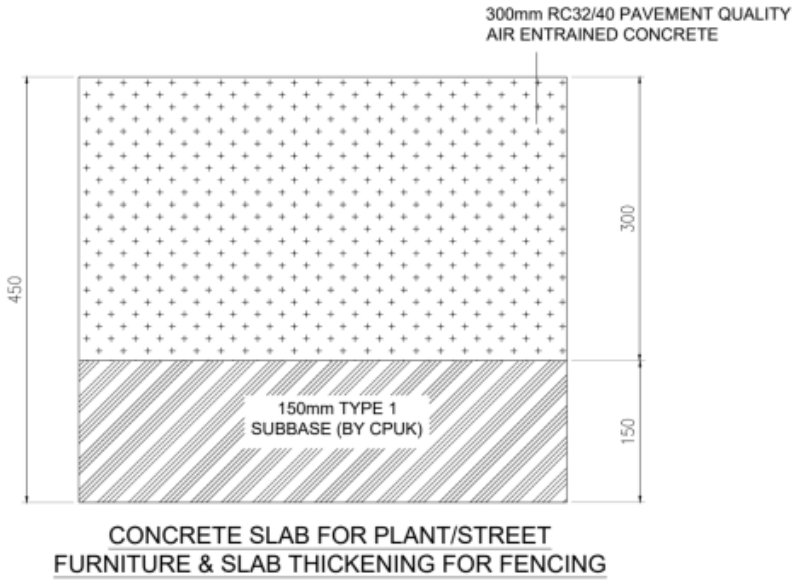


Figure 2.5 – Typical service yard construction.



[2] The achievement of the 3% subgrade was arrived at through design development with the designers of the scheme and in accordance with TR66 – External In-Situ Concrete Paving

Figure 2.6 – Typical concrete slab for various thickenings and furniture.

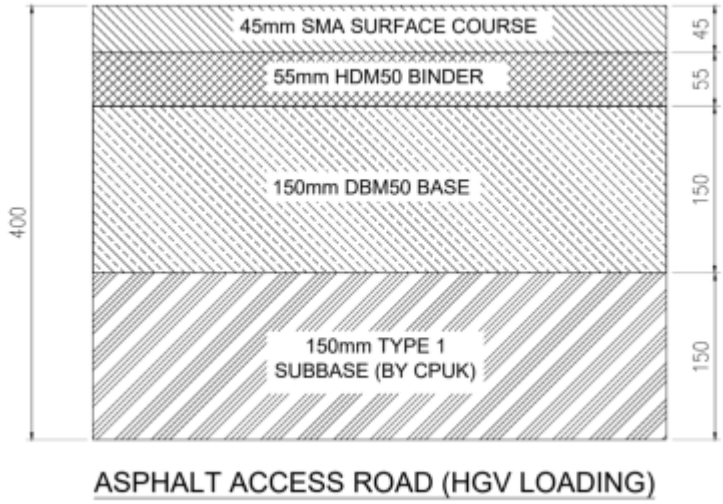


Figure 2.7 – Typical asphalt access road construction.

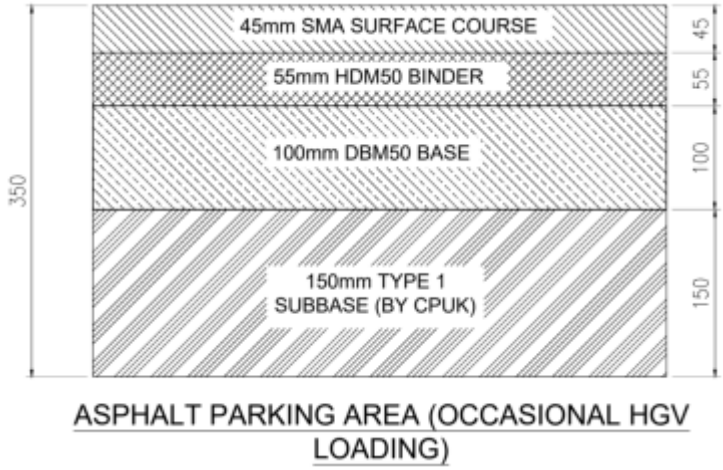


Figure 2.8 – Typical asphalt car parking areas.

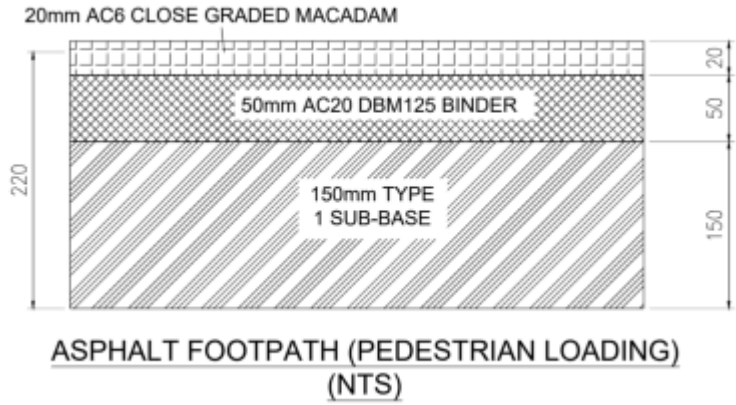


Figure 2.9 – Typical asphalt footpath construction.

3. Main Construction Materials

The main construction materials for the pavement subgrade and subbase construction works were:

- In-situ soils present on site as detailed in the existing site investigation report (Appended);
- Capping materials generally comprising a 6F2 material which were site won during the demolition works;
- Type 1 stone subbase materials which were imported to site.

4. Commissioning and Testing Details and Results

4.1 Introduction

With regard to the commissioning and testing details there were a number of activities that comprised this:

- Material suitability testing;
- Initial subgrade and formation testing; and
- Compliance testing of the final subgrade and formation.

4.2 Material Suitability Testing

The main materials that were required to be tested for suitability were the on site materials which were crushed and processed to a 6F2 material. They were tested for:

- Grading analysis;
- Los Angeles Co-efficient testing; and
- Material content.

The material content testing confirmed that the materials consisted of 78% crushed concrete and natural stone.

The Los-Angeles Co-efficient Testing confirmed that it was 40, which was less than the upper bound of 50.

The gradings are shown below in Figure 4.1 and also confirm that the gradings of the material were suitable.

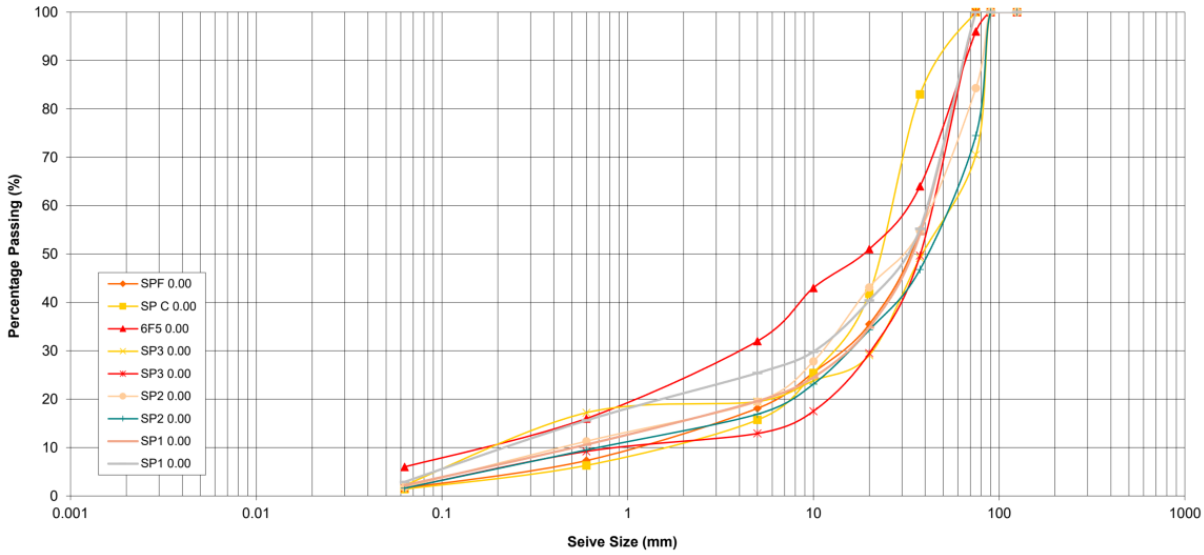


Figure 4.1 – Grading analysis of the 6F2 material

4.3 Initial Subgrade and Formation Testing

Prior to any final earthworks and regrading exercise involving the placement of further 6F2 and Type 1 stone subbase, the formation was tested across the site. The test results have been reproduced below as Figure 4.2.

It can be seen that the values are commensurate with those values noted in the Aecom Ground Investigation Report (the summary table being reproduced as Figure 4.3). Furthermore, the values are above the minimum CBR value of 3% noted for the external works. This is of important note given the fact that the final works had not commenced at that juncture in time.

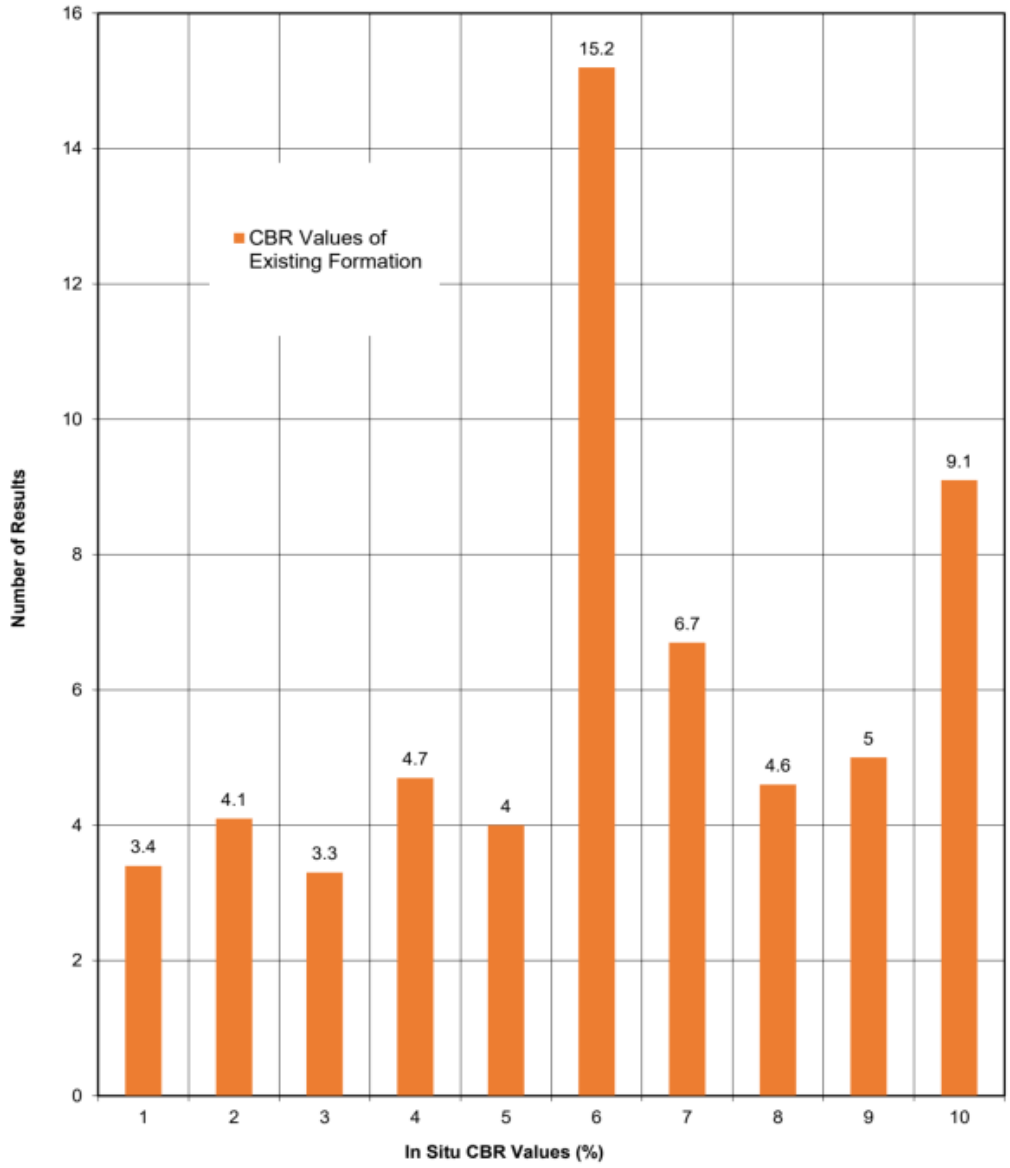


Figure 4.2 – Initial subgrade testing prior to final earthworks and capping placement works.

Stratum	Depth (m bgl)	CBR (%) Location					
		BH101	BH102	BH103	BH104	BH105	BH106
Made Ground	0.30	8	33	26	21	11	-
	0.60	-	23	-	-	-	-
Glacial Till - Cohesive	0.30	-	-	-	-	-	6
	0.60	10	-	3	9	4	15
	0.90	6	11	5	4	7	4

Figure 4.3 – Various CBR tests noted in the Aecom GIR.

4.4 Compliance Testing – Building Footprint

CBR testing was undertaken throughout the building footprint area. They are shown below in Figure 4.4. On initial testing there were noted to be two low values which given the agreed strategy, the areas were excavated and replaced by a minimum of 90mm of 6F2 materials.

Excluding the anomalies, it can be seen that the compliance testing demonstrate that the minimum requirement of the Modulus of Subgrade Reaction of 0.05 N/mm^2/mm has been met and exceeded by the works.

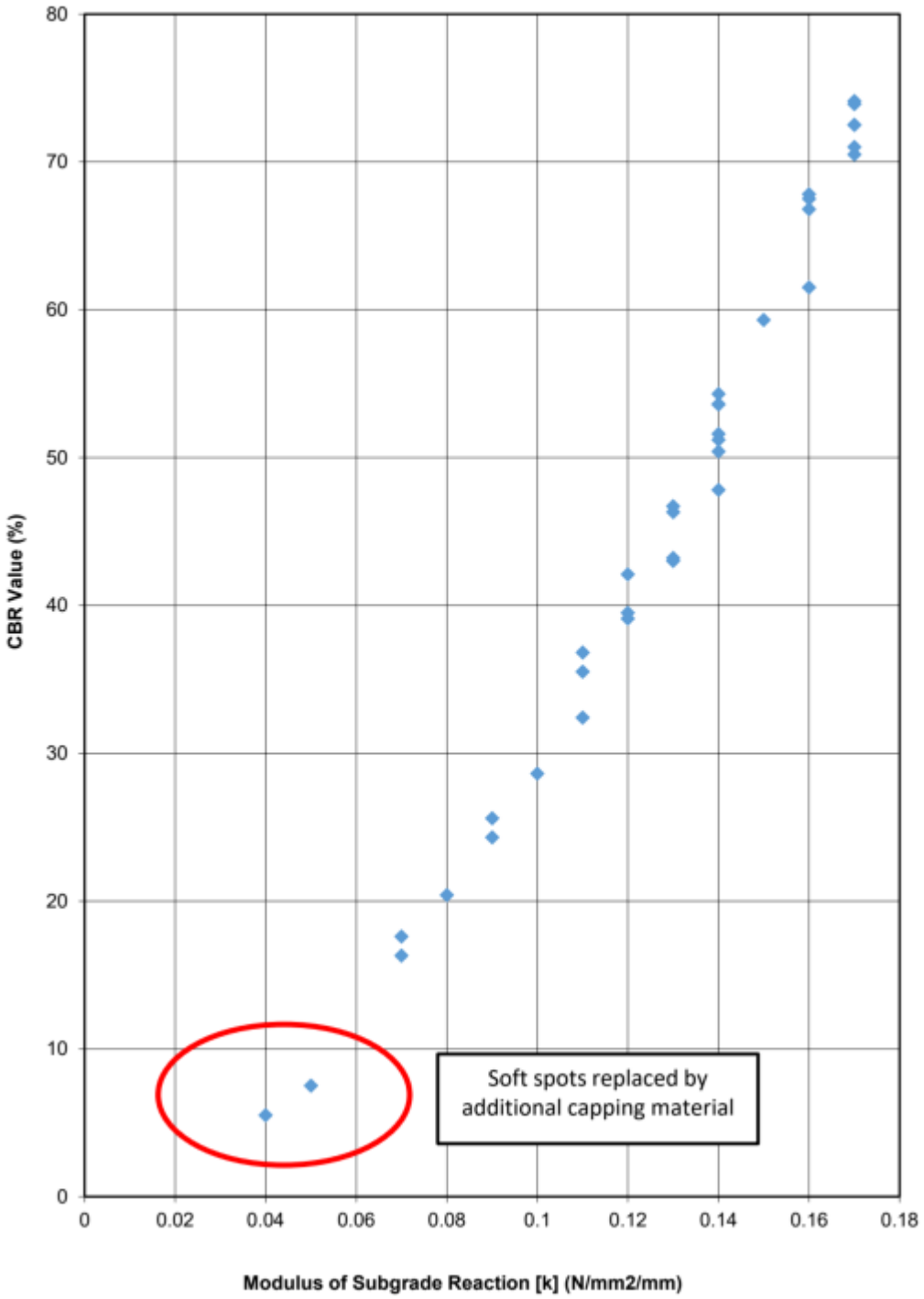


Figure 4.4 – Summary of the CBR tests throughout the building footprint.

4.5 Compliance Testing – External Works Areas

CBR testing was undertaken throughout the external works area. They are shown below in Figure 4.5.

The first thing that must be commented on are two groups of exceptions. The first group of exceptions are those associated with the attenuation tank area and the backfilling of the attenuation tank. In approximate terms they range from 24% - 25% CBR. The appropriateness of those values are outwith the scope of this validation report. The second grouping of CBR results are 3 results which range from 8% - 13% which where taken in the car park area. These were taken post demolition, but prior to final earthworks, placement of capping materials and trimming.

Given the discussion on the exceptions above, it can then be noted that the remaining CBR results are appropriate[3] for the works and demonstrate that the CBR testing which was undertaken on both the capping 6F2 material and also on the finished Type 1 subgrade are appropriate for the works and satisfy the design criteria.

[3] There is one result which shows that a CBR of 16.8% but on forensic analysis of the test it can be seen that the Youngs Modulus is 70MPa which is more than adequate for external yard construction.

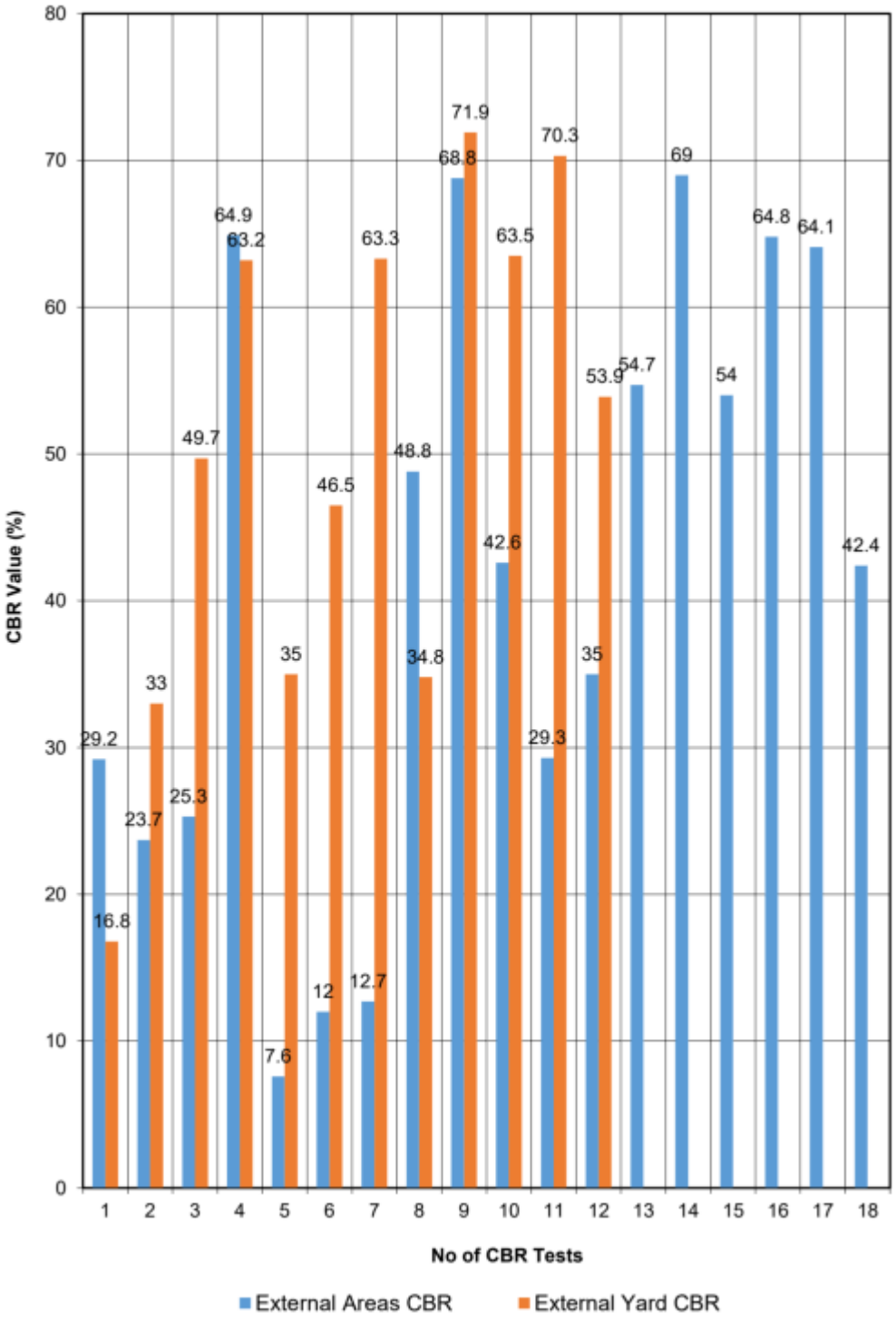


Figure 4.5 – Summary of the CBR tests throughout the external works area.

4.6 Discussion and Conclusions on Results

The following can be concluded from the above interpretation and reporting on the results, when compared with the requirements of the design drawings noted:

- The strength of the subgrade post demolition, but prior to any final earthworks and placing of fill are commensurate with those values gained in the original Aecom GIR;
- The requirements of the subgrade prior to any final earthworks generally satisfy the requirements of TR66 with a CBR greater than 3%;
- During the final earthworks and the placing of capping materials there were a number of soft areas highlighted which were replaced with additional capping materials in accordance with the design developed strategy of at least 90mm of 6F2 being placed in these areas;
- The testing throughout the works also demonstrated that the final earthworks, the placing of the capping materials and also the placing of the Type 1 stone materials represented a significant increase in the subgrade and subbase strengths as would be expected;
- Lastly, the testing of the works confirmed that the requirements of the design; notably the Modulus of Subgrade Reaction and the CBR values of the external works were complied with.

In conclusion the works were undertaken whereby they met and exceeded the specified requirements.

5. Operation and Maintenance Requirements

5.1 General Overview of the Earthworks and Material Processing

In addition to a traditional cut and fill operation, crushing and processing works were employed to reduce offsite cart away and reuse site won material in lieu of virgin aggregates for the construction works.

Site won materials like any other require an amount of due care and attention. To this end, in order to minimise damage and maintain the integrity of the site won materials, tracked plant should avoid any tight slewing and take wider turns whilst travelling on the materials. Where possible the thoroughfares should be varied to avoid heavy trafficking and if not, possible consideration should be given to provision of a running surface for the main route.

5.2 General Maintenance and Drainage Strategy

Post placement of the respective materials excavations would need to be replaced with a like-for-like materials. For example, the upper 300mm being type 1 stone would need to be replaced by new type 1 stone as upon excavation, the inherent materials in practical terms not being able to be segregated. The 6F2 capping material however can be excavated, put to one side and reused, but compaction is crucial. The material should be placed in layers that are reflective of the compaction effort by the plant used in the first place. It should be noted that any excavated Type 1 stone can be used to backfill areas of the 6F2 capping materials.

The materials should also be kept well drained in accordance with the requirements of the civil and structural engineer. In addition to this any temporary drainage measures should be such that they materials are also well drained. No drainage measures should be put in place or installed that weaken the existing natural subgrade.

6. Particular Requirements for Demolition, Decommissioning and Disposal

There are no particular requirements for demolition, decommissioning and disposal over/above those which a competent Contractor may reasonably foresee for works of this nature.

7. As Built Records

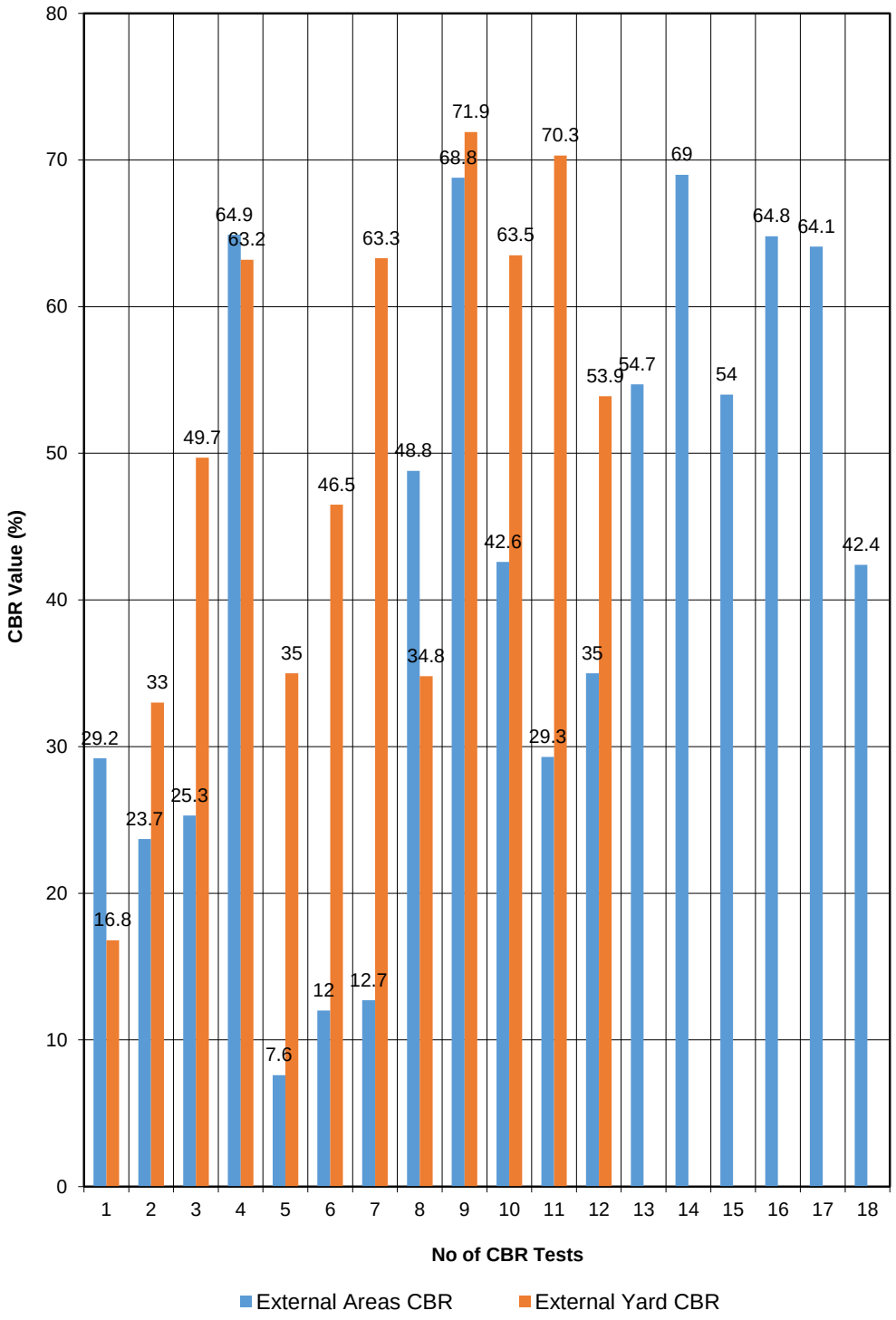
All as built recording was undertaken by McLaren Construction and will be part of that O&M Report.

8. List of Appendices

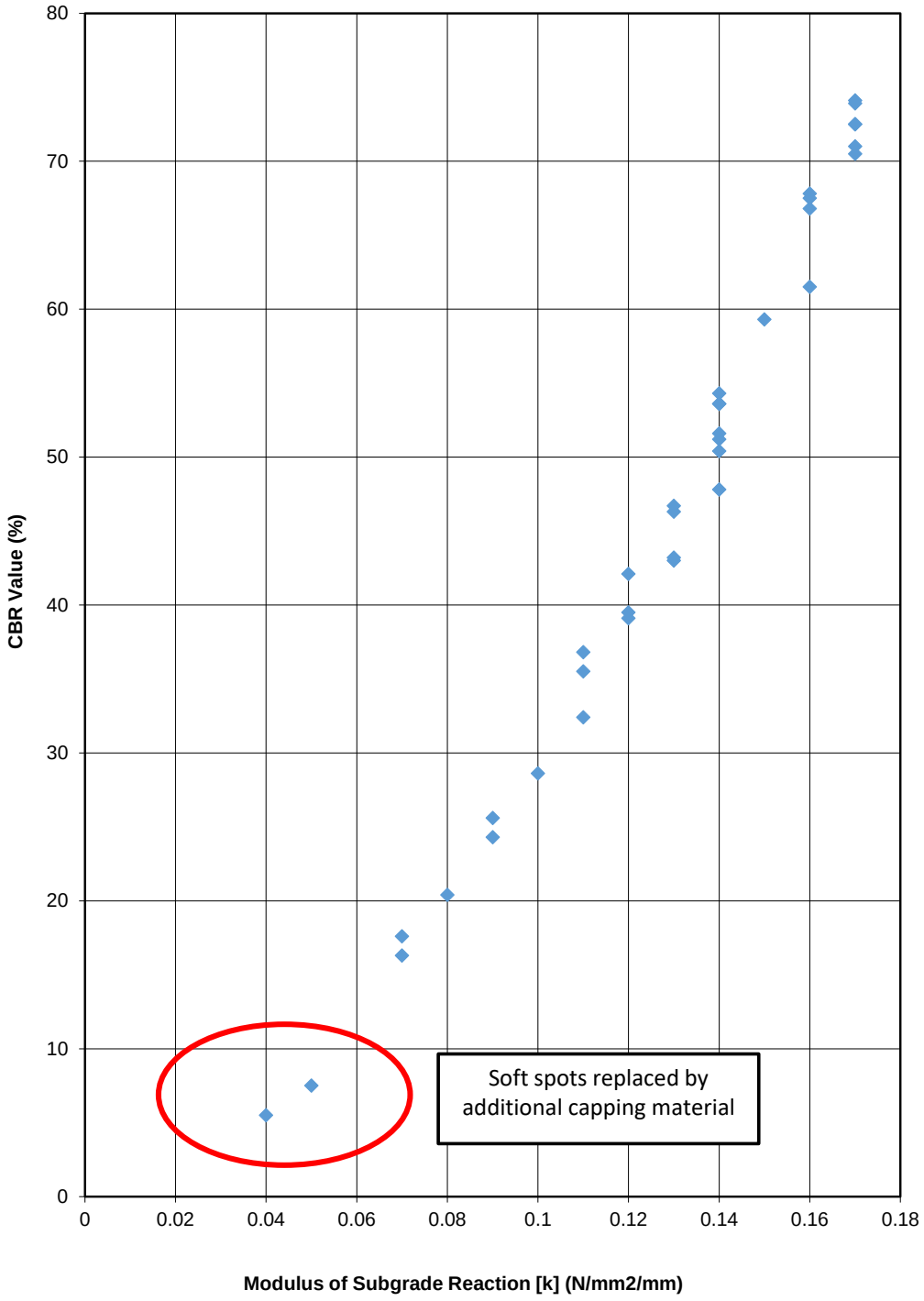
The reports and/or documents that form the various appendices to this document are:

Appendix A - Drawings;
Appendix B - Aecom Building 401 Manchester Airport Civil Engineering Specification April 2022;
Appendix C - Ground Investigation Reports - Various;
Appendix D - Subgrade and Subbase Test Results (Various).

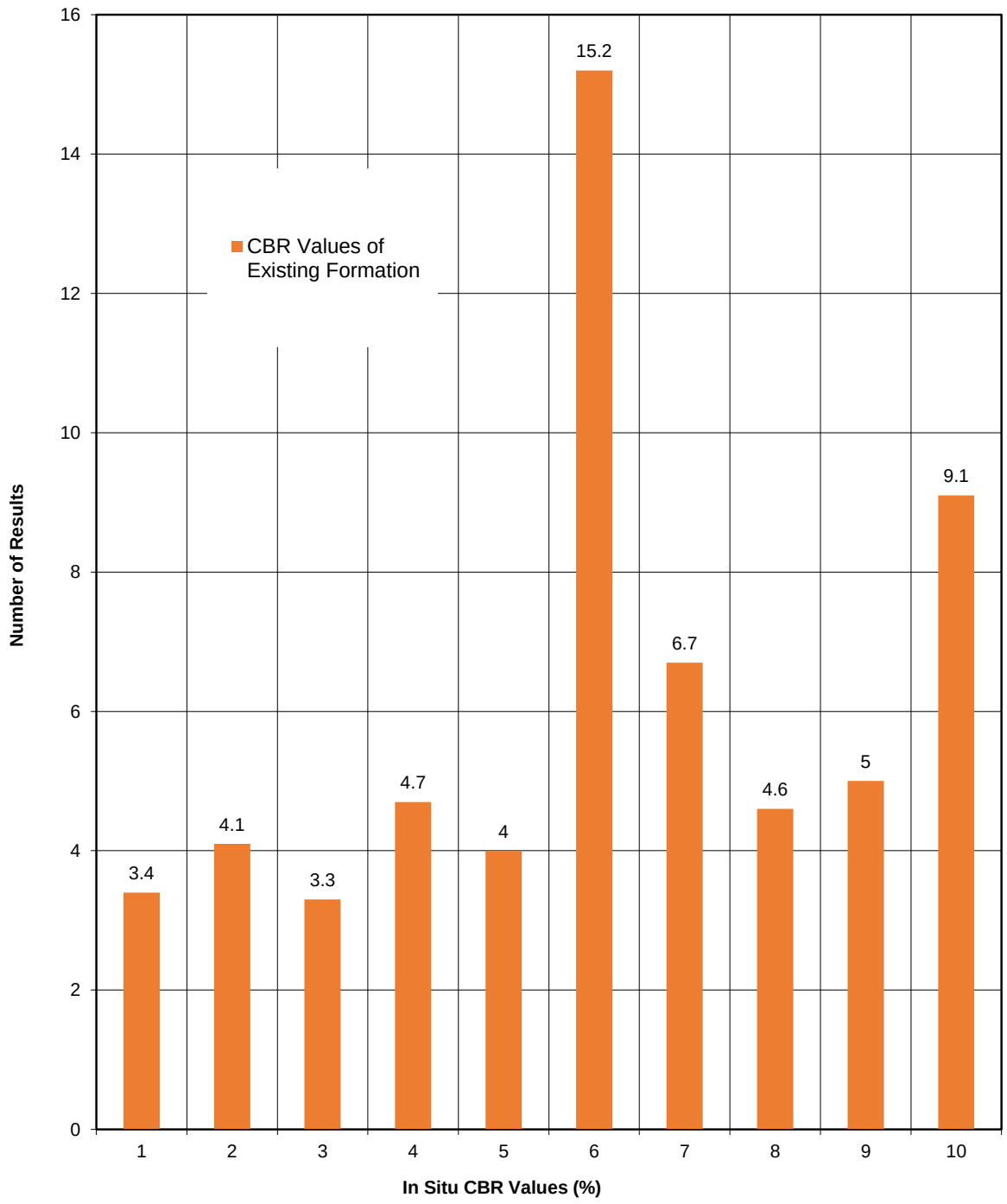
Design Charts



Made By: NC		Manchester Airport Building 401	
CHk: RH	Scale as axis	In Situ CBR values throughout External Works Areas	
App. RH	Sep-23		
HB Geotechnical Services		Project Number	Figure No. 002



Made By: NC		Manchester Airport Building 401	
CHk: RH	Scale as axis	CBR Values vs Modulus of Subgrade Reaction values for Building Footprint	
App. RH	Aug-23		
HB Geotechnical Services		Project Number	Figure No. 003



Made By: NC		Manchester Airport Building 401	
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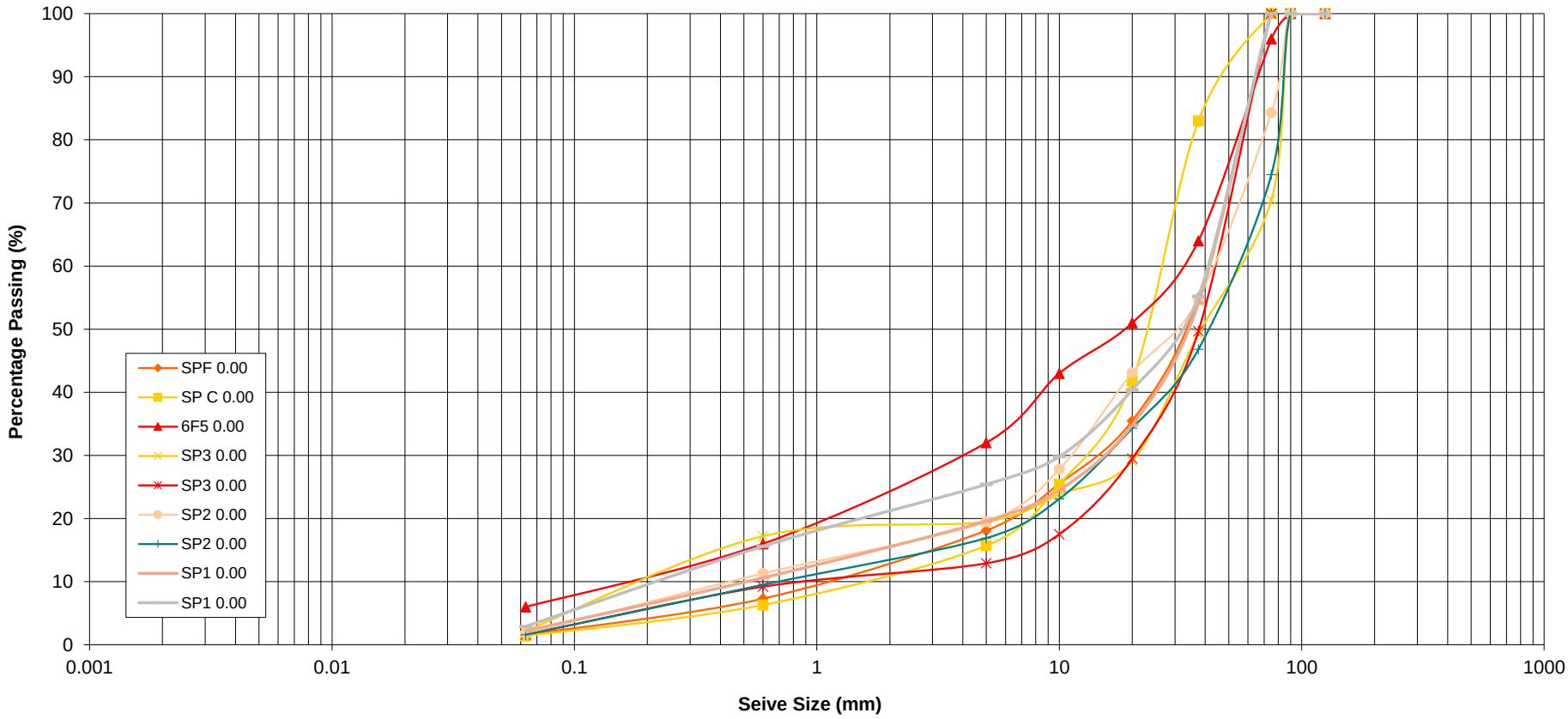
App. RH	Sep-23		
HB Geotechnical Services		Project Number	Figure No. 001



Made By: NB		Manchester Airport Building 401	
CHk: RH	Scale as axis	Particle Size Distribution	
App. RH	Sep-23		
HB Geotechnical Services		SS-16-ISCL-820	Fig No: 004

Appendices

Appendix A - Drawings

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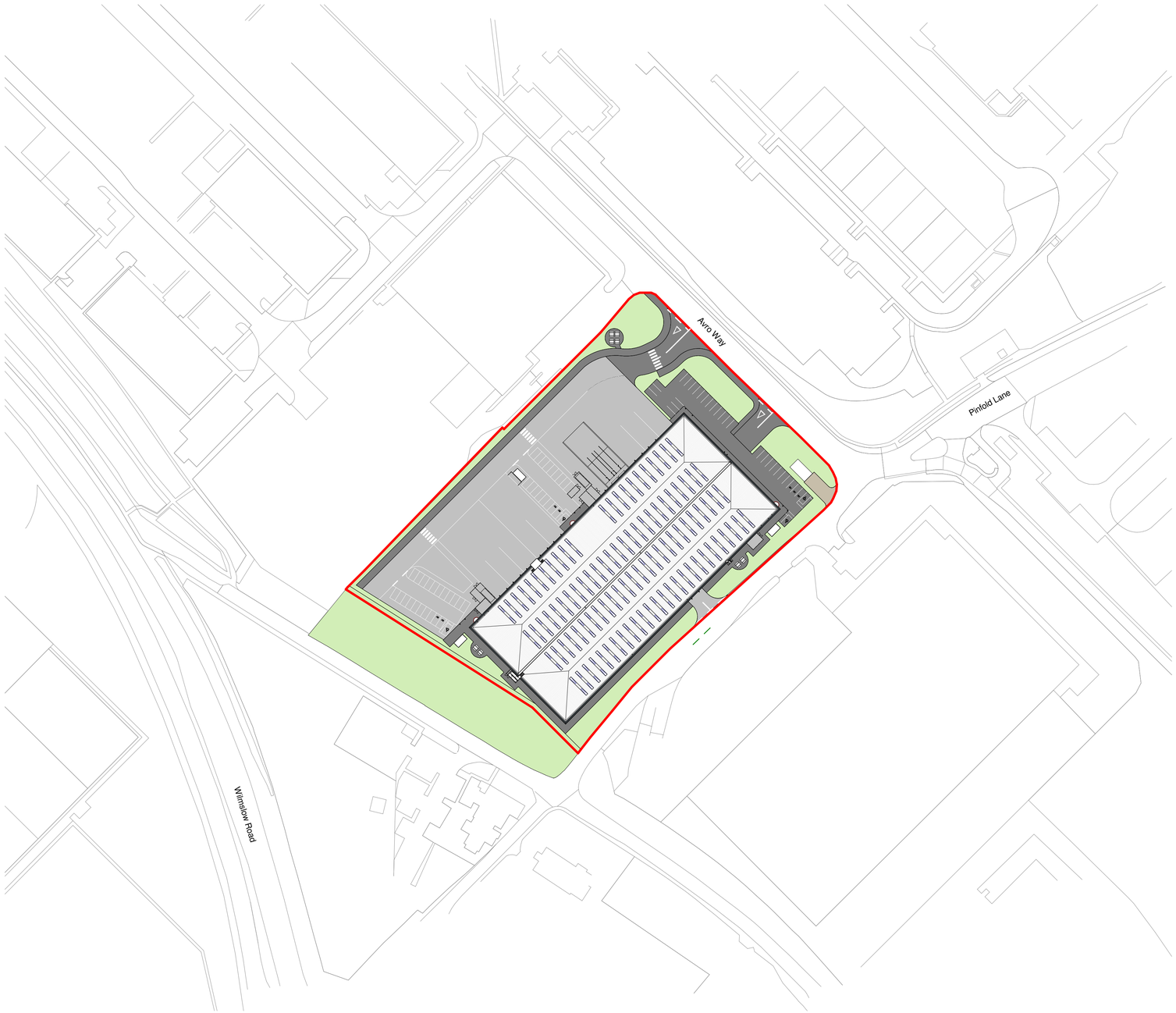
Notes

1. This drawing has been prepared in accordance with the scope of RPS's appointment with its client and is subject to the terms and conditions of that appointment. RPS accepts no liability for any use of this document other than by its client and only for the purposes for which it was prepared and provided.
2. If received electronically it is the recipients responsibility to print to correct scale. Only written dimensions should be used.
3. This drawing should be read in conjunction with all other relevant drawings and specifications.

Site Boundary

For further information please refer to AECOM Civils package



Site Location Plan
1 : 1000

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10m SCALE 1:1000

Rev	Description	By	Ckd	Date
P03	Tender Addendum as per comments from meeting on 17.05.22	ET	ET	25.05.22
P02	Issue for Tender	BG	ET	09.05.22
P01	RIBA 3 - Initial Issue for Comment	BG	ET	20.04.22

MAKING COMPLEX EASY

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Client: COLUMBIA THREADNEEDLE INVESTMENTS

Project: MAG - Building 401, Manchester Airport

Title: Site Location Plan

RPS Project Number	Scale @A1	Date Created
NK020598	As indicated	05.04.22

Task Team Manager	Information Author	Task Information Manager
ET	BG	ET

Status: S3 (Suitable for Review and Comment)

Document Number: 020598-RPS-SI-XX-DR-A-5000
Project Code - Originator - VolSys - Level/Loc - Type - Role - Drawing Number

Revision: P03

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SURVEY STATIONS			
Name	Easting	Northing	Height
S01	380948.22	384937.07	68.36
S02	380907.82	384888.07	67.43
S03	380881.67	384868.62	67.47
S04	380856.96	384849.15	67.11
S05	380871.21	384811.47	67.10
S06	380918.01	384788.29	67.54
S07	380953.17	384770.96	68.30
S08	380984.86	384805.96	68.66
S09	381026.85	384846.04	69.09
S010	380963.87	384904.15	68.69

STOCKPILE 'A' = 125m3 CLAY

STOCKPILE 'B' = 1,695m3 6F2

STOCKPILE 'C' = 859m3 6F2

STOCKPILE 'D' = 5,309m3 6F2

STOCKPILE 'E' = 1,590m3 6F2

STOCKPILE 'F' = 3,227m3 6F2

STOCKPILE 'G' = 149m3 CLAY (GAS TRENCH BACKFILL)

STOCKPILE 'H' = 260m3 CLAY

DEMOLISHED BUILDING

PROPOSED BUILDING

CBR10 (1st) CBR TAKEN ON VISIT 1

CBR10 (2nd) CBR TAKEN ON VISIT 2

SL18 67.305m SPOT LEVEL TAKEN ON STONE (6F5)

SLC18 67.305m SPOT LEVEL TAKEN ON CLAY

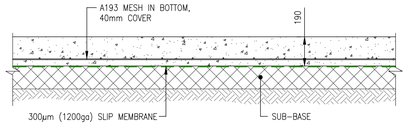
R&M DEVELOPMENTS

Client
MAG/WORKMAN LLP

Drawing Title
Stockpile Survey at:
Building 401
Manchester Airport
Sheet 1 of 1

Scale(s) 1:200	Surveyor MD
Date NOV 22	Drawn MD
Job Number	Checked SD

Sheet Size & Drg Number & Revision
A0 100424/004/B



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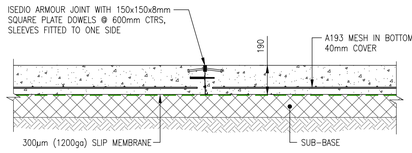

ISEDIO ARMOURED JOINT DETAIL (AJ)
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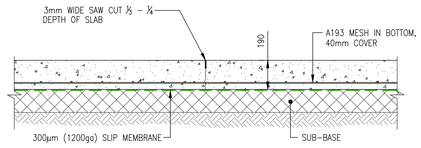

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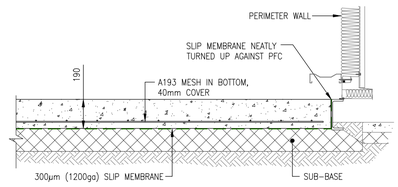

PERIMETER SLAB DETAIL
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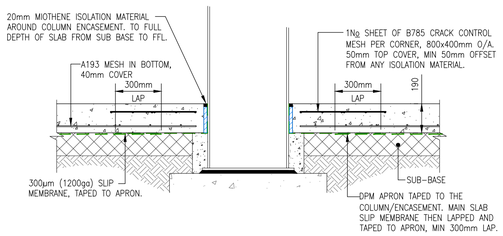

TYPICAL COLUMN ISOLATION SECTION
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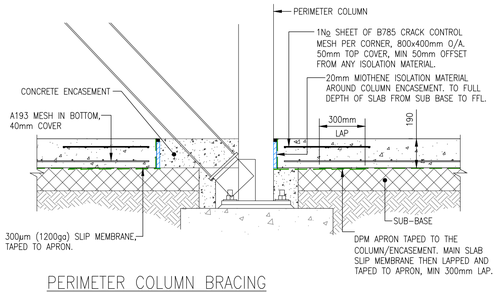
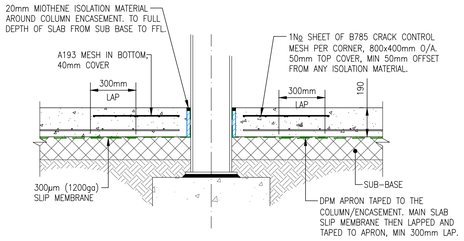
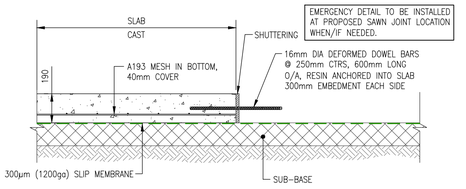


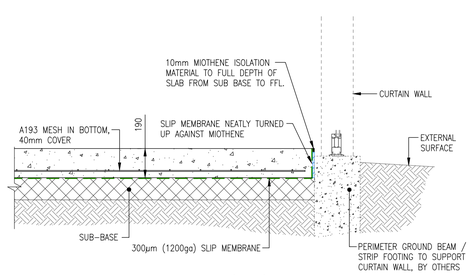
PERIMETER COLUMN BRACING
TYPICAL SECTION
SCALE 1:20



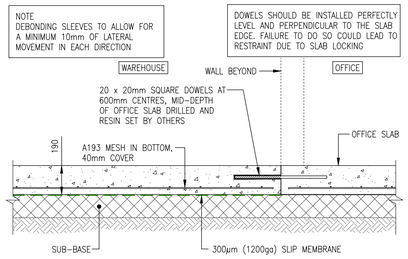
TYPICAL UNDERCROFT COLUMN ISOLATION
TYPICAL SECTION
SCALE 1:20



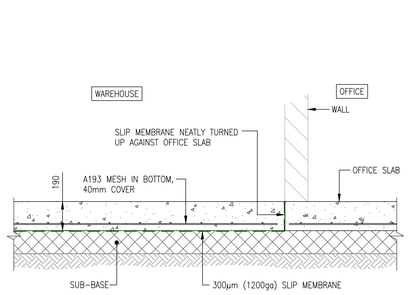
EMERGENCY JOINT DETAIL
TYPICAL DETAIL
SCALE 1:20



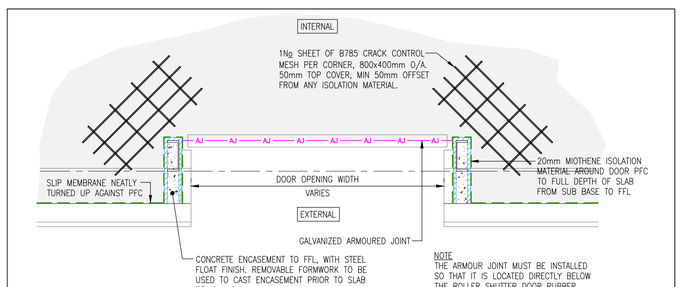
CURTAIN WALL SLAB DETAIL (TBC)
TYPICAL SECTION ALONG CORE SLAB PERIMETER
SCALE 1:20



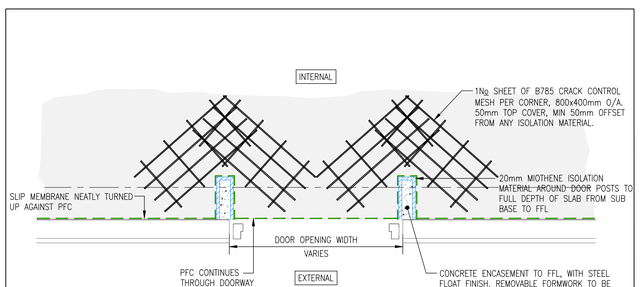
WAREHOUSE / OFFICE DOORWAY INTERFACE
TYPICAL SECTION
SCALE 1:20



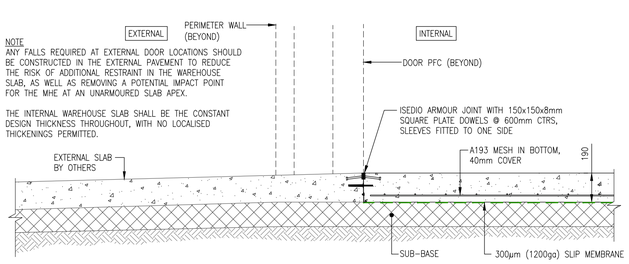
WAREHOUSE / OFFICE SLAB ISOLATION DETAIL
TYPICAL SECTION
SCALE 1:20



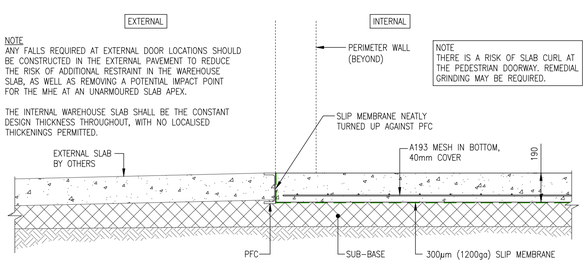
TYPICAL PLAN AT TRAFFICKED DOORWAY
SCALE 1:20



TYPICAL PLAN AT PEDESTRIAN DOORWAY
SCALE 1:20



TYPICAL SECTION AT EXTERNAL TRAFFICKED DOORWAY
SCALE 1:20



TYPICAL SECTION AT PEDESTRIAN EXTERNAL DOORWAY
SCALE 1:20

KEY

- AJ AJ AJ AJ — ARMOURED JOINT
- SJ SJ SJ SJ — SAWN JOINT
- 20mm MIOTHENE REQUIRED TO FULL DEPTH OF SLAB
- DENOTES CONCRETE INFILL
- DENOTES ADDITIONAL LAYER OF A193 MESH IN TOP
- DENOTES 50mm LIFT RECESS
- DENOTES AREAS BY OTHERS
- A — DENOTES PANEL REFERENCE

FLOOR DESIGN – GROUND SUPPORTED SLAB	
SLAB THICKNESS	190mm
REINFORCEMENT	1No LAYER A193 MESH IN BOTTOM, 40mm COVER
CONCRETE STRENGTH	C32/40 (CYLINDER/CUBE)
'k' VALUE FOR DESIGN PURPOSES	0.05N/mm²/mm
FLOOR FLATNESS CLASSIFICATION	FM2 to CONCRETE SOCIETY TR34 4th EDITION
DESIGN LOADS	MAXIMUM RACK LEG LOAD = 100kN
	MAXIMUM UDL = 50kN/m²
RACKING BASEPLATE DIMENSIONS	100mm x 100mm (ASSUMED CONTACT AREA)
BACK-TO-BACK LEG SPACING	MINIMUM 300mm
SINGLE LEG CENTRE TO JOINT	MINIMUM 150mm
BACK-TO-BACK LEG CENTRE TO JOINT	MINIMUM 150mm

Notes:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH FACE CONSULTANTS DRAWING SERIES FD.23.1652.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, ENGINEERS AND SPECIALIST DRAWINGS.
3. ALL DIMENSIONS ARE IN MILLIMETRES, UNLESS STATED OTHERWISE.
4. LOADS STIPULATED IN THE DESIGN TABLE/TABLES ARE INDIVIDUAL LOADS AND ARE NOT CONCURRENT.
5. PLEASE REFER TO DESIGN TABLE FOR MINIMUM MODULUS OF SUBGRADE (k) REQUIREMENTS.
6. THE SLAB HAS BEEN DESIGNED IN ACCORDANCE WITH TR34 4th EDITION SECTION 5 WHICH ASSUMES A UNIFORM SUPPORT STRUCTURE. NO ALLOWANCE IN THE DESIGN HAS BEEN MADE FOR ANY DIFFERENTIAL SUPPORT OR SETTLEMENT. GEOTECHNICAL ENGINEER TO BE CONSULTED FOR FURTHER ADVICE.
7. THE SUB-BASE MUST BE SUITABLE TO TRANSMIT THE LOAD FROM THE FLOOR SLAB TO THE SUBGRADE. MATERIAL MUST BE WELL CLOSED AT THE SURFACE, NON-DEGRADEABLE AND MUST NOT CONTAIN SOFT MATERIALS SUCH AS CHALK AND SANDSTONE. THE SUB-BASE SHALL BE CAPABLE OF CARRYING CONSTRUCTION TRAFFIC WITHOUT SIGNIFICANT DEFORMATION OR RUTTING. THE SUB-BASE SHALL BE FINISHED TO A SURFACE TOLERANCE OF +0/-10mm.
8. PRIOR TO PLACING CONCRETE, ALL ROOF AND WALL SHEETING SHALL BE COMPLETED WHERE PRACTICAL, TO PROVIDE PROTECTION FROM ALL WEATHER RELATED ISSUES. LOADING DOORS SHALL BE FIXED IN PLACE AND OPENINGS SHEETED.
9. WALLS AND EXISTING SLABS SHALL BE PROTECTED FROM CONCRETE SPLASHES.
10. THE SLAB IS TO BE LAID ON ONE LAYER OF 300µm (1200ga) POLYTHENE, LAPPED A MINIMUM OF 300mm AND TAPED WITH A SINGLE STRIP OF PVC DUCT TAPE.
11. REINFORCEMENT SHALL BE ONE LAYER OF MESH FABRIC, TYPE A193 TO BS4483, UNLESS STATED OTHERWISE.
12. COVER TO ALL REINFORCEMENT TO BE 40mm, UNLESS STATED OTHERWISE.
13. MINIMUM LAP TO FABRIC REINFORCEMENT TO BE 300mm OR 40 TIMES THE BAR DIAMETER, WHICHEVER IS GREATER. ALL LAPS TO BE TIED. EXCESSIVE BUILD-UP OF STEEL FABRIC UNDER SAW-CUTS IS NOT PERMITTED.
14. SPACERS TO BE PLACED AT MAXIMUM 800mm CENTRES, AS PER SECTION 6.2.1 OF TR34 4th EDITION 2013. ADDITIONAL SPACERS MAY BE REQUIRED.
15. FULL CONCRETE MIX DESIGN TO BE ISSUED TO FACE CONSULTANTS FOR REVIEW PRIOR TO CONSTRUCTION.
16. SLAB PENETRATIONS SHALL BE ISOLATED USING 20mm 'MIOTHENE' (OR SIMILAR APPROVED), AS PER FACE DETAIL DRAWINGS. SPECIAL CARE IS TO BE TAKEN TO ENSURE THAT THE SLIP MEMBRANE IS LAPPED AND TAPED UP THE SIDE OF THE 'MIOTHENE' ISOLATION.
17. CARE SHOULD BE TAKEN TO FULLY COMPACT THE CONCRETE THROUGHOUT THE SLAB PROFILE WITH A 'POKER' TYPE VIBRATOR TO REMOVE ALL ENTRAPPED AIR AND ELIMINATE HONEYCOMBING AND VOIDS. POKER TO BE INSERTED INTO THE CONCRETE IN AN OVERLAPPING PATTERN, ALL ADDITIONAL REINFORCEMENT TO BE SAT ON CHAIRS AND VIBRATED BY HOLDING THE POKER AGAINST THE BARS ENSURING THEY ARE NOT DISPLACED.
18. AFTER THE FINAL POWER TROWELLING OPERATION, THE FLOOR SLAB IS TO BE SPRAYED WITH AN ACRYLIC BASED, CURING, SEALING AND HARDENING MEMBRANE, SUCH AS 'PICS SB CURING SOLUTION' (OR SIMILAR APPROVED).
19. SAWN JOINTS ARE TO BE CUT WITHIN 24 HOURS OF CONCRETE BEING PLACED. SAW CUTS SHALL BE NOMINAL 3mm WIDE AND ¼ – ⅓ DEPTH OF SLAB.
20. JOINT SEALANT
    - 20.1. THE TOP 20mm OF 'MIOTHENE' IS TO BE REMOVED AND SEALED WITH A TWO-PART POLYSULPHIDE MASTIC WITH 35% MAF AND SHORE A OF 25 SUCH AS ARBOKOL AG2 PRIOR TO PRACTICAL COMPLETION.
    - 20.2. THE SAWN JOINTS ARE TO BE SEALED JUST PRIOR TO PRACTICAL COMPLETION WITH A ONE-PART HIGH MODULUS MODIFIED POLYMER SEALANT WITH A MAF OF 35% AND SHORE A OF 55 E.G. ARBOMERIC MP20.
    - 20.3. THE STEEL DAY JOINTS ARE TO BE SEALED JUST PRIOR TO THE END OF THE DEFECTS LIABILITY PERIOD WITH A ONE-PART HIGH MODULUS MODIFIED POLYMER SEALANT WITH A MAF OF 35% AND SHORE A OF 55 E.G. ARBOMERIC MP20.
    - 20.4. PROPOSED SEALANTS MUST BE APPROVED BY FACE CONSULTANTS PRIOR TO PROCUREMENT.
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21. SPACING BETWEEN THE CENTRE LINE OF THE RACKING LEGS AND ANY SAWN OR FORMED JOINT IS TO BE A MINIMUM OF 150mm.
22. SPACING BETWEEN FIXINGS INTO THE SLAB AND ANY SAWN OR FORMED JOINT IS TO BE A MINIMUM 5 x HOLE DIAMETER. CARE TO BE TAKEN NOT TO OVER-TIGHTEN MECHANICAL FIXINGS IN THE SLAB.
23. THE SLAB CAN BE USED BY LIGHT TRAFFIC 7 DAYS AFTER IT IS POURED. THE LOADS SHALL NOT EXCEED 30% OF THE DESIGN CAPACITY. THE FLOOR SHALL NOT BE LOADED TO ITS FULL DESIGN CAPACITY BEFORE 28 DAYS HAVE PASSED SINCE POURING.

PROVISIONAL

Rev	Drawn	Date	Remarks/Comments
A	ML	06.04.23	Warehouse / office slab / doorway details added.

Client: CBS CONCRETING LTD

Project: AVRO WAY, MANCHESTER AIRPORT

Location: MANCHESTER

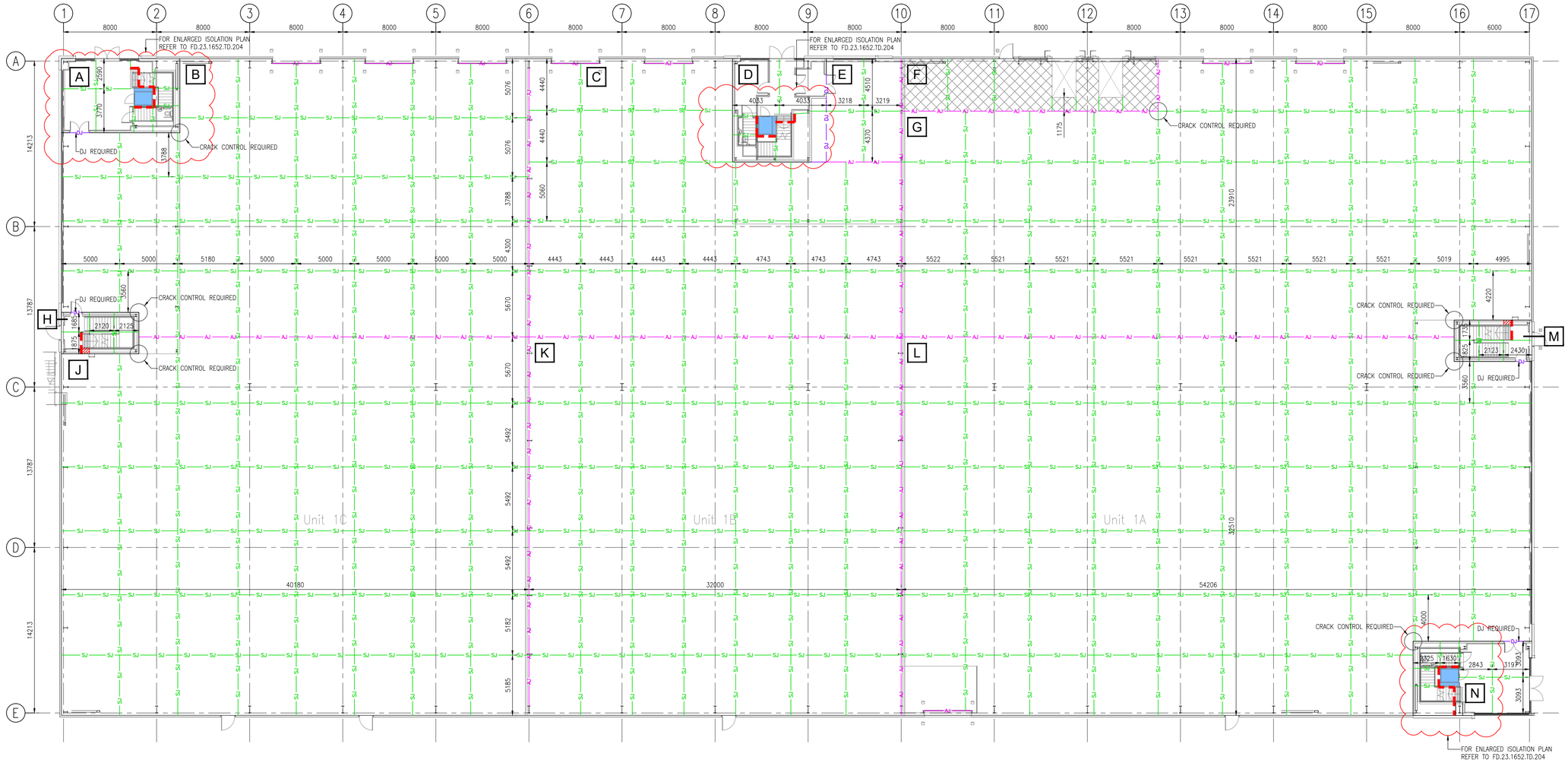
Dwg Title: TYPICAL DETAILS - SHEET 1

Scale @ A1: 1:20 | Status: PROVISIONAL

FACE CONSULTANTS LTD
Global Flooring Consultants
Dene House, North Road
Kirkburton
Huddersfield, HD8 0RW
United Kingdom
www.face-consultants.com

Drawn:	Date:	Chkd:	Date:	App:	Date:
ML	17.03.23	JR	22.03.23	MJK	23.03.23

Dwg No: FD.23.1652.TD.201 | Rev: A



BUILDING LAYOUT TAKEN FROM – RPS GROUP
DRAWING No: 020598-RPS-MB-XX-DR-A-5020 Rev. C01
GA – Overall Layout

COLUMN LAYOUT TAKEN FROM – RPS GROUP
DRAWING No: 020598-RPS-MB-XX-DR-A-5020 Rev. C01
GA – Overall Layout

PRIOR TO THE INSTALLATION OF ANY FIXED MHE AND/OR RACKING/MEZZANINE STRUCTURES, THE INSTALLER SHOULD SURVEY THE FLOOR JOINTS TO DETERMINE THEIR FINAL POSITION. SOME VARIANCE FROM THE DIMENSIONS SHOWN ON THIS DRAWING MAY EXIST DUE TO SETTING OUT AND TOLERANCE OF ADJACENT STRUCTURES/STEEL FRAME/JOINT POSITIONS/ FLOOR SHRINKAGE ETC

KEY

- ARMOURED JOINT
- SAWN JOINT
- 20mm MIOTHENE REQUIRED TO FULL DEPTH OF SLAB
- DENOTES CONCRETE INFILL
- DENOTES ADDITIONAL LAYER OF A193 MESH IN TOP
- DENOTES 50mm LIFT RECESS
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SINGLE LEG CENTRE TO JOINT	MINIMUM 150mm
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PROVISIONAL

Rev	Drawn	Date	Remarks/Comments
B	MJK	06.04.2023	Revised layout following internal review.
A	MJK	30.03.2023	Revised layout, office/staircase slabs as individual panels.

Client: CBS CONCRETING LTD

Project: AVRO WAY, MANCHESTER AIRPORT

Location: MANCHESTER

Dwg Title: PROPOSED JOINT LAYOUT

Scale @ A1: 1:200

Status: PROVISIONAL

FACE CONSULTANTS LTD
Global Flooring Consultants
Dene House, North Road
Kirkburton
Huddersfield, HD8 0RW
United Kingdom
www.face-consultants.com

Drawn:	Date:	Chkd:	Date:	App:	Date:
ML	21.03.23	JR	22.03.23	MJK	23.02.23

Dwg No: FD.23.1652.JL.101

Rev: B

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ISO A1 594mm x 841mm
Project Management Initials: Drawn: NM Checked: JG Approved: VB
Filename: \\NA.AECOMNET.COM\LFSIEMEA\MANCHES1ER-UKMCR5\LEGACY\UKMCR2PFPSW0011DATA\PROJECTS\60663052 - MAG PLOT 401\08-BIM_CAD\08.1 WIP\08.1.1 CAD\08.1.1.4 CIVSTRUC\08.1.1.1 CURRENT DRAWINGS\RIBA 3\60663052-ACM-XX-XX-DR-C-XXXX C1 B401 STANDARD DETAILS.DWG
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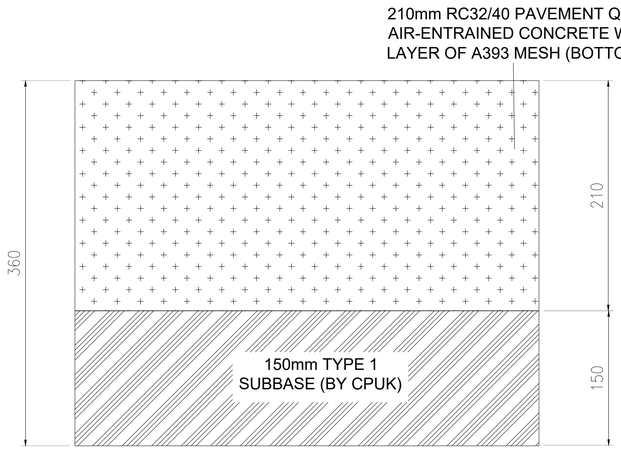
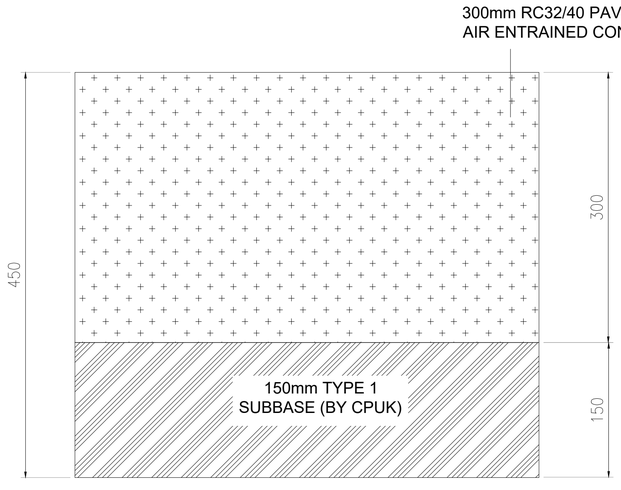
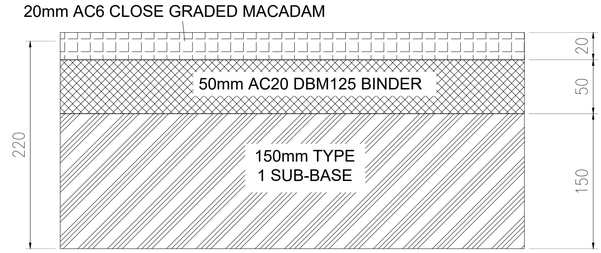


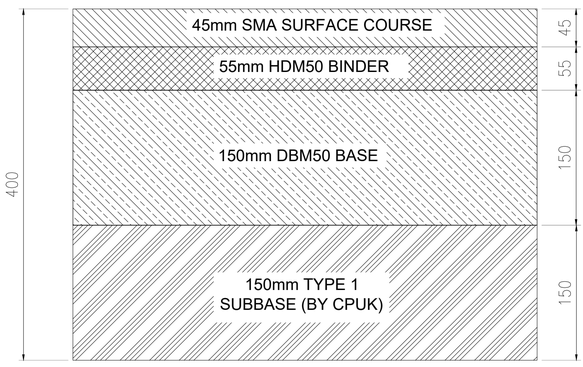
CONCRETE SERVICE YARD AND ACCESS ROAD PAVEMENT (HGV LOADING)
CBR MIN. 30% ON TOP OF SUBBASE
(NTS)



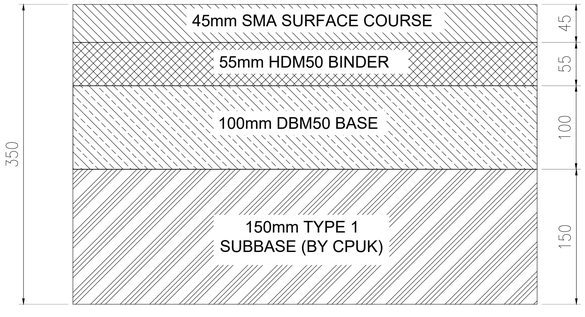
CONCRETE SLAB FOR PLANT/STREET FURNITURE & SLAB THICKENING FOR FENCING
CBR MIN. 30% ON TOP OF SUBBASE
(NTS)



ASPHALT FOOTPATH (PEDESTRIAN LOADING)
(NTS)



ASPHALT ACCESS ROAD (HGV LOADING)
CBR MIN. 30% ON TOP OF SUBBASE
(NTS)



ASPHALT PARKING AREA (OCCASIONAL HGV LOADING)
CBR MIN. 30% ON TOP OF SUBBASE
(NTS)

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AECOM

PROJECT

BUILDING 401
MANCHESTER
AIRPORT

CLIENT

McLAREN

CONSULTANT

AECOM Manchester
1 New York Street, Manchester, M1 4HD
0161 907 3500 tel
0161 907 3599 fax
www.aecom.com

NOTES

1. DO NOT SCALE FROM THIS DRAWING. USE ONLY WRITTEN DIMENSIONS.
2. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS STATED OTHERWISE
3. READ IN CONJUNCTION WITH DRAWING 60663052-ACM-401-XX-DR-C-11002-11003

ISSUE/REVISION

C1	23/12/2022	FOR CONSTRUCTION
T1	29/04/2022	FOR TENDER
I/R	DATE	DESCRIPTION

PROJECT NUMBER

60663052

SHEET TITLE

BUILDING 401
PAVEMENT STANDARD DETAILS
SHEET 2 of 2

SHEET NUMBER

60663052-ACM-401-XX-DR-C-43002

Appendix B - Aecom Building 401 Manchester Airport Civil Engineering Specification April 2022

BUILDING 401 MANCHESTER AIRPORT

SPECIFICATION

CIVIL ENGINEERING WORKS

APRIL 2022

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SPECIFICATION

CIVIL ENGINEERING WORKS

APRIL 2022

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Revision History

Revision	Revision date	Details	Authorized	Name	Position
T1	22/04/22	FOR TENDER	VB	Vin Bamford	Technical Director

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PREAMBLE TO THE SPECIFICATION

The above works are to be carried out generally in accordance with the current specification for Highway Works (published by HMSO as Volume 1 of the Highway Agency's Manual of Contract Documents for Highway Works) as modified and extended by the following:

(i) Appendix 0/1: Contract-specific Additional, Substitute and cancelled clauses and Tables and Figures.

(ii) The numbered Appendices listed in Appendix 0/3

(iii) Appendix 0/4 contains a list of drawings

2. An additional clause as indicated by a suffix 'AR' in Appendix 0/1 is a Contract-Specific alteration.

3. In so far as any of the Numbered Appendices may conflict or be inconsistent with any provision of the specification for Highway Works the Numbered Appendices shall always prevail.

4. Any reference in the Contract to a clause Number of Appendix shall be deemed to refer to the corresponding substitute clause Number or Appendix listed in Appendix 0/1, 0/2 or 0/5.

5. Where a Clause is altered any original Table/Figure referred to in the Clause shall apply unless the Table/Figure is also altered. Where a Table/Figure is altered any reference in a Clause to the original Table/Figure shall apply to the altered Table/Figure.

6. Where a Clause in the Specification relates to the work, goods or materials, which are not required for the Works, it shall be deemed not to apply.

7. Any Appendix referred to in the Specification, which is not used, shall be deemed not to apply.

8. Where a Clause or sub-Clause in the Specification or Notes for Guidance on the Specification is annotated by "08/93" or similar, this indicated the relevant publication date that alteration(s) to the sub-Clause were made. The first double digit refers to the month, and the second double digit refers to the year.

9. Where a Clause in the Specification or Notes for Guidance in the Specification is Prefixed by a # this indicates that this particular Clause has a substitute National Alteration for one or more of the Overseeing Departments of Scotland, Wales or Northern Ireland. Substitute or additional National Clause shall be used within countries to which they specifically apply and they are deemed to replace corresponding Clauses in the main text of the Specification or to be included within the Specification as appropriate. The substitute National Clauses are located at the end of the relevant Series together with the additional National Clauses of the Overseeing Departments

LIST OF NUMBERED APPENDICES REFERRED TO IN THE SPECIFICATIONS AND INCLUDED IN THE CONTRACT **APPENDIX 0/3**

Appendix 0/3 is comprised of two lists, A and B, of numbered Appendices as follows: -

List A is a list of the Numbered Appendices referred to in the Specification for Highway Works. Those not referred to below are not used in this contract.

List B is a list of contract specific Numbered Appendices devised for the Contract.

LIST A: LIST OF NUMBERED APPENDICES REFERRED TO IN THE SPECIFICATION FOR HIGHWAY WORKS AND INCLUDED IN THE CONTRACT

Appendix Number	Title
Appendix 0/1	Additional Clauses, Tables and Figures
Appendix 0/3	List of Numbered Appendices Referred to in the Specifications and Included in this Contract
Appendix 0/4	List of Drawings Included in the Contract
Appendix 0/70	Site Specific Appendices
Preliminaries	
Appendix 1/5	Testing to be carried out by the Contractor
Fencing	
Appendix 3/1	Fencing, Gates and Stiles
Road Restraint Systems (Vehicular and Pedestrian)	
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Appendix 6/1	Requirement for Acceptability and Testing etc. of Earthwork Materials
Appendix 6/2	Requirements for Dealing with Class U2 Unacceptable Material
Appendix 6/3	Requirements for Excavation, Deposition, Compaction (Other than Dynamic Compaction)
Appendix 6/5	Geotextiles used to Separate Earthworks Materials
Appendix 6/7	Sub-Formation and Capping and Preparation and Surface Treatment of Formation
Appendix 6/8	Topsoiling, Grass Seeding and Turfing
Appendix 6/9	Earthworks Environmental Bunds, Landscape Areas and Strengthened Embankments

Road Pavements - General

Appendix 7/1	Permitted Pavement Options - Flexible Construction
Appendix 7/2	Excavation, Trimming and Reinstatement of Existing Surfaces
Appendix 7/4	Bond Coats, Tack Coats and other Bituminous Sprays
Appendix 7/9	Cold-Milling (Planning) of Bituminous Bound Flexible Pavement

Kerbs, Footways and Paved Areas

Appendix 11/1	Kerbs, Footways and Paved Areas

Traffic Signs

Appendix 12/1	Traffic Signs
Appendix 12/3	Road Markings

Road Lighting Columns and Brackets, CCTV Masts and Cantilever Masts

Appendix 13/1	(Refer to Electrical Spec by others)

Electrical Work for Road Lighting and Traffic Signs

Appendix 14/1	(Refer to Electrical Spec by others)

LIST B: LIST OF CONTRACT-SPECIFIC NUMBERED APPENDICES DEVISED FOR THE CONTRACT

Appendix Number	Title
0/70	As Built Drawings
5/70	Flow Control Devices
26/70	Mortar Requirements

LIST OF DRAWINGS **APPENDIX 0/4**

Drawing Number	Title
60663052-ACM-401-XX-DR-C-11002	Building 401 - General Arrangement (Sheet 1)
60663052-ACM-401-XX-DR-C-11003	Building 401 - General Arrangement (Sheet 2)
60663052-ACM-401-XX-DR-C-11008	Building 401 - Site Clearance (Sheet 1)
60663052-ACM-401-XX-DR-C-11009	Building 401 - Site Clearance (Sheet 2)
60663052-ACM-401-XX-DR-C-11010	Building 401 - Vehicle Tracking (Sheet 1)
60663052-ACM-401-XX-DR-C-11011	Building 401 - Vehicle Tracking (Sheet 2)
60663052-ACM-401-XX-DR-C-11012	Building 401 - Vehicle Tracking (Sheet 3)
60663052-ACM-401-XX-DR-C-12002	Building 401 - Dock Leveller Section
60663052-ACM-401-XX-DR-C-11013	Building 401 - Topograph Plan
60663052-ACM-401-XX-DR-C-10002	Building 401 - Retaining Wall Standard Details Root Lock
60663052-ACM-401-XX-DR-C-10003	Building 401 - Retaining Wall Standard Details Block Wall
60663051-ACM-400-XX-DR-C-51010	Building 401 - Drainage Standard Detail 1 of 2
60663052-ACM-401-XX-DR-C-52011	Building 401 - Drainage Standard Detail 2 of 2
60663052-ACM-401-XX-DR-C-43001	Building 401 - Pavement Standard Detail
60663052-ACM-401-XX-DR-C-52014	Building 401 - Drainage General Arrangement (Sheet 1)
60663052-ACM-401-XX-DR-C-52015	Building 401 - Drainage General Arrangement (Sheet 2)
60663052-ACM-401-XX-DR-C-52002	Building 401 - Manhole Schedule
60663052-ACM-401-XX-DR-C-12003	Building 401 - Typical Site Sections (Sheet 1)
60663052-ACM-401-XX-DR-C-12004	Building 401 - Typical Site Sections (Sheet 2)
60663052-ACM-401-XX-DR-C-11007	Building 401 - Cut and Fill Analysis
60663052-ACM-401-XX-DR-C-11004	Building 401 - Levels Plan (Sheet 1)
60663052-ACM-401-XX-DR-C-11005	Building 401 - Levels Plan (Sheet 2)
60663052-ACM-402-XX-RG-C-00001	Building 401 - General Arrangement (Sheet 1)

2(ii) Construction Details brought into the Contract by Reference

Highway Construction Details (HCD) published by HMSO as Volume 3 of the Manual of Contract Documents for Highway Works, dated December 1998 with subsequent amendments contains the following drawings brought into this Contract by reference. Unless otherwise stated below or elsewhere in the Contract the whole drawing is brought into the Contract.

Drawing Number and Title		**Date**
Series I - Underground Cable Ducts		
I2	Duct Trench Cross Sections and Details of Mandrel	December 1991

The Contractor shall provide as-builts drawings on completion in both PDF and DWG format within 15 working days of completion.

APPENDIX 2/2

Filling of Trenches and Pipes

Removal of pipes, services, etc. over 1m below formation

Abandoned subsoil and surface water drains, sewers, cables and ducts together with any bed or haunch or surround over 1 m below formation level which show evidence of damage or collapse or are larger pipes (375 mm diameter and over) shall be excavated and removed in their entirety and the resulting trenches backfilled in accordance with Clause 505 of MCHW. This shall be agreed with the Supervisor.

All existing gratings and frames shall be removed from site. Any pipes within 1m below formation which are abandoned shall be removed as general earthworks.

There are areas of the site where the land may be contaminated and this should be taken into consideration when undertaking clearance and removal of pipes, services etc. Reference should be made to the Environmental Statement.

Filling of pipes over 1m below formation

Abandoned subsoil and surface water and service ducts over 1m depth below formation shall be left undisturbed and sealed in accordance with Clause 506 of the Specification for Highway Works (MCHW). All existing gratings and frames shall be removed from site. Any pipes located above this level which are abandoned shall be removed as general earthworks.

Before sealing, sewers and drains shall be flushed with clean water.

Plugging with concrete or grouting of the annulus of disused drains, sewers, ducts and pipes will need to be reviewed on site and agreed with the Supervisor.

Backfilling of trenches

Trenches and voids resulting from site clearance shall be backfilled in accordance with Clause 505 of MCHW and compacted in accordance with Clause 802 of MCHW.

Retention of pipes, services, etc within 1m of formation

Where pipes and services within 1m of formation are to be retained as part of the active network, appropriate protection shall be provided to maintain the integrity of the pipe network and these measures shall be agreed with the Supervisor.

APPENDIX 2/3

Retention of Material Arising from Site Clearance

Introduction

All materials arising from site clearance, which are not to be retained, relocated or handed back to the Employer shall become the property of the Contractor, who is responsible for its disposal.

It should be assumed that all statutory undertakers' equipment remains the property of the statutory undertaker and removal will need to be programmed to fit the decommissioning programme of the statutory undertaker. The statutory undertaker may wish to undertake or supervise the removal of their apparatus, for which due provision should be made, following relevant consultations.

Reuse of materials shall be subject to condition and suitability. The decision regarding the retention and reuse of materials arising from site clearance shall be made in consultation with the Supervisor. Reference should be made to the Site Waste Management Plan and Construction Code of Practice.

Depending on position and condition, various items (such as fencing, gates, lighting columns, signage, etc.) within the 'General Site Clearance boundary' may be retained either in-situ or taken up or down to be re-used. Alternatively, they may be required for the permanent works. Reference should be made to the appropriate detailed design drawings (e.g. traffic signs and road markings drawings). All other items will be removed to tip unless otherwise advised.

Prior to dismantling items as detailed above, the Contractor shall ensure that any associated services such as electricity/water supplies etc. shall be disconnected. In doing so he shall also ensure that provision is made to maintain supply to any such items not to be dismantled.

Any voids that are left as a result of dismantling operations shall be backfilled with Type 1 sub-base material to Clause 803, compacted in accordance with Clause 802 of the MCHW.

The Contractor shall offer surplus street furniture to the Employer for spares.

If the Contractor considers that there are items which are unsuitable for re-use or they are not required by the Employer for spares, he shall advise the Supervisor.

Refer to the lists below for the items that shall be removed within the 'General Site Clearance Area' which shall be offered to the Employer:

a) Barriers and associated equipment

b) Street lighting

c) CCTV equipment

APPENDIX 2/5

Hazardous Materials

All work shall be carried out with due regard to the provisions of the Health and Safety at Work Act 1974, the Environmental Protection Act 1990 and all other statutory regulations in force in respect of the employees of the Contractor, Sub-contractors, the Employer and his agent(s), and the general public on or in the vicinity of the works.

All substances and materials used in the construction of the Works must be managed and controlled in accordance with the requirements of the Control of Substances Hazardous to Health Regulations (COSHH) (2002). A detailed inventory of substances used in the works must be included in the Construction Phase Health and Safety Plan, together with Data Sheets and COSHH assessments detailing control measures and monitoring requirements. All documentation in connection with hazardous substances shall be provided to the Principle Designer for inclusion in the Project Safety File.

It is not anticipated that hazardous materials will be found on site during the works. The Contractor shall inform the Health and Safety Executive (HSE) and the Supervisor immediately upon discovering any hazardous materials.

As a part of the Pre-Construction Information all available documentation relating to asbestos and contamination is provided. The Contractor will need to review this information and determine if any further surveys/investigations are required.

It should be noted that the existing use of the site is as the MAG Bussing depot. The site has a small area close to the site entrance where buses are refuelled. Potential fuel spillage may have seeped into the ground in the immediate vicinity.

There is a possibility of Asbestos Containing Materials (ACM) being encountered in cementitious pipework. The Contractor will be responsible for investigating whether asbestos is present and if so for taking all necessary precautions and measures during site clearance and disposal of the arisings.

The Contractor shall submit to the Supervisor in accordance with the Design and Certification Procedure a method statement for dealing with any hazardous material prior to commencing any works in that vicinity.

The Contractor shall consult with the Health and Safety Executive in respect to the measures that would be acceptable for the handling and disposal of hazardous material found during site clearance operations. The measures agreed shall be incorporated into a method statement produced by the Contractor and copied to the Project Manager.

All works relating to ACM shall comply with The Control of Asbestos Regulations 2012.

Invasive Plant Species

There are no known areas of invasive species within the site. Where encountered, clearance of invasive plant species should be carried out in accordance with the requirements of relevant Method Statements. Should any additional areas of invasive plant species be identified, the Contractor's Environmental Coordinator and Supervisor shall be informed immediately.

TESTING TO BE CARRIED OUT BY THE CONTRACTOR **APPENDIX 1/5**

Clause 105 - Goods, Materials, Sampling and Testing

(i) The Contractor shall be responsible for carrying out the following tests detailed in Tables A1/5/13, A1/5/14 and A1/5/19 in accordance with Clause 105.

Clause	Work, Goods or Material	Test	Frequency of Testing	Test Certificate	Comments
Series 300					
306	Permanent fencing				Quality management scheme applies
308	Gates and stiles				Quality management scheme applies

Clause	Work, Goods or Material	Test	Frequency of Testing	Test Certificate	Comments
Series 500					
501	Pipes for drainage and service ducts	(Manufacturer's tests)			
	Vitrified clay				Product certification scheme applies
	Concrete-PC/SRC not exceeding 900mm diameter				
	Concrete-Pre-stressed not exceeding 900mm diameter				
	Iron-cast				
	Iron-ductile				
	PVC-u				
	GRP				
	Plastics. See table 5/1				
	Corrugated steel bitumen protection, not exceeding 900mm dia	(Manufacturer's tests)		Required (AASHTO)	
	Other materials				BBA certification (or equivalent) applies
503	Pipe bedding	Grading	1 per 500 tonnes per source (min of 3)		
		Soluble sulphate content (N)	1 per source		
		10% fines value (N)			
505	Filter medium backfill	Plastic index (N)	1 per source		
		10% fines value (N)			
		Soluble sulphate content (N)			
		Grading	1 per 500 tonnes per source		Washing and sieving method to be used
		Permeability (N)	1 per source		
506	Sealing existing drains				
	Concrete				

Clause	Work, Goods or Material	Test	Frequency of Testing	Test Certificate	Comments
	Grout				
507	Chambers	(Manufacturer's tests)			
	Precast Concrete				Product certification scheme applies
	Corrugated galvanised steel	(Manufacturer's tests)		Required	
	Manhole steps				Product certification scheme applies
	Steel fitments				
	Covers, grates and frames				Product certification scheme applies
	Cover bolts				Quality management scheme applies
508	Gullies and pipe junction	(Manufacturer's tests)			
	Precast concrete				Production certification scheme applies
	Clay				
	UPVC				
509	Watertightness of joints	Air test	All pipelines with watertight joints		
	Service ducts	Mandrel	All service ducts		
515	Narrow filter drains				
	Geotextile, pipes and fittings	(Manufacturer's tests)		Required	BBA certification (or equivalent) applies
	Granular fill	Plastic index (N)	1 per source		
		10% fines value (N)			
		Soluble sulphate content (N)			
		Grading	1 per 200 tonnes (min of 3)		
		Permeability (N)	1 per source		
518	Thermoplastics structured wall piles and fittings	(Manufacturer's tests)		Required	BBA certification (or equivalent) applies

TABLE 1/5: Testing to be carried out by the Contractor

Clause	Work, Goods or Material		Test	Frequency of Testing	Test Certificate	Comments
Series 600						
601, 631 to 637 & 640	Acceptable material		For recycled aggregate, see sub-clauses 601.12 and 601.18.			
	Class	General Description	Cross-reference should be made to any requirements in Appendix 6/1			
	1	General granular fill	Grading / uniformity coefficient	1 per week per source	Required	
			MC (N)	1 per 1000m^3 up to max of 5 per day per source		
			OMC (N)	1 per week per source		
		1C only	Los Angeles coefficient (N)	1 per week per source		
	2	General cohesive fill	Grading	1 per week per source	Required	
			MC (N)	1 per 1000m^3 up to max of 5 per day per source		
			PL/LL (N)	1 per week per source		
			MCV (N)	1 per 1000m^2 up to max of 5 per day per source		
			Undrained shear strength – Hand Shear Vane	1 per 2500m^3 up to max of 2 per day per source		
	6F2 / 6F5	Capping	Grading	1 per source*		
			Maximum fines and oversize categories	1 per source*		
			Los Angeles coefficient	1 per source*		
			Laboratory dry density and optimum water content	1 per source*		
			Water content	1 per source*		
			Class Ra (asphalt) content	1 per source*		
			Bitumen content	1 per source*		
602	Earthworks material beneath surface of a road or paved central reserve		Frost heave (N)	Annually per source	Required	
609 & 621	Geotextiles		Tensile load	Source approval	Required	Product certification scheme applies
			Permeability			
			Pore size			
			CBR puncture resistance			

* Visual inspection is required to ensure consistency in imported 6F5 material. If the material visibly changes additional testing may be required to confirm suitability

Testing relating to earthworks is included for information only. The above is taken from the Tender Specification. Earthworks design is by others.

Clause	Work, Goods or Material	Test	Frequency of Testing	Test Certificate	Comments
Series 700					
710	Constituent materials in recycled aggregate	Quality Control	Checks are to be carried out by the Contractor in accordance with the procedure set down in 'Quality Control – Production of Recycled Aggregates' and with those in this Clause		The quality control procedure should be in accordance with 'Quality Control – Production of Recycled Aggregates' published by Waste and Resources Action Programme (WRAP) www.wrap.org.uk The results of all quality control checks shall be delivered promptly to the Project Manager on request

Clause	Work, Goods or Material	Test	Frequency of Testing	Test Certificate	Comments
Series 800					
801	Unbound hydraulically bound and other sub-base material (other than slag) adjacent to cement bound materials, concrete pavements, structures or products	Soluble sulphate content (N)	1 per 400 tonnes or per location if less than 400 tonnes		
		Oxidisable sulphides (OS) content and total potential sulphate (TPS) content (N)	1 per 400 tonnes or per location if less than 400 tonnes		
803 804 805	Granular sub-base material Type 1, 2 and 3	Grading	1 per 400 tonnes		
		Frost Heave	1 per source		
		Plastic index (N)	1 per week		
		Grading and fines content	1 per week		
		Resistance to fragmentation (N)	1 per source		
		Resistance to wear – micro Deval test	1 per source		
		Resistance to freezing and thawing (magnesium sulphate soundness) (N)	1 per source		
		Volume stability of blast furnace slags	1 per source		
		Volume stability of steel (BOF and EOF) slags	1 per source		
		Water absorption (N)	1 per source		
		CBR (N)	1 per source and then monthly		
		OMC/mc (N)	1 per source		
		Density (N)	1 per source		
		Water absorption (N)	1 per source		

Clause	Work, Goods or Material	Test	Frequency of Testing	Test Certificate	Comments
Series 900					
901 925 937 938	Aggregates for bituminous material				National quality management sector scheme applies
	Hardness	Resistance to fragmentation (N)	Monthly		
	Durability	Soundness (N)	1 per source		
		Water absorption (N)	Weekly		
	Cleanness	Sieve test (mass passing 63 micron sieve) (N)	Monthly		Washing and sieving method to be used
	Shape	Flakiness index (N)	Monthly		
	Blast furnace slag	Soundness (N)	1 per 500 tonnes		
		Bulk density (N)			
		Dicalcium silicate disintegration (N)			
		Iron disintegration (N)			
	Steel slag	Bulk density (N)	1 per 500 tonnes		
	Coarse aggregate for wearing courses	PSV (N)	1 per source		
		AAV (N)	1 per source		
Series 900					
901 925 937 938 (contd)	Binders for bituminous materials	Penetration (N)	1 per 750 tonnes		National quality management sector scheme applies. Modified binders should have a BBA HAPAS Roads and Bridges Certificate. In the event that no such Certificates have been issued, then in the interim, only modified binders undergoing BBA assessment should be considered for approval by the Project Manager
		Softening point (N)	1 per 750 tonnes		
903 to 912, 914, 916, 925, 926, 930, 932 to 938, 942, 943, 946 to 948	Bituminous mixtures	Grading (N)	1 per 100 tonnes* (min 2 per day)		
		Binder content (N)			
929	Roadbase and Basecourse	In situ air void content(N)	As required		

Clause	Work, Goods or Material	Test	Frequency of Testing	Test Certificate	Comments
	Macadams	Refusal air void content (N) (PRD Test) Binder Volume Grading (N) Binder content (N)	One pair of 150mm dia cores every 250 lane metres As required As required		
911	Rolled asphalt wearing course (design mix)	Stability value (N)	1 per source		
		Flow value (N)			
		Density (N)			
915 925	Coated chippings	Grading (N)	1 per stockpile		
		Binder content (N)	1 per stockpile		
		Flakiness index (N)	1 per source		
		PSV (N)	1 per source		
		AAV (N)	1 per source		
		Hot sand test (N)	1 per source		Not required for coated chippings for surface dressing to clause 719
		Rate of spread	As required		
921	Surface texture	BS 598: Part 105 Sand Patch (N)	BS 598: Part 105		
924	High friction surfaces	Quality control checks	As required in sub-Clause 924.5	Required	BBA HAPAS Roads and Bridges certification (or equivalent) applies
		System coverage	As required in sub-Clause 924.6	Require	
	Aggregate	PSV (N)	1per source and as required for coated chippings in Clause 915.3	Required	
943	Rolled asphalt wearing course (performance-related design mix)				National quality management sector scheme applies.
		Grading (N)	As required		
		Binder content (N)			
		Density (N)			
		Wheel-tracking rate (N)			
		Wheel-tracking rut depth (N)			
944	Performance-specified roadbase				National quality management sector scheme applies

Clause	Work, Goods or Material	Test	Frequency of Testing	Test Certificate	Comments
920	Bond coats, tack coats and other bituminous sprays	Grading (N)	1 per 200 tonnes		
	Binder	Product identification	1 per product per source	Required	Tests are expected to be repeated every two years
		Vialit cohesion	1 per product per source	Required	Tests are expected to be repeated every two years
		Accuracy of spread	1 for each binder and sprayer per month	Required	Note more than 6 weeks prior to start of work and one per month
		Rate of spread	1 per week		
		Penetration at 25oC and 5oC (N)	Every manufactured batch		Manufacturer's QA test results may be submitted
942	Thin Surface Course Systems				National quality management sector schemes apply. BBA certification (or equivalent) applies
		Binder drainage test	In accordance with DD232: 1996		

Clause	Work, Goods or Material	Test	Frequency of Testing	Test Certificate	Comments
Series 1100					
1101	Precast concrete kerbs, channels, edgings and quadrants	Transverse strength	Minimum of 3 per 1000 units of each product (BS 7263: Part 1)		
		Water absorption			
	Recycled plastic kerbs				QM and product certification applies
1104	Precast concrete flags	Transverse strength	Minimum of 3 per 1000 units of each product (BS 7263: Part 1)		
		Water absorption			
	Bedding				
	granular material				
	mortar				

Clause	Work, Goods or Material	Test	Frequency of Testing	Test Certificate	Comments
Series 1200					
1202	Permanent traffic signs			Required	Quality management scheme applies. Certification that the traffic sign is capable of passing the tests in BS 873: Part 1 is required
1212	Road markings	Test specified in BS EN 1824			National Quality management and sector scheme applies.
				Required	Procedures are given in BS EN 1824

CONTRACTOR DESIGN ELEMENTS **APPENDIX 1/6**

The following parts of the works shall be designed by the Contractor:

- Siphonic drainage
- Attenuation tank
- Ground improvement
- Earthworks

Siphonic drainage

To be designed to requirements provided by RPS, in line with the tender drawings, and all relevant current British Standards / Eurocodes.

Attenuation tank requirements

A minimum of ~~3~~ 2 access points for cleaning and maintenance should be provided with 2 cited over the main inlet and outlet and 2 no. air vents installed in opposite corners and linked to vented manholes as per manufacturer's recommendations.

Low flow channel for increased hydraulic performance should be provided between inlet and outlet.

Design of the inlet and outlet structure should be included in the design. Design of inlet and outlet structure is to be coordinated with Aecom drainage design.

Flotation calculations and design to be undertaken at RIBA 4 subject to ground investigation results.

Ground improvement / earthworks design

Geotechnical design parameters are outlined in the Aecom Ground Investigation report.

Contractor's proposals are to be submitted to the Project Manager for review and approval. Approval period is to be 5 working days.

PRIVATELY AND PUBLICLY OWNED SERVICES AND SUPPLIES

APPENDIX 1/16

1. This Appendix contains details of services and supplies affected by the Works, details of preliminary arrangements that have been made with Statutory Undertakers and others for the alteration of services and supplies affected by the Works, and details of any orders already placed.

2. The Contractor shall make arrangements with the Statutory Undertakers and others concerned for the co-ordination of his work with all the work which needs to be done by them or their Contractors concurrently with the Works. Compliance with the periods of notice given does not relieve the Contractor of his obligations.

3. Private services to individual properties have not generally been listed or shown on the drawings. The Contractor shall make arrangements with the Statutory Undertakers and other concerned for the phasing of all necessary disconnections and diversions of private services affected by the Works. An alternative supply must be made available prior to the disconnection of any existing supplies.

4. Disconnected apparatus shall be removed by the Contractor only with the prior consent of the Authority concerned.

5. The Contractor shall make the necessary arrangements to ensure that any cable or lighting faults arising directly or indirectly from the Works shall be identified and repaired within 24 hours of the incident causing the cable or lighting fault/damage. All incidents, which result in damage to cables or columns, shall be reported immediately to the Project Manager.

6. The contractor's attention is drawn to the Special Requirements in relation to MAG apparatus.

7. Requirements in Relation to BT Openreach

   All work to be carried out in accordance with the Openreach Specification of Alteration Works and all other relevant standards and specifications stipulated by BT.

8. Requirements in Relation to United Utilities

   All work to be carried out in accordance with the guidelines contained within the United Utilities New Development Information Pack and all other relevant standards and specifications stipulated by United Utilities.

9. Requirements in Relation to Electricity North West Limited

   All work to be carried out in accordance with ENWL specified requirements and all other relevant standards and specifications stipulated by ENWL.

10. Requirements in Relation to MAG Drainage , Water and Gas

    All work to be carried out in accordance with the Engineering Services Brief and all other relevant standards and specifications stipulated by MAG.

REQUIREMENTS FOR WORKING ON MAG UTILITIES

APPENDIX 1/70

The Contract shall carry out all works in accordance with the MAG Engineering Services Brief (ESB).

The following, non exhaustive, list summarises the main sections of the ESB to comply with:

1.1 Relevant Regulations

1.1.1 Manchester Airport Engineering Services Brief

1.1.1 General Requirements (Rev G)
1.1.2 Statutory Controls Brief [Rev0.01]
1.1.3 Documentation Standard [Rev0.07]
1.1.4 Health & Safety File [Rev0.03]

1.2.1 Utility Supplies & Metering Requirements [Rev0.01]
2-2-4 Potable Water Services [Rev0.01]
2-2-5 Domestic Water Services [Rev0.02]
3.1.1 High/Medium Voltage Distribution [Rev0.03]
2.3.4 Below Ground Foul Water [Rev0.01]
2.3.5 Below Ground Surface Drains [Rev0.01]
2.4.1 Fuel Gas [Rev0.01]
3.1.2 Low Voltage Distribution [Rev0.01]
3.1.3 Standby Generators [Rev0.00]
3.1.8 Small Power Installations [Rev0.00]

In addition the following legislation / guidance documents shall also be complied with and all works carried out in accordance with the gudielines described therein:

1.1.2 Health and Safety Executive

HSE Draft Guidance on The Construction (Design and Management) Regulations 2015

HSE Publication HSG47 – Avoiding Danger from Underground Services

HSE ACOP L81 – Design, Construction and Installation of Gas Service Pipes (Pipelines Safety) Regulations

HSE ACOP Management of Health and Safety at Work

1.1.3 Gas Installations

NJUG Guidelines (Volumes 1 to 70).

Gas Safety (Installation and Use) Regulations.

BS EN 1555-1 – Plastic Piping Systems for the Supply of Gaseous Fuels. Polyethylene (PE) – General.

BS EN 1555-2 – Plastic Piping Systems for the Supply of Gaseous Fuels. Polyethylene (PE) – Pipes.

BS EN 1555-5 – Plastic Piping Systems for the Supply of Gaseous Fuels. Polyethylene (PE) – Fitness for Purpose of the System.

IGE/UP/1 – Strength Testing, Tightness Testing and Purging of Industrial and Commercial Gas Installations.

IGE/UP/2 – Gas Installation Pipework, Boosters and Compressors in Industrial and Commercial Gas Installations.

IGE/GL/1 – Planning of Distribution Systems Operating at Pressures Not Exceeding 7 Bar.

HVCA Publication TR/20. Installation and Testing of Pipework Systems – Part 6 – Natural Gas Systems.

British Gas Publication BGC/PS/PL2 – Part 1 – Pipework.

British Gas Publication BGC/PS/PL2 – Part 2 – Fittings.

British Gas Publication BGC/PS/PL3 – Part 2 – Fittings.

British Gas Publication BGC/PS/V7 – Part 7 – Valves.

1.1.4 HV & MV Electrical Installations

ESQCR The Electrictiy Safety, Quality & Continuity Regualtions 2002

LC4F Ofgem Standard Licenece Condition 4F Guidence Document-Version 1

ER G81 ENA Engineering Recommendation

ER G12-3 Requirements for the application of Protective Multiple Earthing to low Voltage Networks

ES320 Preperation and Assembly of Substation Plant

BS7197 Specification of the performance of bonds for electric power cable terminations and joints for system voltages up to 36kV

CP411 LV Mains Practice up to and Including 132kV - Cable Jointing up to and Including 1000Volts

CP411 Part 2 - Mains Practice up to and Including 132kV - 6.6/11kV Cable Jointing

ES301 Distribution Substation Housings, Replacement Roofs and Doors

ES314 12kV and 7.2kV 21.9kA Switchgear

ES319 LV Distribution Fusegear

ES322 Ground Mounted Distribution Transformers

ES332 100A House Service Cut-outs

ES334 HV and LV Fuses

ES352 Design of Distribution Substations and Transforming Points

ES397 Electrical Installations within Distribution Substations

ES400C5 Specification for Heavy-Duty Three-Phase Cut-Outs

ES400C6 Specification for Street-Lighting Cut-outs

ES400C8 LV Service Cables

ES400C9 11kV Distribution Cables

ES400C11 Low Voltage Mains Cables

ES400D4 Plastic Ducts, Conduit & Accessories

ES400J2 Specification for 11kV/6.6kV Joints

ES400J3 Low Voltage Cable Joint Shells

ES400L5 Two-Way and Four-Way Underground Link Boxes

ES400R10 Cold-Pour Resin Compound for Encapsulating Joints on LV, 11kV and 33kV Cables

ES400T2 Specification for Plastic Underground Marker Tape

ES400T3 Specification for Tape, Cotton, Plain

ES400T5 Specification for PVC Tapes for Electrical Purposes

ES400T8 Specification for Cable tiles - Plastic

ES400W1 Specification for Aluminium and Copper Binding Wire, Plain and PVC Covered

1.1.5 Foul + Water Installations

CESWI Civil Engineering Speciifcation for the Water Industry

SFA7 Sewers for Adoption 7th Edition.

British, European and ISO standards shall be applied.

BS EN 6700 Design, installation, testing and maintenance of services supplying water for domestic use within

buildings and their curtilages.

BS EN 1710 Specification for identification of pipelines and services

CIBSE TM13 Minimising the risk of Legionnaires' Disease

EA PPG3 Environment Agency Pollution Prevention Guidelines 03

WRAS Water Regulations Guide

Water Regulations Guidance publishes by the Water Regulations Advisory Scheme

ISBN-10: 0953970809

Institute of Plumbing Design Guide

Plumbing Engineering Services Design Guide - Published by the Chartered Institute of Plumbing

HSE ACOP L8 Legionnaires' disease. The control of legionella bacteria in water systems.

HSE ACOP Confined spaces Approved code of practice on confined spaces

BSRIA Guides - Technical Notes

CIBSE Design Guides - Technical Memorandum

In the event of conflict between differing scources of requirements or guidance this shall be brought to the attention of the Project Manager.

2 The Site

2.1 Manchester Airport

2.1.1 Introduction

Manchester Airport is located 9 miles south of Manchester City centre. It is the main airport for the North of England and the third busiest airport in the United Kingdom.

2.1.2 The Site

The works are cited in the location of DNATA's Building 401 which is bound by Pinfold Lane to the east, Avro Way to the north, Wilmslow Old Road to the south and Building 402 site to the west.

The works will be planned to minimise interference with airport visitors, staff and the general public at all times and at all locations.

All the works are landside and no airside access is required.

2.1.3 Existing Services

Manchester Airport is a highly serviced site. The Contractor shall read and be familiar with the General Requirements for Contractors, Consultants and Suppliers at Manchester Airport (Rev G December 2009).

The Contractor's attention is specifically drawn to the following extract of Section 4 of the General Requirements:

> *Information provided to the Contractor by MA is for general guidance purposes only and no warranty is given by MA as to its accuracy. The Contractor shall be responsible for ascertaining the exact nature and position of services, including necessary liaison with statutory bodies.*
>
> *The Contractor shall take due care and attention to adequately protect all services and shall be responsible for any damage thereto. Prior to carrying out any work on any live services the Contractor must contact the Supervising Officer (SO) for advice and comment on his proposal.*

The Contractor shall protect, uphold and maintain all pipes, ducts, sewers, service mains, overhead cables, etc. during the execution of the works. Unless otherwise authorised by the Airport, all site excavations in the vicinity of such services shall by hand digging only. If any damage to services results from the execution of the works, the Contractor shall immediately notify the SO or MA Terminal Control. The Contractor shall indemnify MA against any damage due to causes within its control including the costs of making good.

Known existing services are indicated on the tender drawings.

A GPR survey has been undertaken which indicates the existing services. The Contractor shall verify this information with appropriate trail hole and exploratory excavation.

3 Constraints

3.1 Working at the Airport

MAG have recently updated and streamlined their Permit to Work documents and training courses. This can be found within a separate pack 'Manchester Airport Permit to Work Information Pack v3.0'.

If any further questions are raised during tender please contact the permit to work team at: permittowork@magairports.com.

3.1.1 Job Registration

The Permit to Work (PTW) office is located outside Terminal 1 near Check in B. If you are facing the entrance to Terminal 1 – Check in B, follow the outside building to the left and enter the staff access tunnel. Exist the tunnel just prior to the security post, cross directly over the road into the Tower Block building. The PTW office is located directly opposite.

Operating hours are 07:00 to 15:00 Monday to Friday.

All operative working on site must complete Manchester Airport's online Contractor Induction training, including any person(s) raising Authorisations/Permits.

The training is valid for one year from completion.

Any Authorisation or Permit listing non-inducted operatives will be declined immediately.

ALL INDUCTIONS ARE TO BE COMPLETED UNDER THE OPERATIVES COMPANY RATHER THAN THE PRINICIPAL CONTRACTOR.

There is a charge of £30 + VAT per delegate to complete the online training. This can be paid directly by either the Principal Contractor or the sub-contractor. To arrange payment by a company other than yours, please contact AIRDAT directly to arrange via their 'contact us' section of the web page. For example, when a Principal Contractor has agreed to pay for all sub-contractor's inductions rather than being recharged. Please note: Contractor Induction training is separate to MAG Security Induction.

Within the PTW document the following can be found:

Process for Temporary Visitor (TV) applications via Airport Gateway requiring Tools of the Trade (ToT)

Temporary Access Permit (TAP) for both Landside and Airside works

P2W System (GEMsoft7 Permit Software)

CDM Notifiable Works

Authorisation / Permit requirements for Notifiable CDM works

CDM Non-Notifiable Works

Specific Permits stated MAG Permit to Work document:

11 Appendix A

PERMIT NAME		MIN. NOTIFICATION	MAX DURATION	MAX EXTENSION
Airfield Operations	AIROPS	21 days	n/a	Can't Extend
Confined Space Access	CS	7 days	12 hrs	Up to 1 week
Comms Connection	COMMS	n/a	n/a	Up to 1 month
Excavation	EXCV	7 days	1 month	Can't Extend
Fire Safety System Isolation	FSSI	3 days	12 hrs	Can't Extend
Hot Work	HW	3 days	12 hrs	Can't Extend
Hydrant Isolation	HYD	7 days	1 month	Up to 6 months (on monthly basis)
Ionizing Radiation	RAD	7 days	n/a	Up to 1 month
Roof Area Access	ROOF	3 days	1 month	Up to 6 months (on monthly basis)
Sprinkler	SPRINK	3 days	12 hrs	Can't Extend
Tall Equipment	TE	21 days	6 months	Up to 6 months (on monthly basis)
Utilities Connection (HV/LV/Gas/Water)	UTILCONN	7 days	7 days	Up to 1 month
Utilities Isolation (HV/LV/Gas/Water)	UTILISOLAT	7 days	7 days	Up to 1 month
MAG IT Permit	MAG-IT	7 days	3 months	Up to 1 month
Asbestos	AAP	7 days	1 week	Up to 1 month

External Tall Equipment permits, that are external to the Manchester Airport site, should visit https://www.manchesterairport.co.uk/aviation-professionals/tall-equipment-permit/ and complete the appropriate forms. For guidance on correct use of the Tall Equipment permit forms, please contact the Manchester Airport Airfield Safety & Compliance via airfield.planning@manairport.co.uk

Cost of specific permits stated MAG Permit to Work document:

12 Appendix B

Authorisation/Permit type	Cost (£)
Project Authorisation CDM Notifiable works	£500
Project Authorisation Non-notifiable works	£200
Work Authorisation	£100
Extension request of an Authorisation/Permit	£50
Extension request of a Permit	Free
FSSI (Fire Safety System Isolation)	£25
Hot Works	£25
Airfield Ops	£50
Roof Access	£25
Excavation	£75
Sprinkler Isolation	£25
Confined Space	£50
Utilities Connection	£50
Utilities Isolation	£25
Hydrant Isolation	£25
Tall Equipment	£50
Ionizing Radiation	£25
Comms Connection	£25
MAG IT Permit	£25
Asbestos Abatement Permit	£75
Declination of permit & re-submission	£25

Please note: All Contractor Induction training, Authorisations and Permit charges will be invoiced by AIRDAT, usually invoiced monthly on the 15th of each month.

Insurance requirements stated MAG Permit to Work document:

13 Appendix C

Insurance Requirements

Manchester Airport Contractors

Contractors working directly for Manchester Airport are covered by the Owner Controlled Insurance Programme (OCIP). The OCIP policy provides Airside and Public liability cover up to a limit of £50 million and contract works cover up to the limit of the contract value.

Third Party Contractors

To protect our airports against losses caused by third party contractors we require you to hold insurance. As a general rule all third party contractors are required to hold the following classes of insurance:

- Public Liability with a limit of liability no less than £10 million
- Employer's Liability with a limit of liability no less than £5 million
- In some cases, where the contractors operate in, or require access through, the airfield environment including runways, taxiways and aprons, Airside liability with a limit of liability no less than £50 million

All insurance documents should provide details of:

- the type of insurance (Employer's Liability, Public Liability etc)
- the name of the Insurer
- the dates for which the policy is valid
- the limits of liability
- confirmation there are no airside/ airport/ aviation exclusions

MAG Enforcement Policy stated MAG Permit to Work document:

16 Enforcement Policy

Purpose

The purpose of this policy is to define a systematic approach for Manchester Airport qualified personnel to identify, document, evaluate, and request any contractor rectify and close-out non-conformance in the areas of Environment, Health and Safety, Permit to Work that might occur during any works.

Scope

To control all non-compliant conditions, equipment, processes & procedural requirements, or incidents by ensuring that all non-compliances are identified and corrected in a formalised and controlled manner. This procedure applies to all contract personnel where there are observed situations that do not comply with specified MA requirements. This procedure is to provide a framework to:

- Identify the non-compliance
- Determine the required corrective action
- Allow the contractor a reasonable period to resolve a non-compliant condition
- Advise contractors on what remedial or corrective action is required
- Prevent recurrence of non-compliant issues
- Follow up and close out of non-compliant issues
- Report status of non-compliant conditions across appropriate levels of organisation (internal), to corresponding contractor(s), and externally, as deemed appropriate

Policy Statement

We believe that open and transparent working relations between Manchester Airport and contractors working on our site helps foster a safer working environment for our employees, customers and visitors to the airport.

To help achieve our aspirations we employ a staged approach to enforcement which we require all contractors to embrace.

We believe in firm, but fair, enforcement of Manchester Airport policies and procedures. It is our policy that all enforcement action should be proportionate to the risk and to the seriousness of any identified non-conformance.

The purpose of enforcement

Manchester Airport takes enforcement action to prevent harm by requiring all staff and contractors working on site manage and control risks effectively. This includes:

- Ensuring action is taken immediately to deal with serious risks
- Promoting and maintaining compliance with MA procedures & policy
- Ensuring that those who breach policy and procedure are held accountable

Methods of enforcement

Manchester Airport has a range of enforcement methods to ensure compliance with our policies and procedures.

MA Assets/Engineering Services/Environment/H&S/Airfield Operations personnel may provide verbal/written information and advice regarding any perceived breach of Health & Safety Law, Government Act, MA policy or procedure.

Where appropriate we may also serve letter items, improvement, or suspension notices, withdraw project/work authorisations and we may remove offenders from site pending investigation.

A letter item can be issued where MA requires additional assurance that relevant H&S law or MA policy is being or will be complied with.

An improvement notice can be issued when there is a breach of MA policy or procedure which needs to be remedied within a set timeframe.

Suspension notices can be issued when there is a serious risk of injury, operational risk associated with the works being undertaken or if a serious deficiency in control measures is identified.

Failure to comply with any MA issued notice may result in offenders being removed from site.

Types of Notice

Improvement notices

Where a member of Manchester Airports Assets/ Engineering services/ Environment/ H&S dept/ Airfield Operations deems a person/ company is contravening MA policy or procedure, they may be served an improvement notice to an individual or company.

Suspension notice

Where a member of Manchester Airports Assets/ Engineering Service/ H&S dept/ Airfield Operations deems a person/ company presents a risk of serious injury or operational impact, s/he may serve a suspension of works notice to an individual or company.
A suspension notice may be issued to any person carrying out works at Manchester Airport, this includes workers who may not be aware that an activity is unsafe and is acting in accordance with his/her employers' instructions. In such circumstances, the employer should be contacted to advise of situation and proposed notice.
Works must not be re-started until such time as the contraventions cited in the Notice have been remedied.

Withdrawing & closing a notice

Any issued improvement or suspension notice can be withdrawn at any time prior to the specified period for compliance.

Withdrawal may be appropriate where the situation has changed after issue or where further information has become evident making the original notice inappropriate.
All notices shall be reviewed and closed out by the notice issuer in association with any relevant MA colleagues/ departments.

MAG Key Contacts stated MAG Permit to Work document:

19 Key Contacts / Links

Permit to Work	0161 489 6114/ 6046	ptw@magairports.com
AIRDAT	01227 200066	help@airdat.org
MA Emergency Services	0161 489 2222	
Engineering & Baggage Duty Manager (EBDMs)	0161 489 3678	estm@manairport.co.uk
Airfield Duty Manager	0161 489 3331	OPS3DM@magairports.onmicrosoft.com
Protec	0161 489 5214	
LCC (Live Comms Centre)	0161 489 4833 / 2135	
MA Security ID Centre	0161 489 3544/ 3545	Security.pass.office@manairport.co.uk passoffice@manairport.co.uk
Asset Support Team	0161 489 3776	AST@magairports.com

3.1.2 MAG Engineering Services Approval

All new connections or modifications to MAG networks shall be approved by the MA Engineering Services team (MAES) in advance of any works.

All proposed MA utility network modifications will require an application to MAES for approval fully considering the impact of the proposed system modifications on the existing system. This application shall consider (though not exclusively):

- Physical location of the works
- Load Levels
- Concurrent and future developments
- Design life
- Fault levels
- Unit Protection
- Consultation with the system maintainer
- System control issues
- Metering requirements
- Design drawings
- Impacts on existing supplies/services

No works are permitted to the utility networks unless approval to proceed has been given.

Any modification made to MA's utility networks without prior authorisation will result in the issue of a 28-day disconnection notice. All costs arising from any disconnections and reinstatement if subsequently approved will be borne
by the persons initiating the modification.

Regular meetings with the MAG Project Manager will be established as the forum for submitting applications to MAES.

3.1.3 Permits to Work

In order to achieve high standards of safety from contractors and MA employees who are engaged on hazardous works, it is essential that a formal method of authorisation is adopted. The system is referred to as the Permit to Work and the aim is to provide the control required to facilitate such works in a safe manner.

The granting of a Job Registration Certificate does not infer an automatic granting of any permit to work. For all permits except Restricted Access Permits contractors must submit sufficient details to allow an assessment of the proposed works at least five full working days prior to the planned commencement of work. Application can be made via the MAG Project Manager or the Permits Office.

Scope

Permits to work are required for all hazardous activities. It is the Contractor's duty to ensure that adequate safety measures are taken for all the following:

a) Hot Work
b) Excavations
c) Roof and Overhead Work
d) Confined Spaces
e) Fire Protection Systems
f) Isolation of Domestic Water / Fire Fighting Water
g) Airfield and Apron working
h) Crane and Piling Rig Operations
i) Restricted Access
j) Work with Services
k) Isolation of Services

Permits to work on High Voltage Systems will only be issued by the Duty Maintenance Manager (DMM) or appropriate utility company (refer to the Engineering Services Brief).

Permits for demolition and road works will be subject to a separate Job Registration Certificate.

Permits should be applied for and collected from the Permits Office, Level 1 of Terminal 1 between the hours of 08:15 12:15 and 13:00-16:00 Monday to Friday.

3.1.4 Working Hours

Work shall generally take place between the hours of 0800 and 1700 Monday to Friday. However, due to airport operational constraints, the requirements of the airport car park management team, specific requirements of Street Works Licences and other factors it may be possible for works to take place outside of normal working hours subject to prior approval.

3.1.5 Airport Security

All works are landside and there is no requirement to access the operational airfield or to comply with security pass regulations.

However, works will, take place within the vicinity of Terminal 2, within existing car parking. It will be necessary to comply with specific airport regulations in relation to positive identification of vehicles and drivers and to maintain a compliant and effective cordon to prevent unauthorised access by unidentified vehicles at all times.

3.1.6 Embargoes

At certain times the Airport may impose an embargo on implementation of construction works where the impact on Airport operations and/or passenger services levels is unacceptable. These are to be reviewed on a case by case basis with the Airport Project Manager but are more commonly applied during peak periods such as Bank Holidays and the busy Summer period and at locations with high volumes of passenger activity.

It is anticipated that the following embargoes may be applied to these works (to be confirmed):

- As the existing HV supply to Terminal 2 is in the vicinity there could be embargoes required as a result of the ManTP works. Early consultation with MAG Utilities must be carried out by the Contractor to schedule any works to the HV network.

3.1.7 Working in Existing Car Parks

Implementation of the works will require the Contractor to undertake works within existing MAG and third party car parks.

Access to the various car parking areas is requried on a 24 hour basis and must be maintained at all times

The loss of parking spaces (temporarily and permanently) must be kept to an absolute minimum.

3.2 Working in Public Highway

3.2.1 MCC Approvals

The Contractor shall apply to Manchester City Council (MCC) to carry out excavations in the public highway in accordance with Section 50 of the New Roads and Street Works Act. Neither Pinfold Lane not Avro Way are adopted highways. Wilmslow Old Road is an MCC adopted highway.

3.2.2 Traffic Management

The Contractor shall be responsible for Traffic Management in accordance with Chapter 8 of the Traffic Signs Manual at all locations where works are conducted within the public and private highway, including footways and cycleways.

Details of proposed traffic management shall be included in MAG Job Registration applications and Street Works Licence applications as necessary.

3.3 Stakeholder Interfaces

3.3.1 Third Party Landowners/Lessees

Permission to install apparatus in land owned/leased by third parties will be agreed in advance by the Contract Administrator.

The Contractor will need to liaise with third party landowers/lessees at a local level to arrange access and agree mutually acceptable traffic management and other interface management proceses.

3.3.2 Visitors, Staff, Passengers and General Public

The Contractor shall give due consideration to visitors, staff, passengers and the general public at all times and shall co-ordinate their works in accordance with the stipulations of the MAG Job Registration and/or MCC Street Works Licence.

The Contractor shall be courteuous to visitors at all times.

Safe pedestrian routes shall be provided at all times with suitbale levels of illuminance for pedestrian usage.

3.4 Vehicular Routes

The Contractor is permitted to use all public and airport owned private highways to access the works.

The Contractor shall avoid using private airport roads that lead to unauthorised areas such as service yards, car parks, and sub-stations except when access to such areas is specifically required to execute these works.

The Contractor shall not allow vehicles to be parked within 3m of any airfield perimeter security fence and shall not obscure emergency access (crash) gates in the airside perimeter fence.

3.5 Storage of Materials, Plant and Equipment

3.5.1 Contractor's Compound

A compound for the Contractor will be established at a location to be agreed within the site boundary. This compound shall be the primary location for storage of plant and equipment for the duration of the project.

3.5.2 Storage of Plant and Equipment

Plant and equipment shall be stored at the Contractor's compound when not in use.

3.5.3 Storage of Materials

Materials, including arisings, shall be stored within the designated coumpound area or other areas, to be agreed, within the site boundary.

4 Gas Mains

4.1 General

No new gas works are proposed as a part of the B401 building works. The contractors shall liaise with the demolitions contractor to determine the location of the previously isolated gas supply and ensure that:

Valve chambers remain accessible

No building works are within 3m of the isolated gas main, or any other gas mains around the site

5 Potable Water

5.1 Pipework, Valves and Fittings

All pipework valves and fittings to be in accordance with BS EN 12201-4:2012

Workmanship to be in accordance with the Civil Engineering Specification for the Water Industry 7th Edition

Further details covered within 60663052-ACM-401-XX-SP-BS-50001 - Building 401 MEP Services Performance Specification

Landside Fencing

Security fencing is to be 2.4m high twin guard security welded mesh fence as per the drawings installed in accordance with the suppliers installation deals.

DRAINAGE REQUIREMENTS **APPENDIX 5/1**

1. Pipes for surface water drains shall comply with Table 5/1 and be as detailed on the drainage drawings.

2. Pipes for foul drains shall be in accordance with Sewers for Adoption 7th edition.

3. All pipes shall be sulphate resistant Class 2 in accordance with Building Regulations.

4. Trench and bedding details shall be as shown on the drawings.

5. All pipes shall have adequate temporary protection, before Contractor's plant is allowed over them.

6. All pipelines with less than 0.9 metres of cover below finished carriageway level shall have Type Z bed unless stated otherwise. Joint flexibility to be maintained as indicated on appropriate detailed drawings.

7. Trenches for drainage shall be backfilled with selected excavated material in accordance with the HAUC specification where it is at a moisture content near to the optimum moisture content or with 6F1 material stored on site.

8. All ladders used in manholes shall be stainless steel.

9. Pipe joints in the surface water drains shall be watertight (Clause 504.3). All drains shall be tested in accordance with Clause 509.1.

10. Sewers in timber heading shall be constructed in accordance with BS 6164:1990.

11. Foamed concrete as filling to abandoned sewers etc. shall be as specified in Clause 1043.

12. Concrete (both in-situ and pre-cast) shall be AC2 DS2 sulphate resistant unless otherwise specified.

13. Trapped gullies shall be used throughout the works.

14. Gully gratings and frames and manhole covers and frames shall be suitable for D400 and F900 loading as indicated on the drainage drawings.

15. Gully gratings and frames are to be Class D400 manufactured to BS EN 124:1994 in ductile iron. Minimum waterway area of gratings is 900 sq.cm.

16. Gully connections shall be of pipe complying with the requirements of Clause 501 and be of a minimum of 150mm diameter. The pipes including collars shall be bedded and surrounded, with concrete Mix ST2 to BS 5328 to a minimum thickness 150mm, over the full length of the connection, in accordance with Clause 503.

17. A CCTV survey of the new surface water drains within the site boundary shall be required on completion of the Works and at the end of the maintenance period.

18. A copy of each CCTV survey, including video tapes and reports is to be delivered to the Project Manager.

19. Before connections are made to the existing drainage the exact levels of the existing pipes shall be ascertained. It may be necessary to excavate trial pits to carry this out.

20. The Contractor shall maintain all existing flows until the new permanent drainage functions satisfactorily.

21. The Contractor shall maintain all existing flows for the adjacent Building 402 or any other identified flows (no other flows have been identified) throughout construction. Further investigation may be required by Contractor on site to determine connectivity of existing drainage. Should any drainage diversions be required this is to be agreed with Project Manager before the start of any works.

22. Chamber covers are to be manufactured in accordance with BS EN 124:1994. All covers are to be class D400 unless otherwise specified.

23. Manhole covers are to be manufactured in accordance with BSEN 124: 1994 with a minimum clear opening of 600 x 600mm or larger where noted on the drawings

24. Manholes are to be constructed with a 150mm minimum thickness concrete surround for full depth. In some instances a thicker surround is required as noted on the drawings.

25. Manholes shall normally be constructed using pre-cast concrete sections manufactured to BS 5911 part 200 and constructed in accordance with the Standard Details. Where not stated on the drawings manhole diameters shall comply with the following table:

NOMINAL BORE OF SEWER (mm)	**CHAMBER OF DIAMETER (mm)**
Less than 375	1200 reducing to 1050 where the depth to soffit is 1.35m to 1.5m
375 – 450	1350
500 – 750	1500

Table 2.13.1: Minimum PCC chamber diameter

26. The sizes above are the minimum. If two pipes enter the manhole, the chamber size shall be sufficient to accommodate adequate benching.

27. Foundations to manholes shall be formed with minimum 225mm thickness of Class GEN3 concrete.

28. Inverts shall be formed of half channel vitrified clayware for pipe sizes up to and including 300mm laid true to falls. For pipe sizes greater than 300mm, channels shall be formed in 38mm of granolithic concrete. The benching's shall be constructed in Class GEN3 concrete, properly shaped and finished in 38mm of granolithic concrete.

29. Brickwork shall be built with bricks to Clause 1.20 in mortar to Clause 7.4, in English bond. The joints of brickwork where exposed shall be finished with a neat flush joint as work proceeds. The ends of all pipes shall be neatly built into the brickwork and finished flush with mortar to Clause 7.4.

30. Where the depth of invert of manholes exceeds 900mm below the finished surface of the carriageway or adjacent ground, steps shall be built in as specified in BS 1247 Parts 1 and 2 and BS 5911 Part 200, unless shown otherwise on the drawings.

31. Manholes shall be surrounded with minimum 150mm Class GEN3 concrete and the remaining excavation filled with material complying with Clause 1.10 which shall be adequately compacted.

32. All manholes for foul sewers and drains shall be watertight on completion.

33. Retrospective connection to installed drainage
Retrospective connections of drainage installed in this contract to the drainage infrastructure installed during the enabling works package should be made via stub connections where provided. Where blind connections are required they should be made via core drilling and a flexible saddle connector by Flex seal or equivalent approved.

34. Mild steel ladders for vertical fixing shall comply with the relevant requirements of BS 4211. After fabrication, mild steel ladders shall be hot dip galvanized in accordance with BS EN ISO 1461:1999.

35. Hub Canopy Downpipes
Downpipes from canopies above dock doors are to discharge direct to the pavement. The slab should be locally profiled to convey flows to the gullies shown on the drainage drawing. The slab is to be locally dished to 300mm around the gully at 1:100 to ensure flows are captured. Isolation joints should be provided at the change in direction of the falls in accordance with the slab details.

36. Effluent drains
Effluent drains from the vehicular workshop in complex G and the small package vehicle wash are to discharge to the foul network via silt sumps and interceptors. Non return valves are to be provided in the manholes at the interface with domestic foul to prevent backflow into the effluent system.

37. Foul water pumping station
The foul pumping station shall be designed as a package pumping station to adoptable standards. The detailed design shall be by the contractor.
Requirements for foul pumping station to be confirmed following discussion with the client and upon completion of drainage connectivity and drainage assets survey. The current design data is as follows:
Discharge rate of 1l/s to MAG Pumping Station 2 on the opposite side of Pinfold Lane.
Static head required 4.9m
The foul system is required to accommodate 24hrs emergency storage under normal operating conditions of the facility. This will be achieved both within the sewer network and within the pumping station wet well. The wet well invert level shall be designed to accommodate 5m3 below the level of the lowest incoming pipe.

38. Linear Drainage
Linear drainage has been designed so as to avoid clashes with other infrastructure and site features. Below is a list of approved prescribed linear drainage products as detailed on the civil engineers drawings:

<u>Kerb drains</u>

ACO KD 480 by ACO

Channel Drains
ACO RoadDrain PD100F 30.1 by ACO
ACO QMax channel drains

39. Co—ordination with the structural foundation, retaining walls etc. has been undertaken based on the standard dimensions and installation details of the above products. Equivalent products may be acceptable but the contractor must check compliance with the overall design. Equivalent products are to be submitted to the Client's appointed consultant for approval.

40. Testing and cleaning of pipes
All foul sewers, drains and surface water drains with watertight joints shall be tested in sections (e.g. between manholes), before the pipes are covered by means of the air test or the water test as described in the Department of Transport Specification for Highway Works Clause 509. Before testing, the ends of the pipeline to be tested, including those of short branches, shall be plugged and sealed. Any section not passing any of the tests shall have the defects made good and shall be re-tested.

41. All drains and service ducts less than 350mm diameter shall be checked by drawing a mandrel through each completed length of pipe.

42. On completion of the works, all manholes and drains other than French drains shall be flushed from end to end with water and left clean and free from obstruction. A CCTV camera inspection of the drains shall be carried out and a good quality image recorded. A copy of the recording and log of each of the pipelines shall be provided as part of the 'as constructed' information.

SERVICE DUCT REQUIREMENTS **APPENDIX 5/2**

General

1. Unless otherwise stated, all service ducts supplied by the Contractor shall be Low density polyethylene (PE) and shall comply with Clause 501 and Table 5/2 of SHW.

2. All ducts shall be compatible with the draw pits which are offered.

3. All lengths shall be fixed socketed at one end and shall have a smooth bore across the push fitted socket joint.

4. All ducts shall be fitted with a single draw rope.

5. When laid, the wording shall be uppermost.

6. All ducts shall be laid with 100mm sand bed and surround (imported sand) in a trench depth to invert not exceeding 2 metres, average depth to invert 750mm in roadway construction and 450mm in footway construction.

7. 90 degree bends of 250mm radius, fixed socketed at one end, orange in colour shall be compatible for use with the duct on offer.

8. Where duct trenches are dug in existing carriageways the existing construction shall be saw cut full depth at each site of the trench.

12. As and when stipulated, trenches shall be left open for inspection of the ducting by the Engineer.

Installation of Ducts

13. All ducts shall be compatible with the draw pits which are offered.

14. All lengths shall be fixed socketed at one end and shall have bore across the push fitted socket joint. All lengths shall be properly jointed and sleeved to give a smooth bore. All ducts shall be fitted with a single draw rope.

15. All ducts under the carriageway shall be laid with 150mm ST2 bed and surround. All other ducts shall be laid with 150mm sand bed and surround.

16. Except for street lighting, all ducts under the carriageway shall have 750mm minimum cover from the crown of the duct to the finished surface. Elsewhere in footways and central islands, a 450mm cover is acceptable.

17. All road crossings shall have a minimum 2No 100mm ducts installed unless otherwise stated.

18. Bends shall be minimum 250mm radius, fixed socketed at one end and coloured orange throughout their length. Bends shall be compatible for use with the duct on offer.

19. Where duct trenches are dug in existing carriageways and existing construction shall be saw-cut full depth at each of the trench.

20. When requested by the Overseeing Organisation, trenches shall be left open for inspection of the ducting. Notwithstanding this, no excavations shall be left open at the end of the working shift. All excavations shall be plated or reinstated.

21. A warning marker tape shall be used as per Clause 1421.14.

22. The system of ducting and service duct chambers for road lighting shall be for the sole use of road lighting equipment.

23. A smooth-bore flexible duct shall be used to connect the rigid duct system to each item of street furniture requiring a private electrical supply.

24. Prior to the duct system being out into use the Service Duct Alignment Test (Appendix 1/5) shall be carried out in the presence of the Overseeing Organisation.

25. Where ducts are not connecting to chambers, markers blocks as shown on Highway Construction Detail I1 shall be used.

DRAINAGE REQUIREMENTS **APPENDIX 5/70**
FLOW CONTROL DEVICES

Flow control devices shall be provided as indicated on drawing 60663052-ACM-401-XX-DR-C-52014.

Flow Control devices shall be installed to manufacturers' details.

REQUIREMENTS FOR ACCEPTABILITY AND TESTING ETC. OF EARTHWORKS MATERIALS

APPENDIX 6/1

1. General requirements

The following requirements (all Appendix 6/series) are taken from the Tender Specification and are provided for information only. The design of the earthworks is by others (specialist subcontractor) and reference should be made to these drawings / specification in relation to the earthworks.

Where sub-soil has to be removed to reach the formation levels it shall be excavated in a manner that the formation undergoes the minimum possible disturbance. The formation for the road works shall be prepared for the full width of the carriageway and footways and the sub-grade shall wherever possible be compacted at its natural moisture content by eight passes of a smooth-wheeled roller having a mass per metre width of roll of 2.7 tonnes to 5.4 tonnes.

Where the sub-grade is of poor quality it may require the removal of further material and its replacement by an approved general fill which shall be compacted in layers not thicker than 225mm in accordance with Table 4.6.1 of the compaction requirement for granular materials.

The Contractor must ensure that the excavation is kept free from water during the progress of the Works and provide permanent land drainage if required.

2. Acceptable Limits for Fills

The permitted classes of construction materials are defined in the following tables:

Table 6/1.1(attached)	Classification and Compaction Requirements
Table 6/2	Grading Requirements
Table 6/3	Limits of Material Properties for Fill for Use with Metal Components in Reinforced soil and Anchored Earth Structures
Table 6/4	Method of Compaction for Earthworks Materials
Table 6/5	Off site grading requirements

A schedule of tests and acceptability limits for the fill materials required for this Contract is given in Table 6/1.1.

Embankments shall be constructed of imported Class 6 material or Class 2 general fill material unless otherwise indicated on the drawings. Class 2 general fill comprises material sub-classes 2A, 2B and 2C and any further sub-classes.

Restrictions on the use of Class 2 material in embankments are provided in Specification Appendix 6/3 following. Class 3 material (chalk) is not expected during construction. Class 4 materials shall be used as fill to landscape areas. Class 5 materials shall be used for topsoil. Class 6 material shall be used for starter layers, fill below water, capping, fill to structures and the like as defined in Table 6/1.

3. Requirements for Determining Acceptability

The Contractor shall be responsible for the classification and testing of materials.

If in the opinion of the Site Supervisor the material has altered its classification or is unacceptable for whatever reason the Contractor shall repeat the classification and acceptability tests given in Table Appendix 6/1.1 and Appendix 1/5. The rate of further testing required shall be sufficient to ensure the correct classification of the materials taking into account the variation in their properties.

Cohesive soils will be the principal material encountered in excavations. Acceptability limits for Class 2 cohesive general fill are set out in Table 6/1.1 attached to this appendix.

Generally, the general cohesive fill shall be controlled by MCV values and method compaction in accordance with the SHW.

Acceptability testing and control testing during construction shall be carried out by the Contractor in accordance with Appendix 1/5. The frequency of the testing may be altered in favourable circumstances at the discretion of the Site Supervisor once consistently acceptable standards of production are established. The Contractor shall undertake additional or increased testing in highly variable defective or damaged areas if required by the Site Supervisor. In-situ remoulded shear strength shall be measured to verify the material is suitable.

Classification testing shall be carried out by the Contractor at the source of all materials. Acceptability testing for all earthworks construction materials shall be carried out by the Contractor at the point of deposition for both imported materials and on-site materials rendered acceptable. All samples and test results shall include their location in the works by reference to chainage, approximate offset, height of embankment and depth of cutting or mAOD.

The Contractor shall make all test results available to the Site Supervisor within 3 working days of completion of the tests.

The Contractor shall obtain suitable soil and water samples from areas of known or suspected Class U2 materials in advance of the excavation works, see Appendix 6/2 for details.

4. Designation of Material as Class 3

Not used.

5. Rendering Unacceptable Material Acceptable

Unacceptable Fill drier than Acceptable Limits (Class U1A) to be modified to General Fill (Class 2B or 2C)

Where stiff and very stiff soils (dry cohesive) occur, it shall be necessary to process these to render the material acceptable as Class 2B or 2C fill to ensure an adequate state of compaction (density and air voids) is achieved. Above 150kPa (and MCV13) it shall be necessary to pulverise the as-dug material and to modify (increase) its moisture content to render the material acceptable as Class 2B or 2C fill. It may also be necessary to use higher compactive efforts in the field. The modified material will have to be re-classified in accordance with the criteria of Table 6/1, Table 6/2 and Appendix 6/1 to an appropriate class of acceptable cohesive fill for compaction purposes and construction control following trials of the proposed methods.

Unacceptable Fill wetter than Acceptable Limits (Class U1A) to be modified to General Fill (Class 2A or 2C)

Approved modification/improvement shall be used to render unacceptable soft/weak inorganic cohesive materials with remoulded undrained shear strengths of less than 50kPa acceptable as

Class 2A or 2C fill. Where this “modified fill” is to be used as general embankment fill the process shall produce a material that satisfies the requirements of Class 2A or 2C general fill. The modified material will have to be re-classified in accordance with the criteria of Table 6/1, Table 6/2 and Appendix 6/1 to an appropriate class of acceptable cohesive fill for compaction purposes and construction control following trials of the proposed methods.

Mixing of additives with the unacceptable material shall be carried out using ploughs, disc harrows or rotavators, or a combination of such. Sufficient mixing shall be carried out to produce a relatively homogenous mixture appropriate for the nature of the works. During the trials, the proposed methods shall demonstrate that the cohesive material is adequately mixed and reduce the size of soil lumps sufficiently for the additive to be effective throughout the material.

If improvement in the condition of the fill material is affected by rainfall then additional treatment shall be kept to the minimum necessary to render the material acceptable.

Care shall be taken to ensure that the modified material is not made stronger than the limits specified for acceptability and compaction.

6. Requirements for Groundwater Lowering or Other Treatment

Earthworks are to be kept free of groundwater, infiltration water and the effects of weather. The subgrade shall be protected against water infiltration in accordance with Specification Clause 613. Groundwater lowering shall be carried out at all foundation excavations and excavations to remove unacceptable material beneath structures, embankments and other areas of fill. Groundwater lowering shall also be carried out in cuttings with water bearing strata.

7. Minimum MCV required for Lime Stabilised Class 9D Material

Not used.

8. Acceptability and Testing of Unburnt Colliery Spoil

Not used.

9. Permitted use of Rapid Assessment Procedure for Material Acceptability

Routine site testing of undrained shear strength of remoulded soil may use the shear hand vane method of BS 1377 Part 9 where calibrated and pre-checked with triaxial testing of remoulded material according to BS 1377 and Clause 633.

10. Removal or Retention of Excavated Acceptable or Unacceptable Material

To be confirmed at RIBA stage 4.

11. Permitted use of Acceptable or Unacceptable Material for purposes other than General Fill

Not used.

12. In Situ Resistivity Tests

Not used.

13. In Situ Redox Potential Tests

Not used.

14. Assessment in Accordance with TRL Report 447

Not used.

15. Requirements for Magnesium Sulfate Soundness Test

Not used.

Specification Appendix Table 6/1.1

Class	General Material Description	Typical Use	Permitted Constituents (All Subject to Requirements of Clause 601 and Appendix 6/1)	Material Properties Required for Acceptability (In Addition to Requirements on Use of Fill Materials in Clause 601 and Testing in clause 631)				Compaction Requirements in Clause 612
				Property (See exception in previous column)	Defined and Tested in Accordance with	Acceptable Limits Within:-		
						Lower	Upper	
2A	Wet cohesive material	General fill	Any material or combination of materials, other than material designated as Class 3 in the contract.	(i) grading	BS1377 : Part 2	Tab 6/2	Tab 6/2	Tab 6/4 Method 1 except for materials with liquid limit greater than 50, determined by BS1377:Part 2 only tamping or grid rollers shall be used
				(ii) plastic limit (PL)	BS1377 : Part 2	-	-	
				(iii) mc (see Note 14)	BS1377 : Part 2	PL -4%	-	
				(iv) MCV	Clause 632	8.5	13	
				(v) undrained shear strength of remoulded material	Clause 633	50kN/m^2	150kN/m^2	
2B	Dry cohesive material	General Fill	Any material or combination of materials	(i) grading	BS1377 : Part 2	Tab 6/2	Tab 6/2	Tab 6/4 Method 2
				(ii) plastic limit (PL)	BS1377 : Part 2	-	-	
				(iii) mc (see Note 14)	BS1377 : Part 2	PL -4%	-	
				(iv) MCV	Clause 632	-8	-13	Table 6/4 Method 2

Class	General Material Description	Typical Use	Permitted Constituents (All Subject to Requirements of Clause 601 and Appendix 6/1)	Material Properties Required for Acceptability (In Addition to Requirements on Use of Fill Materials in Clause 601 and Testing in clause 631)				Compaction Requirements in Clause 612
				Property (See exception in previous column)	Defined and Tested in Accordance with	Acceptable Limits Within:-		
						Lower	Upper	
				(v) undrained shear strength of remoulded material	Clause 633	50kN/m^2	150kN/m^2	
2C	Stony cohesive material	General fill	Any material or combination of materials	(i) grading	BS1377 : Part 2	Tab 6/2	Tab 6/2	
				(ii) plastic limit (PL)	BS1377 : Part 2	-	-	
				(iii) MCV	Clause 632	8	13	
				(iv) undrained shear strength of remoulded material	Clause 633	50kN/m^2	150kN/m^2	
2D	Silty cohesive material	General Fill	Any material, or combination of materials, other than chalk	(i) grading	BS1377 : Part 2	Tab 6/2	Tab 6/2	Table 6/4 Method 3
				(ii) MCV	Clause 632	8.5	13	
				(iii) plastic limit (PL)	BS1377 : Part 2	-	-	
				(iv) undrained shear strength of remoulded material	Clause 633	50kN/m^2	150kN/m^2	
4A	Various	Landscape Areas	Any material or combination of materials excluding peat, surplus topsoil, organic soils and cohesive alluvial soils.	(i) grading (see Note 8)	BS1377: Part 2	Appendix 6/1	Appendix 6/1	To be determined
				(ii) MCV	Clause 632	7	-	
				(iii) mc	BS1377: Part 2	-	-	

Class	General Material Description	Typical Use	Permitted Constituents (All Subject to Requirements of Clause 601 and Appendix 6/1)	Material Properties Required for Acceptability (In Addition to Requirements on Use of Fill Materials in Clause 601 and Testing in clause 631)				Compaction Requirements in Clause 612
				Property (See exception in previous column)	Defined and Tested in Accordance with	Acceptable Limits Within:-		
						Lower	Upper	
				(iv) undrained shear strength of remoulded material	Clause 636	35kPa	-	
5A	Topsoil or turf, existing on site	Topsoiling	Topsoil or turf designated as Class 5A in the Contract	(i) grading (one per source)	Clause 618	-	Clause 618	-
5B	Imported Topsoil	Topsoiling	General purpose grade complying with BS 3882	-	-	-	-	-
6F5	Selected granular material (coarse grading) - imported onto site	Capping	Unbound mixture complying with BS EN 13285 Any material or combination of materials – including recycled aggregate with not more than 50% by mass of recycled bituminous planings and granulated asphalt, but excluding materials that contain tar and tar-bitumen binders, unburnt colliery spoil, argillaceous rock and chalk Property (x) in the next column shall not apply if the Class Ra (asphalt) content of any recycled aggregate is 20% or less	(i) Size designation and overall grading category	BS EN 13285 – 0/80 and G_E	Tab 6/5	Tab 6/5	Tab 6/4 Method 6
				(ii) Maximum fines and oversize categories	BS EN 13285 – UF_{12} and OC_{75}	Tab 6/5	Tab 6/5	
				(iii) Los Angeles coefficient	BS EN 13242 LA_{50}	-	50	
				(iv) Volume stability of blast furnace slag	BS EN 13242 – free from dicalcium silicate and iron disintegration	-	-	
				(v) Volume stability of steel (BOF) and EAF) slag	BS EN 13242 – V_5	-	-	
				(vi) Other aggregate requirements	BS EN 13242 Category $_{NR}$ (no requirement)	-	-	

Class	General Material Description	Typical Use	Permitted Constituents (All Subject to Requirements of Clause 601 and Appendix 6/1)	Material Properties Required for Acceptability (In Addition to Requirements on Use of Fill Materials in Clause 601 and Testing in clause 631)				Compaction Requirements in Clause 612
				Property (See exception in previous column)	Defined and Tested in Accordance with	Acceptable Limits Within:-		
						Lower	Upper	
				(vii) Laboratory dry density and optimum water content	BS EN 13285, clause 5.3 – declared values	-	-	
				(viii) Water content	BS EN 1097-5	Optimum wc – 2%	Optimum wc	
				(ix) Class Ra (asphalt) content	Clause 710	-	50%	
				(x) bitumen content	BS EN 12697-1 or BS EN 12697-39	-	2.0%	

Notes:

1. to 5. Refer to Standard Table 6/1 Notes in SHW.

6. The moisture content (mc) of granular fills shall be determined on the material passing the 20mm BS sieve.

7. Subject to the tolerances given in Clause 616, material used within 450mm of the designed final road surface shall not be frost susceptible as defined in Clause 602.19

8. Landscape fill shall generally be in a condition which permits it to be transported, deposited, trafficked and shaped by earthworking plant and which will permanently maintain the required earthwork contours. Class 4 material shall be of such a size that it can be deposited in horizontal layers each not exceeding 450mm loose depth. Isolated boulders up to 0.085 cubic metres volume may be incorporated in Class 4 fill material provided that the compaction requirements are met. No stone exceeding 0.015 cubic metres volume shall be placed less than 1.3m below the finished earthworks outline of the landscape fill. The Contractor shall use appropriate plant to avoid over-compaction and maintain stability during working.

9. Where Note 9 is referred to in Table 6/1 the moisture content shall lie in the range necessary to achieve 95% of maximum dry density obtained with the compactive effort specified on the Optimum Moisture Content (OMC) / Dry Density Relationship as defined by BS1377 Part 4.

10. Where determination of the OMC of granular soils is required and the grading of the material places it in Zone 'X' as defined in BS1377 Part 4 Figure 1, then the OMC shall be determined where >35% of the material passes the 37.5mm BS sieve using a CBR mould. The procedures for soils susceptible to crushing during compaction shall be applied to all relevant soils (e.g. well burnt non-plastic shale).

REQUIREMENTS FOR EXCAVATION, DEPOSITION, COMPACTION (OTHER THAN DYNAMIC COMPACTION) **APPENDIX 6/3**

1. Blasting for Excavation

Blasting is not permitted.

2. Cutting Faces

Cut faces shall be made good using any of the methods set out in SHW 603.7. Isolated areas of soft, fragmented or insecure material shall be excavated and filled with material of similar surrounding characteristics to the requirements of the DSR.

Where seepages are encountered during the works the Contractor shall inform the DSR immediately. In areas of persistent or significant groundwater seepage from cutting faces, additional drainage measures shall be provided as specified by the DSR. These may be in the form of counterfort drains, herringbone drains or drainage blankets.

3. Watercourses

Not used.

4. Embankment Construction

Fills shall not at any stage of construction have side-slopes steeper than 1V:3H.

The minimum thickness of capping or of sub-base as appropriate for weather protection of sub-formation or formation shall be as defined in Clause 608.9(i). No reduction in thickness shall be permitted.

Weather Protection

The Contractor's particular attention is drawn to Clause 608 (Construction of Fills) of the SHW. The Works shall be protected against weather in accordance with the relevant sub-clauses. No reduction in permanent thickness shall be permitted.

Soft Spots

All areas of embankment foundations shall be proof-rolled prior to fill placement

The proof-rolling shall consist of at least two passes of a smooth-wheeled vibratory roller having a minimum mass per metre roll width of 2100kg, or other suitable method agreed with the Designer.

The extent of soft spots shall be determined by inspection during proof-rolling. Soft spots shall be excavated and backfilled with Acceptable General Fill.

Foundation inspections shall be carried out jointly by the Contractor and the DSR; and any remedial measures necessary, including the location and depth of any soft spots encountered, shall be agreed and recorded.

Cohesive/Granular fill interfaces

Cohesive/granular fill interfaces shall be constructed such that drainage of the interface is towards the edge of the embankment. The slope of the interface shall be such that any water drains to the outside of the embankment. No pockets of granular material shall be formed within cohesive material.

5. Compaction

General

Compaction shall comply with Clause 612 of the SHW.

Method Compaction

(a) Extra compaction in the top 600mm for Classes 2A, 2B, 2C and 2D over the full width of the embankment to Clause 612.10 is required. Temporary over-widening to achieve adequate compaction of the shoulders of the embankment will be permitted.

(b) Requirements for compaction of drainage material are shown on the Earthworks Drawings and Standard Earthwork Detail Drawings.

(c) The frequency of field dry density testing shall be as set out in Appendix 1/5 except that for Class 2B material. An advance trial should be carried out on Class 2B material to determine the compaction achieved. Refer to end product compaction below for details on acceptable tests.

End Product Compaction

(a) A nuclear surface density gauge (NDG) calibrated for the materials on site may be used for measuring field dry density/moisture content in place of sand replacement tests (SRT). However, sand replacement tests and laboratory moisture content determinations shall be required at a ratio of 1 SRT to 10 NDG readings to maintain checks on calibration. Each instrument in use on the Contract shall be calibrated at the frequencies set out in Appendix 1/5

6. Excavations for Foundations and Trenches

Benching is required for foundation excavations and transition zones for embankment approaches to retaining walls. Refer to 10 below for further details on benching.

7. Locations Where Excavations and Supports are to be Left in Position

Excavation supports shall be removed as filling proceeds.

8. Requirements for benching or shaping to natural or earthworks slope faces to receive fill

(i) Where existing embankments are to be extended or where embankments are to be constructed on ground with a slope steeper than one in five, such slope being measured at right angles across the width of the embankment, sloping ground shall be benched with maximum vertical steps of 0.5m at minimum 1.0m horizontal spacing.

(iii) Fill material in areas of benching shall be carefully placed and compacted to ensure that no voids occur at the upright steps of the benching.

(iv) Placing and compaction of the fill material shall continue to a level above an adjacent bench before material is placed upon that bench.

(v) Four additional passes of the roller shall be made on the area within two metres each side of the upright face immediately following the compaction of the fill material on each bench.

(vi) Benches formed in sidelong ground shall be inspected by the Site Supervisor for signs of seepage. Starter layer (drainage blanket) shall be installed and connected to a suitable drain.

(vii) Soft materials shall be removed where present and the resulting profile benched.

9. Safeguarding Requirements

Earthworks areas shall be protected from bird by use of ‘ticker tape’ or another method approved by the airport. Areas shall be shaped to falls and adequate temporary drainage provided to avoid standing water which may attract birds.

FILL TO STRUCTURES AND FILL ABOVE STRUCTURAL FOUNDATIONS APPENDIX 6/6

1. General

1.1 Fill to structures shall be Class 6N, Class 6P or Class 7A1 and any relevant sub-classes or as shown on the Drawings.

1.2 The drawings indicate the minimum lateral extents for backfill materials and the Contractor shall satisfy himself that his proposed material is stable at the trimmed batters shown on the Drawings as required in Clause 610.6.

1.3 The Contractor's particular attention is drawn to Clause 610 (Fill to Structures) of the Specification for Highway Works (SHW).

2. Formation for Foundations

The foundation levels of all foundations and the depth or extent of excavation of inadequate founding strata (soft spots) shall be subject to verification testing by the Contractor as well as inspection and approval by the Site Supervisor.

Where anticipated suitable formation and other conditions compatible with the design assumptions are not encountered then excavation shall continue until such material is met or a suitable alternative formation approved by the Designer is met. The excavation shall be backfilled with Class ST1 concrete as shown on the drawings and as agreed with the Site Supervisor.

SUBFORMATION AND CAPPING AND PREPARATION OF SURFACE TREATMENT OF FORMATION APPENDIX 6/7

1. Capping Locations and Thickness

The design CBR values, the thickness of capping and the thickness of the sub-base material shall be shown in Road Detail Drawings. All details on sub-base material shall be detailed in Road Detail Drawings including restrictions on materials.

Attention is drawn to Road Detail Drawings and other associated documents that provide full pavement construction requirements for roads. These documents may include additional information relevant to formation and minimum construction thickness and restrictions on acceptable pavement foundation options.

2. Allowed Surface Level Tolerances

Surface level tolerances shall be as Clause 616.1.

3. Permitted Classes of Capping

The permitted classes of capping shall be as indicated in Specification Appendix 6/1 singly.

Material used within 450mm of the final road surface shall be non-frost susceptible.

4. Capping Procedures

In cuttings and embankments, the procedures to be adopted for construction of capping shall be in accordance with those detailed in SHW Clause 613.11 (i), (ii) and (iv) and SHW Clause 613.12 (i) and (ii).

Vibratory rollers should be used with caution due to the moisture susceptible nature of cohesive soil subgrades.

Exposed areas of formation or sub-formation shall be kept to a minimum and shall be covered quickly to avoid deterioration due to inclement weather conditions.

Preparation and surface treatment of formation and sub-formation shall be carried out immediately prior to laying pavement foundation materials or sub-base. If at any time the sub grade becomes softened due to precipitation or site activities, the sub grade shall be stripped by at least 40mm to expose a competent sub-formation that shall be re-compacted. Where the sub-formation level is reduced in this manner the pavement foundation construction thickness shall be increased with capping (or sub-base if appropriate).

Preparation of sub-formation shall be carried out only after installation of the scheduled drainage at that location. The sub-formation shall be shaped and trimmed by the minimum amount necessary to ensure that water does not pond prior to the placement of capping. If necessary, temporary drainage shall be used to allow the flow of water away from the trimmed earthworks. The sub-formation shall be constructed with a crossfall to shed any water ingress to dedicated formation drainage.

The capping shall be tested to ensure that a minimum CBR value of >15% is achieved at 50m centres along the carriageway.

5. Restricted Pavement Design (& Other Non-Performance Designs)

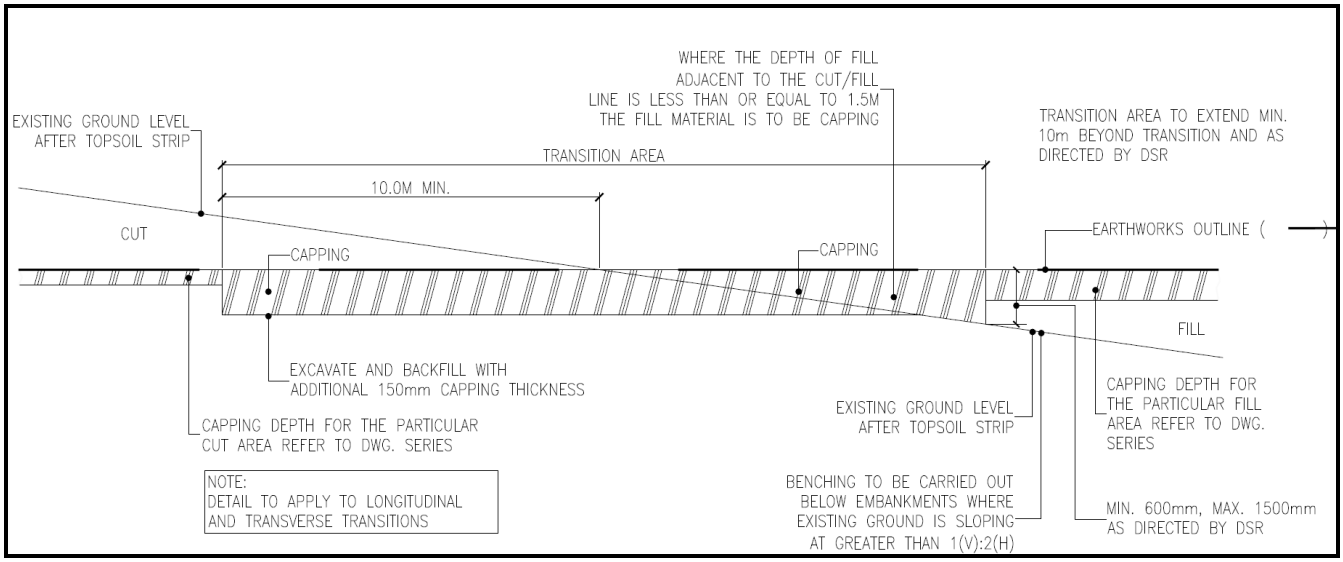
The Contractor shall for each class of capping provide demonstration areas complying with Clauses 613.4 to 613.7 at locations agreed by the Designer to demonstrate the methods, equipment and materials proposed for use in the laying and compacting of the capping layer. The demonstration area once proved by the Contractor to be acceptable by testing may be included in the Permanent Works. The Contractor shall protect the demonstration area. Demonstration areas which cannot be incorporated shall be removed.

6. Requirements for Lateral Extent of Capping

Requirements for lateral extent of capping and sub-formation, sub-formation shaping and cross falls are given in the Pavement Construction Drawings and in the Highway Construction Details. Flat spots in cross falls and longitudinal sags shall be avoided by increasing sub-base thickness and shaping sub-formation and capping layers to achieve cross-falls to drains.

7. Cut / Fill Transitions

Cut / fill transitions shall be treated in accordance with the detail below.



8. Preparation of Formation on existing Sub-Base Material

The preparation of formation on existing sub-base material shall be undertaken to the same standard as that detailed at SHW clause 616.

TOPSOILING, GRASS SEEDING AND TURFING APPENDIX 6/8

1.1 All top-soiling and landscaping works shall be in accordance with Clauses 618 and 620 respectively of the Specification of Highway works.

1.2 Grass seeding shall be in accordance with Clause 3005 of the specification for Highway works.

1.3 The Contractor shall carry out testing to verify that the material complies with the requirements of Series 600 and BS 3882:2015.

EARTHWORK ENVIRONMENTAL BUNDS, LANDSCAPE AREAS, STRENGTHENED EMBANKMENTS APPENDIX 6/9

1.1 Fill shall comply with Clause 601, Specification Appendix 6/1, Table 6/1.1 and the Standard Earthworks Details. Where Class 4 fill is permitted, compaction shall comply with the requirements included at Specification Appendix 6/1 and Specification for Highway Works (SHW) Clause 620.2.

1.2 Topsoil requirements shall be in accordance with Appendix 6/8 and the Landscape Drawings.

PERMITTED PAVEMENT OPTIONS - **APPENDIX 7/1**

FLEXIBLE CONSTRUCTION

1. Location - All carriageways / bus routes

2. Grid for checking surface levels of pavement courses (Clause 702.4)
   Longitudinal dimension: 8m
   Transverse dimension: 9m

3. Surface regularity (Clause 702.7):- Category of Road: A

4. Requirements for determination of compaction level if different from the requirements of sub-clause 901.19 and 927.1: No specific requirements other than those stated in the Specification.

5. Measurement of Surface Texture required (Clause 921) yes; sand patch method.

6. BS 4987 Part 1 Traffic Category (Clauses 909, 912, 914, 933 and 937): Not Applicable

7. Not applicable.

8. Hardness, durability and cleanliness of aggregates shall be to the requirements of sub-clause 901.2.

9. Regulating course if used shall be to the requirements of Clause 907.

10. If Base, Binder course or Regulating Courses are to be trafficked, a hard stone coarse aggregate with minimum 55 PSV shall be used.

11. The following tables indicate the type of pavement construction required at each carriageway location but does not necessarily imply full depth construction throughout, e.g. at structures, transitions, tying-in at or overlay of existing roads.

12. Where pavement construction of differing thicknesses or materials meet, transition sections shall be as shown on the Standard Highway Construction Details.

13. Where a surfacing course is laid into widths, the longitudinal joint is to coincide with the carriageway centre line.

14. All construction materials within 450 mm of the finish level shall be non-frost susceptible.

15. The following tables indicate the pavement constructions for assumed CBR values for CBR values other than the shown the Contractor must refer to the designers.

PERMITTED PAVEMENT OPTIONS - FLEXIBLE CONSTRUCTION **APPENDIX 7/1**

CARRIAGEWAY CONSTRUCTION – ASPHALT

	Clause	Material	Grade of Binder	Thickness (mm)	Special Requirements
Surface Course	942	Stone Mastic Asphalt	40/60 Pen	45	To BS4987 and Highways Agency draft specification for Stone Mastic Asphalt.
Binder course	906	High Density Macadam	40/60 Pen	55	BS 4987 PT1 Coarse Aggregate: Crushed Rock only Fine Aggregate: Crushed Rock only Nominal size 20mm
Base	906	Dense Macadam	40/60 Pen	150	BS 4987 Part 1 Crushed Rock only Nominal size 32mm
Sub- base	803	Granular Sub-base Type	N/A	150	CBR of 30% required – tests to be carried out at 20m intervals
		Total Pavement Thickness		*400**	* constructed on stabilised sub grade, minimum CBR at formation to be 30%

CARRIAGEWAY CONSTRUCTION – CAR PARK

	Clause	Material	Grade of Binder	Thickness (mm)	Special Requirements
Surface Course	942	Stone Mastic Asphalt	40/60 Pen	45	To BS4987 and Highways Agency draft specification for Stone Mastic Asphalt.
Binder course	906	High Density Macadam	40/60 Pen	55	BS 4987 PT1 Coarse Aggregate: Crushed Rock only Fine Aggregate: Crushed Rock only Nominal size 20mm
Base	906	Dense Macadam	40/60 Pen	100	BS 4987 Part 1 Crushed Rock only Nominal size 32mm
Sub- base	803	Granular Sub-base Type	N/A	150	CBR of 30% required – tests to be carried out at 20m intervals
		Total Pavement Thickness		*350**	* constructed on stabilised sub grade, minimum CBR at formation to be 30%

RIGID CONSTRUCTION
SERVICE YARD

	Clause	Material	Grade of Binder	Thickness (mm)	Special Requirements
Surface Course	1000 series	C32/40 Pavement Quality Concrete (PQC)	Na	210	Air entrainment required 1 Layer of A393 mesh (bottom)
Sub- base	803	Granular Sub-base Type	N/A	150	CBR of 30% required – tests to be carried out at 20m intervals
		Total Pavement Thickness		360	* constructed on stabilised sub grade, minimum CBR at formation to be 30%

EXCAVATION, TRIMMING AND REINSTATEMENT OF EXISTING SURFACES **APPENDIX 7/2**

Any trenches excavated through existing surfaces are to be reinstated to the details shown on HCD K4.

Backfill beneath formation level in paved areas shall be class 6F1, 6F2, 6F4 or 6F5.

Backfill in proposed soft landscaped areas shall be Class 4 to Table 6/1.

BOND COATS, TACK COATS AND OTHER BITUMINOUS SPRAYS **APPENDIX 7/4**

Location: On existing bituminous surfaces to be overlaid with new bituminous materials and new bitumen surfaces laid for over 8 hours or that have been trafficked before overlaying on exposed edges of new and existing concrete pavements which will comprise Type C joint.

Type of Binder: Bitumen emulsion to BS 434, Part 1.

Binder Grade: K1-40

Rate of Spread: 0.5 l/m^2.

KERBS, FOOTWAYS AND PAVED AREAS **APPENDIX 11/1**

1. All precast concrete kerbs, channels, edging, and quadrants shall be in accordance with clause 1101 of Specification of Highway Works.

FLEXIBLE FOOTWAY CONSTRUCTION

	Clause	Material	Grade of Binder	Thickness (mm)	Special Requirements
Surface Course	909	Dense Macadam	125 Pen Bit	20	BS 4987
Binder	903	Dense Macadam	125 Pen Bit	50	BS 4987 Part 1
Sub- base	803	Granular Sub-base Type 1	N/A	150	
		Total Pavement Thickness		*220 **	* assuming CBR>5% at formation

TRAFFIC SIGNS **APPENDIX 12/1**

1. Bollards foundations are to be as per the manufacturers' installation instructions.

2. All bollards shall be located a minimum of 500mm from the nearest adjacent kerb face.

3. Traffic signs are to be as per the manufacturer's installation instructions.

4. All traffic sign face edges shall be located a minimum of 500mm from the nearest adjacent kerb face.

TRAFFIC SIGNS – ROAD MARKINGS **APPENDIX 12/3**

1. Material for permanent road markings shall be thermoplastic with reflectorisation.

2. Application shall be by spray, screed or extrusion methods.

3. A tack coat/primer shall be applied under the road marking on concrete surface slabs and, where directed by the Project Manager, on existing road surfaces. The tack coat shall comply with the requirements of Appendix 7/4.

4. All road markings to be thermoplastic material complying with BS3636 class A. The specified average texture depth of the marks to be a minimum of 1.5mm thick. The maximum texture depth shall be 5.0mm. All road markings to be white unless noted otherwise.

5. All road markings are to be in accordance with Traffic Signs Manual Chapter 5 (Road Markings) and the Traffic Signs Regulations and General Directions 2016 and the Traffic Signs (Amendment) (No. 2) Regulations and General Directions 2011.

APPENDIX 13 AND 14 SERIES (STREET LIGHTING)

Refer to the Electrical Specification for requirements.

MORTAR REQUIREMENTS APPENDIX 26/70

Cement for mortar

a) All cement shall be from an approved BSI Kitemark source.
b) Portland Cement shall comply with the requirements of BSEN 197 Part 1
c) Sulphate Resisting Portland Cement shall comply with BS 4027.

Cement storage

d) All the cement shall be delivered to the site in the original sealed bags of the manufacturer and stored off the floor in a dry, weatherproof container.
e) Any cement that shall become adversely affected by damp, or other causes, shall at once be removed from the site.

Each consignment of cement shall be kept separate, identified and used in order of delivery.

Building sand

f) Building sand shall comply with BS 1200.

Cement mortar

g) Cement mortar for brickwork or bedding ironwork shall consist of one part by volume of Portland Cement to three parts by volume of clean building sand.
h) Cement mortar for kerb, channel and flag bedding shall be semi-dry one part by volume of Portland Cement to three parts by volume of concreting sand.
i) Site batched mortar shall be mixed thoroughly using a concrete mixer on site until of uniform colour and shall not be re-mixed or used after a period of 1 hour has elapsed since mixing.

Cement grout

j) Cement grout shall consist of one part by volume of cement to 11/2 parts by volume of water and shall be used within 1 hour of mixing.
k) Special mortars for bedding ironwork
l) The use of cement mortar to Clause 7.4 for bedding ironwork is only acceptable where the mortar will remain undisturbed until it has achieved adequate strength (7 days) before further works around it proceeds. In all situations where follow up works, such as surfacing or trafficking, will take place within 7 days of the installation of the ironwork then the cement mortar shall be substituted for a fast setting mortar or polyester resin mortar. Special mortars shall be used in accordance with the manufacturer's recommendations.

Bitmac repair compounds

m) The use of hot applied bitumen macadam for small patch repairs will not be permitted where there is a significant risk of a poor finished surface with poor anticipated durability. Small patch repairs shall be carried out using a cold lay surfacing macadam designed for permanent first time reinstatements and will provide a hard dense

surface. Special macadams shall be used in accordance with the manufacturer's recommendations.

Appendix C - Ground Investigation Reports (Various)

Manchester Airport Building 402

Phase 1 Tier 1 Geo-environmental and geotechnical Assessment

Threadneedle Curtis Ltd

Project number: 60663052
60663052-ACM-402-XX-RP-G-00001
7 February 2022

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Quality information

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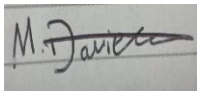			
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Revision History

Revision	Revision date	Details	Authorized	Name	Position
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1. Introduction

1.1 Terms of Appointment

On the instructions of Threadneedle Curtis Ltd (the Client), AECOM Infrastructure and Environment UK Limited (AECOM) has carried out a Phase 1 Geotechnical and Geo-environmental Desk Study of the site known as Building 402, associated with and located at Manchester Airport.

1.1.1 Background and Proposed Development

The report has been produced on the assumption that the site redevelopment will consist of a single large warehouse unit, which will primarily be used for logistics and distribution purposes. The single warehouse unit will comprise of 4 sub-units, each unit will be self-contained with approximately 10% of the floor space being used as offices.

Unit 2a will have an area of c.37,000 ft2, Unit 2b and Unit 2c will both have an area of c.16,000 ft2 and Unit 2d will have an area of c.21,000 ft2. These areas include the office space on the 1st floor. Hardstanding areas associated with the units are to be implemented within the south east of the site. These will comprise loading areas for HGVs and parking bays for both cars and HGVs. Access will be provided via a new access road from Avro Way which forms part of the redevelopment on the site adjacent to the south east boundary (occupied by Building 401). On the south west perimeter of the site, landscaping is to be undertaken, following the removal of vegetation.

It should be noted that although the ultimate development form stretches over 2 sites (currently occupied by Building 401, 402) the proposed developments detailed here only relate to the Building 402 site and proposed units 2a, 2b,2c and 2d for which this Desk Study has been produced.

The proposed development is depicted by drawing 020598-RPS-SI-XX-DR-A-9076 P01 (Option 10) (Proposed Overall Site Plan Option 10) is included as Appendix A

The development of the site is anticipated to require the following stages:

- Demolition of the existing building 402 on the site;
- Site earthworks, including excavation levelling and landscaping for external areas;
- Potential localised remediation of soils;
- Installation of services and site drainage; and
- Construction of the new building and associated infrastructure.

AECOM are privy to a number of existing reports with relevant geo-environmental information pertaining to the vicinity of the site. These include:

- Project Quantum Report No: MAN-19 60592411,– High level desk study and walkover (AECOM 2019);
- Manchester Airport, Proposed DNATA Site: Geotechnical & Geo-environmental Technical note on Ground Investigation (AECOM, January 2019);
- and
- Manchester Airport Bus Deport Relocation, Wilmslow: Factual Report on Ground Investigation Report No: F6042-16, (ESG, February 2017)

1.2 Report Objectives

The primary objectives of this report are to:

- determine whether potentially contaminative uses have taken place within, or in close proximity to, the site which could have led to the contamination of underlying soils or groundwater; and
- to understand the effects of the geological conditions and site activities on the geotechnical properties for site redevelopment.

This Phase 1 Tier 1 report is prepared to advise on site conditions under the requirements of Town and Country Planning Act 1990 (as amended), the National Planning Policy Framework (2012) and considers the potential implications of Part 2A of the Environmental Protection Act 1990 (Part 2A) and the associated Contaminated Land (England) Regulations 2006 and Contaminated Land Statutory Guidance (2012).

This report has been prepared in general accordance with the technical guidance and procedures described in the UK Government guidance Land Contamination: Risk Management (2021) and its predecessor, British Standard (BS) 5930:2015 (as amended) Code of Practice for Site Investigations (BSI), BS:EN 1997 Eurocode 7 – Geotechnical Design (BSI) and BS 10175:2011 (as amended) Investigation of Potentially Contaminated Sites – Code of Practice (BSI), to:

- Describe the geology, hydrogeology and shallow mining potential;

  Describe the environmental setting/ sensitivity and current/ historical land use of the site and surrounding area;
- Summarise the history of the site;
- Summarise the underlying geology and hydrogeology;
- Summarise the findings of any historical ground investigation work;
- Provide an initial Conceptual Site Model (CSM) for the prevailing ground conditions;
- Using the source-pathway-receptor model present a preliminary qualitative risk assessment of potential land contamination risks to human (chronic), environmental, or controlled water receptors from contamination sources on or in the vicinity of the site, via transport pathways;
- Present a preliminary qualitative evaluation of potential geotechnical issues; and
- Identify the potential need for further intrusive ground investigation and potential need for remediation works. The purpose of such to substantiate the findings of the preliminary risk assessment and thereby refine the CSM.

1.3 Sources of Information

This report has been prepared using a combination of published records from publicly available sources (e.g. British Geological Survey (BGS), Environment Agency, Defra). As part of this assessment a site-specific Groundsure Report has been acquired, including published environmental, geological and hydrogeological data and mapping, and historical mapping for the area.

In addition, information provided by the Client, and from other sources such as the previous reports at or in the vicinity of the site as noted in Section 5, the Local Authority Environmental Health / Contaminated Land Officer, and observations made during the site reconnaissance have also been reviewed where available.

Specific information sources are referenced throughout the document and a bibliography is included in Section 14 of the report.

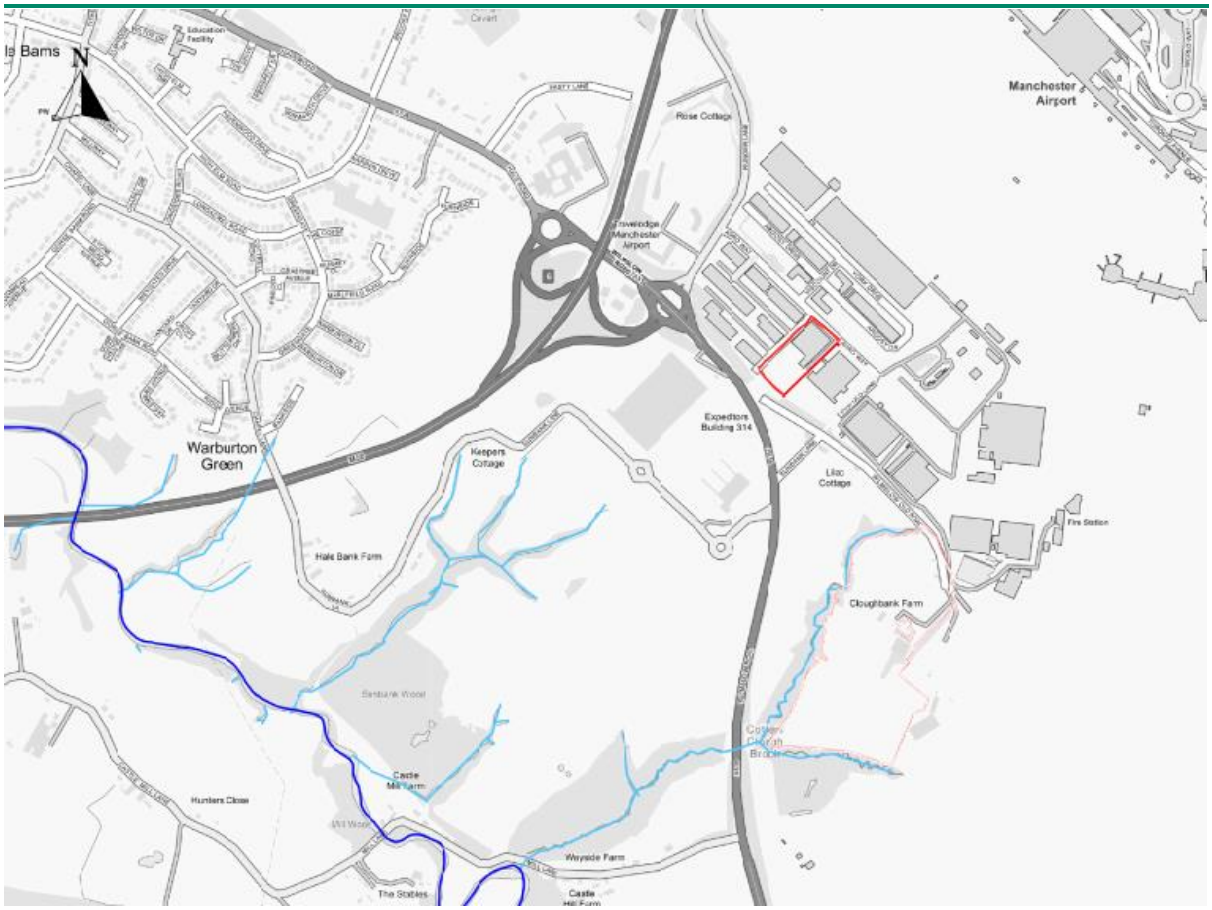
2. Site Setting

2.1 Location

The site is located at 402 Avro Way, Manchester (M90 5AF), approximately 100m northwest of the junction of Avro Way and Pinfold Lane and is centred on National Grid Reference 380839 384912. The site is within Manchester Airport's landside western commercial and industrial development c.14km south of Manchester City Centre.

A site location plan is provided as **Plate 2-1** below.

Plate 2-1 Site Location



Site Location (red)

2.2 Description and Setting

The site covers an area of approximately 1.59 hectares and the drawing which defines the site red line boundary and overlays the proposed end is provided as 020598-RPS-SI-XX-DR-A-9076 P01 (Option 10) 020598-RPS-SE-XX -DR-A-9074 P01 (Proposed Overall Site Plan Option 0910)is included as Appendix A.

The site is broadly rectangular in shape orientated northeast to southwest and is predominantly level with ground elevations ranging from c.68m Above Ordnance Datum (AOD) to c.69mAOD.

A large area of the site (~0.4 Ha.) is occupied by the current Manchester Airport Group (MAG) Building 402. This building is currently being used by 'LSG SkyChefs', who utilise the premises for food preparation and logistics/ distribution operations with supporting office space.

Lorry access and loading bays are present on the southwest side of the building with a lorry parking area. Notably this area contains a refuelling area with associated tank. A tarmac hard standing carpark occupies the

southwest area of the site. An electrical substation is located adjacent to the south eastern site boundary, on the south eastern perimeter of the site.

Immediately adjacent to the northern and western site boundaries is a grass verge with some vegetation, denser on the western perimeter. Immediately adjacent south of the site lies dense woodland. Beyond the verge to the north of the site is Avro Way, immediately east of the site a joint access road for Building 402 and Building 401 is found, beyond which MAG Building 401 sits derelict. To the west another access road with commercial and industrial units beyond.

Relevant features immediately surrounding the site are summarised in Table 2.1.

Table 2.2.1. Features Surrounding the Site

Direction	Summary
North East	Immediately adjacent to the site is a grass verge which gently rises to Avro Way. Beyond the road is car parking for a series of offices to the north of the site. Further from the site is a large warehouse building, which oversees the transfer from land to airside of goods.
South East	Immediately adjacent to the site is an access road used for both access to this site and to the adjacent site (MAG 401). Beyond this road is MAG Building 401 with associated large areas for parking. MAG Building 401 is currently believed to be vacant. Although, it is understood that Building 401 was previously used by the current occupiers of Building 402. The hardstanding area associated with Building 401 is believed to be currently used as a MAG Bus Depot. Building 401 has much associated car parking areas. Beyond this is Pinfold Lane.
South West	Dense woodland lies immediately adjacent to the site, beyond which is a narrow dead-ended road named Wilmslow Old Road, which allows access to the 'Romper' public house. Beyond this the A538 wraps around large warehouse buildings further southwest from the site.
North West	Immediately adjacent to the site is an access road, shared between Building 402 and other MAG buildings. These other MAG buildings beyond the access road are presumed to be used for office space, warehouse space, distribution and logistical operations. Numerous hardstanding areas are associated with structures including access roads, parking and loading bays. Some warehouses contain hazardous materials.

3. Geological and Environmental Setting

3.1 Introduction

The environmental setting including the topography, geology, hydrogeology and hydrology are the key factors that influence the way in which contaminants in the soil or groundwater can be transported on or off site, and also the way in which contamination can affect applicable receptors including controlled waters and users of the site.

The environmental setting of the Site has been assessed by making reference to the information sources detailed in Section 14.

3.2 Geology and Soils

3.2.1 Published Geology & Exploratory Hole Records

AECOM has reviewed publicly available information. The published 1:50,000 and 1:63,000 geological maps of the area produced by the BGS (Sheet 98, Stockport, Drift, 1971 and Sheet 98, Stockport, Solid, 1977) and reference to the GeoIndex online mapping portal. These indicate the site is underlain by the geological succession summarised in Table 3.1.

The 1:10,000 map extracts included in the Groundsure Report have also been considered. Extracts of the superficial deposit and bedrock maps are included as part of the Groundsure Geo-Insight Report (Appendix B).

Table 3.3.1. Geological Succession from Published Mapping

Age	Group	Geological Stratum	Stratum	Description
Quaternary - Devensian	N/A	Diamicton Till	Superficial Deposits*	A wide range of deposits and geomorphologies associated with glacial and inter-glacial periods during the Quaternary.
Triassic	Sidmouth Mudstone Formation	Bolin Mudstone Member	Bedrock	Upper: laminated reddish-brown and greenish-grey mudstone with siltstones. Lower: structureless and laminated, dominantly reddish-brown mudstone. (Within the lower part of the member, a unit termed the 'Lower Keuper Sandstone' has been recognised in the Stockport area. This unit closely resembles the Tarporley Siltstone Formation of adjacent areas.)

**While anticipated due to the developed nature of the site, no artificial deposits are recorded on the geological mapping*

Source: bgs.ac.uk (BGS Lexicon of Named Rock Units)

The BGS maintains an archive of historical exploratory hole records throughout the UK. AECOM has searched the database and those which are considered to provide useful information on the ground profile at the site, have been referenced in producing this report. The extract below shows those boreholes recorded by the BGS around the site area. The black boreholes are not publicly available, leaving 8 no. boreholes located within 100m of the site which may be publicly available. Of these only 3 have online records which are freely available (SJ88SW235, SJ88SW236 and SJ88SW237). Plate 3-1 shows the locations of the boreholes from BGS Geoindex.

Presented in Table 3.2 is a summary of these boreholes, with full copies of the exploratory hole records included as Appendix C. Relevant information from the records is considered as part of the Preliminary Ground Model in Section 8.

Plate 3-1 Screenshot of relevant exploratory hole locations from BGS GeoIndex Viewer, Site shown by red line boundary

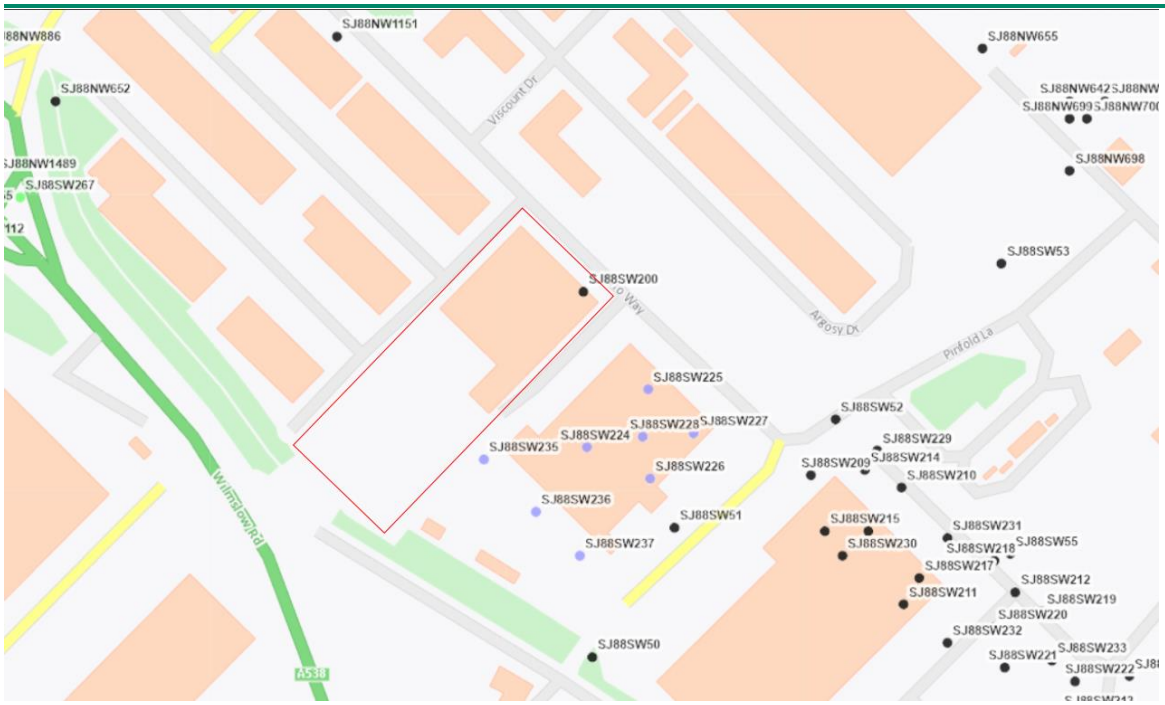


Table 3.2 Geological Succession from BGS Borehole Logs

Borehole	Made Ground mbgl (Thickness m)	Description	Superficial Deposits mbgl (Thickness m)	Description Summary
SJ88SW235 (BH6)	0.60 (0.60)	Soft medium brown CLAY with stones and broken tarmac.	4.00 (3.40)	Very soft becoming stiff with depth, mottled brown and grey CLAY.
SJ88SW236 (BH7)	1.20 (1.20)	Loose concrete, brick, stone, tarmac and CLAY over reinforced concrete below which is hardcore fill (possibly old runway).	4.00 (2.80)	Firm to stiff, dark reddish brown slightly marly CLAY.
SJ88SW237 (BH8)	0.70 (0.70)	Soft to firm dark brown and black silty CLAY.	4.00 (3.30)	Firm to stiff mottled brown and grey CLAY becoming stiff and marly at 1.3mbgl.

Note: mbgl = metres below ground level.

3.2.2 Soils and Soil Chemistry

Information obtained from Soilscapes online mapping[1] describes the soils within the vicinity of the site as slowly permeable, seasonally wet, slightly acid but base-rich, loamy and clayey soils (Soilscapes Classification 18). These soils have impeded drainage, draining typically to stream networks, and have moderate fertility.

[1] (http://www.landis.org.uk/soilscapes/: Accessed 07/02/2022)

Natural England reports the Agricultural Land Use Classification for land in England. Information obtained from the Natural England[2] reports the Agricultural Land Use Classification to be good to moderate (Grade 3).

However, it is noted that the location of the site lies within the footprint of Manchester Airport and its associated infrastructure. The site and surrounding area are predominantly given over to industrial use. As such, it is considered that the ground conditions at the site are unlikely to relate to the soils and agricultural land classifications of the wider area as noted above.

The BGS Soil Chemistry datasets provide indicative information on regional concentrations of five potentially harmful elements (PHEs): arsenic (As), cadmium (Cd), chromium (Cr), nickel (Ni) and lead (Pb) in soil, as presented within the Groundsure Report. Elevated concentrations of these PHEs can exist because of natural geological conditions or possible anthropogenic contamination. The following BGS estimated soil chemistry levels are attributed to the vicinity of the site based on the geometric mean concentrations of available data (presented in Table 3.3).

Table 3.3 Estimated Soil chemistry

Potentially Harmful Element	Estimated geometric mean concentration (mg/kg)
Arsenic	15
Cadmium	1.8
Chromium	60-90
Lead	100
Nickel	15

3.2.3 Ground Stability Records

Table 3.4 shows the variable risk of ground stability hazards across the site, taken from the Groundsure report:

Table 3.4 Ground Stability Records

Hazard Type	Hazard Potential
Collapsible Ground Stability	Deposits with potential to collapse when loaded and saturated are unlikely to be present.
Compressible Ground Stability	Compressible strata are not thought to be present
Ground Dissolution Stability	Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.
Landslide Ground Stability	Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.
Running Sand Ground Stability	Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.
Shrinking or Swelling Clay Ground Stability	Ground conditions predominantly low plasticity.

3.2.4 Mining and Mineral Extraction

3.2.4.1 Aggregate/Mineral Quarrying and Mining

The Groundsure report presents publicly available information on mining and quarrying operations, past and present that have taken place within 250m of the site.

The Groundsure report checks databases held by The British Geological Survey, The Coal Authority, Mining Searches UK, Kaolin and Ball Clay Association (UK), Stantec UK Ltd, Johnson Poole and Bloomer, Cheshire

[2] website (https://naturalengland-defra.opendata.arcgis.com/datasets/provisional-agricultural-land-classification-alc-england/explore?location=53.363392%2C-2.288148%2C18.00 : Accessed 07/02/2022)

Brine Subsidence Compensation Board and British Gypsum; as well as records of surface and ground workings identified from Ordnance Survey and Groundsure mapping.

Of those databases and mapping only one entry is noted within 250m of the site. A surface ground working named as a ‘pond’ was noted 200m East of the site located within the area of landscaping at the southern side of Pinfold Lane within the area of the large airport fuel depot.

The Groundsure data identifies no other features within 250m of the site. Within 250m to 500m from the site the only features recorded relate to other small surface ground workings.

3.2.4.2 Coal Mining

Reference to the Coal Authority Interactive Map indicates the following in relation to the site:

- The site is within a surface coal resource area;
- Areas of known probable past shallow coal mine workings are not indicated at the site;
- The site is not within a High-Risk Development Area; and
- There are no mine entries on or within 1km of the site.

Surface Coal Resource Areas are defined as coal resources capable of being extracted by surface mining methods, often referred to as ‘opencast’. This information is used by Local Planning Authorities as part of the duty to safeguard minerals from unnecessary sterilisation and is derived from Coal Authority and British Geological Survey data.

It should be noted that Surface Coal Resource Area is very broad, covering the Liverpool and Greater Manchester Area, and extending as far south as Birmingham. With no surface features recorded in the site vicinity relating to open cast coal mining and as the site is not within a 'High Risk Development Area’ for coal mining, a site-specific Coal Mining Risk Assessment is not recommended at this stage. However, this would be subject to review dependent upon any future ground investigation data.

3.2.4.3 Instability from Salt and Brine Extraction

The Project area is located within an area defined as the Cheshire Brine Compensation District. Potential ground instability as a result of historical brine pumping is considered unlikely at the site because:

- The site is not underlain by the Northwich Halite Member (the soluble strata from which brine was formerly extracted) located approximately 2.5km south of the site; and
- The site is not located within the consultation areas for where historical brine extraction is understood to have taken place as defined by the Cheshire Brine Subsidence Compensation Board Compensation District & Consultation Areas[3].

3.2.5 Radon

The Groundsure report indicates that the site is not within a radon affected area. The site is identified as having less than 1% of properties above the UK ‘Action Level’. This classification identifies no specific radon protective measures are likely to be considered necessary for the proposed development.

3.3 Hydrogeology

3.3.1 Aquifer Classification

The Environment Agency’s Groundwater Protection Policy adopts aquifer designations that are consistent with the Water Framework Directive. Definitions of the various aquifer types can be found on the Environment Agency section of the gov.uk website. The following classifications are taken from this system:

3.3.2 Superficial Aquifers

The Devensian Glacial Till is classified as a Secondary Undifferentiated Aquifer. These designations are described by the EA as being ‘assigned in cases where it has not been possible to attribute either category A or B

[3] Availiable at: http://www.cheshirebrine.com/wp-content/uploads/2018/05/Cheshire-Brine-Subsidence-Compensation-Board-Compensation-District-and-Consultation-Areas.pdf

to a rock type. In most cases, this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type'.

3.3.3 Bedrock Aquifers

The Bollin Mudstone Member is classified as a Secondary B Aquifer. These are described by the EA as 'predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers'.

3.3.4 Groundwater Vulnerability

The Environment Agency's Groundwater Vulnerability Mapping available from the online Defra Magic Mapping (magic.defra.gov.uk) identifies the groundwater vulnerability to pollution of an area. All associated terminology/definitions can be found on the Environment Agency section of the gov.uk website.

The Magic Mapping shows the site and surrounding area to have a 'medium to low' classification for groundwater vulnerability. However, the Groundsure Report (Source: British Geological Survey and the Environment Agency) breaks this down by aquifer; and identifies both the superficial and bedrock aquifers to be of low vulnerability.

It is probable therefore that the soils and Devensian Glacial deposits are able to attenuate vertical migration of pollutants to the deeper Secondary B Aquifer consisting of the Bollin Mudstone Member.

3.3.5 Source Protection Zones

In terms of identifying the risk of contamination from potential polluting activities in a given area to groundwater sources (e.g. wells, boreholes, and springs) used for supplying public drinking water, the EA identifies Source Protection Zones (SPZ).

These show the extent of a groundwater source catchment and are divided into three zones, definitions of which can be found on the Environment Agency section of the gov.uk website.

The mapping produced by the EA and supplied both within the Groundsure report and EA mapping from Magic Maps, indicates that the site is not within a SPZ.

The nearest SPZ is c.6.5km south east of site. The EA mapping from Magic Maps also identifies that the site is not within a Drinking Water Safeguard Zone for either surface water or groundwater.

3.3.6 Licensed Groundwater Abstractions

No Licensed Groundwater Abstractions have been identified within 2km of the site.

AECOM has contacted the local authority (Greater Manchester City Council Council) for details of private water supplies and ground water abstractions. According to their records there are no abstractions registered under the Private Water Supply Regulations within 500m of the site.

Records of the correspondence are included as Appendix D.

3.3.7 Risk of Flooding from Groundwater

The Groundsure Report identifies that the risk of flooding from Groundwater both onsite and within 50m are considered to be 'Low' based upon a 1 in 100-year return period and a 5m Digital Terrain Model (DTM).

The Low risk identified is considered to present a limited potential for groundwater flooding to occur at the site.

3.4 Hydrology

3.4.1 Surface Water Courses and Drainage

There are no ponds, streams, or drainage ditches on or adjacent to the site. The site is however understood to be included within Manchester Airports drainage and fire management systems.

The site lies close to the boundary of two Water Framework Directive (WFD) surface water body catchments. To the northeast of this boundary, including the site area, is within the catchment of Timperley Brook. To the southwest of this boundary the area is within the River Bollin (River Dean to Ashley Mill) catchment.

The nearest Water Framework Directive-relevant surface watercourse/feature to the site is the River Bollin, which is approximately 1150m southwest of the site. Although, it should be noted that Cotterill Clough Brook is located approximately 350m southeast of the site and flows in a south-westerly direction into the River Bollin. It is significant to note that Cotterill Clough is designated as a Special Site of Scientific Interest.

Table 3.5 summarises the surface water quality information available for the watercourses of the two catchments associated with the site.

Table 3.5 Surface Water Quality

Surface Water Feature	GQA (Chemical)	GQA (Ecological)	Distance (m)	Upstream / Downstream of Site
Bollin (River Dean to Ashley Mill)/ Cotterill Clough Brook	Fail	Moderate	1150m SW/ 350m SE	Downstream
Timperley Brook	Fail	Moderate	2236m NW	Downstream

It should be noted, as above, that the site is understood to be included within Manchester Airports drainage system and fire management areas. As such, it is unlikely that in its current state the surface waters of the site would be in connection to the nearby water courses. In this area it is understood that the drainage waters from the airport pass through a monitoring and filtration system before being outlet ultimately to the River Bollin.

3.4.2 Licensed Surface Water Abstractions

No surface water abstractions have been identified within 1km of the site.

AECOM has contacted the local authority (Greater Manchester City Council Council) for details of private water supplies and ground water abstractions. As of the time of writing this report no response has been received for records held by the local council.

Records of the correspondence are included as Appendix D.

3.4.3 Risk of Flooding from Surface Water

The indicative floodplain map for the area, published by the Environment Agency and included within the Groundsure report, shows that the site does not lie
within a Flood Zone. Therefore, the site is not considered to be susceptible to fluvial/marine flooding.

The Groundsure Report presents surface water flood mapping which highlights the highest risk onsite is a 1 in 30 year risk of 0.1m-0.3m flooding. The area with this designation is focused on a small area towards the northeast of Building 402, possibly associated with the basement.

Based on the Groundsure Report and EA mapping, the site is considered not to be at risk of significant and extensive surface water flooding as a result of extreme rainfall events.

Further assessment on risk of surface water flooding and the proposed drainage for the development which will mitigate risk is to be found within the following reports which should be read in conjunction with this report:

- AECOM (2022), Building 402 Redevelopment, Level 2 Flood Risk Assessment; and
- AECOM (2022), Building 402 Drainage Strategy.

4. Historical & Planned Development

4.1 Historical Ordnance Survey Mapping & Aerial Photographs

Historical Ordnance Survey (OS) maps of the Site and the wider environs were provided in the Groundsure Report (scales 1:1,250, 1:2,500, 1:10,560 and 1:10,000) and these are reviewed in this section. Copies of these maps are presented within the Groundsure Report included as Appendix B. Reference has also been made to historical aerial imagery available via Google Earth Pro and the Groundsure Report.

The historical Ordnance Survey (OS) maps obtained with the Groundsure report date between 1877 and 2022.

Table 4.1 presents a summary of the main features present on and within approximately 250m radius of the Site boundary. AECOM notes that only indicative map scales are provided. Where dates are stated, these refer to the dates of maps on which the features are present, have changed use or are no longer annotated, and do not necessarily refer to the exact dates of existence of a particular feature. Development that may have occurred between map editions is recorded as occurring on the latter published map, hence there are some limitations to the accuracy to the date of development unless supplementary evidence is available. This is particularly pertinent to the interwar years and the site where development and activity related to Royal Airforce and other military operations is not shown.

Table 4.1 Summary of Historical Mapping

Date (Scale)	Key Features on-site	Key Features off site within 250m
1877 (1:2,500)	• Partial map only covers northeast area of the site. • The northeast area of the site is undeveloped and assumed to be used for agricultural purposes. • A small track (footpath) runs through the site in a northeast to southwest direction.	• Limited coverage, coverage confined to the land northeast of the site. • A road is present (Yewtree Lane), lined by trees c.175m northeast of the site, with a northwest to southeast trend. • Some small buildings present c. 220m northeast of the site. • Land northeast of the site is assumed to be agricultural with field boundaries and paths/tracks. • Pond c.230m NE of the site.
1881 (1:2,500)	• The NE area of the site is absent from the map. • The rest of the site is assumed to be agricultural land, with a track striking NE-SW through the site. The track appears to connect more substantial roads at each end of the site (off-site). • Site appears to be cut into three similar sized segments by field boundaries running NW to SE.	• NE land beyond the site is absent from mapping. • Land use predominantly agricultural with associated field boundaries and tracks/ paths. • Ponds are noted; c.100m NW, c. 120m SE, c.130m S, c. 180m S, c.80m SW, c. 150m SW. • The track on-site meets a road running past the south western boundary of the site. This road meets Pinfold Lane at a crossroads c.120m SE of the site. • The Red Lion Inn (Rompers) and the All Saints' Church are in the same position as they are currently (c.130m SE of site). • A smithy is noted attached to the inn. • Oak Farm located 120m west of the site. • A large pond associated with the 'Grange' is c.220m east of the site.
1898 (1:2,500)	• Southernmost field boundary is no longer present.	• Square pond/ reservoir associated with Oak Farm. • Pond c.100m NW, pond c.120m SE of site no longer present.
1899 (1:10,560)	• No notable change.	• No notable change.
1909 (1:2,500)	• No notable change. • Apart from the track now being described as a footpath through site.	• Pond c.100m NW reappeared. • Pond c.80m SW has been removed.
1910 (1:10,560)	• No notable change.	• No notable change.
1935 (1:2,500)	• Partial map doesn't cover the site	• Map only covers the western area off-site. • No notable change in this area.
1938 (10,560)	• No notable change.	• No notable change
1954 (1:10,560)	• Majority of the site is occupied by a series of looped hardstanding areas associated with the Ringway Airport	• The smith is now absent. • The pond c.180m S of the site has gone.

Date (Scale)	Key Features on-site	Key Features off site within 250m
	(Manchester Airport). Likely used for taxing aircraft.	• The road adjacent to the SW border of the site has been named 'A538, Wilmslow Road'. • Two hangars associated with Ringway (Manchester) Airport are now identified c. 150m SE of the site.
1967 (1:10,560)	• Partial map does not cover site.	• Partial map, although no visible changes.
1968 (1:1.250)	• No notable change.	• Ringway Airport now referred to as Manchester Airport • Peters Croft appeared next to the church around 120m SE of the site. • V.H.F Receiver Station appeared c.110m west of the site. • Ponds c.100m NW and c.120m SE been removed. • Tank installed next to one of the hangars c.175m SE of site. • Expansion of Oak Farm
1969 (1:2,500)	• No notable change.	• Pond c.200m SW of site. • Lilac Cottage built c.240m SE of site.
1974 (1:1,250)	• No notable change.	• Partial map, although no notable changes detected.
1981 (1:10,000)	• No notable change.	• Wilmslow Road is now Wilmslow Old Road. • A new larger Wilmslow Road now curves past the site c.10m west, running N to S. • The new Wilmslow Road meets a roundabout c.250m west of the site, where the M56 is joined. • The pond associated with the 'Grange' NE of the site is absent. •
1987 (1:1,250)	• No notable changes.	• Building appears present immediately adjacent SE of the site (where Building 401 currently resides). • The building has lorry entrances and access roads, along with associated hardstanding. • Cargo Centre is now present c.20m NE of the site, associated warehouses, and hardstanding areas. • The Cargo Centre extends to the NW where the buildings which are now along Argosy Drive have been built. • Avro Way has appeared immediately adjacent to the NE of the site boundary. • Elongated building added to one of the hangars. • Two ponds associated with the wireless station present c.100m NW of the site. • Tank and Electric substation associated with the Cargo Centre c.90/100m NE of the site. • Electrical substation is noted c.50m SE of the site, associated with large Building.
1990 (1:10,000)	• No notable changes.	• No notable changes. • Except the roads c.100m NW of the site, associated with the Cargo Centre have been named; Argosy Drive and Viscount Drive.
1992 (1:1,250)	• No notable changes.	• No notable changes.
1995 (1:1,250) 1995 (1:10,000)	• Building 402 is now present with associated infrastructure including hardstanding in the SW portion of the site and associated access roads. • An electrical substation is present on site.	• Embankment is present along Wilmslow Road • Building immediately adjacent SE of the site has been extended to the SW and NW. • Substation c.50m SE of site no longer noted. • Site (Building 401) adjacent to the SE of the site is broadly the same as is at present. • Office building present c.90m north of site.
2001 (1:10,000)	• No notable changes.	• Wireless station c.100m NW absent and associated ponds absent. • Three large buildings appeared to the NW of the site, used for logistics, distribution and office space presumably. • One of the Hangars to the East of the site is no longer present.

Date (Scale)	Key Features on-site	Key Features off site within 250m
2003 (1:1,250)	• No notable changes.	• C.80m NW of the site a tank is situated.
2010 (1:10,000)	• Building 402 has been extended to the SW.	• C.250m SE of the site where the hangar was since reported as absent, a carpark has been installed. • More warehouse buildings have appeared c.200m NW of the site.
2022 (1:10,000)	• Building 402 has been further extended NE.	• Hangars no longer present to the SE of the site. • Oak Farm is no longer present. Two very large warehouses replace this with associated roads and parking.
Aerial Photography 2000 to 2021	• Fuel tank present in the hardstanding area SW of Building 402. • Between 2005 and 2010 the hardstanding car park furthest SW on site was extended to incorporate the whole width of the site. • No other notable differences.	• From 2019 the site which previously housed the hangars is being used as a very large hardstanding carpark. • 2013 to 2016 a large hardstanding carpark was introduced c.220m S of the site, just south of the Church.

4.2 Planning Authority Records

Planning Reference 131892/FO/2021 on the Manchester City Planning Portal relates to the planning submission for development of Building 401. Information from the desk study related to this site is summarised in this report in Section 5.

Online planning application records on the Manchester City Council Website are available to the public. Those planning applications within 250m of the site are solely for the development of the World Logistics Hub, including specific applications for a number of the large warehouse buildings and general applications for the wider development.

It should be noted that a portion of Manchester Airports developments are considered permitted development and as such do not necessarily require planning applications with the council and therefore would not be recorded in this register.

4.3 Records from MAG

AECOM reviewed Manchester Airport Groups ‘Our History’ page on their website (A summary of findings that may relate to the Building 402 site are summarised in Table 4.2 below.

Table 4.2 MAG Records

Date	Details of Development
1935	Building of Ringway Airport, now known as Manchester Airport
1938	Ringway Airport opens
1939-1945	Ringway Airport becomes an engineering hub for military aircraft in WW2. Troops trained on the site.
1969	Runway extended to 2745m.
1986	World Freight Terminal opens.

4.4 Unexploded Ordnance Risk

4.4.1 Wartime Land-use

Based on a review of historical maps, the site was located within part of what was later Manchester Airport during wartime Britain. The site was occupied by aircraft storage and hard standing attached to the runway and taxiing layout at the time. According to the Project Quantum Report MAN-18 the site was thought to be used for storage of RAF aircraft during the war.

It should be noted that Ringway Airport became a military engineering hub for aircraft during WW2 and troops were trained at the airport.

The site was located near to wartime sites of interest, which include military bases, ports, or industrial centres, notably the airport and as such a risk of potential unexploded ordnance (UXO) is considered to be present.

4.4.2 Post War Development

No immediate redevelopment within the area is noted in the post-war years, which could potentially indicate redevelopment as a consequence of bomb damage.

4.4.3 Unexploded Ordnance Mapping

The regional UXO mapping published by Zetica (Appendix D) shows that the site lies within a zone classified as having a low risk of UXO. In areas with a low risk of UXO, it is estimated that 15 bombs failed to explode within an area of 1,000 acres.

However, the site is within the vicinity of Manchester Airport with a Luftwaffe Target noted c.250m SE of the site which appears to be associated with historical airport buildings which are understood to have manufactured planes.

In addition, it is understood from the historic mapping that the site was used as a taxiing and storage area for aircraft around wartime in Britain, these aircraft were likely for military use.

Based on the findings of this initial assessment, AECOM recommends that a detailed UXO Assessment is undertaken prior to the commencement of any intrusive investigation.

5. Review of Historical Reports

5.1 ESG Factual Report on Ground Investigation (Feb 2017)

The 2017 ESG factual report produced for BAM construction summarises a ground investigation undertaken by Jacobs in June 2016.

The ground investigation comprised three concrete cores (CC1-CC3), four window sample boreholes (WS1-WS4) and three dynamic cone probes (DCP1-DCP3).

The borehole logs for the window samples indicated a Made Ground thickness of 0.8-1.0mbgl typically comprising 0.1m of macadam over orange/ brown Sand to 0.7mbgl in WS1 and WS2, over reworked Clay to 1.0m. WS3 and WS4 identified a thinner sand layer underlain by a black ashy gravel over the reworked clays extending to 0.8mbgl. WS4 also noted a type 1 sub-base style gravel below the macadam.

All four locations encountered Glacial Till below the Made Ground extending to the base of the boreholes at a maximum of 4.45mbgl. The Glacial Till comprised orangish brown CLAY described as firm to stiff, increasing in stiffness with depth. WS3 noted no recovery and a light brown sand between 3.8mbgl and 4.2mbgl. Thin sand bands of less than 5cm were also noted in the CLAY above.

Three boreholes drilled to 4mbgl encountered groundwater which rose to depths between 3.9mbgl and 3.4mbgl. Some limited waters and seepage were noted at around 1mbgl within the Made Ground.

DCP and Concrete cores identified concrete up to a thickness of 0.35m. It should be noted that based on BGS borehole and anecdotal evidence, it is considered likely that the original aircraft taxi and storage hard standing is present below the current hard standing in some areas of the site. The potential for two layers of concrete should be factored into any further ground investigation or development.

5.2 Project Quantum Site Assessment (Feb 2019)

The overall objective of Project Quantum was to produce holistic executive summary reports for assets of the airport site. For each asset an asset fact file based upon a site walkover and workshop with MAG staff as well as publicly available data.

Building 402 was classified as asset MAN-18, for which the walkover assessment was undertaken on 03/12/2018. It should be noted that this assessment was for Building 402 only and not the current redline boundary of the site provided as part of this brief, however off-site descriptions were included which covered the current site area.

It is noted that the site contains an indoor below ground storage tank for waste food grease, storage of corrosive chemicals in boiler room and an outdoor caged area containing waste cooking oil drums for off-site disposal.

The Report notes that the workshop identified that the site was likely used for the storage of RAF aircraft during WW2.

A diesel tank is noted in the car park of the asset as a potential source of contamination. An electric substation is also noted 63m away from the asset (Building 402) but is thought to be within the current site boundary.

A gas meter and cooling unit located adjacent to the building feeds into the asset.

The report includes a preliminary risk assessment chiefly comprising a tabulated preliminary conceptual model (CM) and risk assessment. The findings of this risk assessment identified the site to be of Low Risk.

5.3 Historical Reports for DNATA Warehouse Site

The plot to the southeast of the site, beyond the MAG Building 401 site, is currently occupied by DNATA warehouse completed 2019. Prior to this the site was occupied by Hangar 3 and a storage yard which was itself previously Hangar 5. A number of reports have been undertaken on the DNATA site and surrounding area. These are briefly summarised below:

5.3.1 Arcadis Geraghty & Miller International Inc. Hangar 3 Fuelling Farm, Tier 1 Environmental Assessment Report. (June 2003)

Arcadis Geraghty & Miller International Inc., Hangar 3 Fuelling Farm, Tier 1 Environmental Assessment Report. June 2003. Report Number: 919120003.

An environmental assessment of the Hangar 3 fuelling farm consisted of an intrusive investigation and groundwater monitoring. Olfactory evidence of contamination was identified in the area surrounding the tank farm, which had no visible drainage around the fuelling area. It was reported that gas oil Tank 1 had split earlier in 2003.

Light Non-aqueous Phase Liquid (LNAPL) was encountered in BH2 between 1.0mbgl and 1.3mbgl, and was indicative of a diesel fuel source within the Made Ground. Results of the site investigation indicated that the soil had been impacted by hydrocarbons with BH2 exceeding the action level set in the report. Groundwater at BH2 was impacted by naphthalene. Contamination was reported to be localised within the Made Ground surrounding the underground storage tank (UST).

5.3.2 Scott Wilson, Hangar 5 Site Interpretive Geo-Environmental Assessment on Ground Investigation (March 2005)

Scott Wilson, Hangar 5 Site, Manchester Airport, Interpretive Geo-Environmental Assessment on Ground Investigation. March 2005. Report Number: D107899/07.1/INT/H5/01.

An intrusive investigation of the ground conditions in the vacant land directly northeast of historical Hangar 3, comprised of various trial pit locations and window samples.

The area was considered to present a moderate risk to controlled waters based on elevated concentrations of copper, sulphide, sulphate, ammoniacal nitrogen, polycyclic aromatic hydrocarbons (PAHs) and total petroleum hydrocarbons (TPH) within groundwater sampled from the superficial Glacial Till.

Ground conditions agreed with the published geology comprising of Made Ground to a maximum depth of 0.95mbgl. Superficial geology of Glacial Till was encountered to a proven depth of 3.40mbgl. Bedrock of weathered mudstone was observed from 1.90mbgl to 3.90mbgl. Perched groundwaters were encountered within the superficial Glacial Till, however consistent groundwaters were not encountered laterally across the site during the investigation.

5.3.3 OPUS International Consultants (UK) Ltd., Hangar 3 Fuelling Farm, Supplementary Environmental Investigation (Feb 2013)

OPUS International Consultants (UK) Ltd., Hangar 3 Fuelling Farm, Manchester Airport, Supplementary Environmental Investigation. February 2013. Report Number: J-W0364_R1.

An intrusive environmental investigation of the ground conditions at historical Hangar 3, to assess potential contamination within the vicinity of the UST.

The report concluded that there was significant hydrocarbon contamination within the Made Ground. Soil contamination was present within all of the exploratory wells undertaken. However, it was not present in all of the deeper groundwater samples and was therefore considered to be limited in extent to the soil contamination ‘hotspot’ surrounding the USTs.

5.3.4 URS Proposed Motor Transport Building, Geotechnical & Geo-Environmental Desk Study (Nov 2013)

URS, Manchester Airport Proposed Motor Transport Building, Geotechnical & Geo-Environmental Desk Study Report. November 2013, Report Number: 47066850/MTB/MARP007.

An investigation into the geotechnical and geo-environmental conditions for a proposed motor transport building located in the current vacant land adjacent to Hangar 3.

The report highlighted the current at the time of the report (2013) and historical environmental conditions surrounding the site and used the information to populate a conceptual site model for the proposed development. The risk for contamination of deeper groundwaters was considered likely due to the nature of the superficial geology comprising permeable layers of sand and silt. The remaining risks to construction workers, current and future land users, and development infrastructure were considered low to moderate / low.

5.3.5 USR Proposed Motor Transport Building, Geo-Environmental & Geotechnical Interpretative Report (March 2014).

URS, Manchester Airport Proposed Motor Transport Building, Geo-Environmental & Geotechnical Interpretative Report. March 2014. Report Number: 47066850/MTB/MARP002.

An interpretive report of the intrusive ground investigation for the proposed motor transport building located in the current vacant land adjacent to Hangar 3. The investigation comprised of 3 No. boreholes, 14 No. window samples and 12 No. dynamic cone penetrometer holes.

The report identified that where Made Ground was encountered, it was not considered a suitable bearing stratum for future structural foundations due to the heterogeneity of the material under a ground bearing capacity of 100kN/m2. Varying CBR values were determined for pavement design, dependant on the underlying geology and subgrade thickness. A UST and refuelling island had been identified on site, however AECOM (formally URS) de-commissioned and removed the UST and associated contaminated soils in August 2014.

Results obtained from soil analysis indicated no significant exceedances of contaminants at the site, with the exception of asbestos containing materials (ACMs), it was therefore considered that contaminants posed a low risk in terms of chronic exposure to receptors. Trace amounts of amosite and crocidolite asbestos were obtained from 2 of 15 soils samples taken within the Made Ground.

Groundwater was observed at depths ranging from 0.80mbgl and 3.70mbgl across three separate monitoring rounds. Elevated levels of copper, selenium, phenol, and sulphate were interpreted from the groundwater samples obtained and deemed a potential risk to controlled waters. The potential for groundwater migration was considered to be minimal due to the perched nature of the groundwater bodies encountered and the presence of significant thicknesses of discontinuous clays.

The geology encountered throughout the geotechnical investigation comprised of Made Ground to a depth of 1.20mbgl, superficial deposits ranging from 0.20mbgl to 7.70mbgl, and bedrock of weathered mudstone ranging from 3.70mbgl to 8.00mbgl.

5.3.6 URS Former Re-Fuelling Depot, Verification Report (Nov 2014)

URS, Manchester Airport Former Re-Fuelling Depot, Verification Report. November 2014. Report Number: 47066850.

A verification report for the remediation of the historical Hangar 3 refuelling area.

A total of 5 USTs were removed, with associated pipework and saturated soils which were removed from the areas surrounding the tanks to a depth of 5mbgl. 20 No. soil samples were obtained from the excavation to verify that impacted soils had been delineated and successfully removed. The analysed verification samples reported concentrations of contaminants below the remediation target levels set for the project. The excavation was backfilled with engineered fill to a highway specification.

Impacted soils were noted to extend beneath the roadway to the southwest along the line of pipework, although determining the extent of the contamination was beyond the proposed scope, and it was therefore not removed as part of the remediation process. No significant thickness of LNAPL was identified during the investigation and as such the potential for migration of contamination within these soils post remediation was considered limited.

5.3.7 Brownfield Solutions Ltd HV Cable, Factual Environmental Report (May 2017)

Brownfield Solutions Ltd., Manchester Airport HV Cable, Factual Environmental Report. May 2017. Report Number: LC/C3450/6933.

A factual Environmental Investigation carried out by Brownfield Solutions Ltd. to determine the ground conditions for the installation of a high voltage electricity cable directly underneath the DNATA site. The investigation comprised of several window sample boreholes positioned on the periphery of the historic maintenance hangar, however samples taken were not screened against any specific criteria. The report indicated the potential presence of PAHs in borehole WS102A, located on the north west boundary of the site and Pinfold Lane. No other olfactory or gross contamination evidence was present.

Made Ground was encountered in all exploratory wells to a depth of 1.75m, comprised of macadam surfacing over limestone and brick subbase. Superficial geology was only encountered in WS101 and WS103, with bedrock encountered in WS103 at a depth of 1.05m. Perched groundwater was encountered within the Made Ground at a depth of 0.20m.

5.3.8 AECOM, Manchester Airport, Proposed DNATA Site: Geotechnical & Geo-environmental Technical Note on Ground Investigation (2019)

AECOM undertook a ground investigation and interpretive assessment which is summarised in the above titled report. The DNATA site is located to the south east of the site and ground conditions are expected to be similar. pertinent points are summarised below:

A ground investigation was undertaken at the historical Hangar site as requested by Manchester Airport Group. Three cable percussion boreholes were completed to final excavation depths of 11.85m bgl. Eight window sampling boreholes were excavated at depths ranging from 2.30m to 4.50m bgl. All of the twelve exploratory locations were hand dug to 1.2m bgl, excluding WS01, WS07 and BH03A due to perched water at shallow depths.

The proposed ground model comprises Made Ground over Glacial Clay, Glacial Sand and Mercia Mudstone. The weathered Mercia Mudstone is classified as Grade II. Made Ground is present locally to a maximum proven depth of 0.7m bgl at WS02. It is recommended that any Made Ground present is excavated and replaced with suitable granular fill to prevent differential settlement of this area in the long term. The foundations for structures must be taken to below any Made Ground present. The Mercia Mudstone was encountered between 3.2 and 7.0m bgl and proven to a maximum depth of 11.85m bgl.

The groundwater table has been assumed to lie at a depth of between 3.30m bgl and 3.77m bgl in the Glacial Clay with shallow perched groundwater also present at a depth of between 0.45m bgl and 1.96m bgl. Localised perched groundwater was also recorded at WS05. It is recommended that where encountered shallow groundwater should be drained or pumped off site during works and permeant drainage installed to manage the perched water. Local pumping may also be required to lower the water table close to excavations.

Visual olfactory evidence of contamination was identified whilst on site. This was solely at WS05, black staining was visible and hydrocarbon odours were identified. Based on the concentrations of contaminants reported from the soil, leachate and water samples collected from the site alongside the permeability of strata on site, the potential risks to human health and controlled waters are not considered to be unacceptable.

Both shallow and deep foundations are considered suitable, depending on the proposed structure and loading. Spread foundations are considered competent for lightly loaded structures founded on the firm to very stiff Glacial Clay. For heavily loaded structures, piles are acceptable, with combined friction and end bearing CFA piles socketed into the Mercia Mudstone the most satisfactory.

The pavement for the site will be founded on Glacial Clay. Following the guidance in IAN 73, CBR values of 3% and 4% were determined for thin and thick designs respectively. The value of 4% for thick construction is considered to be most appropriate for use on the airfield. For any Glacial Sand present, a CBR of 5% can be used for design. In-situ testing should be undertaken at pavement formation level to ensure subgrade is suitable for construction, if not further excavations should be undertaken until the founding stratum achieves the required bearing capacity. The levels should then be brought up to those required using compacted engineered fill.

6. Regulated Activities and Statutory Consultation

6.1 Introduction

The key relevant features that characterise the site and surrounding area are summarised in this section, along with an indication of the risk to the land quality of the site.

Information on groundwater and surface water abstractions is detailed in Section 3.3.4 and 3.4.2 and is not repeated here.

Generally, any regulated activities within 250 m of the site could, depending upon their nature, represent potential off-site sources of contamination. Whilst a 500 m search area was generally adopted this section places emphasis on those activities present within 250 m.

6.2 Regulated Processes

Table 6.1 summarises information on regulated processes contained in the Groundsure Report (Appendix B). The report collates data from a variety of sources including the Environment Agency (EA) and the British Geological Survey (BGS). All data suppliers are referenced in the report.

Reference to the Groundsure report indicates no records for the following within 500m of the site: Historical Licences Industrial Activities (IPCs), Licenced Industrial Part A Activites/Releases, Red List Pollutant Rleases, Releases to Public Sewers, Pollution Incidents (EA/NRW), Pollution Inventory Substances, Pollution Inventory Waste Transfers, Regulated Explosive Sites, Radioactive substance authorisations, Pollution inventory radioactive waste, List 1 Dangerous Substances or List 2 Dangerous Substances.

Table 6.1 Summary of Regulatory Information

Subject	Details				
	On site	0-250m	250-500m	Distance	Details
Licenced Discharges to Controlled Waters	0	0	11	333m NE to 336m NE	Manchester Airport has held numerous licences for discharges to the River Bollin from the site drainage and containment system. These are all revoked.
				431m SE	The Romper PS Public House holds the other active consent for Sewage and trade combined discharge to the River Bollin.
				439m SE	Manchester Airport has held numerous licences for discharges to the River Bollin from the site drainage and containment system. These are all revoked.
Licensed Pollutant Release (Part A(2)/B)	0	1	2	208m SE	Fls Aerospace Ltd - Respraying of Road Vehicles (Historic)
				340m SE	Airline Services Limited, Hangar 4 Western Maintenance Area – Dry Cleaning (Historic)
				294m S	BP Airport City, BP Airport City SF Connect - Unloading of Storage Petrol into Storage at Service Stations (Current)
Control of Major Accident Hazards (COMAH)	0	1	0	214m SE	Air BP Limited current COMAH site – COMAH Lower Tier Operator
Hazardous Substance Storage/ usage	0	0	3	284m SE	2 entries: Air BP Ltd - Storage of Jet fuel A1
				322m E	Shell UK Ltd – Hazardous Substances Consent for Storage of Aviation AVGAS

Source: Groundsure Report

6.3 Licensed Waste Management Facilities

The Groundsure report provides details of waste facilities within 500m of the site based upon data from the Environment Agency, British Geological Survey, Ordnance Survey/ Groundsure records and mapping, and Local Authority records.

With reference to the above data the Groundsure report identified no recorded licensed waste management facilities or landfilling operations, past and present, within 500m of the site.

The report does identify nine waste exemptions 'Activities involving the storage, treatment, use or disposal of waste that are exempt from needing a permit'.

One waste exemption was reported on-site held by BAM Construction for Use of Waste in Construction. This indicates that recycled material of unknown original could have been used in the construction of the site for instance as engineering fill.

Five other waste exemptions also were related to the use of waste in construction or wood cutting and pulverising in relation to construction works. The other three are related to Hale Depot/ Hale Motorway Maintenance Compound for storage of waste in secure containers and treatment of waste aerosol cans.

It should be noted that as part of the Project Quantum review of buildings associated with the airport, most of the of the buildings reviewed by their nature as commercial / industrial premises have some storage of potentially contaminative materials. The security of these storage facilities is monitored by the airport.

With reference to the historical data there have clearly been demolition and construction activities both in the vicinity of the site and onsite and therefore the presence of Made Ground should not be overlooked.

6.4 Industrial Land Use

The Groundsure Report collates data on potentially contaminative active and inactive industrial land uses, tanks, fuel station entries, Points of Interest, Gas Pipelines and Underground Electrical Cables within 500m of the site, that may have the potential to have caused contamination.

Various active and inactive entries for these land uses have been identified on or within the vicinity of the site. Table 6.2 summarises those entries that may have the potential to have caused contamination within a search radius of 250 m of the Site.

Table 6.2 Potentially Contaminative Industrial Land Use on and Within 250 m of the Site

Subject	Location	Details
Historic Industrial Land Uses	On-Site	Airport – 2no entries 1989, 1995
	Off-Site	72m SE Smithy 1938 76m SE Smithy 1899-1910 93m SE Airport 1953 99m NW Wireless Station 1989 116m SE Unspecified Commercial/ Industrial 1974 153m W Unspecified Tank 1989 198m E Airport 1967 198m E Airport 1974-1975
Historic Tanks	On-Site	No Entries
	Off-Site	78m SE Unspecified Tank 1987-1995 154m W Unspecified Tank 1987 173m SE Unspecified Tank 1968-1987 221m N Tanks 1995 222m N Tanks 1990-1991
Recent Industrial Land Uses	On-Site	Electrical Sub Station – Electrical Features Alpha LSG – Aeroplanes (Catering)
	Off-Site	47m NW Mapcargo – Distribution and Haulage 47m NW Air Menzies International – Distribution and Haulage 50m N Evolution Logistics – Distribution and Haulage 50m N E M S Cargo – Distribution and Haulage

Subject	Location	Details
		50m N Atlantic Pacific Global Logistics – Distribution and Logistics
		50m N Air Sea Worldwide Airlines and Airline Services
		50m N R & M Developments Ltd – Civil Engineers
		50m N A Z Freight Services Ltd – Airlines and Airline Services
		54m NW Tranzfast Logistica UK Ltd – Airlines and Airline Services
		54m NW Red Head International – Distribution and Haulage
		54m NW D B Schenker – Distribution and Haulage
		55m N Future Forwarding – Distribution and Haulage
		55m N Puma Cargo Ltd – Distribution and Haulage
		55m N A I T Worldwide Logistics Ltd – Airlines and Airline Services
		55m N C B I Global Freight Management – Distribution and Haulage
		55m N Maurice Ward Group – Distribution and Haulage
		82m NE Tank – Tanks (Generic)
		85m NW Tanks – Tanks (Generic)
		94m NE Air Canada – Distribution and Haulage
		97m NE N N R Global Logistics – Distribution and Haulage
		98m NE Davies Turner Plc – Distribution and Haulage
		98m NE T Q Express – Airlines and Airline Services
		98m NE Warme Heating Ltd – Industrial Repairs and Servicing
		99m NE Electricity Sub Station – Electrical Features
		99m NE Select Euro Transport – Distribution and Haulage
		104m W Electrical Sub Station – Electrical Features
		107m NE Vantec World Transport Manchester – Distribution and Haulage
		115m W Electricity Sub Station – Electrical Features
		128m N A F I – Airlines and Airline Services
		131m W Masts (Telecommunication) – Telecommunications Features
		138m N S O S Air Cargo Ltd – Distribution and Haulage
		138m N Blacksmith Freight Services – Distribution and Haulage
		138m N Fedex Trade Networks – Airlines and Airline Services
		138m N Trilogy Freight – Distribution and Haulage
		145m SW Electricity Sub Station – Electrical Features
		161m W Tanks – Tanks (Generic)
		178m SE Tank- Tanks (Generic)
		181m NW Alpha LSG – Aeroplanes
		189m SW Electricity Sub Station – Electrical Features
		196m NE Singapore Airlines Cargo – Distribution and Haulage
		196m NE Air Liaison – Airlines and Airline Services
		196m NE Omni Airline Services – Distribution and Haulage
		196m NE Globe Air Cargo – Airlines and Airline Services
		196m NE Dunwoody Airline – Distribution and Haulage
		196m NE Airline Cargo Management Ltd – Airlines and Airline Services
		220m N Trilogy Freight – Distribution and Haulage
		226m N Tank – Tanks (Generic)
		229m NW Freightair Services – Airlines and Airline Services
		229m NW Heritage International Freight – Distribution and Haulage
		236m NE Electricity Sub Station – Electrical Features
Historic Energy Features	On-Site	No Entries
	Off-Site	43m SE Electricity Sub Station 1987
		85m NE Electricity Sub Station 1987-1991
		86m NE Electricity Sub Station 1995
		234m NE Electricity Sub Station 1992
		234m NE Electricity Sub Station 1987
		239m E Electricity Sub Station 1987-1990
		241m E Electricity Sub Station 1987-1996
	On-Site	No Entries

Subject	Location	Details
Fuel Station and Garage Entries	Off-Site	No Entries
Gas Pipelines*[1]	On-Site	No Entries
	Off-Site	No Entries
Underground Electrical Cables	On-Site	No Entries
	Off-Site	No Entries

6.5 Greystar UK Avaiation Fuel Pipeline

While not identified in the Groundsure Report potentially due to sensitivity, it is known that the main pressurised fuel line to the airport is indicative to run adjacent to Pinfold Lane. Its extents are shown as per Appendix E.

6.6 Sensitive Land Uses

The Groundsure Report and Defra Magic Mapping identify adjacent sensitive land uses based upon factors such as Sites of Special Scientific Interest (SSSI), Environmentally Sensitive Areas, Areas of Outstanding Natural Beauty, World Heritage sites, Nature Reserves, National Parks, Nitrate Sensitivity Areas/Vulnerability Zones, and Special Protection Areas.

The Groundsure Sensitive Land Use Map and Magic Maps indicate that the site is not within and area of sensitive land use. However, the site is located within the area of four SSSI impact risk zones.

The nearest SSSI for which the site is in the impact risk zone is Cotterill Clough 426m south of the site.

The impact risk zone is described in the Groundsure Report as being ‘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.

Due to the developed nature of this area and as the site is located within the airport and captured within its drainage system it is unlikely that there is notable potential for the development to impact upon the SSSI of Cotterill Clough.

No nitrate sensitive areas or nitrate vulnerable zones are located within 2km of the study site.

7. Preliminary Ground Model

Based on the review of published geological and hydro-geological information, the three historical borehole records available which have been reviewed, and the previous ground investigation data included in the ESG Factual Report; the ground conditions within the site are tentatively considered to comprise the following sequence presented in Table 8.1.

Table 7.1 Preliminary Ground Model

	Geology			Groundwater
Stratum	**Typical Description**	**Anticipated Thickness of Strata (m)**	Anticipated Depth of Strata	
Made Ground (Hard Standing)	Thin macadam or Concrete Hard Standing	Macadam c.0.1m Concrete c0.35m with potential for second deeper layer below.	Surface	n/a
Made Ground	Shallow Made Ground, predominantly hardcore fill or ashy gravels over Clay fill and reworked natural Clay.	c.1m	c. 0.15m bgl	Potential for perched groundwater within Made Ground.
Superficial Strata (Glacial Till)	Orangish brown and grey CLAY with some sand bands.	c.4.5m	c. 1m bgl	Groundwater encountered at 4mbgl at nearby boreholes at the DNATA site.
Bedrock (Bollin Mudstone Member)	Mudstones	From previous ground investigations to the SE of the site, it has been proven that the bedrock is relatively shallow at between c.3.5 mbgl to 7m bgl The full thickness of the Bollin Mudstone Member has not been proven.	c. 3.5 – 7m bgl	It is not anticipated that significant amounts of groundwater shall be encountered.

7.1 Groundwater

The borehole logs from the ESG Report identify perched groundwater at c. 1mbgl within the Made Ground at two of the four window samples. All four window samples identified groundwater at c. 4mbgl within the superficial deposits which ties in with the sand bands identified within one of the boreholes at this depth.

Wider ground investigations from the Hangar 3 and 5 sites identified laterally discontinuous sand bands within the superficial deposits some of which contained perched waters including where these overlay the bedrock.

7.2 Preliminary Ground Gas Risk Assessment

A review of the preliminary ground model has indicated that Made Ground is likely circa 1m in depth and predominantly comprising macadam/hardcore fill overlying reworked clay fill. Superficial deposits are indicated to be orangish brown and grey clay with some sandy bands (Glacial Till). As such the probability of encountering significant quantities of deleterious organic matter is Low. Therefore, it is thought that the site likely has a low gassing potential with respect to methane, carbon dioxide, carbon monoxide and hydrogen sulphide.

However, this assessment should be revisited following a ground investigation as the ground model is developed. Contamination may also exist with the potential to create vapours which may be a risk to human health/property.

8. Initial Conceptual Site Model

8.1 Introduction

This section is aimed at identifying possible risks, if any, arising from substances used or deposited on-site, or from other sources of land contamination. Both past and current potentially contaminative land uses have been considered. It is based on the proposed site redevelopment which will comprise a single warehouse with associated infrastructure as identified in Section 1.1.

8.2 Assessment Framework

The Site, in terms of potential land contamination, will be regulated by the Local Authority Manchester City Council under the Town and Country Planning Act 1990 (as amended), taking account of the National Planning Policy Framework 2019, with the Environment Agency, Natural England and English Heritage acting as potential statutory consultees.

Environmental liabilities can arise through provisions contained within statutory legislation including Part 2A of the EPA 1990, the Environmental Damage (Prevention and Remediation) Regulations 2009, the Water Resources Act 1991, the Groundwater Regulations 2009 and the Water Act 2003.

Current best practice recommends that the determination of health hazards due to contaminated land is based on the principle of risk assessment, as outlined in the Statutory Guidance to Part 2A (2012) and Land Contamination: Risk Management (LCRM).

The “suitable for use” approach is adopted for the assessment of contaminated land where remedial measures are undertaken where unacceptable risks to human health or the environment are realised taking into account the use (or proposed use) of the land in question and the environmental setting. The proposed end-use for the Site is a commercial logistics development to comprise a warehouse with self-contained subunits, office space and hardstanding areas for parking and loading of HGVs.

The risk assessment process for environmental contaminants is based on a source-pathway-receptor analysis. These terms can be defined as follows:

- **Source:** hazardous substance that has the potential to cause adverse impacts; and
- **Pathway:** route whereby a hazardous substance may come into contact with the receptor: examples include ingestion of contaminated soil and leaching of contaminants from soil into watercourses; and
- **Receptor:** target that may be affected by contamination: examples include human occupants/ users of site, water resources (surface waters or groundwater), or structures.

For a risk to be present, there must be a relevant/ viable contaminant linkage; i.e. a mechanism whereby a source impacts on a sensitive receptor via a pathway.

The following sections details the ICSM which has been developed for the Site with a view to assessing the potential risks/ liabilities and constraints associated with the Site in its current condition prior to any proposed redevelopment. Risks associated with the proposed redevelopment have also been assessed based on a commercial future land use scenario, including any potential sources of contamination, potential receptors and potential contaminant pathways identified during this desk-based assessment.

8.3 Sources of Potential Contamination

8.3.1 On-Site

The historical mapping indicates the site to have been occupied by farmland with a footpath crossing the area. By 1954 (between 1938 and 1954) the majority of the site was occupied by areas of hardstanding areas associated with the Ringway Airport (Later Manchester Airport). These are assumed to be for taxiing and aircraft storage and operational during WW2.

The current Building 402 first appears on OS mapping during period 1992-1995 and expanded over the years to the present layout with associated hardstanding and infrastructure incorporated.

Building 402 is currently used by the company LSG Skychefs for the storage and manufacture of airline foods. Other buildings in the area are known to use generators onsite. The Building 401 site adjacent is the former home to LSG Skychefs and is now understood to be inactive but is thought to still contain refrigeration and air conditioning units. It should be noted that an electrical substation is present within the site boundary and a fuel tank is also present in the hardstanding carpark to the south of building 402.

Based on the above the following potential sources of contamination may be found at the proposed development site:

- *Made Ground associated with the development of Building 402 and associated infrastructure.*
- *Made Ground associated with the former aircraft standing areas.*
- *Current electrical substation onsite (potentially disused) and other electrical housing across site.*
- *Building 402 refrigeration and air-conditioning equipment.*
- *Building 402 potential generators onsite.*
- *Diesel fuel storage tanks above ground in car park south of Building 402.*
- *Potential spillage and leaks of fuels and oils from vehicles using hardstanding areas.*
- *Waste food oil trap in basement could leak, along with barrels containing waste food oil in caged area next to building awaiting disposal off-site.*
- *Corrosive chemical storage in boiler room.*

8.3.2 Off-Site

A review of the current and historical information indicates development off-site with the potential to act as sources of contamination effecting the site this including Building 401 immediately to the south east of the site with associated infrastructure which, includes an electrical substation. Other warehouse units with associated hardstanding areas and an associated above ground tank (although this is thought to be used for firewater) are located to the north west of the site. Former Hangars 3 and 5 are located in the current position of the DNATA building 150m to the south east of the site, beyond Building 401, Former Hangar 3 is known to have contained a refuelling depot which has historically leaked and undergone remediation to some extent; parking for the Cargo Centre to the north and Avro Way runoff. It should be noted however that Building 401 and Hangars 3 and 5 are thought to be down hydraulic gradient from the site. There may also have been leaks and spillages from the operation of the aviation fuel pipeline thought to be located beneath Pinfold Lane.

Based on the above the following potential sources of contamination may be found at the proposed development site:

- *Leaks and spillages of cooling oils from transformers in the electrical substation to the south east of the site associated with Building 401.*
- *Made Ground associated with the development of Building 401 and indeed the warehouse facilities to the NW.*
- *Made Ground associated with the former aircraft standing areas.*
- *Leaks and spillages from disused refrigeration and air-conditioning units in Building 401*
- *Diesel fuel storage in above ground tanks to the SE in the hardstanding area associated with Building 401 (MAG Bus Depot), along with AdBlue tanks.*

- *Spillages and leaks of fuels/ oils in MAG Bus Depot, the hardstanding areas associated with Building 401 and indeed the hardstanding areas associated with the warehouses to the NW of the site.*
- *Made Ground and hydrocarbon spills associated with the former Hangars 3 and 5, along with surrounding areas.*
- *Leaks and spillages of hydrocarbons from the aviation fuel pipeline toward Manchester Airport on Pinfold Lane*
- *Runoff of potential spills of fuels and oils from Avro Way.*
- *Contamination from storage of hazardous materials/ chemicals in the warehouses NW of the site.*
- *Above ground tank which is thought to contain diesel c.85m NW of the site.*

8.3.3 Summary of potential sources

With reference to the DoE Industry Profile including for Airports; Road vehicle fuelling, service and repair; Table 8.1 indicates the potential contaminants that may be associated with the current land use.

Table 8.1 Potential Sources of Contamination

Source Reference	Location	Potential Sources	Associated Contaminants of Potential Concern (CoPC)
S1	On Site	Building 402 including associated chemical storage, grease storage, and diesel tank.	Heavy metals, Total Petroleum Hydrocarbons (TPH), Semi-volatile Organic Compounds (VOCs), Volatile Organic Compounds (VOCs), Polycyclic Aromatic Hydrocarbons (PAHs), phenols, sulphate, ammoniacal nitrogen, asbestos, asbestos containing materials (ACMs), Ground gases including carbon dioxide and methane. Electricals: polychlorinated biphenyl (PCB). Greases / cooking fats
S2	On Site	Former aircraft standing / taxing area	Heavy metals, PAH, TPH (including aviation kerosene and gasoline, gas oil and diesel) SVOCs, VOCs, acids, alkalis, glycols (e.g. Antifreeze and de-icing agents), organic solvents, fire-fighting agents/foam forming products, washing agents, cleaners and lubricants, solvents (e.g. paints and thinners). Phosphoric acid, corrosion inhibiters, PCBs and ACMs Ground gases including carbon dioxide and methane.
S3	On Site	Electrical substation and electrical housings.	Heavy metals, PCBs
S4	On Site	Hardstanding area for cars and HGVs.	Heavy metals, organics, inorganics, PAH, TPH, SVOCs, VOCs, solvents, glycols (e.g. Anti-freeze), fuel additives (AdBlue) and detergents. Ground gases including carbon dioxide and methane.
S5	Off Site	Electrical Substation associated with Building 401	Heavy metals, PCBs
S6	Off Site	Made Ground – Building 401 including refrigeration and air-con units, and electrical generators	Heavy metals, Total Petroleum Hydrocarbons (TPH), Semi-volatile Organic Compounds (VOCs), Volatile Organic Compounds (VOCs), Polycyclic Aromatic Hydrocarbons (PAHs), phenols, sulphate, ammoniacal nitrogen, asbestos, asbestos containing materials (ACMs),

Source Reference	Location	Potential Sources	Associated Contaminants of Potential Concern (CoPC)
			Ground gases including carbon dioxide and methane. Electricals: polychlorinated biphenyl (PCB), Refrigeration and air-con: Organics, solvents, hydrocarbons (eg. Acrylonitrile.) Ground gases including carbon dioxide and methane.
S7	Off Site	MAG Bus depot including vehicle wash, and fuel and AdBlue storage tanks.	Heavy metals, organics, inorganics, PAH, TPH, SVOCs, VOCs, solvents, glycols (e.g. Anti-freeze), fuel additives (AdBlue) and detergents. Ground gases including carbon dioxide and methane.
S8	Off Site	Made ground associated with current and past land uses of the surrounding airport infrastructure including Hangar 5 and Hangar 3 inc refuelling depot and foul water pump.	Heavy metals, PAH, TPH (including aviation kerosene and gasoline, gas oil and diesel) SVOCs, VOCs, acids, alkalis, glycols (e.g. Antifreeze and de-icing agents), organic solvents, fire-fighting agents, washing agents, cleaners and lubricants, solvents (e.g. paints and thinners). Phosphoric acid, corrosion inhibiters, PCBs, and ACMs. Ground gases including carbon dioxide and methane.
S9	Off Site	Made Ground below warehouses NW of site and associated diesel tanks, chemical storage and generators	Heavy metals, Total Petroleum Hydrocarbons (TPH), Semi-volatile Organic Compounds (VOCs), Volatile Organic Compounds (VOCs), Polycyclic Aromatic Hydrocarbons (PAHs), phenols, sulphate, ammoniacal nitrogen, asbestos, asbestos containing materials (ACMs), Ground gases including carbon dioxide and methane. Electricals: polychlorinated biphenyl (PCB),
S10	Off Site	Leaks and spillages from the operation of the aviation fuel pipeline on Pinfold Lane.	Total Petroleum Hydrocarbons, Polycyclic Aromatic Hydrocarbons (PAHs)

8.4 Potential Receptors

8.4.1 On-Site Receptors

Potential on-site receptors have been identified as follows:

Human Health

- Future construction and maintenance workers[4]
- Future site visitors
- Future site users (commercial)

Water Environment

[4] *This report and the preliminary risk assessment included does not consider acute linkages for construction and maintenance workers. AECOM anticipates that these acute linkages will be managed by appropriate health and safety measures.*

- Shallow aquifer within the superficial Glacial Till deposits is classified as a Secondary Undifferentiated aquifer.
- The deep aquifer within the Bollin Mudstone Member is classified as a Secondary B aquifer.

Buildings & Infrastructure

- Concrete foundations
- Building structures
- Underground services
- Gas/ damp membranes

8.4.2 Off-Site Receptors

Potential off-site receptors have been identified as follows:

Human Health

- Adjacent site users (commercial)

Water Environment

- The shallow aquifer within the superficial Glacial Till deposits is classified as a Secondary Undifferentiated aquifer.
- The deep aquifer within the Bollin Mudstone Member is classified as a Secondary B aquifer.
- The nearest surface water feature, Cotteril Clough Brook, located c.350m SE of the site.

8.4.3 Summary of Potential Receptors

Potential receptors associated with the potential development are shown on Table 9.2:

Table 8.2 Potential Receptors

Receptor Reference	Receptor	Description
R1	Human Health: Acute	Future site users – Site visitors.
R2	Human Health: Chronic	Future site users – workers at the site.
R3	Human Health: Acute	Adjacent site users – workers and road users (During construction phase).
R4	Water Environment: Superficial Aquifer	Secondary Undifferentiated Aquifer in the Superficial Glacial Till.
R5	Water Environment: Bedrock Aquifer	Secondary B Aquifer in the Bollin Mudstone Member .
R6	Water Environment: Surface waters	Cotteril Clough Brook 350m SE of the site.
R7	Flora	Plants, trees, and landscaping.
R8	Buildings & Infrastructure: Concrete	Future proposed foundations and services at the site may be impacted by contamination in the ground. Concrete foundations can be corroded if perched groundwaters or leachates have high sulphate levels and/ or acidity.
R9	Buildings & Infrastructure: Structures	Proposed structures may be impacted by accumulation of ground gases.
R10	Buildings & Infrastructure: Services	Potable water supply pipes and other service may be impacted by contamination in the ground. Toxic and corrosive contaminants can migrate through water supply pipes.
R11	Buildings & Infrastructure: Gas/ damp membranes	Potential for hydrocarbons in soils and ground waters may deteriorate membranes.

8.5 Potential Pathways

8.5.1 On-Site Pathways

On-site pathways include direct contact, ingestion and dermal absorption of soil and inhalation of soil particles and soil vapour derived from soils, spillage / loss and run off from surface of site, leaching of chemicals and vertical migration via permeable unsaturated strata to shallow groundwater, lateral migration of impacted shallow groundwater to surface water features off-site, vertical migration of shallow impacted groundwater to deeper groundwater, direct contact of buried concrete, services and pipes with contaminated soils and the migration of hazardous gases and chemicals via permeable strata.

8.5.2 Off-Site Pathways

Off-site pathways include migration and leaching of hazardous gases and chemicals via permeable unsaturated strata, contact with shallow impacted groundwater travelling horizontally offsite, migration of CoPC via underground drainage/ sewers (including granular backfilling materials) and spillage/loss/runoff.

8.5.3 Summary of Potential Pathways

Potential pathways associated with the proposed development are shown in Table 9.3:

Table 8.3 Potential Pathways

Pathway Reference	Receptor	Description
P1	Human Health	Direct Pathway: Direct contact, dermal absorption, or ingestion of soil/groundwater.
P2	Human Health	Indirect Pathway: Inhalation of soil particulates derived from soils.
P3	Human Health	Indirect Pathway: Inhalation of soil vapour derived from soils or groundwater
P4	Human Health	Indirect Pathway: Migration of hazardous gases/vapours via permeable strata into confined spaces (asphyxiation/ explosion)
P5	Water Environment: Groundwater	Indirect Pathway: Leaching of chemicals and vertical / lateral migration via permeable unsaturated strata to shallow and/ or deep groundwater
P6	Water Environment: Groundwater	Indirect Pathway: Vertical migration of impacted shallow groundwater to the deeper Secondary B aquifer.
P7	Water Environment: Groundwater/ surface water	Indirect Pathway: Lateral migration of impacted groundwater to off-site surface water.
P8	Water environment: Surface water	Indirect pathway: Migration via underground drainage / sewers (including granular backfilling materials), spillage / loss / run-off from the surface direct to receiving water.
P9	Buildings & Infrastructure: Concrete	Direct Pathway: Direct contact of buried concrete with contaminated soils (i.e. hydrocarbons) and aggressive ground conditions (pH and sulphate).
P10	Buildings & Infrastructure: Supply pipes	Direct Pathway: Direct contact of services and supply pipes with contaminated soils.
P11	Buildings & Infrastructure: Structures	Indirect Pathway: Migration of hazardous gases/vapours via permeable strata into enclosed spaces and service/utility trenches.
P12	Buildings & Infrastructure: Gas/ damp membranes	Indirect Pathway: Potential for hydrocarbons in soils and ground waters may deteriorate membranes.
P13	Ecosystems: Flora.	Direct pathway: Direct contact with contaminated soils.

9. Preliminary Contaminated Land Risk Assessment

9.1 Risk Assessment Principles

Current best practice recommends that the determination of hazards due to contaminated land is based on the principle of risk assessment, as outlined in the Environment Agency guidance on LCRM.

For a risk to be present, there must be a viable contaminant linkage; i.e. a mechanism whereby a source impacts on a sensitive receptor via a pathway.

Assessments of risks associated with each of these contaminant linkages are discussed in the following sections.

Using criteria broadly based on those presented in the National House Building Council/Environment Agency/Chartered Institute of Environmental Health publication R&D 66 (NHBC/EA/CIEH, 2008), the magnitude of the risk associated with potential contamination at the Site has been assessed. To do this an estimate is made of:

- The magnitude of the potential consequence (i.e. severity);
- The magnitude of probability (i.e. likelihood).

The severity of the risk is classified according to the criteria in Table 10.1.

9.2 Risk Assessment Framework

Table 9.1 Description of Severity of Risk

Term	Description
Severe	– Highly elevated concentrations likely to result in significant harm to human health. – Catastrophic damage to crops, buildings or property (e.g. by explosion). – Equivalent to EA Category 1 pollution incident including persistent and/or extensive effects of water quality. – Major damage to aquatic or other ecosystems.
Medium	– Elevated concentrations which could result in significant harm to human health. – Significant damage to crops, buildings or property (e.g. damage to building rendering it unsafe). – Equivalent to EA Category 2 pollution incident including significant effect on water quality. – Significant damage to aquatic or other ecosystems.
Mild	– Exposure to human health unlikely to lead to significant harm. – Minor damage to crops, buildings or property (e.g. surface spalling to concrete). – Equivalent to EA Category 3 pollution incident including minimal or short-lived effect on water quality. – Minor or short-lived damage to aquatic or other ecosystems.
Minor	– No measurable effect on humans. – Repairable effects of damage to buildings, structures and services. – Equivalent to insubstantial pollution incident with no observed effect on water quality of ecosystems.

The probability of the risk occurring is classified according to the criteria in Table 10.2.

Table 9.2 Likelihood of Risk Occurrence

Likelihood	Explanation
High	Contaminant linkage may be present that appears very likely in the short-term and risk is almost certain to occur in the long term, or there is evidence of harm to the receptor.
Likely	Contaminant linkage may be present, and it is probable that the risk will occur over the long term.
Low	Contaminant linkage may be present and there is a possibility of the risk occurring, although there is no certainty that it will do so.
Unlikely	Contaminant linkage may be present but the circumstances under which harm would occur even in the long-term are improbable.

An overall evaluation of the level of risk is gained from a comparison of the severity and probability, as shown in Table 10.3.

Table 9.3 Risk based on Comparison of Likelihood and Severity

		Severity			
		SEVERE	**MEDIUM**	**MILD**	**MINOR**
Likelihood	**HIGH**	Very High	High	Moderate	Low
	LIKELY	High	Moderate	Moderate/Low	Low
	LOW	Moderate	Moderate/Low	Low	Very Low
	UNLIKELY	Moderate/Low	Low	Very Low	Very Low

9.3 LCRM Assessment of Risk

In 2019, the UK government issued new guidance on the evaluation and management of contaminated land, *Land Contamination: Risk Management*. Current contaminated land guidance in LCRM (2021) categorises risk at Stage 1 Tier 1 (i.e. PRA) as follows:

- Acceptable;
- Unacceptable.

However, no framework for assessing the risk has been published to accompany the guidance, so the CIEH & NHBC R&D 66 assessment framework constitutes best practice in this regard. To align the risk rankings in Section 10.2 with the LCRM rankings and with the Part 2A definitions, the following matrix has been utilised. This conversion is demonstrated in Table 10.4 below:

Table 9.4 Conversion to LCRM Risk Categories

	Acceptable	Unacceptable
Very Low		
Low		
Moderate/Low		
Moderate*		
High		
Very High		

* *This risk category spans both acceptable and unacceptable. This is intentional as it is this risk band that tends to have the greatest level of uncertainty associated with it. Acceptability will be dependent on site-specific circumstances and level of confidence in the available evidence.*
For a risk to be unacceptable, the contaminant linkage should be associated with at least a "medium" severity as defined in Table A4.3 in Annex 4 of R&D66 and the probability should (in the majority of cases) be at least "likely" as defined in Table A4.4 of R&D66.

These risk categories represent the level of risk as it is currently understood from the information available at this time.

9.4 Preliminary Risk Assessment

An ICM illustrating plausible contaminant linkages has been formulated for this site. The qualitative preliminary risk assessment of the possible linkages of the above sources (S1 to S9), transport pathways (P1 to P11) and receptors (R1 to R12) are provided in Table 10.5.

The level of risk is determined based on the current condition of the Site (i.e. the effects of mitigation measures are not included).

The preliminary risk assessment undertaken with in this section does not consider acute linkages for construction and maintenance workers. AECOM anticipates that these acute linkages will be managed by appropriate health and safety measures.

Table 9.5 Potential Sources, Pathways and Receptors

Source	Pathway	Receptor	Potential Severity	Likelihood of Occurrence	Potential Risk	Potential Risk (LCRM)	Linkage Reference	Justification
On-Site sources of CoPCs Made Ground and potential contaminants associated with Building 402, former aircraft standings, electrical substation , diesel tanks, chemical storage, grease storage and parking. (S1, S2, S3, S4)	Direct contact, dermal absorption, or ingestion of soil/groundwater (P1) Indirect Pathway: Inhalation of soil particulates derived from soils (P2)	Human Health: Acute: Future site visitors (R1) Human Health: Chronic: Future site users (R2)	Medium	Low Likelihood	Moderate/Low Risk	Acceptable	L1	The site is currently occupied by Building 402 which is used for the storage and manufacture of food, with associated hardstanding areas for parking. The majority of the site is covered in hardstanding areas or buildings. Based on the current site use and the proposed development it is unlikely in its current or future state to allow dermal contact with, or ingestion of, CoPCs within the soils except in areas of soft landscaping. The risk of dermal contact and ingestion shall be greatest during the construction phase. As with all construction works the Principal Contractor will need to comply with the CDM 2015 regulations and, therefore, the workforce should be appropriately protected from exposure to potential contaminants during construction.
		Adjacent site users – workers and road users (During construction phase) (R3)	Medium	Unlikely	Low Risk	Acceptable	L2	See L1 – For adjacent site users the risk of dermal contact and ingestion of wind-blown soils shall be greatest during the construction phase. As with all construction works the Principal Contractor will need to comply with the CDM 2015 regulations and, therefore, the workforce should be appropriately protected from exposure to potential contaminants during construction. This should include damping down and dust suppression during earthworks.
	Inhalation of Soil/Groundwater Vapour (P3)	Human Health: Acute: Future site visitors (R1) Human Health: Chronic: Future site users (R2)	Medium	Unlikely	Low Risk	Acceptable	L3	Land uses have been identified which have the potential to leave volatile compounds in ground. Vapours make leak into current and future buildings through hardstanding.
		Adjacent site users – workers and road users (During construction phase) (R3)	Mild	Unlikely	Very Low Risk	Acceptable	L4	As per L3 there may be releases of vapours during construction, however the distance between receptor and the source reduces the assessed severity.
	Migration of hazardous gases/vapours into confined spaces (Human Health) (P4)	Human Health: Acute: Future site visitors (R1) Human Health: Chronic: Future site users (R2)	Medium	Unlikely	Low Risk	Acceptable	L5	The preliminary ground gas risk assessment has assumed a low gassing potential for the site. pragmatic approach with robust site data available. As the site is proposed to be one large warehouse, split into four large units, with regular ventilation from regular use of access doors, the potential for gas build up in the main warehouse floor areas would be relatively limited however the building will include confined spaces and service ducts, offices and other areas where the accumulation of hazardous gases and vapours would be more likely but still considered to be low.
		Buildings & Infrastructure: Structures, Services & Membranes (R9, R10, R11)	Medium	Unlikely	Low Risk	Acceptable	L6	See L4: The potential for the accumulation of hazardous gases within confined spaces within the buildings and infrastructure have the potential to develop a risk of explosion. This given the assumed gassing potential is considered unlikely to occur and only of medium severity.
	Leaching of chemicals and vertical / lateral migration via permeable unsaturated strata to shallow groundwater (P5)	Shallow groundwater – Secondary un-differentiated Aquifer (R3)	Medium	Low Likelihood	Moderate/Low Risk	Acceptable	L7	It is anticipated that potential CoPCs may be present on-site associated with the potential sources identified within the iCSM. These CoPCs are considered to have the potential to leach to sub strata. The limited ground investigation data available adjacent to the site identified a variably granular / cohesive Made Ground to c.1mbgl over a predominantly cohesive glacial till. The till is identified as orangish brown and grey firm to stiff Clay, however shallow sand bands are noted c.3.5-4.0mbgl. The wider ground investigations from previous reports are known to identify more extensive sand bands both shallower and deeper than those identified adjacent to the site. These are understood to be laterally discontinuous over larger areas.

Source	Pathway	Receptor	Potential Severity	Likelihood of Occurrence	Potential Risk	Potential Risk (LCRM)	Linkage Reference	Justification
								Seepage and limited groundwater strikes were identified c.1mbgl at the base of the Made Ground. Further groundwater strikes were identified at all four ESG window samples at c.4.0mbgl coinciding with the deeper sand bands. While the superficial deposits are predominantly cohesive the presence of sand bands known to be more extensive in the wider area, and shallow perched groundwaters, it is considered possible (although of low likelihood) that vertical migration of contaminants could occur between the Made Ground, shallow natural soils and into the shallow aquifer.
	Vertical migration of impacted shallow groundwater to the deeper secondary B aquifer (P6)	Deep Groundwater Secondary B aquifer of the Bollin Mudstone Member (R4)	Medium	Low Likelihood	Moderate/Low Risk	Acceptable	L9	See L7: While the ground investigation adjacent to site has not identified bedrock, it is understood to comprise weathered mudstones over more competent mudstone bedrock. The underlying bedrock is noted to be of 'low permeability with migration of water only taking place along 'fractures or granular lenses'. While it is possible that granular lenses are present in the bedrock which may be in contact with granular lenses within the superficial deposits; the predominantly cohesive nature of the two strata are considered likely to inhibit vertical migration to the underlying aquifer.
	Lateral migration of impacted groundwater off-site to surface water (P7)	Surface Waters, Cotteril Clough (R5)	Medium	Unlikely	Low Risk	Acceptable	L10	It is possible that there could be lateral migration of contaminated ground water with potential impacts to off-site surface waters including Cotteril Clough Brook c. 350m SE. However, it is acknowledged that the superficial deposits underlying the site are predominantly cohesive clays with lower permeability and as such the potential for migration over this distance would be limited. It is possible however, should more extensive sand bands be present on site, that there could be an increased risk for migration.
	Lateral migration of surface waters / shallow ground waters via underground drainage / sewers (including granular backfilling materials), spillage / loss / run-off from the surface direct to surface water (P8)	Surface Waters, Cotteril Clough (R5)	Medium	Unlikely	Low Risk	Acceptable	L11	It is considered unlikely that there should be lateral migration of contaminated surface and shallow groundwater via existing services and runoff with potential impacts to off-site surface waters including Cotterill Clough 350m SE. The site is located within the Manchester Airport drainage system. Waters going to drains are monitored as part of the airports environmental procedures and treated if required before being released to surface water.
	Direct contact of buried concrete with contaminated soils (P9) Direct contact of services and supply pipes with contaminated soils (P10) Indirect Pathway: Potential for hydrocarbons in soils and ground waters may deteriorate membranes (P12)	Buildings & Infrastructure: Structures, Concrete, Services and Gas Membranes (R8, R9 R10, R11)	Mild	Low Likelihood	Low Risk	Acceptable	L12	Due to the potentially contaminative land uses over the course of the site's development history, it is possible for buried concrete and services and supply pipes associated with the development to come into contact with contaminants such as sulphate and hydrocarbons. Aggressive ground conditions can pose a risk to underground structures, services, and concrete foundations.
	Indirect Pathway: Migration of hazardous gases/vapours via permeable strata into enclosed spaces and service/utility trenches (P11)	Buildings & Infrastructures (Structures and services (R9, R10)	Medium	Unlikely	Low Risk	Acceptable	L13	See L6
	P13 – Direct contact with contaminated soils	R7 – Flora & fauna	Mild	Low	Low Risk	Acceptable	L14	Contaminants may be present onsite which may present a risk to ecological receptors such as flora or fauna. However, the proposed development is understood to include only limited soft landscaping and as such the risk is considered Low. It is recommended that for landscaped areas a suitable growing medium is utilised either imported or site won. Environmental chemical analysis of site soils as part of an intrusive ground investigation could support the use of site won materials should this be required.

Source	Pathway	Receptor	Potential Severity	Likelihood of Occurrence	Potential Risk	Potential Risk (LCRM)	Linkage Reference	Justification
Off-Site sources of CoPCs Made Ground and contamination associated with current and historic surrounding land uses, including Building 401, associated substation, and MAG Bus depot including vehicle wash, and fuel and AdBlue storage tanks. Warehouses to the NW with associated chemical storage and diesel tanks and the wider airport infrastructure including Hangar 3 and 5. (S5,S6,S7,S8,S9,S10)	Direct contact, dermal absorption, or ingestion of soil/groundwater (P1) Indirect Pathway: Inhalation of soil particulates/vapours derived from soils/groundwater (P2)	Human Health: Acute: Future site visitors (R1) Human Health: Chronic: Future site users (R2)	Medium	Unlikely	Low Risk	Acceptable	L15	There is the potential for CoPCs to be present within near surface Made Ground and contaminated shallow soils and groundwater if the CoPCs were to migrate onsite and contaminate site materials. As with L1: Due to the site and wider area being predominantly commercial/ industrial in use with limited landscaping or bare soils, the likelihood of direct contact is considered unlikely, and the risk is considered low. This would potentially differ should future development works be undertaken on the surrounding sites. However, as with all construction works the Principal Contractor will need to comply with the CDM 2015 regulations and, therefore, the workforce should be appropriately protected from exposure to potential contaminant during construction and mitigation measures be in place for off site migrations of wind-blown materials.
	Migration of hazardous gases/vapours into confined spaces (P4)	Human Health: Chronic: Future site users (R2)	Medium	Unlikely	Low Risk	Acceptable	L16	There is the potential for hazardous gases / vapours to migrate onsite from the sources identified offsite. However due to the assumed low permeability of the glacial till, migration of gases and vapours is assumed to be attenuated. Therefore it is considered to be Low Risk.
		Buildings & Infrastructure: Structures, Services & Membranes (R9, R10, R11)	Medium	Unlikely	Low Risk	Acceptable	L17	
	Indirect Pathway: Migration of hazardous gases/vapours via permeable strata into enclosed spaces and service/utility trenches (P11)	Buildings & Infrastructures (Structures and services (R9, R10)	Medium	Unlikely	Low Risk	Acceptable		
	Leaching of chemicals and vertical / lateral migration via permeable unsaturated strata to shallow and/ or deep groundwater (P5) Vertical migration of impacted shallow groundwater to the deeper secondary B aquifer (P6)	Secondary Undifferentiated Aquifer in superficial Glacial Till (R3) Deep Groundwater Secondary B aquifer of the Bollin Mudstone Member (R4)	Medium	Low	Moderate/Low Risk	Acceptable	L19	There is the potential for CoPCs derived from off-site sources to migrate onsite within groundwater laterally and then vertical into deeper groundwater. Whilst it is more probable for migration of contaminants from more proximal sources such as the storage tank at Building 401, aviation fuel pipe on Pinfold Lane or the warehouses to the north west, low permeability of the strata means that overall the likelihood of this occurring is considered to be low. PCBs associated with the electrical substation to the south east of the site may be present onsite due to the proximity to the boundary. But the likelihood is also considered low due to the low mobility of PCBs .

9.5 Discussion of Acute Risk to Future Construction Workers & Off-Site Receptors.

AECOM understands that the proposed development works will be undertaken in compliance with Construction Design and Management (CDM) 2015 regulations.

Prior to work commencing, a health and safety risk assessment should be carried out by the appointed Principal Contractor / developed in accordance with current health and safety regulations. This assessment should cover potential risks to construction staff, permanent site staff and the local population. Based on the findings of this risk assessment, appropriate mitigation measures should be implemented during the construction period.

The greatest potential for generation of dust will be during the Site works and therefore dust generation should be kept to a minimum in accordance with general best practice, as outlined in, for example, 'Environmental Good Practice on Site', CIRIA Publication C692 to reduce this risk.

The risk to construction workers during the excavation and construction phases in terms of potential exposure to high concentrations of contaminants is considered to be low given the historic and current land uses identified at the Site. Should gross contamination be identified during the construction phase, then this may pose a potential acute risk to construction works. In addition, due to the age of the building present onsite it is possible that asbestos or ACM may be present onsite which poses its own acute risks. It is likely to be able to be effectively managed through good health and safety practices and protocols. Adoption of appropriate dust suppression techniques would also mitigate the degree of potential particulate migration off-site.

10. Waste Management & Potential Reuse of Site-Won Material

10.1 Initial Assessment of Probable Waste Generation

Based upon the proposed redevelopment, it is probable that general construction and soil waste will be generated for the site as part of the development.

10.2 Initial Assessment of Probable Material Available for Reuse

Based on the proposed redevelopment, the earthworks design would likely include cut and fill works, cut / fill balance, and an investigation of the potential for the re-use of site won materials during the earthworks.

10.3 Outline Recommendations

It would be prudent to undertake a hazardous waste assessment on samples collected during any future ground investigations, to determine the classification of soils for any off-site disposal and to determine the chemical suitability of soils for consideration for re-use as site won materials. This initial assessment could support the determination of costings for disposal of site generated soils if they are unsuitable for use.

11. Review of Geotechnical Risk and Preliminary Engineering Assessment

11.1 Geotechnical Risk

A preliminary geotechnical risk register is given in Appendix F which describes the main ground related hazards on the site (excluding ground contamination) and mitigation measures which may be implemented to eliminate or reduce the risk by means of further investigation or during the design.

11.1.1 The most significant risks are:

1. Former foundations and voids associated with former developments may have implications for surface/foundation stability and settlement, especially under increased loading from structures or earthworks.
2. Any existing Made Ground is unlikely to provide a suitable founding stratum for structural foundations and potentially unsuitable for pavement. Although ground investigation will be required to confirm this. The extent and characteristics of the Made Ground should be investigated most notably beneath the current structures.
3. While the current limited ground investigation data and Groundsure Report identified firm to stiff shallow natural strata and negligible compressibility of underlying strata; should the presence of weak and compressible soils be identified onsite these may pose a risk of excessive total or differential settlement of foundations.
4. Where ground may be required to be re-graded, the material will require classification for re-use. Glacial Till is a highly variable material and will need classification for re-use.
5. While the site is broadly level and it is anticipated that the proposed development would not require notable slopes or embankments, should these be required slope stability of embankments and cuttings should be assessed. The long-term settlement of raised areas should be assessed, if excessive total and differential settlement are a concern for the proposed area of the scheme.
6. High, perched or variable ground water levels may impact earthworks, causing instability in excavations, cuttings, and temporary works. The current limited ground investigation onsite has identified perched groundwater within Made Ground and the superficial deposits.
7. Unknown/ unrecorded buried structures are a risk. It is known that a partial sub-basement is beneath Building 402.
8. Potential obstructions to piling or drilling from boulders in the Glacial Till, previous underground structures , foundations, buried former runway or variable rock head level and into variable properties of rock.
9. Striking underground services during ground investigation or construction.
10. Chemically aggressive ground conditions.

11.1.2 To mitigate these risks, it is recommended that:

1. A thorough ground investigation is carried out including a more extensive UXO survey for the scheme and in areas where buildings are proposed. Dependent upon the nature of the foundations and potential for basements, it may be prudent to undertake the investigations post demolition of the above ground structures at the site.
2. The extent of, and potentially highly variable thickness of, Made Ground, weak and compressible materials or soils, should be assessed during a ground investigation and foundations should be placed on a suitable bearing stratum below any Made Ground or weak and compressible soil. It may require excavation and replacement, or treatment for new hardstanding areas.
3. The ground conditions should be characterised below structures by a ground investigation. A variety of foundations may be required to support the design loads including shallow spread, with or without soft ground replacement with engineered fill, and deep piles.
4. For pavement design, the proposed sub-grade level for access roads/car parks should be confirmed prior to construction. Any soft ground or unsuitable materials should be excavated out and replaced with engineering fill, before starting any pavement construction works.
5. Where ground is to be regraded, testing should be carried to assess its suitability for reuse.

6. An investigation into the groundwater levels including seasonal variation is recommended prior to commencement of any detailed earthworks or foundation design.
7. Slope stability assessment should be undertaken for detailed earthworks design. The long-term settlement of raised areas should be assessed, if excessive total and differential settlement are a concern for the proposed area of the scheme.
8. Establish site procedures to be undertaken in the event underground services are encountered, including risk assessment and method statement. Ensure any existing services are identified and fully traced prior to commencement of GI and construction works.
9. Ground investigation for the proposed site extents and any likely structure locations to reduce risk of potential obstructions.
10. Carrying out PAS128 surveys and using cable avoidance tools prior to breaking ground. Obtain and assess up to date service and utility plans for the site. Dig a hand-dug pit to 1.2mbgl, using insulated hand tools, prior to drilling.
11. Chemical testing of soil to BRE requirements to support selection of underground materials.

11.2 Preliminary Engineering Assessment

11.2.1 Foundations

Subject to the findings of a ground investigation and detailed design, for lightly loaded structures with little concern for excessive total and differential settlement, the underlying firm to stiff Glacial deposits may be suitable for the use of shallow spread foundations, founded within this formation. Although, some softer more compressible Glacial Till may be present at shallower depths. Therefore, if this is encountered shallow foundations could still be an option, following the excavation of such ‘soft spots’ and replacement with suitable compacted engineered fill, providing a suitable founding material. However, if extensive ‘soft spot’ treatment is required, this may not be viable, and consideration may have to be given to alternative solutions.

The bearing resistance of foundation stratum and indeed engineered fill, and the settlement tolerance of the proposed structures will need to be considered at detailed design for the suitability of any shallow spread foundations. In general, foundations should be located within natural ground beneath any fill, Made Ground, highly compressible soil, and below the depth of effect of variations due to vegetation, seasonal and climatic change. As mentioned earlier, depending on the depth to suitable bearing strata and the viability of excavation and ‘soft spot’ replacement with engineered fill, piled foundations may be considered.

Piled foundations may need consideration for more heavily loaded structures and for economical and construction reasons as mentioned above, along with practicality. Although, piles may encounter boulders with the Glacial Till, obstruction from underground structures/ foundations, obstructions included in the Made Ground such as reinforced concrete and variable rock head level, these should be taken into consideration.

For light to moderate loads, the ground conditions are expected to be suitable for the use of traditional shallow spread foundations founded within the superficial formation. Piled foundations may be considered for structures located in close proximity to existing trees or for more heavily loaded structures. It should be noted that piled foundations could provide a preferential pathway for perched water to enter the Mudstone aquifer.

Where structures are located within influencing distance of any existing or future trees, reference should be made to Chapter 4.2 of NHBC’s Standards.

11.2.2 Ground Floor Slabs

The potential use of ground bearing floor slabs would be determined following the ground investigation. In principal footings should be taken below the Made Ground if it is to remain partially insitu and at least 0.1m into the underlying natural stratum if it is deemed suitable.

11.2.3 Excavations

Where excavations for foundations, earthworks, and drainage and are required, stability of excavated areas should be considered. Close or continuous support will be required for any manned entry to excavations.

Shallow groundwater may be encountered and may require groundwater control during excavation. Detailed information regarding the groundwater regime will be available following the ground investigation and subsequent monitoring.

11.2.4 Soakaways and Infiltration Drainage

The ground conditions are unlikely to be suitable for the use of soakaways, where cohesive Glacial Till or cohesive materials are present, due to their low permeability. The suitability of the geological strata for infiltration drainage solutions could be confirmed via ground investigation. It is probable however that rainwater drainage will be required to be stored for later use, attenuated in tanks or sealed water features for later use or discharged to sewers/drains.

12. Conclusions

The following is a summary of the review of the information sources listed in Section 1.3:

The site is located at 402 Avro Way, Manchester (M90 5AF), approximately 100m northwest of the junction of Avro Way and Pinfold Lane and is centred on National Grid Reference 380839 384912 and covers an area of approximately 1.9 hectares.

- The superficial strata are indicated to comprise cohesive Glacial Till comprising clays with sand bands. The bedrock is of the Bollin Mudstone Member and is anticipated to comprise weathered mudstones over more competent mudstone with depth. The superficial strata are anticipated to be relatively thin with the bedrock anticipated at c.4.5m – 7.5mbgl based upon wider historic ground investigations.
- Made Ground is anticipated on site based on current and historical land sue at the site including: Hardstanding areas for taxing aircraft, Building 402 was constructed by 1995 expanding over a few years. Additionally, Made Ground was identified in ground investigations adjacent to the site.
- The superficial deposits are noted as a secondary undifferentiated aquifer and the bedrock a secondary B aquifer. Groundwater was identified in the limited ground investigations around the site, to be present perched within the Made Ground and Superficial Glacial Till associated with granular sand lenses.

12.1 Geo-environmental Risks Review

Onsite potential sources of contamination have been identified through this desk study review including:

- Potentially contaminated Made Ground and shallow natural soils and groundwater associated with past and current land use/development;
- Ground gases: methane and carbon dioxide generated from Made Ground and naturally occurring strata;
- Soil vapours: volatile organic compounds may be present emanating from soil/groundwater sources of
- Asbestos associated with Made Ground and the current structures;
- Potential presence of UXO

Offsite sources of contamination have also been identified and include:

- Potentially contaminated groundwater associated with current and historical land use and development;
- Ground gases and soil/groundwater vapours migrating from offsite sources.

12.2 Geotechnical Risks and issues

Potential geotechnical hazards identified include:

- Any existing Made Ground is unlikely to provide a suitable founding stratum for structural foundations and potentially unsuitable for pavement. Made Ground is likely in most areas of the site based on nearby intrusive investigations and site current/past use. The extent and characteristics of the Made Ground will need to be investigated further, notably within the footprint of the current Building 402 and across the footprint of the proposed building;
- Potentially unsuitable ground for pavement construction;
- High, perched, or variable ground water levels which may impact earthworks, causing instability in excavations, cuttings and temporary works;
- Potential obstructions to pilling or drilling from boulders in the Glacial Till deposits, previous underground structures or foundations;
- Striking underground services/utilities during intrusive investigations or construction;
- Chemically aggressive ground conditions;
- Soil shrink and swell with associated effects on pavements and/or foundations from any trees retained or removed as part of landscaping within the proposed development; and

- Glacial Till may be unsuitable as a bearing stratum for foundations if loads are high and the firm clay doesn’t provide the suitable bearing capacity.

13. Recommendations

Once the layout and nature of the development are finalised a ground investigation should be undertaken in order to inform the detailed design of the development.

The geo-environmental investigation should be designed with due consideration of the requirements of BS 10175:2017.

The geotechnical elements of the investigation should be designed with consideration of BS EN 1997-1:2004, BS EN 1997-2:2007 (Eurocode 7: Geotechnical Design – Parts 1 and 2) and BS 5930:1999.

In summary, key objectives to be addressed by the investigation include:

- Confirmation of the ground (and groundwater) conditions and validation of the CSM;
- Chemical status of Made Ground and natural soils for the purpose of risk assessment to human health, groundwater and for preliminary waste classification;
- Chemical status of groundwater in order to determine risks to controlled waters;
- Ground gas monitoring to determine the potential risks to the proposed development and surrounding properties;
- Identification of geotechnical design parameters for earthworks and preliminary foundation design, including a BRE assessment; and
- Confirmation of infiltration characteristics.

By undertaking an intrusive ground investigation, an assessment of the ground and groundwater profiles may be carried out and the geotechnical and geo-environmental risks associated with the site made. This will allow a refined risk assessment and CM to be developed in accordance with LCRM methodology. The investigation will allow a quantitative assessment as to whether any of the potential risks identified in this study are present and are of material concern to the development.

Due to the location of the site within the wider operating areas of the airport during WWII and its use as aeroplane standing, it is recommended that the Client commissions a specialist UXO report in advance of any future intrusive site works or development. The report should be prepared with cognisance of CIRIA publication C681 (Stone et al., 2009). In addition, it is considered likely that the former aeroplane hard standing is still present in some area of the site below the current level, and as such any proposed ground investigation should take into account the potential for two thicknesses of overlying hard standing.

Additionally, before any intrusive investigation is to occur the relevant procedures in terms of identifying and mapping services and utilities should be undertaken, See Section 12.1 for further guidance. Special attention should be given to the location, and if necessary, safe positive identification of the aviation fuel pipeline feeding Manchester Airport which is believed to lie on Pinfold Lane.

14. References

- AECOM (2019), Manchester Airport, Proposed DNATA Site: Geotechnical & Geo-environmental Technical Note on Ground Investigation
- Arcadis (June 2003) Geraghty & Miller International Inc. Hangar 3 Fuelling Farm, Tier 1 Environmental Assessment Report.
- British Geological Survey (2022) Geoindex Online Mapping Service, available at <http://mapapps2.bgs.ac.uk/geoindex/home.html > Accessed [24/2/22)
- British Geological Survey (1971) Sheet 98 Stockport Solid, 1:10,000 Geological map
- British Geological Survey (1977) Sheet 98, Stockport Drift 1:10,000 Geological Map
- Brownfield Solutions Ltd (May 2017)HV Cable, Factual Environmental Report
- BSI (1997)), BS:EN 1997 Eurocode 7 – Geotechnical Design
- BSI (2011) BS 10175:2011 (as amended) Investigation of Potentially Contaminated Sites – Code of Practice
- BSI (2015) 5930:2015 (as amended) Code of Practice for Site Investigations
- Cheshire Brine Subsidence Compensation Board (2018), Cheshire-Brine-Subsidence-Compensation-Board-Compensation-District-and-Consultation-Areas, availiable at < http://www.cheshirebrine.com/wp-content/uploads/2018/05/Cheshire-Brine-Subsidence-Compensation-Board-Compensation-District-and-Consultation-Areas.pdf > Accessed [24/02/22]
- Coal Authority (2022), Interactive Online Map, available at < https://mapapps2.bgs.ac.uk/coalauthority/home.html >, Accessed [24/02/22]
- Contaminated Land (England) Regulations 2006
- Contaminated Land Statutory Guidance (2012).
- Cranfield Soil and Agri Institute (2022) Soilscapes, available at < http://www.landis.org.uk/soilscapes/ >
- Defra (2022), Multi Agency Geographic Information Collection (MAGIC), available at < https://magic.defra.gov.uk/ >, Accessed [24/2/22]
- Environment Agency (2021) Land Contamination: Risk Management
- Environment Agency (2022) Catchment Data Explorer, available at < > Accessed [24/2/22]
- Environmental Damage (Prevention and Remediation) Regulations 2009
- Manchester Airport Group (2022), Our History Website, available at < https://www.manchesterairport.co.uk/about-us/manchester-airport-and-mag/history/).>, Accessed [24/02/22]
- National House Building Council/Environment Agency/Chartered Institute of Environmental Health publication R&D 66 (NHBC/EA/CIEH, 2008)
- Natural England (2020) Provisional Agricultural Land Classification Grade WMS Dataset (GIS Based) availiable at < https://data.gov.uk/dataset/952421ec-da63-4569-817d-4d6399df40a1/provisional-agricultural-land-classification-alc>, Accessed [24/02/22]
- OPUS International Consultants (UK) Ltd (Feb 2013)., Hangar 3 Fuelling Farm, Supplementary Environmental Investigation
- Scott Wilson (March 2005), Hangar 5 Site Interpretive Geo-Environmental Assessment on Ground Investigation
- the Environmental Protection Act 1990 (Part 2A)
- the National Planning Policy Framework (2012)
- Town and Country Planning Act 1990 (as amended)
- URS (Nov 2013) Proposed Motor Transport Building , Geotechnical & Geo-Environmental Desk Study

- URS (Nov 2014) Former Re-Fuelling Depot, Verification Report
- USR (March 2014). Proposed Motor Transport Building, Geo-Environmental & Geotechnical Interpretative Report

Appendix A Proposed Development Drawings

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Notes

1. This drawing has been prepared in accordance with the scope of RPS's appointment with its client and is subject to the terms and conditions of that appointment. RPS accepts no liability for any use of this document other than by its client and only for the purposes for which it was prepared and provided.
2. If received electronically it is the recipients responsibility to print to correct scale. Only written dimensions should be used.
3. This drawing should be read in conjunction with all other relevant drawings and specifications.

Key

Overall Site 1.45Ha 3.605acres

Schedule of Accommodation

Unit 2a (10% Offices)	c.37k
Unit 2b (10% Offices)	c.16k
Unit 2c (10% Offices)	c.16k
Unit 2d (10% Offices)	c.21k
Overall Total 8,604 sqm	**92,613 sqft**

All areas include offices at 1st floor

Please note: all retaining wall locations are subject to engineering design

Rev	Description	By	Ckd	Date
P01	First Issue	LL	MJH	16/02/22

Sherwood House, Sherwood Avenue,
Newark, Nottinghamshire, NG24 1QQ
T: 01636 605 700 E: rpsnewark@rpsgroup.com

Client: COLUMBIA THREADNEEDLE INVESTMENTS

Project: MAG, Building 401, Manchester Airport

Title: Proposed Overall Site Plan Option 10

RPS Project Number	Scale @ A1	Date Created
NK020598	1:500	16/02/22
Task Team Manager	**Information Author**	**Task Information Manager**
KRP	LL	MJH

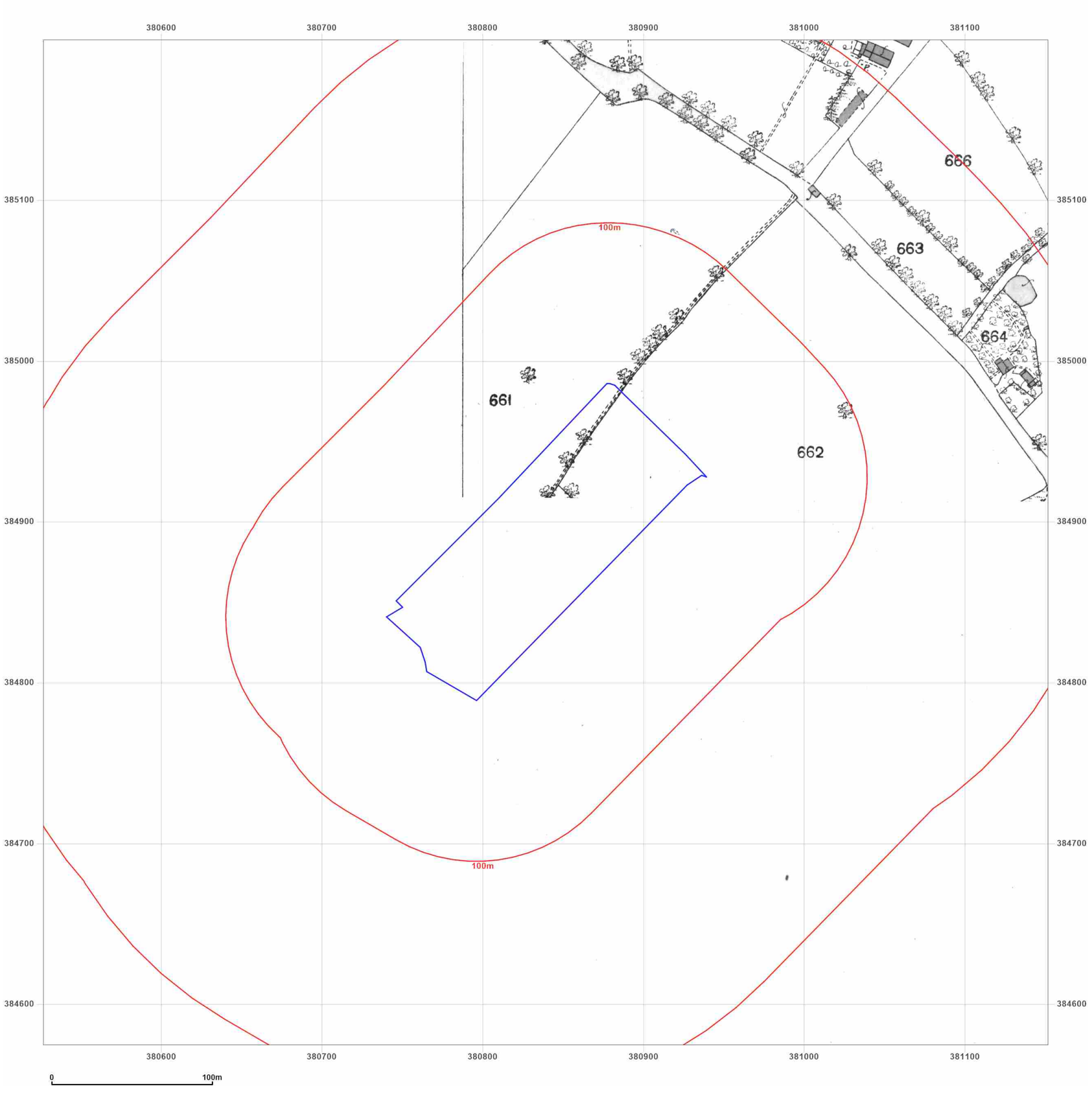
Status: S2 (Suitable for Information)

Document Number: 020598-RPS-SI-XX-DR-A-9076 Revision: P01

Project Code - Originator - Zone - Level - Type - Role - Drawing Number

rpsgroup.com

Appendix B Groundsure Report



Groundsure INSIGHTS

Site Details:

ALPHA FLIGHT SERVICES,
BUILDING 402, AVRO WAY,
MANCHESTER, M90 5AF

Client Ref: MAG_-_Building_402_60663052
Report Ref: GS-8497500
Grid Ref: 380839, 384887

Map Name: County Series

Map date: **1872-1877**

Scale: 1:2,500

Printed at: 1:2,500

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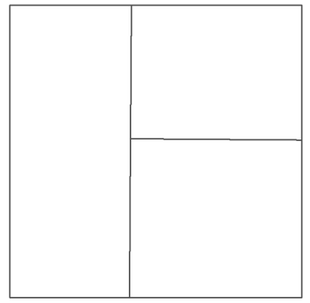
Surveyed 1877
Revised 1877
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1872
Revised 1872
Edition N/A
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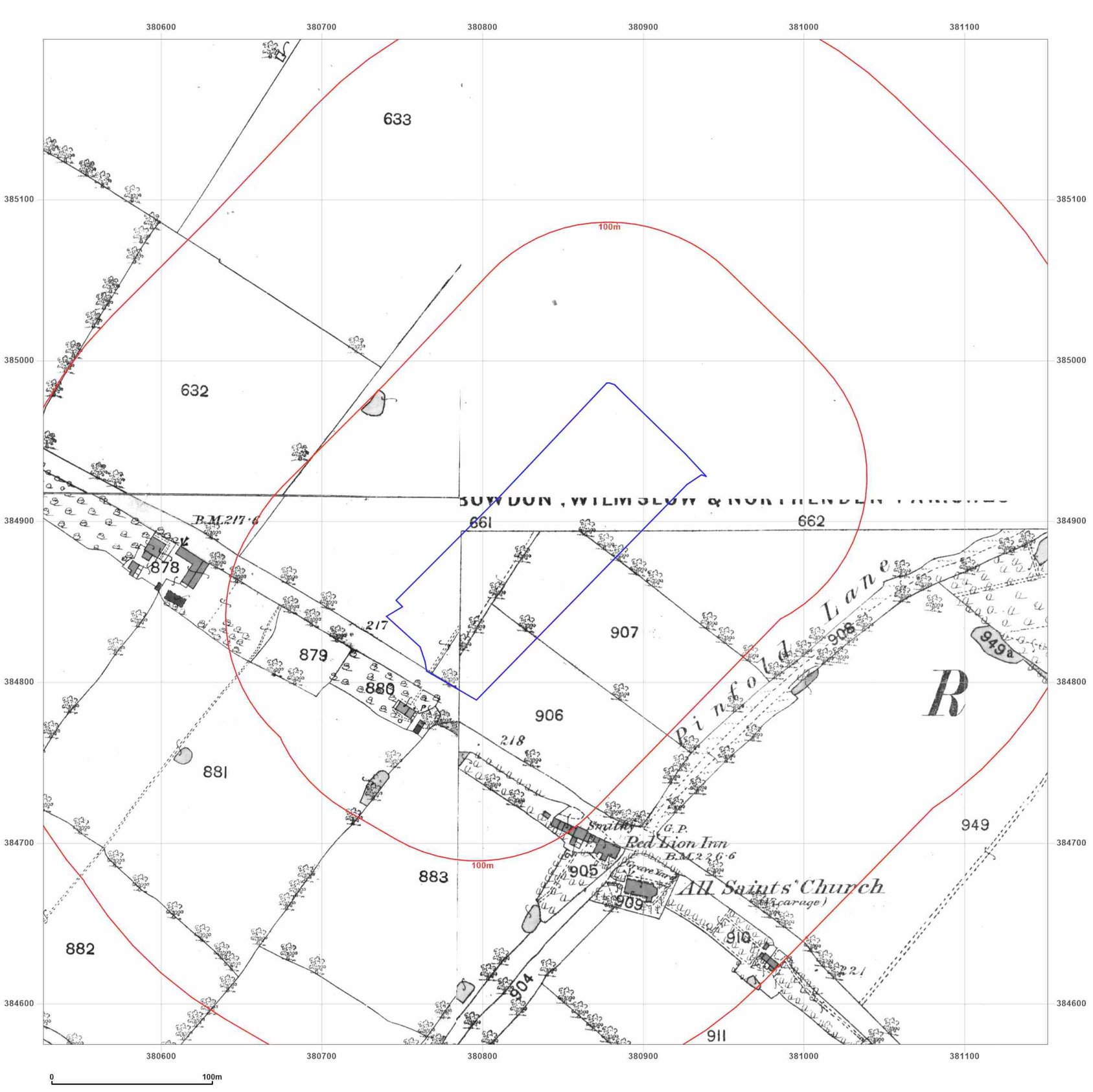

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ALPHA FLIGHT SERVICES,
BUILDING 402, AVRO WAY,
MANCHESTER, M90 5AF

Client Ref: MAG_-_Building_402_60663052
Report Ref: GS-8497500
Grid Ref: 380839, 384887

Map Name: County Series
Map date: **1872-1881**
Scale: 1:2,500
Printed at: 1:2,500

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Surveyed 1879
Revised 1879
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1872
Revised 1872
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1881
Revised 1881
Edition N/A
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Edition N/A
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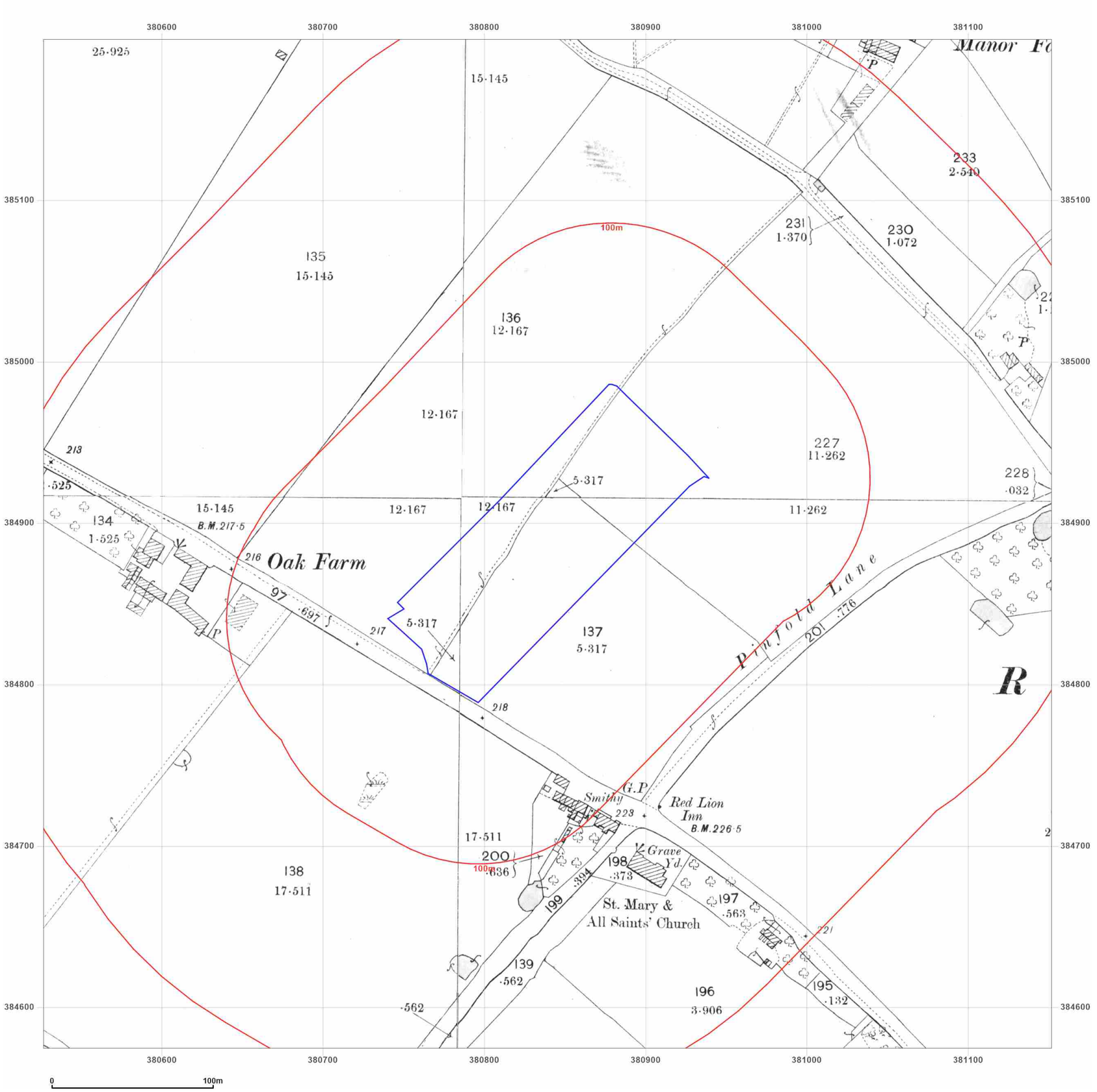

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Site Details:

ALPHA FLIGHT SERVICES,
BUILDING 402, AVRO WAY,
MANCHESTER, M90 5AF

Client Ref: MAG_-_Building_402_60663052
Report Ref: GS-8497500
Grid Ref: 380839, 384887

Map Name: County Series
Map date: **1898**
Scale: 1:2,500
Printed at: 1:2,500

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Surveyed 1877
Revised 1897
Edition 1898
Copyright N/A
Levelled N/A

Surveyed 1877
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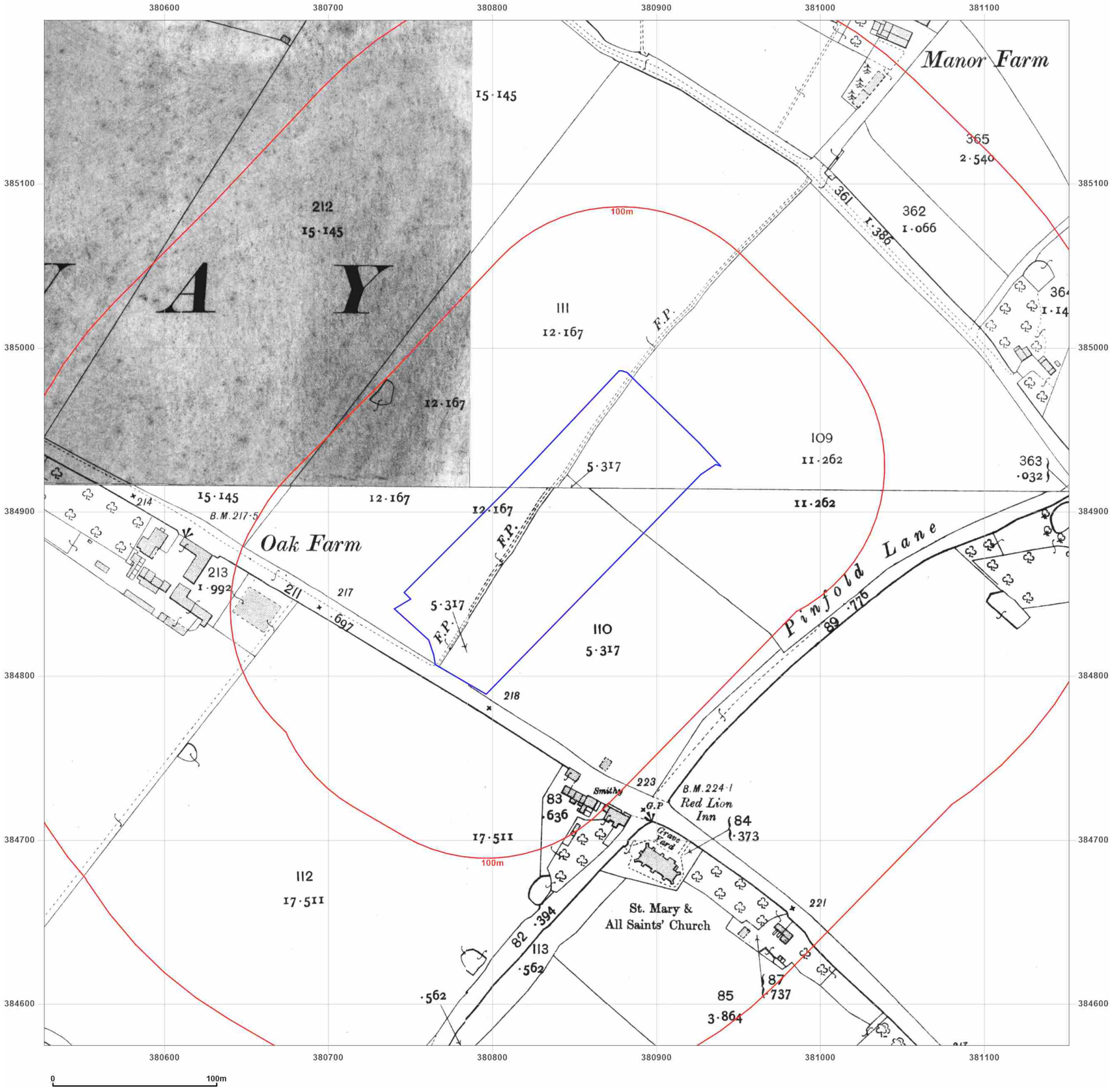

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Site Details:

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MANCHESTER, M90 5AF

Client Ref: MAG_-_Building_402_60663052
Report Ref: GS-8497500
Grid Ref: 380839, 384887

Map Name: County Series
Map date: **1909**
Scale: 1:2,500
Printed at: 1:2,500

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Surveyed 1909 Revised 1908 Edition 1909 Copyright N/A Levelled N/A	Surveyed 1909 Revised 1908 Edition 1909 Copyright N/A Levelled N/A
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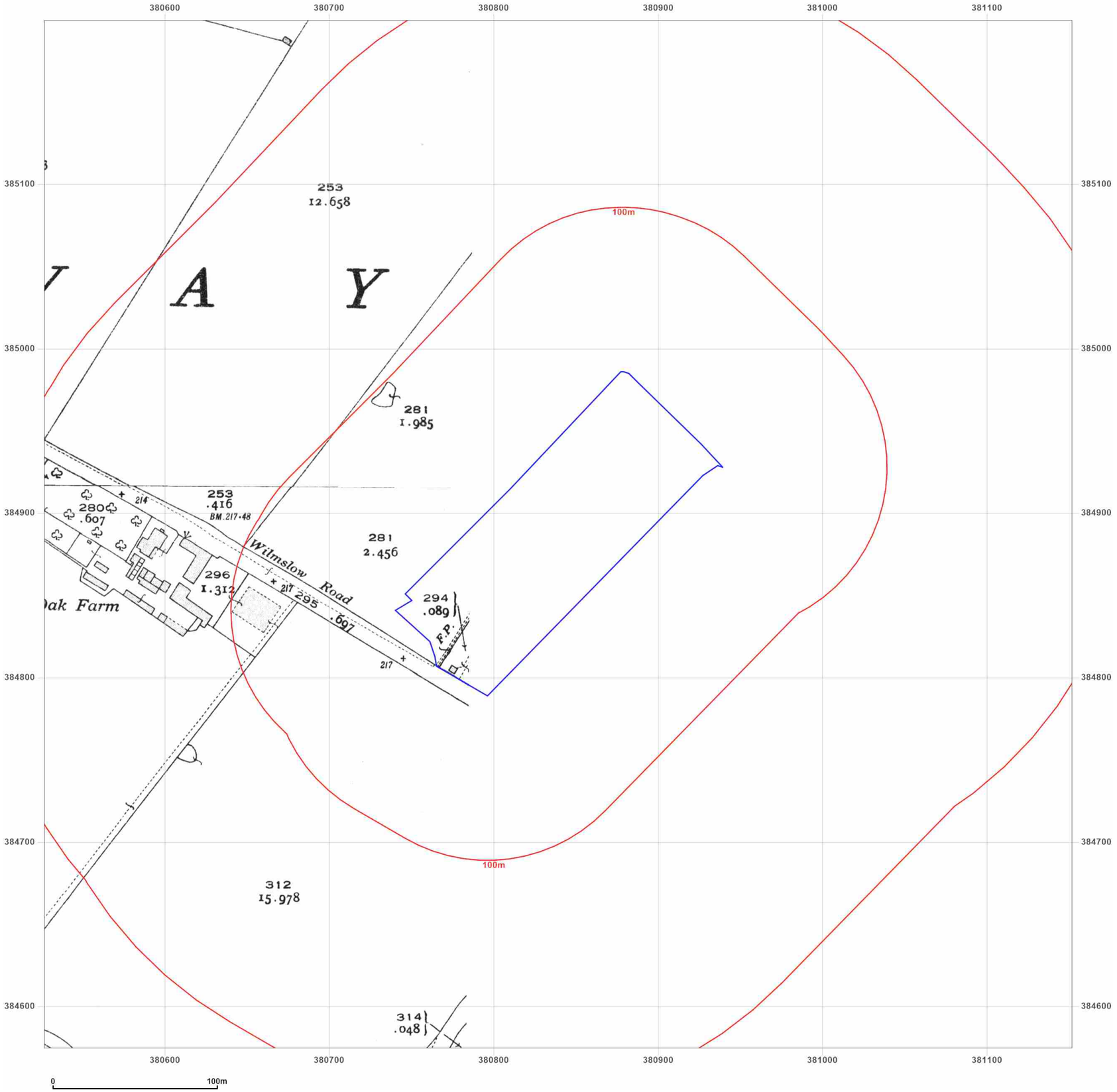

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Site Details:

ALPHA FLIGHT SERVICES,
BUILDING 402, AVRO WAY,
MANCHESTER, M90 5AF

Client Ref: MAG_-_Building_402_60663052
Report Ref: GS-8497500
Grid Ref: 380839, 384887

Map Name: County Series

Map date: **1935**

Scale: 1:2,500

Printed at: 1:2,500

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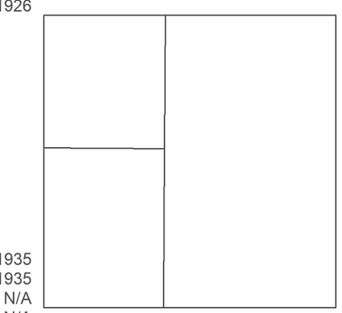
Surveyed 1935
Revised 1935
Edition N/A
Copyright N/A
Levelled 1926



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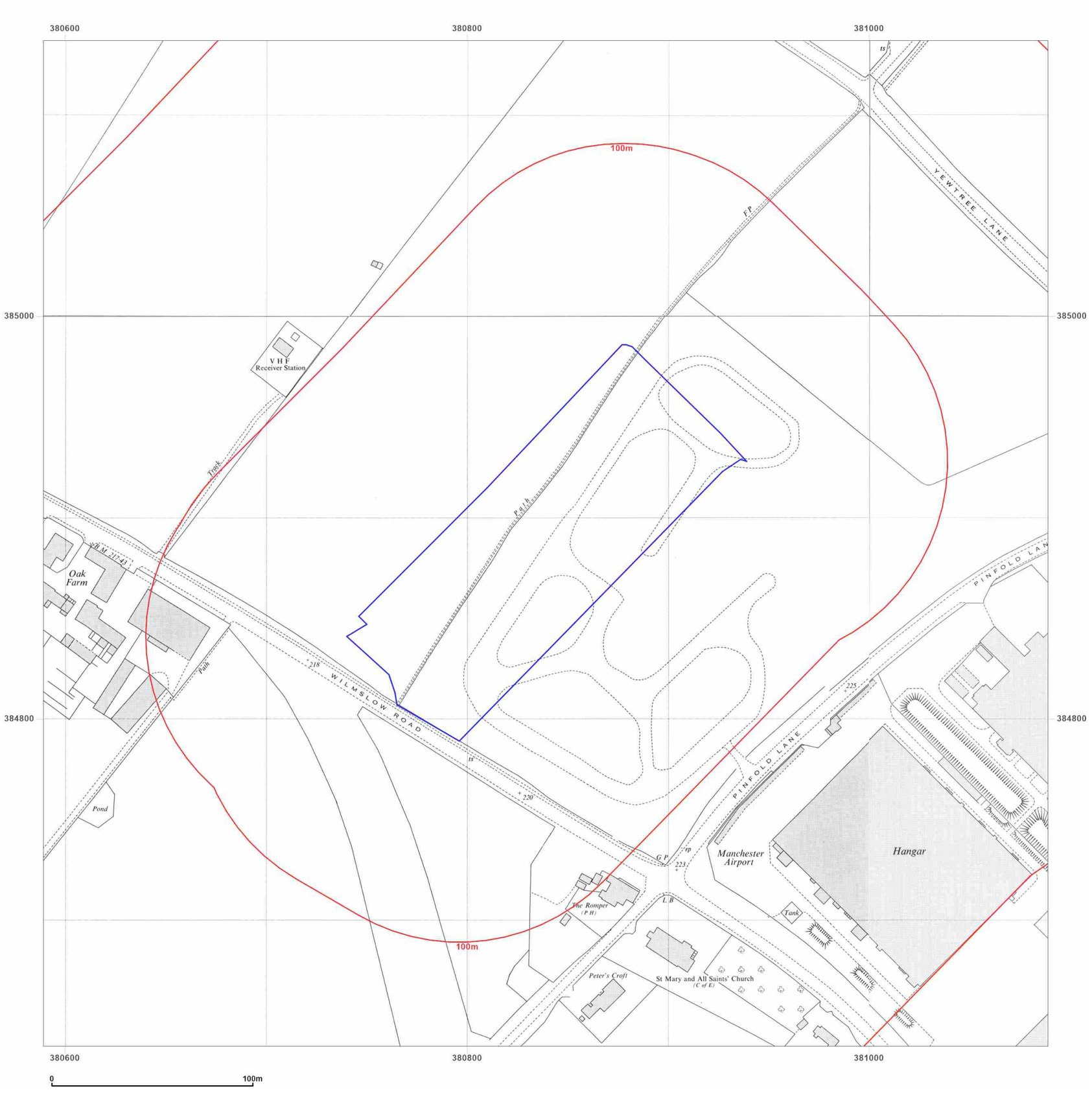

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Site Details:

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BUILDING 402, AVRO WAY,
MANCHESTER, M90 5AF

Client Ref: MAG_-_Building_402_60663052
Report Ref: GS-8497500
Grid Ref: 380839, 384887

Map Name: National Grid
Map date: **1963-1968**
Scale: 1:1,250
Printed at: 1:2,000

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Surveyed 1962
Revised 1962
Edition N/A
Copyright 1963
Levelled 1959

Surveyed 1963
Revised 1963
Edition N/A
Copyright 1963
Levelled 1959

Surveyed 1968
Revised 1968
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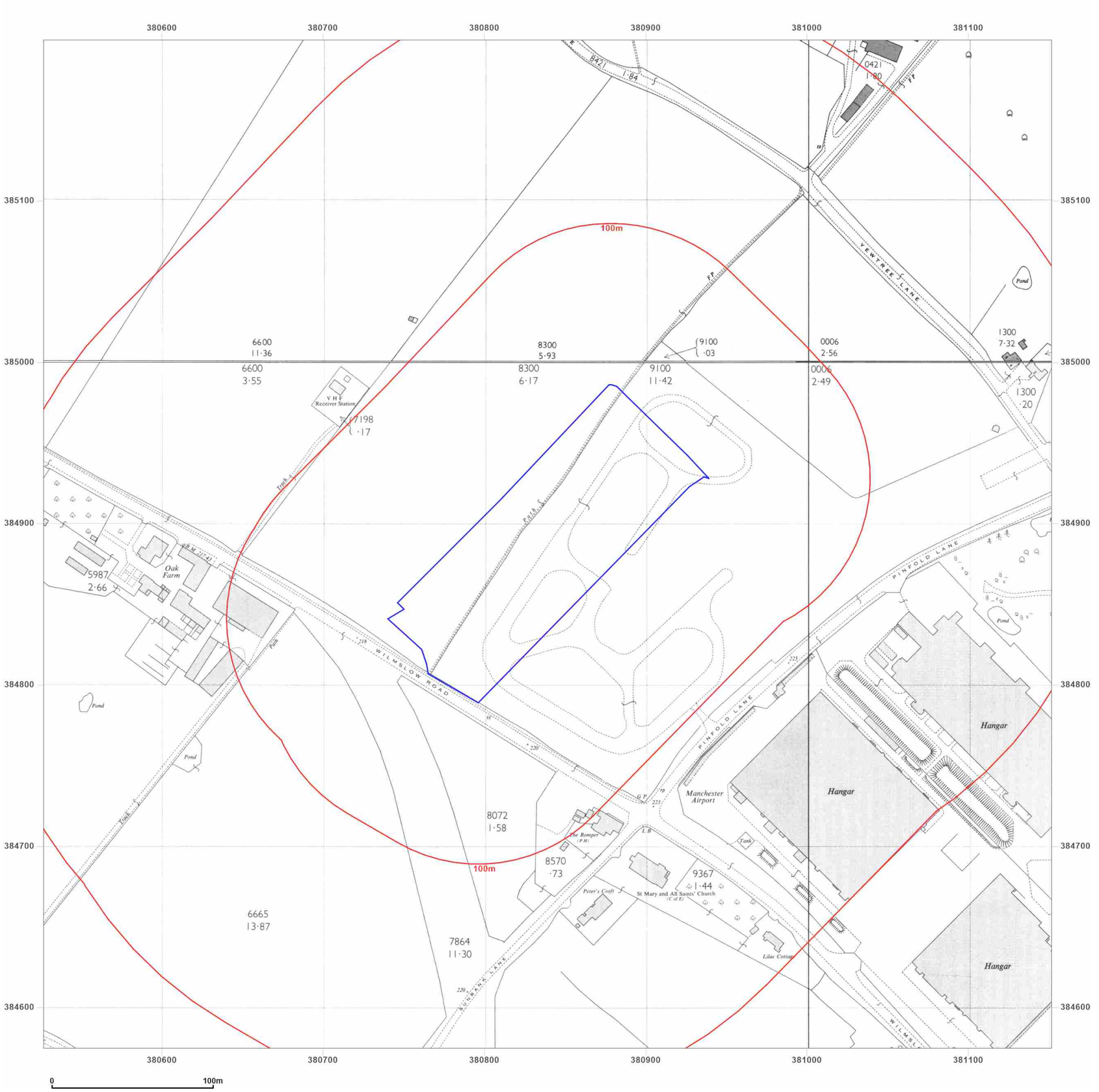

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Site Details:

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MANCHESTER, M90 5AF

Client Ref: MAG_-_Building_402_60663052
Report Ref: GS-8497500
Grid Ref: 380839, 384887

Map Name: National Grid

Map date: **1964-1969**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1963
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Copyright 1964
Levelled 1959

Surveyed 1968
Revised 1968
Edition N/A
Copyright 1969
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Client Ref: MAG_-_Building_402_60663052
Report Ref: GS-8497500
Grid Ref: 380839, 384887

Map Name: National Grid
Map date: **1973-1974**
Scale: 1:1,250
Printed at: 1:2,000

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Surveyed 1962
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Edition N/A
Copyright 1974
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Surveyed 1968
Revised 1973
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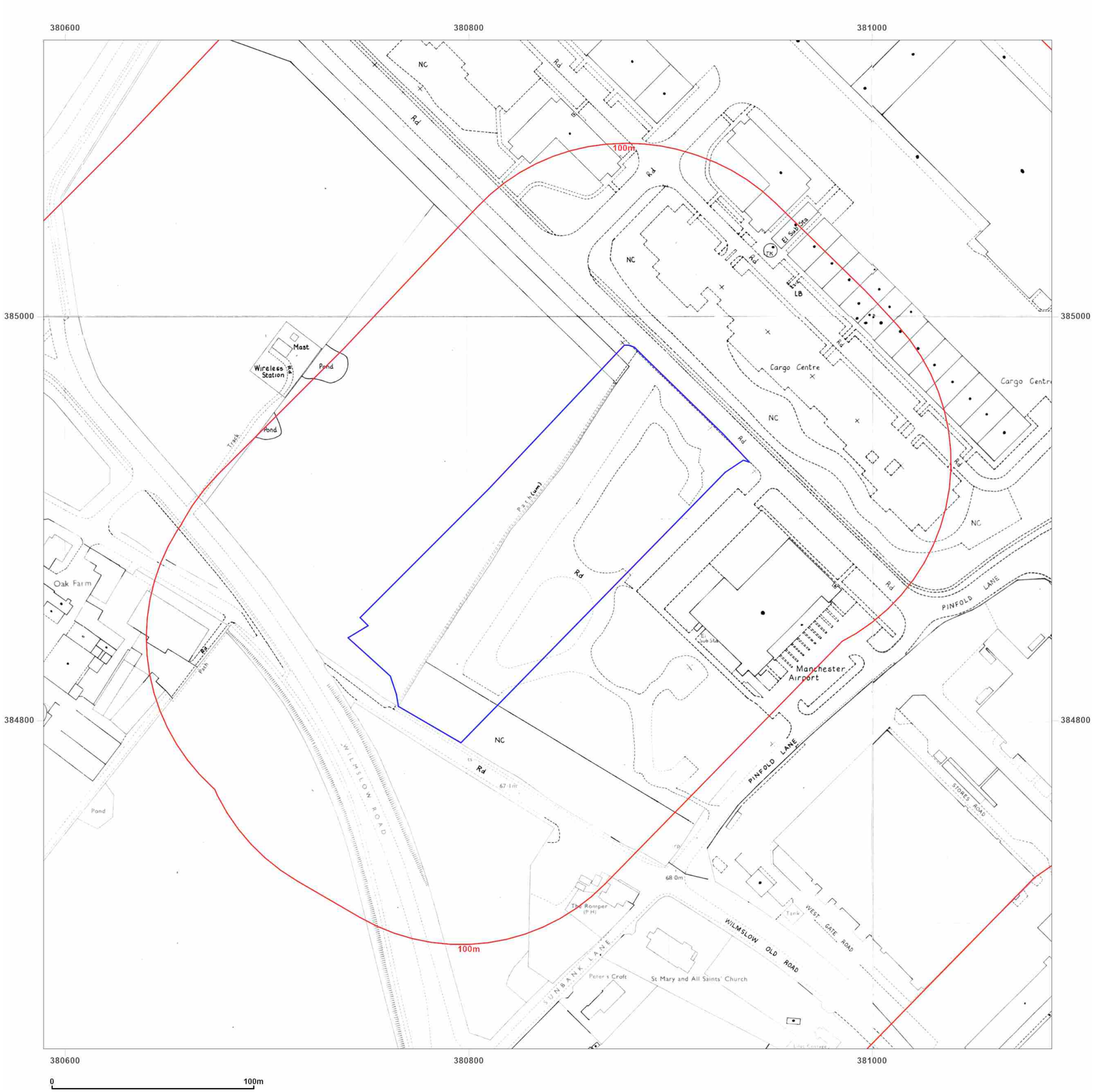

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Site Details:

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BUILDING 402, AVRO WAY,
MANCHESTER, M90 5AF

Client Ref: MAG_-_Building_402_60663052
Report Ref: GS-8497500
Grid Ref: 380839, 384887

Map Name: National Grid
Map date: **1987**
Scale: 1:1,250
Printed at: 1:2,000

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Surveyed 1959
Revised 1987
Edition N/A
Copyright 1987
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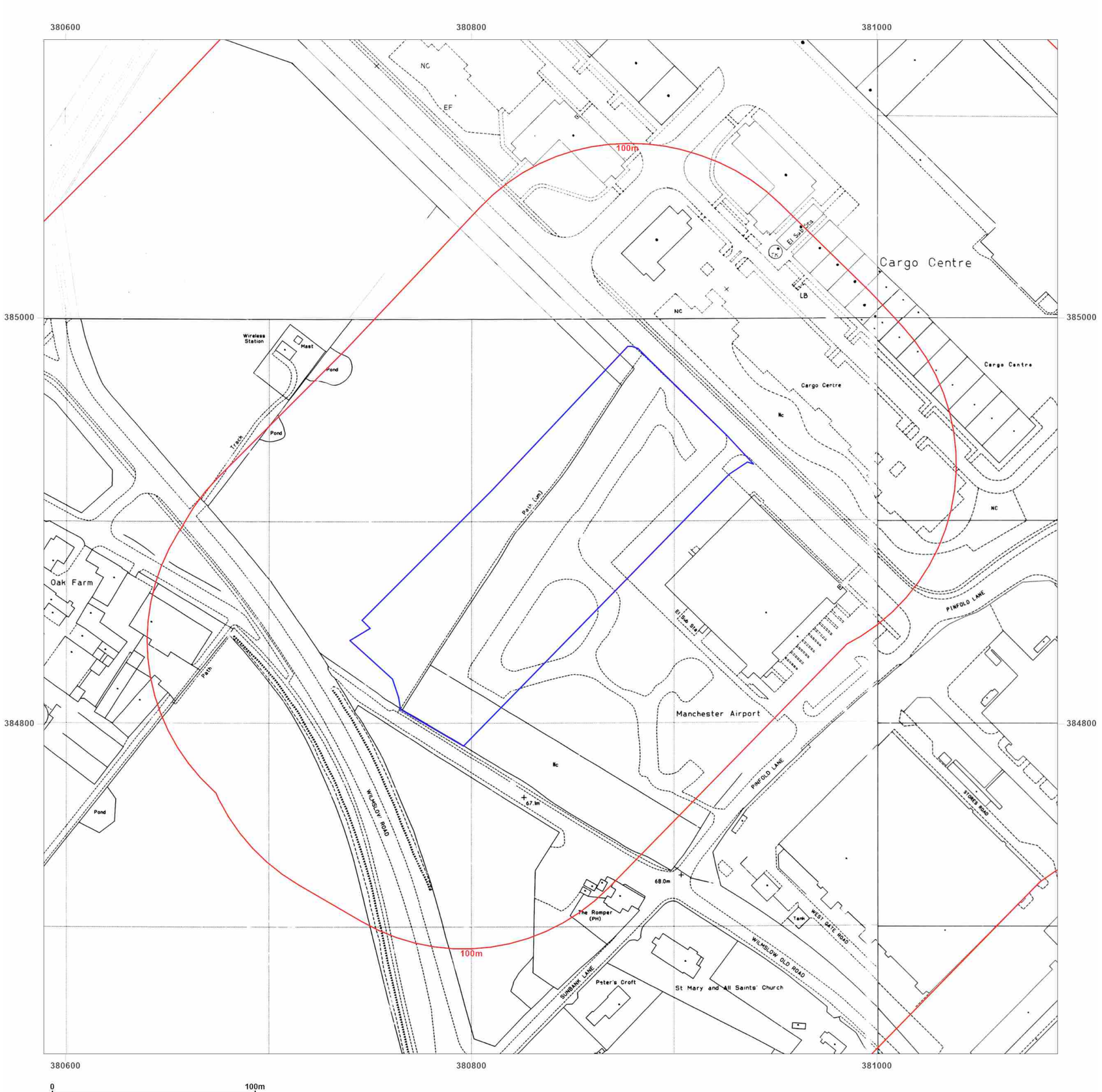

Groundsure INSIGHTS

Site Details:

ALPHA FLIGHT SERVICES,
BUILDING 402, AVRO WAY,
MANCHESTER, M90 5AF

Client Ref: MAG_-_Building_402_60663052
Report Ref: GS-8497500
Grid Ref: 380839, 384887

Map Name: National Grid

Map date: **1990-1992**

Scale: 1:1,250

Printed at: 1:2,000

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Surveyed 1959 Revised 1990 Edition N/A Copyright 1990 Levelled 1959	Surveyed 1992 Revised 1992 Edition N/A Copyright 1992 Levelled N/A
Surveyed 1992 Revised 1992 Edition N/A Copyright 1992 Levelled N/A	Surveyed 1990 Revised 1990 Edition N/A Copyright 1990 Levelled N/A

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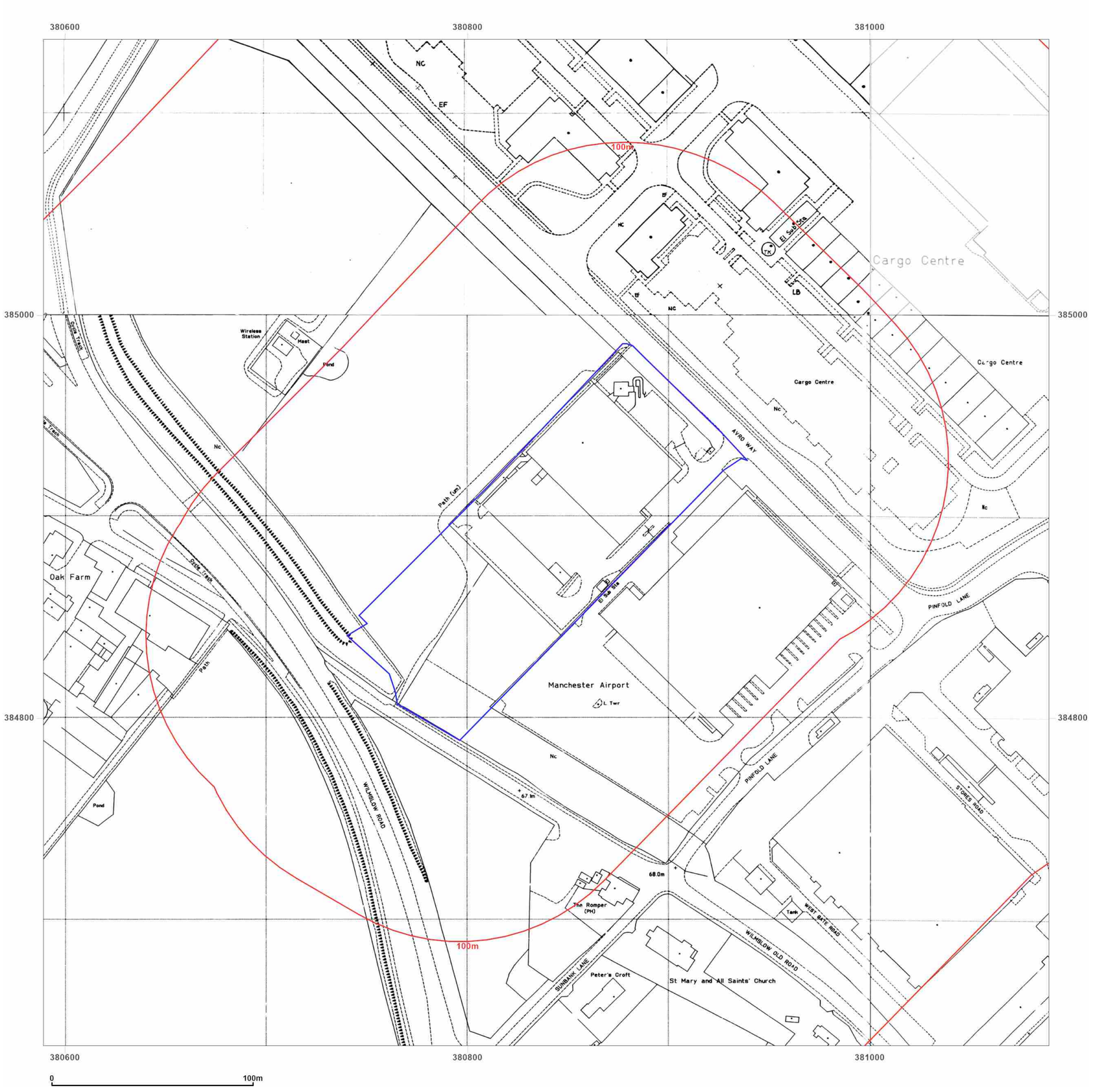

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Site Details:

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BUILDING 402, AVRO WAY,
MANCHESTER, M90 5AF

Client Ref: MAG_-_Building_402_60663052
Report Ref: GS-8497500
Grid Ref: 380839, 384887

Map Name: National Grid

Map date: **1991-1995**

Scale: 1:1,250

Printed at: 1:2,000

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Surveyed 1959
Revised 1991
Edition N/A
Copyright 1991
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Surveyed 1992
Revised 1992
Edition N/A
Copyright 1992
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Surveyed 1995
Revised 1995
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Surveyed 1992
Revised 1992
Edition N/A
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Report Ref: GS-8497500
Grid Ref: 380839, 384887

Map Name: National Grid

Map date: **1992-1995**

Scale: 1:1,250

Printed at: 1:2,000

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Surveyed 1992
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Edition N/A
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Surveyed 1995 Revised 1995 Edition N/A Copyright 1995 Levelled N/A	Surveyed 1995 Revised 1995 Edition N/A Copyright 1995 Levelled N/A

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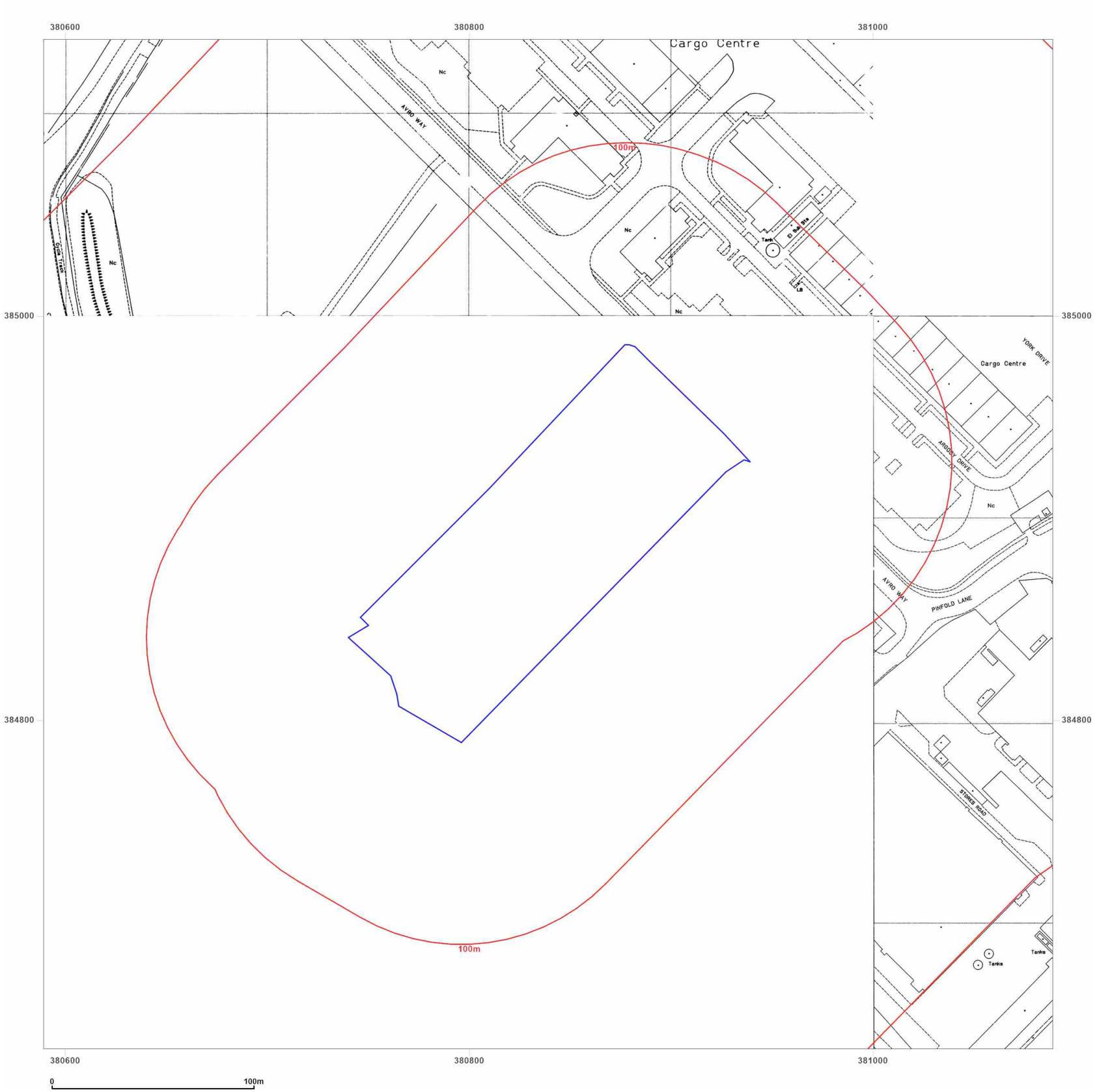

Groundsure INSIGHTS

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ALPHA FLIGHT SERVICES,
BUILDING 402, AVRO WAY,
MANCHESTER, M90 5AF

Client Ref: MAG_-_Building_402_60663052
Report Ref: GS-8497500
Grid Ref: 380839, 384887

Map Name: National Grid
Map date: **1995**
Scale: 1:1,250
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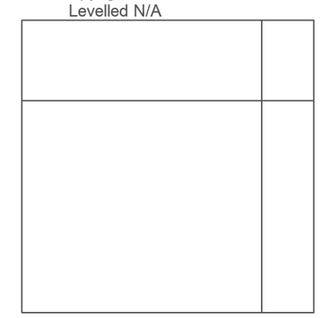

Surveyed 1995
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Edition N/A
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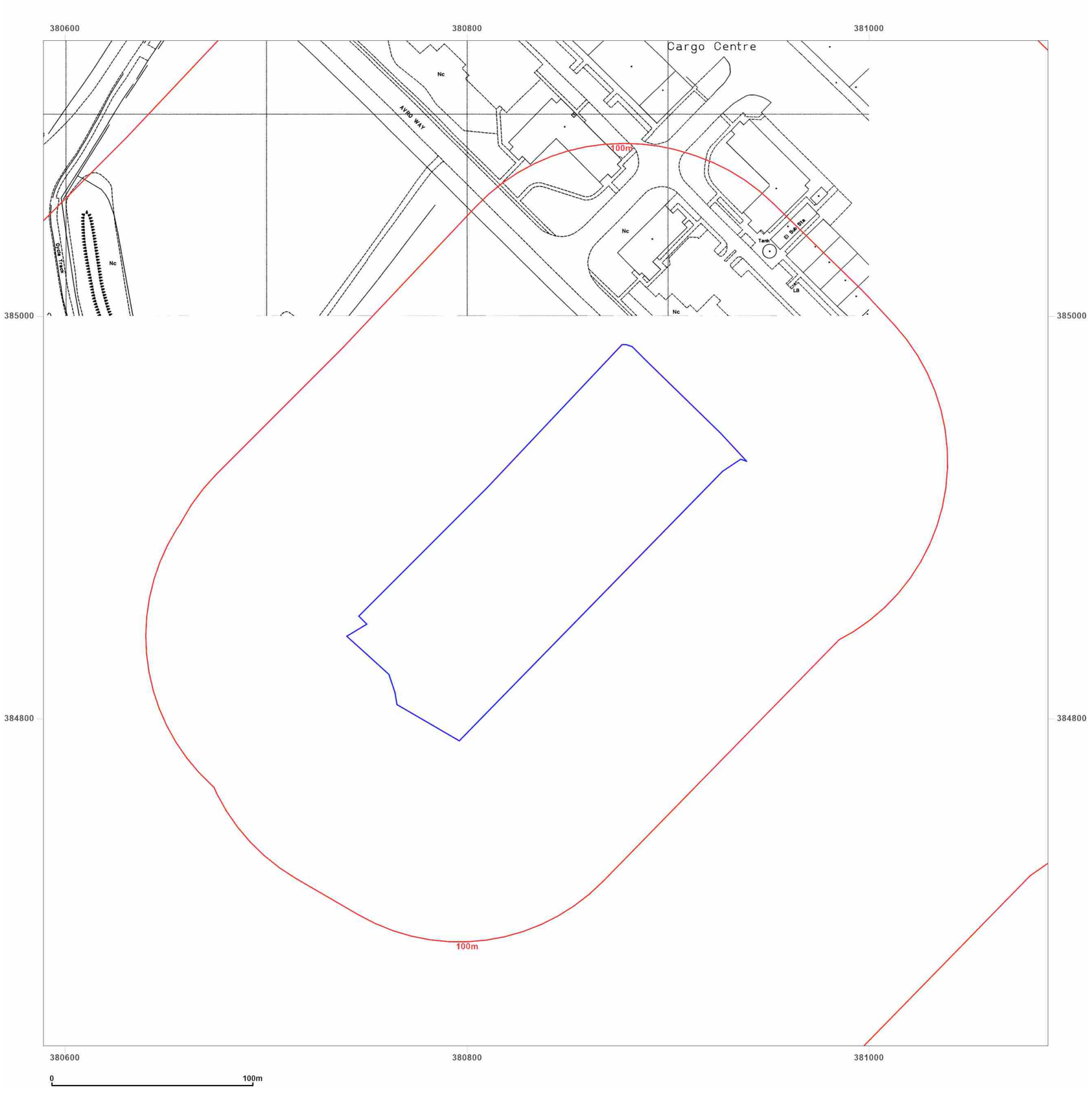

Groundsure INSIGHTS

Site Details:

ALPHA FLIGHT SERVICES,
BUILDING 402, AVRO WAY,
MANCHESTER, M90 5AF

Client Ref: MAG_-_Building_402_60663052
Report Ref: GS-8497500
Grid Ref: 380839, 384887

Map Name: National Grid
Map date: **1995**
Scale: 1:1,250
Printed at: 1:2,000

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Surveyed 1995
Revised 1995
Edition N/A
Copyright 1995
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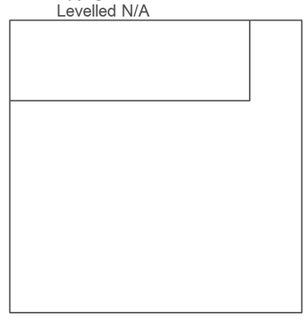

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Groundsure INSIGHTS

Site Details:

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BUILDING 402, AVRO WAY,
MANCHESTER, M90 5AF

Client Ref: MAG_-_Building_402_60663052
Report Ref: GS-8497500
Grid Ref: 380839, 384887

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

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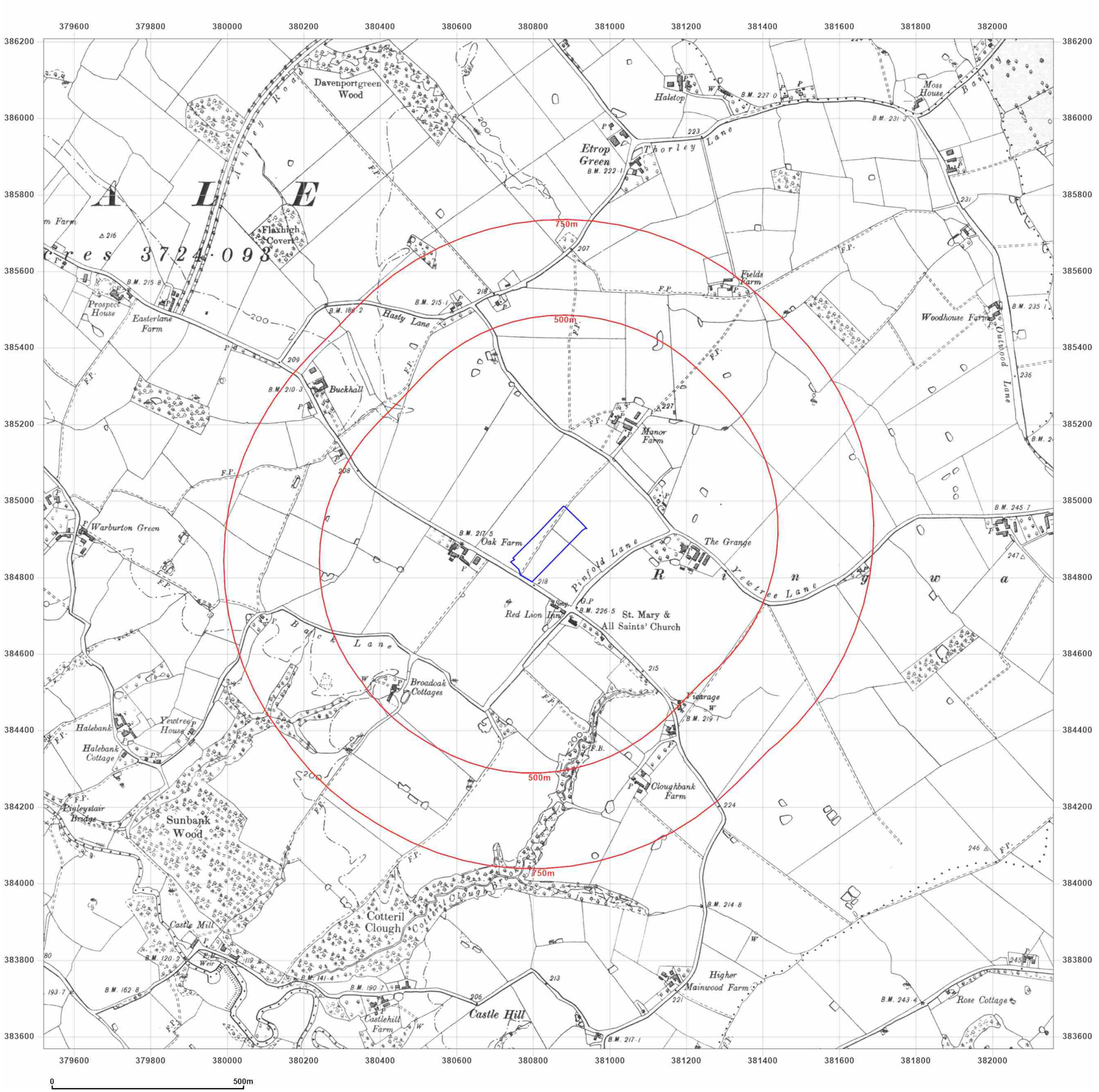

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Site Details:

ALPHA FLIGHT SERVICES,
BUILDING 402, AVRO WAY,
MANCHESTER, M90 5AF

Client Ref: MAG_-_Building_402_60663052
Report Ref: GS-8497500
Grid Ref: 380839, 384887

Map Name: County Series

Map date: **1899**

Scale: 1:10,560

Printed at: 1:10,560

N
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Revised 1897
Edition 1899
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MANCHESTER AIRPORT BUS DEPOT RELOCATION, WILMSLOW

FACTUAL REPORT ON GROUND INVESTIGATION

Report No F6042-16

February 2017

Carried out for:
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Report No F6042-16

February 2017

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1 INTRODUCTION

In June 2016 ESG was commissioned by BAM Construction Limited (BAM) to carry out a ground investigation at Skychef LSG, Wilmslow. The investigation was required to obtain geotechnical and geoenvironmental information for a proposed Manchester Airport Terminal 2 bus depot relocation including a bus wash, cabins and a new car park.

The scope of the investigation was specified by BAM and comprised concrete coring, Dynamic (Windowless) Sampling Holes, Dynamic Cone Penetration In Situ Testing and Inspection pits. DCP3 was converted to a concrete core due to encountering concrete underneath macadam. Two DCP locations proposed at the site entrance and in the north of site were cancelled due to services and lack of requirement by BAM. The investigation was performed in accordance with the contract specification and the general requirements of BS 5930 (2015), BS EN 1997-2 (2007), BS EN ISO 22475-1 (2006) and other relevant related standards identified below. The fieldwork took place between 21 June and 23 June 2016.

This report presents the factual records of the fieldwork and laboratory testing. The information is also presented as digital data as defined in AGS (2010).

2 SITE SETTING

2.1 Location and Description

The proposed site for the Manchester Airport Bus Depot Relocation is located at land off Pinfold Lane, Wilmslow, approximately 4 km north west from Wilmslow, at National Grid reference SJ 809 848, see Site Location Plan in Appendix A.

The site is generally flat and is rectangular in shape, approximately 180m by 120m. The majority of the site is covered by an unused hanger. The remainder of the site is covered by car park hardstanding surrounding the north, west and south of the unused hanger. There are mature trees along the western boundary of the site.

The site is accessed from a remote access gate off Pinfold Lane. It's bound to the east by Avro Way, to the south by Pinfold Lane and to the east by Wilmslow Old Road. The north of the site is bound by a depot building owned by LSG Skychefs.

2.2 Published Geology

The published geological map for the area, BGS Sheet 98 (1971) and the BGS Geology of Britain Viewer (2016) show the site located on superficial deposits comprising Glacial Till. The BGS Sheet 98 (1977) and the BGS Geology of Britain Viewer (2016) shows the superficial deposits to be underlain by bedrock comprising of Triassic period Bollin Mudstone Member. A fault transects north west to south east approximately 1km to the east of the site with the downthrow of the fault located 2km south east of the site.

3 FIELDWORK

The fieldwork was carried out in general accordance with BS 5930 (2015), BS EN 1997-2 (2007) and BS EN ISO 22475-1 (2006).

The exploratory hole and in situ test locations were selected by BAM. The locations were set out from local features. The exploratory hole and in situ test locations are shown on the proposed development plan in Appendix A.

3.1 Exploratory Holes

The exploratory holes are listed in the following table.

TABLE 1 : SUMMARY OF EXPLORATORY HOLES

TYPE	QUANTITY	MAXIMUM DEPTH (m)	REMARKS
Dynamic cone penetration test followed by an hand dug inspection pit	2	1.00	DCP1 and DCP2
Window Sampling	4	4.45	WS1 to WS4
Concrete Coring	4	0.35	DCP3 and CC1 to CC3

WS4 was complete at 3.00m after the client's approval due to hydraulic issues with the rig. CC2 and CC3 were cored to an extent of 0.35m therefore ESG were unable to recover the core.

The exploratory hole logs are presented in Appendix B. These provide information including the equipment and methods used, samples taken, tests carried out, water observations and descriptions of the strata encountered. Explanation of the terms and abbreviations used on the logs is given in the Key to Exploratory Hole Records in Appendix B, together with other

explanatory information. The logging of soil is in accordance with BS EN ISO 14688-1+A1 (2013) for soils as amplified by BS 5930 (2015).

Photographs of the trial pits and dynamic windowless samples are presented in Appendix D

On completion of the fieldwork geotechnical samples were transported to the Deeside office of ESG for temporary retention. Geoenvironmental samples were transported from site directly to the Burton-on-Trent (Bretby) laboratories at ESG. Due to the project being put on hold for 6 months, the samples were disposed of following request from BAM.

3.2 In Situ Testing

In situ testing was carried out in accordance with the relevant standards as tabulated below. The testing is summarised in the following table and the results are presented in Appendix D unless noted otherwise. Calibration certificates where appropriate are included with the results in the appendix.

TABLE 2: SUMMARY OF IN SITU TESTING

TYPE	QUANTITY	REMARKS
Standard Penetration Test	10	BS EN ISO 22476-3 (2011). Results presented as uncorrected N values on exploratory hole logs in Appendix B.
Dynamic Cone Penetration (DCP)	2	In House Method for DCP HD25 cl 983

REFERENCES

AGS : 2010 : Electronic transfer of geotechnical and geoenvironmental data (Edition 4 including Addendum 3. October 2011). Association of Geotechnical and Geoenvironmental Specialists.

BGS England and Wales Sheet 98 : 1971 : Stockport. 1:63:360 geological map (drift) (Superficial). British Geological Survey.

BGS England and Wales Sheet 98 : 1977 : Stockport. 1:50:000 geological map (solid) (Bedrock). British Geological Survey.

BGS Geology of Britain Viewer : 2016. www.bgs.ac.uk. British Geological Survey.

BS 5930 : 2015 : Code of practice for ground investigations. British Standards Institution.

BS EN 1997-2 : 2007 : Eurocode 7 - Geotechnical design - Part 2 Ground investigation and testing. British Standards Institution.

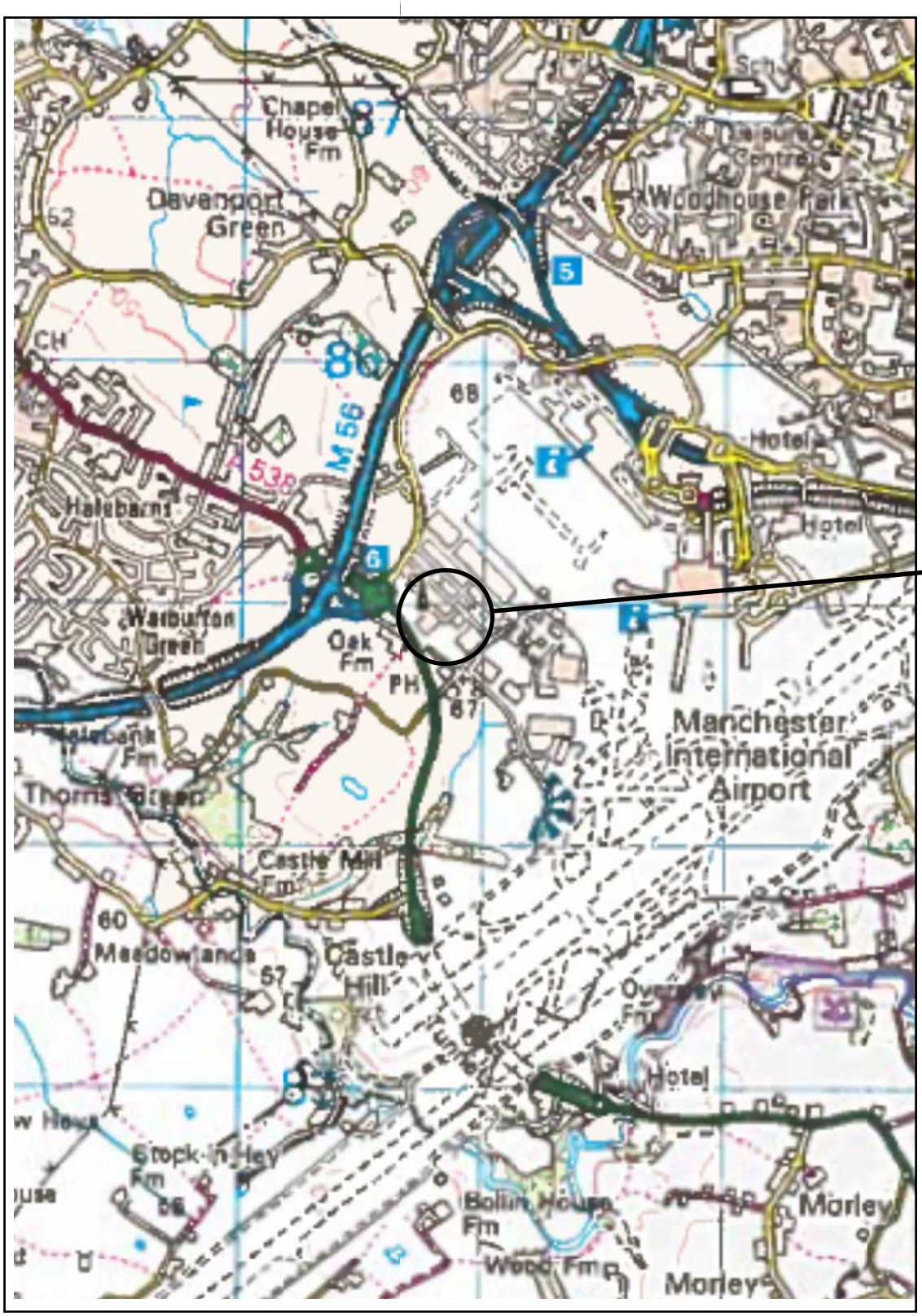
BS EN ISO 22476-3:2005+A1 : 2011 : Geotechnical investigation and testing - Field testing - Part 3 Standard penetration test. British Standards Institution.

APPENDIX A

FIGURES AND DRAWINGS

Site Location Plan	A1
Site Plan (as drilled – hand annotated)	401 rev a

Site Location Plan



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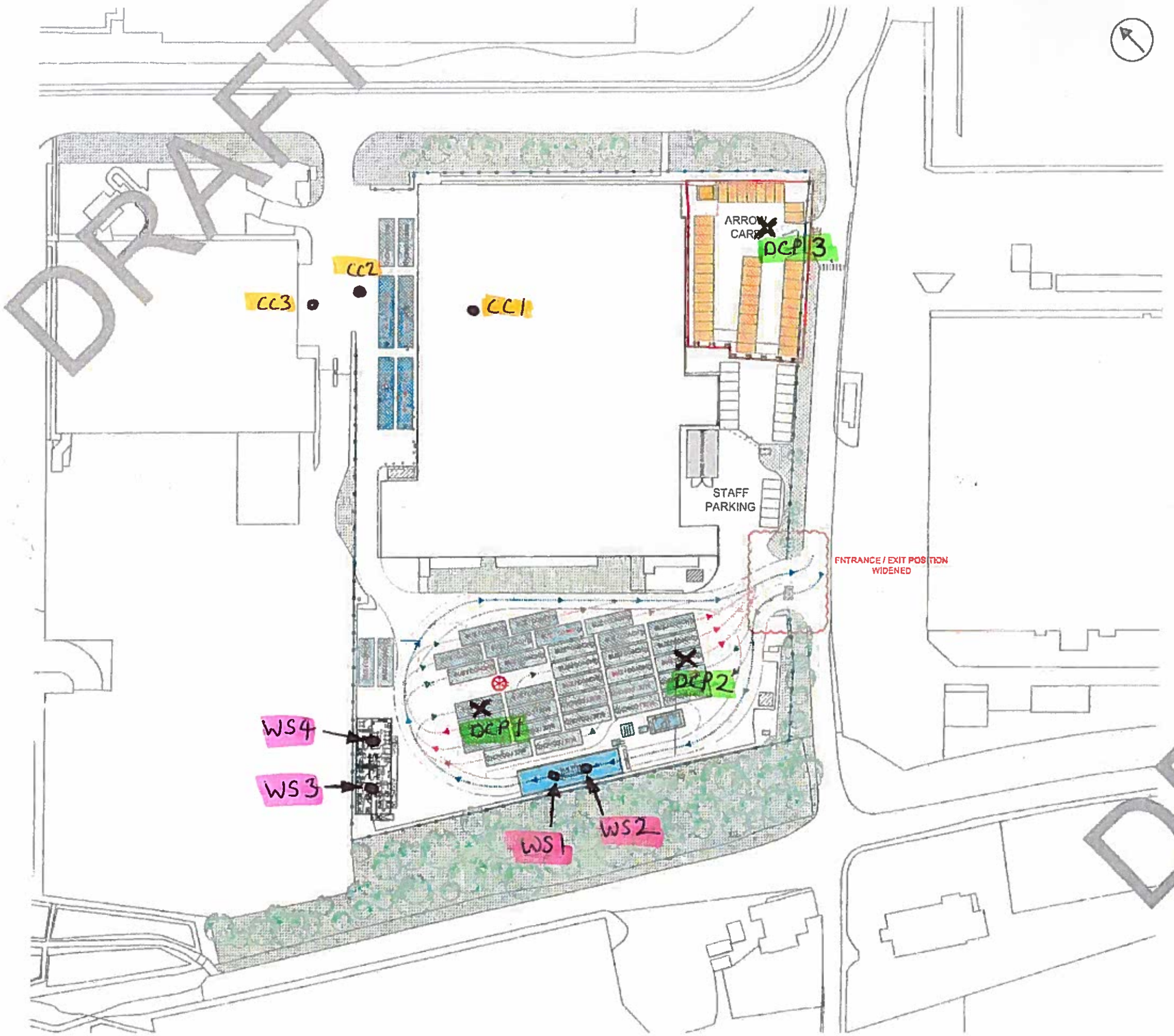
Notes: Scale 1:50 000	**Project: Manchester Airport Bus Depot Relocation** **Project No: F6042-16** **Carried out for: BAM Construction Limited**	**Figure** **1**



PARKING SCHEDULE	
BENDI-BUS	4 BAYS PROVIDED ON SITE
BUS / COACH	35 BAYS PROVIDED ON SITE
STAFF CAR	20 BAYS ON SITE - 40 ELSEWHERE TBC
ARROW CAR	42 BAYS PROVIDED ON SITE
NUMBERS OF BAYS REQUIRED TO BE CONFIRMED	

DRAFT

DRAFT

PROPOSED SKYCHEF LSG PTC SITE PLAN
Scale 1 : 500 @ A1

©

STATUS
FOR INFORMATION

Notes:
Layout amended based on Jacobs Highways Input

no.	date	revision details	by
A	04/05/16	JACOBS HIGHWAYS INPUT	HD
/	28/04/16	FOR INFORMATION	HD

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JACOBS

client
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job title
PASSENGER TRANSPORT CENTRE / ARROW CARS RELOCATION

drawing title
SKYCHEF LSG
PROPOSED PTC SITE PLAN

scale	drawn by	date
1:500 @ A1	HD	28/04/16

job no.	drawing no.	revision no
2542	401	A

APPENDIX B

EXPLORATORY HOLE RECORDS

Key to Exploratory Hole Records	Key
SPT Hammer Energy Ratio Report	SPT Hammer Reference G05
Borehole Logs	WS1 to WS4
Concrete Coring Logs	CC1 – CC3 and DCP3

Key to Exploratory Hole Records

SAMPLES

Undisturbed

U	Driven tube sample	nominally 100 mm diameter and full recovery unless otherwise stated
UT	Driven thin wall tube sample	
TW	Pushed thin wall tube sample	
P	Pushed piston sample	
L	Liner sample (from Windowless or similar sampler), full recovery unless otherwise stated	
CBR	CBR mould sample	
BLK	Block sample	
CS	Core sample (from rotary core) taken for laboratory testing	
AMAL	Amalgamated sample	

Disturbed

D	Small sample
B	Bulk sample

Other

W	Water sample
G	Gas sample
	Environmental chemistry samples (in more than one container where appropriate)
ES	Soil sample
EW	Water sample

Comments Sample reference numbers are assigned to every sample taken. A sample reference of 'NR' indicates that attempt was made to take a tube sample, however, there was no recovery.

Monitoring samples taken after completion of hole construction are not shown on the exploratory hole logs.

TESTS

SPT S or SPT C Standard Penetration Test, open shoe (S) or solid cone (C)

The Standard Penetration Test is defined in BS EN ISO 22476-3:2005+A1:2011. The incremental blow counts are given in the Field Records column; each increment is 75 mm unless stated otherwise and any penetration under self weight in mm (SW) is noted. Where the full 300 mm test drive is achieved the total number of blows for the test drive is presented as N = ** in the Test column. Where the test drive blows reach 50 the total blow count beyond the seating drive is given (without the N = prefix).

IV	*in situ* Vane shear strength, peak (p) and remoulded (r)
HV	Hand vane shear strength, peak (p) and remoulded (r)
PP	Pocket penetrometer test, converted to shear strength
KFH, KRH, KPI	Permeability tests (KFH = falling head, KRH = rising head; KPI = packer inflow); results provided in Field Records column (one value per stage for packer tests)

DRILLING RECORDS

The mechanical indices (TCR/SCR/RQD & If) are defined in BS 5930:2015

TCR	Total Core Recovery, %
SCR	Solid Core Recovery, %
RQD	Rock Quality Designation, %
If	Fracture spacing, mm. Minimum, typical and maximum spacings are presented. The term non-intact (NI) is used where the core is fragmented.

Flush returns, estimated percentage with colour where relevant, are given in the Records column

CRF	Core recovered (length in m) in the following run
AZCL	Assessed zone of core loss
NR	Not recovered

GROUNDWATER

▼	Groundwater strike
▽	Groundwater level after standing period

Key to Exploratory Hole Records

INSTALLATION

Standpipe/ piezometer

Details of standpipe/piezometer installations are given on the Record. Legend column shows installed instrument depths including slotted pipe section or tip depth, response zone filter material type and layers of backfill.

The type of instrument installed is indicated by a code in the Legend column at the depth of the response zone:

SP Standpipe
SPIE Standpipe piezometer
PPIE Pneumatic piezometer
EPIE Electronic piezometer

Inclinometer or Slip Indicator

The installation of vertical profiling instruments is indicated on the Record. The base of tubing is shown in the Legend column.

The type of instrument installed is indicated by a code in the Legend column at the base of the tubing:

ICE Biaxial inclinometer
ICM Inclinometer tubing for use with probe
SLIP Slip indicator

Settlement Points or Pressure Cells

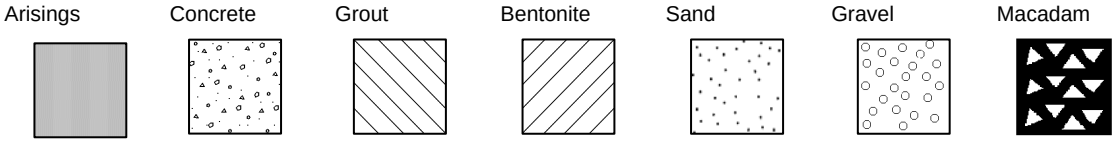
The installation of single point instruments is indicated on the Record. The location of the measuring device is shown in the Legend column.

The type of instrument installed is indicated by a code in the Legend column:

ESET Electronic settlement cell/gauge
ETM Magnetic extensometer settlement point
EPCE Electronic embedment pressure cell
PPCE Electronic push in pressure cell

INSTALLATION LEGENDS

A legend describing the installation is shown in the rightmost column. Legends used to describe the backfill materials as indicated below.



NOTES

1 Soils and rocks are described in accordance with BS EN ISO 14688-1:2002+A1:2013 and 14689-1:2003 respectively as amplified by BS 5930:2015.

2 For fine soils, consistency determined during description is reported for those strata where undisturbed samples are available. Where the logger considers that the sample may not be representative of the condition in situ, for whatever reason, the reported consistency is given in brackets. The reliability of the sample is indicated by Probably or Possibly as appropriate. Hence (Probably firm) indicates the logger is reasonably confident of the assessment, but (Possibly firm) means less certainty. Where the samples available are too disturbed to allow a reasonable assessment of the in situ condition, no consistency is given.

3 Evidence of the occurrence of very coarse particles (cobbles and boulders) is presented on the logs, however, because of their size in relation to the exploratory hole these records may not be fully representative of their size and frequency in the ground mass.

4 The declination of bedding and joints is given with respect to the normal to the core axis. Thus in a vertical borehole this will be the dip.

5 The assessment of SCR, RQD and Fracture Spacing excludes artificial fractures

6 Water level observations of discernible entries during the advancing of the exploratory hole are given at the foot of the log and in the Legend column. The term "none observed" is used where no discrete entries are identified although this does not necessarily indicate that the hole has not been advanced below groundwater level. Under certain conditions groundwater cannot be observed, for instance, drilling with water flush or overwater, or boring at a rate much faster than water can make its way into the borehole In addition, where appropriate, water levels in the hole at the time of recovering individual samples or carrying out in situ tests and at shift changes are given in the Records column.

7 The borehole logs present the results of Standard Penetration Tests recorded in the field without correction or interpretation. However, in certain ground conditions (eg high hydraulic head or where very coarse particles are present) some judgement may be necessary in considering whether the results are representative of in situ mass conditions.

Testconsult
Specialist testing services

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

Testconsult Limited
Ruby House
40A Hardwick Grange
Woolston
Warrington
WA1 4RF

SPT Hammer Ref:	G05
Test Date:	21/07/2016
Report Date:	21/07/2016
File Name:	G05.spt
Test Operator:	OT

Instrumented Rod Data

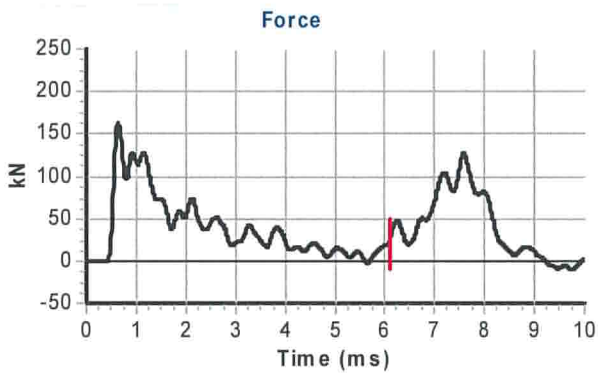
Diameter d_r (mm):	54
Wall Thickness t_r (mm):	7.0
Assumed Modulus E_a (GPa):	208
Accelerometer No.1:	8965
Accelerometer No.2:	8966

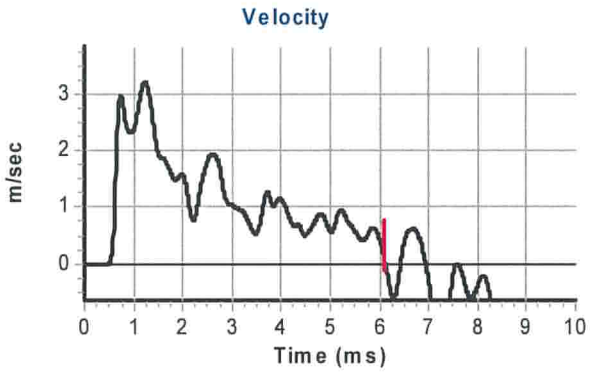
SPT Hammer Information

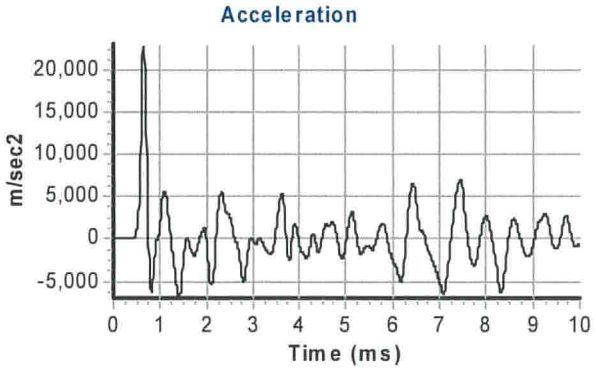
Hammer Mass m (kg):	63.5
Falling Height h (mm):	760
SPT String Length L (m):	14.5

Comments / Location

Client: Earth Engineering Ltd
Location: Testconsult Laboratory
Hammer Type: Window Sampler







Calculations

Area of Rod A (mm2):	1034
Theoretical Energy E_{theor} (J):	473
Measured Energy E_{meas} (J):	389

Energy Ratio E_r (%): **82**

Signed: Oliver Turpin
Title: Senior Technician

SPTMAN ver.2.00 All rights reserved, Testconsult ©2010

Borehole Log

Drilled	LS	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	
Logged	RS	21/06/2016	Geo 5 Drive Rig	1.20	2.00	87		**Coordinates (m)**	
Checked	APB	**End**	1. Diamond coring to 0.1m. 2. Hand dug inspection pit to 1.20. 3. Dynamic windowless sampling to 4.45m.	2.00	3.00	77		**National Grid**	
Approved	APB	21/06/2016		3.00	4.00	67			
				4.00	4.45	57			

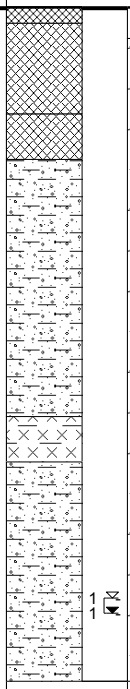
Samples and Tests

Depth	Type & No.	Records	Date Casing	Time Water
0.30 - 0.60	B 2			
0.50	ES 1			
0.80	ES 3			
0.90	D 4			
1.20 - 1.65	SPTS	N=11 (2,1/3,2,2,4)		Dry
1.20	ES 5			
1.20 - 1.65	D 6			
1.50 - 2.00	B 7			
2.00 - 2.45	SPTS	N=19 (3,3/4,4,5,6)		Dry
2.00 - 2.45	D 8			
2.70 - 3.00	B 9			
3.00 - 3.45	SPTS	N=19 (2,3/3,4,5,7)		Dry
3.00 - 3.45	D 10			
3.50 - 4.00	B 11			
4.00 - 4.45	SPTS	N=16 (3,4/3,4,4,5)		4.00
4.00 - 4.45	D 12		21/06/16	1800

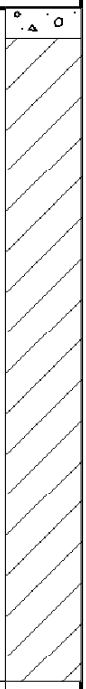
Strata Description

Main	Detail	Depth, Level (Thickness)
MADE GROUND: Black MACADAM		0.10 (0.10)
MADE GROUND: Brownish orange gravelly fine to coarse SAND with medium cobble content. Gravel is angular to subrounded fine to coarse of sandstone. Cobbles are subangular to subrounded of sandstone.	0.55-0.56 Geotextile terram	(0.60) 0.70
MADE GROUND: Firm to stiff orangish brown mottled grey slightly sandy slightly gravelly CLAY with occasional decayed rootlets. Gravel is subangular to rounded fine to coarse of sandstone and mudstone (possible reworked natural)		(0.30) 1.00
Firm to stiff orangish brown becoming dark brown mottled grey slightly sandy slightly gravelly CLAY with rare rootlets. Gravel is subangular to subrounded fine and medium of mudstone. (GLACIAL TILL).		(1.70)
Firm light brown clayey SILT. (GLACIAL TILL).		2.70 (0.30)
Stiff dark brown lightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine and medium of mudstone and siltstone. (GLACIAL TILL).		3.00 (1.45)
	4.00-4.10 Band of orange brown slightly silty sand.	
END OF EXPLORATORY HOLE	4.38-4.41 Band of orange brown slightly silty sand.	4.45

Legend



Backfill



Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)
1	4.00	Rose to 3.90 m after 20 minutes.	

Depth Related Remarks

Depths (m)	Remarks
1.20 - 4.45	SPT hammer ID: G05 Er= 82%

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

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Project MANCHESTER AIRPORT BUS DEPOT RELOCATION

Project No. F6042-16

Carried out for BAM Construction Ltd

Borehole

WS1

Sheet 1 of 1

Borehole Log

Drilled	LS	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	
Logged	RS	22/06/2016	Geo 5 Drive Rig	1.20	2.00	87		**Coordinates (m)**	
Checked	APB	**End**	1. Diamond coring to 0.1m. 2. Hand dug inspection pit to 1.20. 3. Dynamic windowless sampling to 4.45m.	2.00	3.00	87		**National Grid**	
Approved	APB	22/06/2016		3.00	4.00	77			
				4.00	4.45	67			

Samples and Tests

Depth	Type & No.	Records	Date Casing	Time Water
0.40 0.45 - 0.65	ES 1 B 2			
0.75 0.85	ES 4 D 3			
1.20 - 1.65 1.20 - 1.65 1.30 1.50 - 2.00	SPTS D 5 ES 6 B 7	N=13 (2,2/2,3,4,4)		Damp
2.00 - 2.45 2.00	SPTS D 8	N=15 (2,1/3,3,4,5)		Dry
2.50 - 3.00	B 9			
3.00 - 3.45 3.00 - 3.45	SPTS D 10	N=19 (3,3/3,4,5,7)		Dry
3.70 3.80 - 4.00	D 11 B 12			
4.00 - 4.45 4.00 - 4.45	SPTS D 13	N=14 (1,2/2,3,4,5)		Dry
			22/06/16	1800

Strata Description

Main	Detail	Depth, Level (Thickness)
MADE GROUND: Black MACADAM		0.10 (0.10)
MADE GROUND: Brownish orange gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse of sandstone.	0.48 Geotextile terram. 0.49-0.70 Medium cobble content. Cobbles are subangular of sandstone. 1.15-1.20 Band of light brown sandy clay.	(0.60) 0.70
MADE GROUND: Orangish brown mottled grey slightly gravelly sandy CLAY with occasional decayed rootlets. Gravel is subangular to subrounded fine and medium of sandstone and mudstone (Possible reworked natural)		(0.30) 1.00
Firm to stiff brown mottled grey slightly sandy slightly gravelly CLAY with occasional rootlets. Gravel is subangular to rounded medium and coarse of mudstone, siltstone and coal. (GLACIAL TILL).		(2.80)
Light brown slightly silty fine to coarse SAND. (GLACIAL TILL).		3.80 (0.55)
Firm to stiff brown mottled grey slightly sandy slightly gravelly CLAY. Gravel is subrounded fine and medium of mudstine and siltstone. (GLACIAL TILL).		4.35 4.45 (0.10)
END OF EXPLORATORY HOLE		

Legend

Backfill

1

1

2

2

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)
1	1.15	Rose to 0.90 m after 20 minutes.	
2	4.00	Rose to 3.70 m after 20 minutes.	

Depth Related Remarks

Depths (m)	Remarks
1.20 - 4.45	SPT hammer ID: G05 Er= 82%

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

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Project MANCHESTER AIRPORT BUS DEPOT RELOCATION

Project No. F6042-16

Carried out for BAM Construction Ltd

Borehole

WS2

Sheet 1 of 1

Borehole Log

Drilled	LS	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	
Logged	RS	22/06/2016	Geo 5 Drive Rig	1.20	2.00	87		**Coordinates (m)**	
Checked	APB	**End**	1. Diamond coring to 0.15m. 2. Hand dug inspection pit to 1.20m. 3. Dynamic windowless sampling to 4.45m.	2.00	3.00	77		**National Grid**	
Approved	APB	22/06/2016		3.00	4.00	67			
				4.00	4.45	57			

Samples and Tests

Strata Description

Depth	Type & No.	Records	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
					MADE GROUND: Black MACADAM		0.10 (0.10)		
0.20	ES 1				MADE GROUND: Orangish brown very gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to coarse of sandstone.	0.35-0.36 Geotextile terram.	(0.25) 0.35		
0.45	ES 2						(0.17) 0.52		
0.60	D 3				MADE GROUND: Black slightly sandy ashy GRAVEL. Gravel is angular to subrounded fine to coarse of coal, bitumen, sandstone and siltstone.		(0.28)		
0.70	ES 4					0.80-3.20 Locally soft adjacent to bands of sandy clay. 0.90 Band of light brown sandy clay.	0.80		
0.80 - 1.20	B 5								
1.00	ES 6				MADE GROUND: Soft to firm yellowish brown mottled grey slightly gravelly sandy CLAY wih rare bands of black ashy gravel (up to 10mm). Gravel is subangular to subrounded fine to coarse of mudstone and sandstone.				
1.20 - 1.65	SPTS	N=9 (1,2/2,2,2,3)		Dry					
1.20 - 1.65	D 7								
1.50 - 2.00	B 8				Soft to firm becoming stiff brownish orange becoming dark brown mottled grey slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to coarse of mudstone and siltstone. (GLACIAL TILL).	1.50-1.60 Band of brown sandy clay.			
2.00 - 2.45	SPTS	N=17 (2,2/4,3,4,6)		Dry			(2.40)		
2.00 - 2.45	D 9								
2.50 - 3.00	B 10								
3.00 - 3.45	SPTS	N=22 (2,3/3,4,5,10)		Dry					
3.00 - 3.45	D 11						3.20		
3.45 - 3.80	B 12				Stiff dark brown slightly mottled grey slightly gravelly sandy CLAY with occasional bands of brown slightly silty sand (approx 30 to 50mm). Gravel is subangular to subrounded fine and medium of mudstone and siltstone. (GLACIAL TILL).	3.40-3.45 Band of slightly silty sand. 3.55-3.58 Band of slightly silty sand. 3.70-3.75 Band of slightly silty sand.	(0.60)		
					No recovery		3.80 (0.20)		
4.00 - 4.45	SPTS	N=30 (4,4/4,6,8,12)		Dry	Light brown slightly silty fine and medium SAND. (GLACIAL TILL).		4.00 (0.20)		
4.00 - 4.45	D 13		22/06/16	1800	Stiff light brown sandy CLAY. (GLACIAL TILL).		4.20 (0.25)		
					END OF EXPLORATORY HOLE		4.45		

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)
1	0.37	Seepage	
2	4.00	Rose to 3.40 m after 20 minutes.	

Depth Related Remarks

Depths (m)	Remarks
1.20 - 4.45	SPT hammer ID: G05 Er= 82%

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

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Project MANCHESTER AIRPORT BUS DEPOT RELOCATION

Project No. F6042-16

Carried out for BAM Construction Ltd

Borehole

WS3

Sheet 1 of 1

Borehole Log

Drilled	LS	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	
Logged	RS	22/06/2016	Geo 5 Drive Rig	1.20	2.00	87		**Coordinates (m)**	
Checked	APB	**End**	1. Diamond coring to 0.1m. 2. Hand dug inspection pit to 1.20m. 3. Dynamic windowless sampling to 3.00m. 4. Terminated upon the clients approval.	2.00	2.45	67		**National Grid**	
Approved	APB	22/06/2016							

Samples and Tests

Strata Description

Depth	Type & No.	Records	Date / Time Casing / Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
				MADE GROUND: Black MACADAM.		0.10 (0.10)		
0.25	ES 1			MADE GROUND: Light grey slightly sandy GRAVEL. Gravel is angular to subangular fine to coarse of limestone. (Type 1 Sub Base).	0.35-0.36 Geotextile terram.	0.15 (0.05)		
0.50	ES 2					(0.20)		
0.60	D 3			MADE GROUND: Orangish brown gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse of sandstone.		0.35 (0.03)		
0.90	ES 4					0.38 (0.42)		
0.95 - 1.20	B 5			MADE GROUND: Black ashy GRAVEL. Gravel is angular to subrounded fine and medium of coal, mudstone and sandstone.		0.80		
1.20 - 1.65	SPTS	N=12 (1,2/2,3,3,4)	Dry					
1.20 - 1.65	D 6			MADE GROUND: Orangish brown mottled grey slightly gravelly sandy CLAY with occasional lenses of light grey sand and slightly ashy sand. Gravel is subangular to subrounded fine to coarse of flint, mudstone and sandstone.				
1.50 - 2.00	B 7							
2.00 - 2.45	SPTS	N=14 (1,2/3,3,4,4)	Dry	Firm to stiff orangish brown becoming dark brown mottled grey slightly sandy slightly gravelly CLAY with rare rootlets. Gravel is subangular to subrounded fine to coarse of mudstone and siltstone. (GLACIAL TILL).		(2.20)		
2.00 - 2.45	D 8							
2.50 - 3.00	B 9							
			22/06/16 1800					
				END OF EXPLORATORY HOLE		3.00		

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks
1.20 - 2.45	SPT hammer ID: G05 Er= 82%

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

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Project MANCHESTER AIRPORT BUS DEPOT RELOCATION

Project No. F6042-16

Carried out for BAM Construction Ltd

Borehole

WS4

Sheet 1 of 1

Core Log

Drilled by	Earth Engineering	**Date Cored**	**Equipment, Methods and Remarks**	**Depth (mm) from**	**To**	**Diameter (mm)**	**Ground Level**
Logged by	RS	23/06/2016	Diamond Tipped Concrete Coring from GL to 0.19m.				**Coordinates (m)**
Checked by	APB						**National Grid**
Approved by	APB						

Description of Materials	Detail	Legend	Depth (mm)	Thickness (mm)	Remarks
Strong light brown REINFORCED CONCRETE 60 to 70% aggregate of angular to subangular fine to coarse quartzite, mudstone, basalt and sandstone. 3 to 5% medium voids (3mm to 6mm in diameter penetrating less than 2mm). Reinforcement bars 10mm diameter at 230mm-260mm spacing.				190	
END OF CORE			190		

Remarks

Core Location

Notes:

Scale 1:10

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Project	**MANCHESTER AIRPORT BUS DEPOT RELOCATION**
Project No.	**F6042-16**
Carried out for	**BAM Construction Ltd**

Borehole

CC1

Core Log

Drilled by	Earth Engineering	**Date Cored**	**Equipment, Methods and Remarks**	**Depth (mm) from**	**To**	**Diameter (mm)**
Logged by	RS	23/06/2016	Diamond Tipped Concrete Coring GL to 0.35m.			
Checked by	APB		Description is of surface exposure as core was not recovered. Minimum concrete thickness of 0.35m.			
Approved by	APB					

Ground Level
Coordinates (m)
National Grid

Description of Materials	**Detail**	**Legend**	**Depth (mm)**	**Thickness (mm)**	**Remarks**
Strong light grey CONCRETE 65 to 70% aggregate of angular and subangular fine to coarse mudstone, quartz and limestone gravels.				350	
END OF CORE			350		

Remarks

Core Location

Notes:

Scale 1:10

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Project	**MANCHESTER AIRPORT BUS DEPOT RELOCATION**
Project No.	**F6042-16**
Carried out for	**BAM Construction Ltd**

Borehole

CC2

Core Log

Drilled by	Earth Engineering	**Date Cored**	**Equipment, Methods and Remarks**	**Depth (mm) from**	**To**	**Diameter (mm)**
Logged by	RS	23/06/2016	Diamond Tipped Concrete Coring from GL to 0.19m.			
Checked by	APB		Description is of surface exposure as core was not recovered. Minimum concrete thickness of 0.35m.			
Approved by	APB					

Ground Level
Coordinates (m)
National Grid

Description of Materials	**Detail**	**Legend**	**Depth (mm)**	**Thickness (mm)**	**Remarks**
Strong light grey CONCRETE 65 to 70% aggregate of angular and subangular fine to coarse mudstone, quartz and limestone gravels.				350	
END OF CORE			350		

Remarks

Core Location

Notes:

Scale 1:10

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Project	**MANCHESTER AIRPORT BUS DEPOT RELOCATION**
Project No.	**F6042-16**
Carried out for	**BAM Construction Ltd**

Borehole

CC3

Core Log

Drilled by	Earth Engineering	**Date Cored**	**Equipment, Methods and Remarks**	**Depth (mm) from**	**To**	**Diameter (mm)**
Logged by	RS	23/06/2016	Hydraulic Breaker from GL to 0.10m. Diamond Tipped Concrete Corer from 0.10m to 0.25m.			
Checked by	APB					
Approved by	APB					

Ground Level
Coordinates (m)
National Grid

Description of Materials	**Detail**	**Legend**	**Depth (mm)**	**Thickness (mm)**	**Remarks**
MADE GROUND: Black MACADAM			100	100	
Medium strong greyish brown CONCRETE 65-75% aggregate of angular to subangular fine to coarse quartz, basalt and mudstone gravels. No voids.			180	80	
Weak reddish brown CONCRETE 80% aggregate of angular to subrounded medium to coarse mudstone, quartz, sandstone and quartzite gravels. 1% Small Voids (less than 2mm in diameter penetrating less than 2mm).			250	70	
END OF CORE					

Remarks

Core Location

Notes:

Scale 1:10

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Project	**MANCHESTER AIRPORT BUS DEPOT RELOCATION**
Project No.	**F6042-16**
Carried out for	**BAM Construction Ltd**

Borehole

DCP3

APPENDIX C
IN SITU TESTING

Dynamic Cone Penetration Testing	DCP1 and DCP2

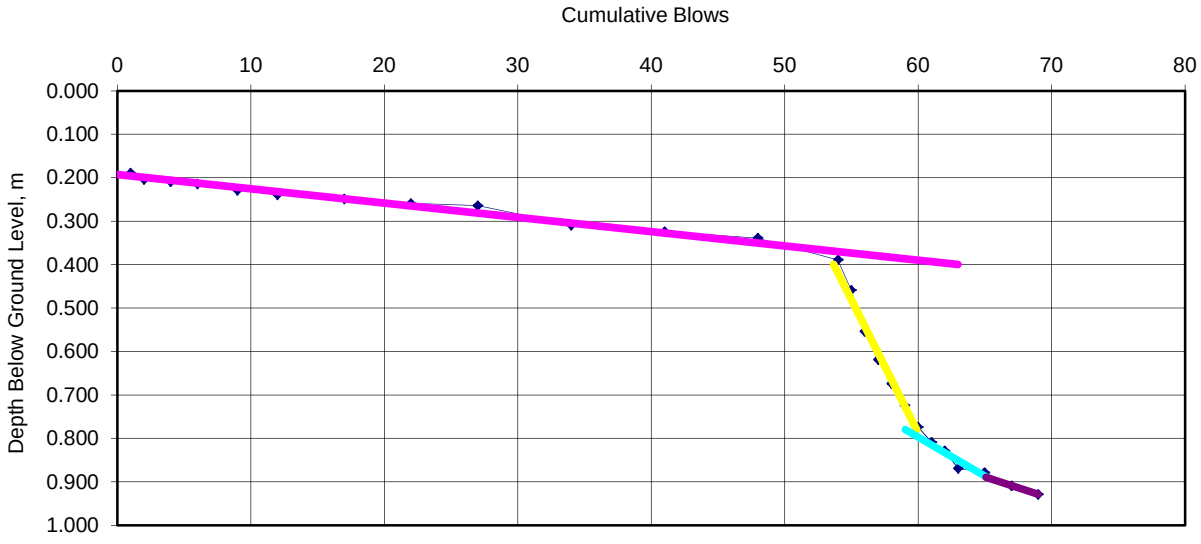
Dynamic Cone Penetrometer Test

Date of Test: 23/06/2016 Test Depth: 0.119 mBGL

Method: Broken out to 0.10m DCP to 1.00m.

Remarks:

Depth, mBGL	Cumulative Blows	Depth, mBGL	Cumulative Blows	Depth, mBGL	Cumulative Blows	Depth, mBGL	Cumulative Blows	Depth, mBGL	Cumulative Blows
0.189	1								
0.204	2								
0.209	4								
0.214	6								
0.229	9								
0.239	12								
0.249	17								
0.259	22								
0.264	27								
0.309	34								
0.324	41								
0.339	48								
0.389	54								
0.459	55								
0.554	56								
0.619	57								
0.674	58								
0.724	59								
0.774	60								
0.809	61								
0.829	62								
0.869	63								
0.879	65								
0.909	67								
0.929	69								



CBR Values

Top, mBGL	Base, mBGL	CBR, %[1]
0.19	0.40	85
0.40	0.78	3.9
0.78	0.89	14
0.89	0.93	26

Notes:

Calculated using DMRB Vol 7, Section 3, Part 2, HD29/08 (2008)

Project MANCHESTER AIRPORT BUS DEPOT RELOCATION

Project No. F6042-16

Carried out for BAM Construction Ltd

Hole **DCP1**

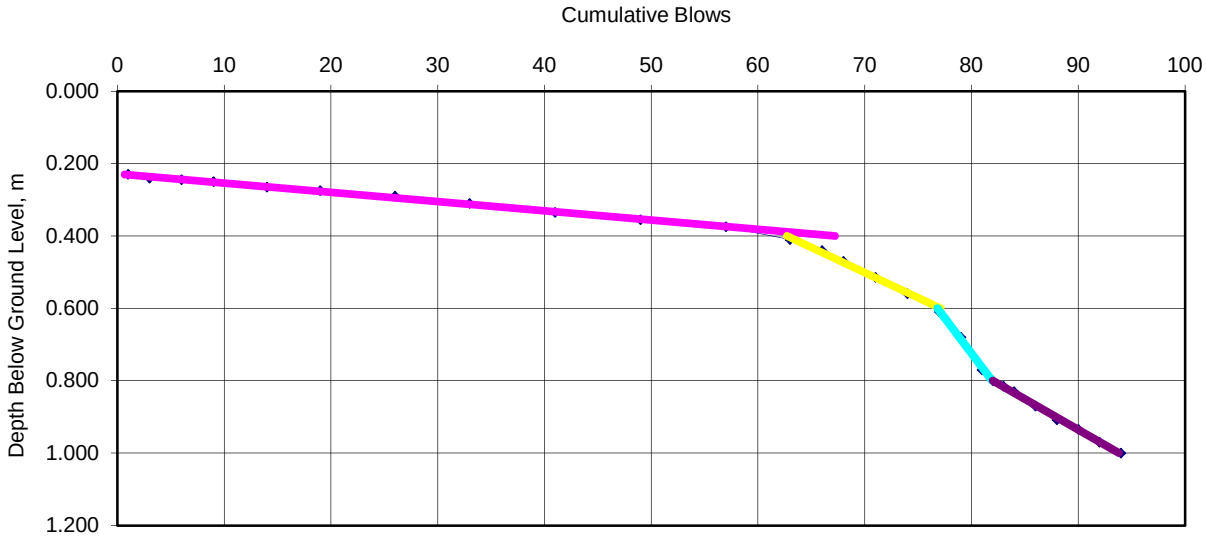
Dynamic Cone Penetrometer Test

Date of Test: 23/06/2016 Test Depth: 0.200 mBGL

Method: Broke out to 0.10m and DCP to 1.00m

Remarks:

Depth, mBGL	Cumulative Blows	Depth, mBGL	Cumulative Blows	Depth, mBGL	Cumulative Blows	Depth, mBGL	Cumulative Blows	Depth, mBGL	Cumulative Blows
0.230	1	1.000	94						
0.240	3								
0.245	6								
0.250	9								
0.265	14								
0.275	19								
0.290	26								
0.310	33								
0.335	41								
0.355	49								
0.375	57								
0.410	63								
0.440	66								
0.470	68								
0.515	71								
0.560	74								
0.610	77								
0.680	79								
0.770	81								
0.800	82								
0.815	83								
0.830	84								
0.870	86								
0.908	88								
0.935	90								
0.970	92								



CBR Values

Top, mBGL	Base, mBGL	CBR, %[1]
0.23	0.40	110
0.40	0.60	18
0.60	0.80	6.2
0.80	1.00	15

Notes:

Calculated using DMRB Vol 7, Section 3, Part 2, HD29/08 (2008)

Project MANCHESTER AIRPORT BUS DEPOT RELOCATION

Project No. F6042-16

Carried out for BAM Construction Ltd

Hole **DCP2**

APPENDIX D

PHOTOGRAPHS

Dynamic (Windowless) Sampling Plate 1 to 4

Dynamic (Windowless) Sample Photographs

Plate 1: WS1

Notes:		Plate
	Project MANCHESTER AIRPORT BUS DEPOT RELOCATION **Project No.** F6042-16 **Carried out for** BAM Construction Limited	1

Dynamic (Windowless) Sample Photographs

Plate 2: WS2

Notes:		Plate
	Project MANCHESTER AIRPORT BUS DEPOT RELOCATION **Project No.** F6042-16 **Carried out for** BAM Construction Limited	2

Plate 3: WS3

Notes:		Plate
	Project MANCHESTER AIRPORT BUS DEPOT RELOCATION **Project No.** F6042-16 **Carried out for** BAM Construction Limited	3

Dynamic (Windowless) Sample Photographs

Plate 4: WS4

Notes:		Plate
	Project MANCHESTER AIRPORT BUS DEPOT RELOCATION **Project No.** F6042-16 **Carried out for** BAM Construction Limited	4

Manchester Airport Building 401

Geotechnical Investigation Report (GIR)

Threadneedle Curtis Ltd

Project number: 60663052

21 September 2022

Delivering a better world

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1. Introduction

Scope and Objective of the Report

Threadneedle Curtis Ltd (hereafter referred to as the Client) has commissioned AECOM Limited (AECOM) to complete a Ground Investigation Report (hereafter referred to as GIR) of the site known as Building 401 (MAN B401).

This GIR provides a summary and interpretation of the ground conditions (both geotechnical and geo-environmental) encountered during the intrusive Ground Investigation works (GI).

The aims of this GIR are to:

- Assess the overall ground conditions based on the results obtained during the GI.
- Report directly measured and derived geotechnical parameters for encountered strata.
- Assess the geo-environmental risks to human health, controlled waters and surrounding environment based on chemical analysis of both the soil and groundwater.

Background and Proposed Development

The report has been produced on the assumption that the site will be redeveloped to incorporate a single warehouse structure divided into three units with incorporated offices. The current proposal for the warehouse covers c.7,056m^2 occupying approximately one third of the site area. The remainder of the site would comprise associated infrastructure, including lorry and car parking, two new access routes into site from Avro Way, and soft landscaping. The proposed development is shown in Appendix A.

The development of the site is anticipated to require the following stages:

- Demolition of the existing building 401 on the site,
- Demobilisation of the temporary structures of the airport bus depot,
- Site earthworks, including excavation levelling and landscaping for external areas,
- Installation of services and site drainage; and
- Construction of the new building and associated infrastructure.

Site Description

The site is located on the north east side of the junction of Avro Way and Pinfold Lane (M90 5XR) and is centred on National Grid Reference 380906 384825. The site is within Manchester Airport's landside western commercial and industrial development c.14km south of Manchester city centre.

The site is currently occupied by commercial development and at the time of this report the site is broadly split into two.

The majority of the north eastern half of the site is occupied by the current MAG Building 401 which covers c.6,785m2. To the immediate north west of the building is tarmac and concrete hard standing. To the immediate east is a grass landscaped area with small trees and shrubs which rises gently to Avro Way. To the south of the building the area is slightly larger and comprises a tarmac and concrete area in front of eight lorry bays for the building, with an entrance from Pinfold Lane and associated landscaping.

The south western side of the site is broadly divided into two. The far south western portion lies outside of the fenced boundary for the current development on the site and comprises a broadly level wooded area. The north eastern portion between the wooded area and the main building is an area of tarmac hard standing which was previously the car parking area for building 401. This tarmac area is currently occupied by a 'temporary' bus depot service area for airport vehicles. All of the structures in this area are temporary and stand atop the hard standing, including mobile offices, multiple fuel terminals, associated storage tanks and a vehicle wash. This area also includes a second entrance from Pinfold Lane to the South.

Building 401 is currently derelict and has been empty for some time. The last usage of the site was by an airline food company ‘LSG SkyChefs’ which is understood to have moved to renovated facilities in building 402 to the immediate north of the site, with additional buildings within the commercial/ industrial estate.

2. Existing Information

The existing information relating to the Site and used within this report is as follows:

- Manchester Airport Building 401 Phase 1 Tier 1 Geo-Environmental and Geotechnical Assessment (AECOM, 2021) (1)
- Project Quantum (AECOM) Report No: MAN-19 60592411, February 2019 – High level desk study and walkover; and (2)
- Manchester Airport Bus Deport Relocation, Wilmslow: Factual Report on Ground Investigation (ESG) Report No: F6042-16, February 2017. (3)

Published Geology

AECOM has reviewed publicly available information. The published 1:50,000 and 1:63,000 geological maps of the area produced by the BGS (Sheet 98, Stockport, Drift, 1971a and Sheet 98, Stockport, Solid, 1977) (4) indicates the site is underlain by the geological succession summarised in Table 2-1. Extracts of the superficial deposit and bedrock maps are included as part of the Groundsure Geo-Insight Report (Appendix B).

Table 2-1 Geological Succession from Published Mapping

Age	Group	Geological Stratum	Stratum	Description
Quaternary Devensian	N/A	Diamicton Till	Superficial Deposits*	A wide range of deposits and geomorphologies associated with glacial and inter-glacial periods during the Quaternary.
Triassic	Sidmouth Mudstone Formation	Bollin Mudstone Member	Bedrock	Upper: laminated reddish-brown and greenish-grey mudstone with siltstones. Lower: structureless and laminated, dominantly reddish-brown mudstone. (Within the lower part of the member, a unit termed the 'Lower Keuper Sandstone' has been recognised in the stockport area. This unit closely resembles the Tarporley Siltstone Formation of adjacent areas.)

**While anticipated due to the developed nature of the site, no artificial deposits are recorded on the geological mapping*

The BGS maintains an archive of historical exploratory hole records throughout the UK. AECOM has searched the database and those which are publicly available and considered to provide useful information on the ground profile at the site, have been referenced in producing this report. The extract below shows those boreholes recorded by the BGS in the site area. The black boreholes are not publicly available, leaving 8no. boreholes located within the site which may be publicly available. Of these only 3no. have online records. These are the three to the west of building 401 (SJ88SW235, SJ88SW236 and SJ88SW237). The position of these holes is shown in Figure 2-1.

Presented in Table 2-2 is a summary of the three boreholes, with full copies of the exploratory hole records included as Appendix D. Relevant information from the records is considered as part of the Preliminary Ground Model in Section 4.

Figure 2-1 Screenshot of relevant exploratory hole locations from BGS GeoIndex Viewer

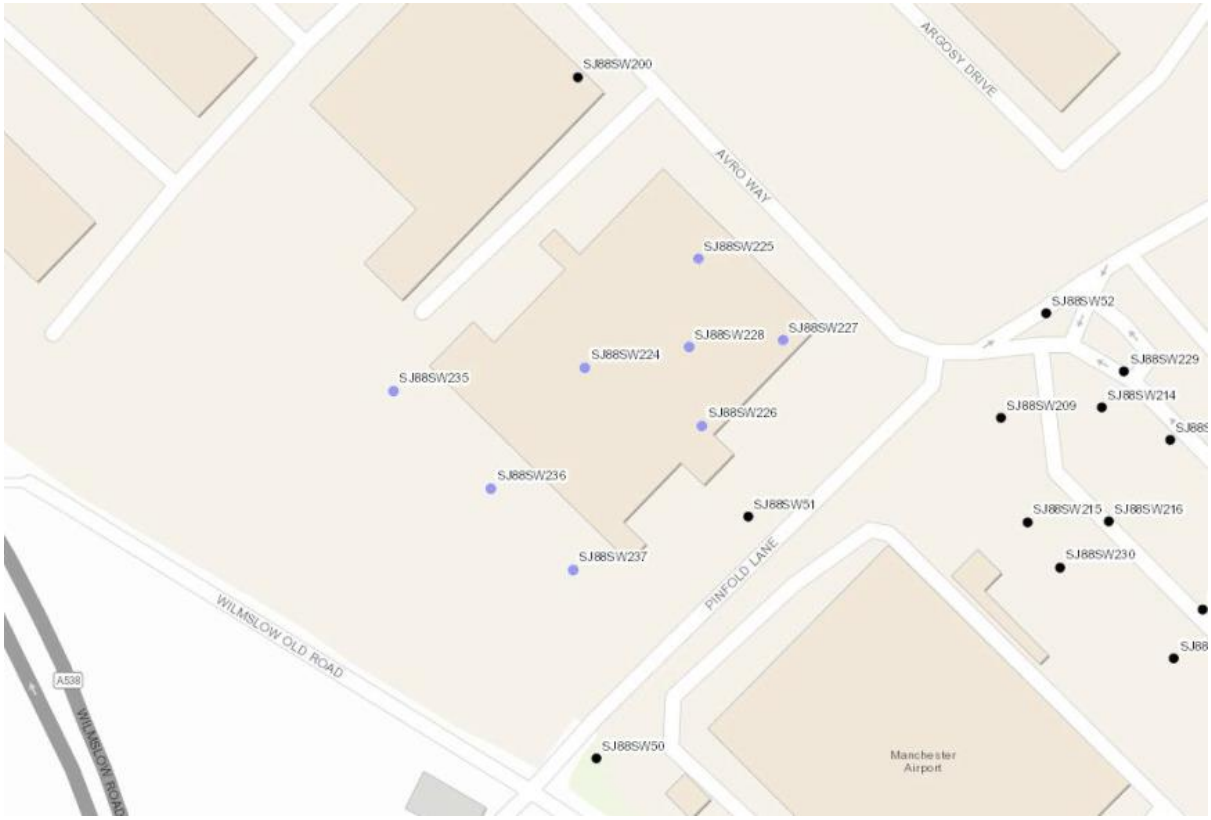


Table 2-2 Geological Succession from BGS Borehole Logs

Borehole	Made Ground m bgl (Thickness m)	Description Summary	Superficial Deposits m bgl (Thickness m)	Description summary
SJ88SW235 (BH6)	0.60 (0.60)	Soft Medium brown Clay with stones and broken tarmac	4.00 (3.40)	Very soft becoming stiff with depth, Mottled brown and grey CLAY
SJ88SW236 (BH7)	1.20 (1.20)	Loose concrete, brick, stone, tarmac and Clay over reinforced concrete between 0.6mbgl and 0.9mbgl below which is hardcore fill.	4.00 (2.80)	Firm to stiff, to stiff, Dark reddish brown slightly marly CLAY
SJ88SW237 (BH8)	0.70 (0.70)	Soft to firm dark brown and black silty Clay (disturbed – fill)	4.00 (3.30)	Firm to stiff mottled brown and grey CLAY becoming stiff and marly at 1.3 mbgl

Previous Investigations

Overview

The sections below provide a factual summary of the historical ground investigation data and other information that is currently available, further interpretation of this data, and of data gained during the ground investigation is provided later in this report, where relevant.

Historical Land Use

Table 2-3 below is an abbreviated version of that presented in the Desk Study Report detailing the various historical land uses that may be pertinent to the geotechnical or geo-environmental risk associated with the Site.

Table 2-3 Review of Historical Maps

Year	On-Site	Off-Site
1877 (1:2500)	Partial map does not cover site	Land use is predominantly undeveloped and agricultural with field boundaries and paths/tracks. Yewtree Lane is noted c.150m northeast running northwest to southeast. A pond is noted c.200m northeast close to a number of buildings (Manor Farm). Lilac Cottage is noted c.110m south of site to the east of the church.
1881 (1:2500)	The site is presumed agricultural land with two field boundaries crossing the site northwest to southeast dividing the site into broadly three equal sections.	Land use is predominantly undeveloped and agricultural with field boundaries and paths/tracks. Pinfold Lane runs along the southeast boundary meeting the crossroad with Wilmslow Road. A pond is noted c.20m south of site. The Red Lion Inn (Romper) and All Saints Church are in their current location on the crossroads. A smithy is noted attached to the Inn. Oak Farm is noted c.200m west. The Grange, a collection of buildings with ponds is noted c.175 east.
1898 (1:2500)	The southernmost field boundary is no longer present.	A square pond/ reservoir is attached to Oak Farm.
1899-1938 (1:10560)	No notable change	The area of Manchester Airport to the east of site now contains no mapping other than three large buildings noted c.250 east of site.
1954 (1:10560)	The site is occupied by a series of looped hardstanding areas associated with the Ringway Airport (Manchester Airport). These are understood to be taxiing and aircraft storage.	Hangar 3 and Hangar 5 of Manchester Airport are present c.25m southeast including a bund between the two. Hangar 4 lies a further c.150m southeast.
1968 (1:2500)	No notable change	Peters Croft is present next to the church c.75m south. VHF Receiver Station present c.200m northwest. Oak Field farm has expanded. A tank is noted c.75m southeast associated with Hangar 3.
1981 (1:10000)	No notable changes	Wilmslow Road is now Wilmslow Old Road A new larger Wilmslow Road curves past the site c.50m west in a rough north-south orientation. Wilmslow Road joins a roundabout junction to the north of Oak Farm over 250m from site which adjoins the M56.
1987 (1:2500)	A smaller building is present in the location of Building 401 including lorry entrances to the building and the entrances from Pinfold lane and Avro Way. An electrical substation is noted on the West side of the building. Western half of the site remains with partial hard standing.	A road later identified as Avro Way is present on the northeast site boundary. Cargo Centre is now present c.20m northeast. An elongated building is added to Hangar 4. A tank and electricity substation is shown c.100m north of site (associated with fire water (Project Quantum)).
1991 (1:1,250)	The electrical substation is no longer present within the site boundary.	Electrical substation relocated from on-site to immediately adjacent to sites northwest boundary.
1992 (1:2500)	The building has expanded northwest and the access has moved north with it.	No notable changes

Year	On-Site	Off-Site
1995 (1:2500) 1995 (1:10000)	The building has expanded southwest. The substation is no longer noted. A light tower is noted in the southwest half of the site which is now as hard standing. The site is broadly as it is at present	Building 402 is now present to the immediate northwest with associated infrastructure including an electrical substation on the site boundary. An embankment is present along Wilmslow road to the west. An office building is noted c.100m north.
2001 (1:10000)	No notable changes	Hangar 5 to the east of the site is no longer present A small expansion to building 402 north of site
2021 (1:10000)	No notable changes	Hangar 3 is no longer present (It is known that in 2021 DNATA warehouse was built across the former Hangar 3 and 5 sites). Oak Farm is no longer Present. Two very large warehouses replace it with associated access roads as part of a large commercial industrial development (World Logistics Hub) including warehouses for Amazon, Thomas Cook, DHL and others.

Records of Mines and Mineral Deposits

Aggregate/Mineral Quarrying and Mining

The Groundsure report presents publicly available information on mining and quarrying operations, past and present that have taken place within 2km of the site.

The Groundsure report checks databases held by the British Geological Survey, The Coal Authority, Mining Searches UK, Koalin and Ball Clay Association (UK), Stantec UK Ltd, Johnson Poole and Bloomer, Cheshire Brine Subsidence Compensation Board and British Gypsum; as well as records of surface and ground workings identified from Ordnance Survey and Groundsure mapping.

Of those databases and mapping only one entry is noted within 250m of the Site. A surface ground working named as a ‘pond’ was noted 133m northeast of the site located within the area of landscaping at the southern side of Pinfold Lane within the area of the large airport fuel depot.

The Project area also lies within an area defined as the Cheshire Brine Compensation District and as such, it is recommended that a Cheshire Salt Search is obtained.

Hydrology

There are no ponds, streams, or drainage ditches on or adjacent to the site. The site is however understood to be included within Manchester Airports drainage and fire management systems.

The site lies on the boundary of two Water Framework Directive (WFD) surface water body catchments. The boundary runs along the southern boundary of the site. To the north of this line, including the site area, is within the catchment of Timperley Brook. The area beyond the southern boundary is within the River Bollin (River Dean to Ashley Mill) catchment.

The nearest Water Framework Directive-relevant surface watercourse/feature to the site is the River Bollin located approximately 259m south of the site at its closest point, flowing in a south-westerly direction. The ecological status of the river was assessed as “Moderate” and the chemical status was assessed as “Fail” as per the Environment Agency Cycle 2 Classification (2019).

The Groundsure Report indicates that there are no surface water abstraction licences within 1km of the site. There are 5No. surface water abstractions within 2km of the site, the closest active abstraction is located 1827 m northwest with the use listed as spray irrigation operated by Ringway Gold Club Ltd.

Utility plans for the site indicate the presence of a surface water drainage system sitewide. The plans show the surface water crossing the site boundaries and also connecting to a combined sewer. Information relating to the location of the discharge has not been made available.

Environment Agency mapping shows the site to lie within a Flood Zone 1, indicating that there is a low probability of flooding from rivers and the sea. The Groundsure report identified a 1 in 30-year risk of 0.1m-0.3m surface water flooding. The area indicated is located in centre of the current building 401 onsite and is likely associated with the current part basement of the building. The Groundsure report also identifies a Low risk from groundwater flooding.

Hydrogeology

The DEFRA MAGIC Map has been consulted in conjunction with the Groundsure Report and BGS Interactive Map. Available information indicates that:

- The Devensian Glacial Till is classified as a Secondary Undifferentiated Aquifer. These designations are described by the EA as being 'assigned in cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type'.
- The Bollin Mudstone Member is classified as a Secondary B Aquifer. These are described by the EA as 'predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers'.

The EA's Groundwater Vulnerability Map of the area (DEFRA MAGIC Map shows that both the superficial and bedrock aquifers are classified as being low vulnerability.

Mapping produced by the EA and supplied with the Groundsure report shows that the site does not lie within 500m of a Source Protection Zone.

The Groundsure report indicates there are no groundwater abstractions within 2km of the site.

Unexploded Ordnance Survey

The Site has been classed as having a low risk of encountering unexploded ordnance (UXO) by Zetica's mapping, meaning it is estimated that 15 bombs failed to explode within an area of 1,000 acres. However, as the Site is within the vicinity of Manchester Airport with a Luftwaffe target noted approximately 175m to the SE, a UXO risk assessment was undertaken for the Site.

The assessment concluded that the risk for the site was low as no significant sources of UXO were identified. The report's recommendation was for a UXO awareness briefing to be given to all staff involved in excavations. The Zetica desk study and risk assessment is included as Appendix C.

3. Field and Laboratory Studies

Ground Investigation

Description of Field Work

A Ground Investigation (GI) was undertaken at the site by LK Consult Ltd, the overall aim of which was to obtain an understanding of the overall ground conditions, both geological and hydrogeological, to derive geotechnical and geo-environmental parameters for the site. The fieldworks were carried out between 14th March and 25th May 2022. The factual report prepared by LK Consult Ltd following the investigation is provided in Appendix D.

The investigation site works comprised the following:

Boreholes

- 7 No. Cable Percussion/Dynamic Sample Boreholes with Rotary follow on.

In Situ Testing

- Standard Penetration tests (SPTs) typically at 1m to 1.5m intervals,
- Permeability testing,
- Hand Shear Vane (HSV) tests on selected soil samples; and
- Photo-Ionisation Detector (PID) headspace tests on selected soil samples.

Objectives of Field Work

The objectives of the investigation were to:

- Obtain site data to inform the overall ground conditions assessment of the site, including directly measured and derived geotechnical parameters for encountered strata to inform the geotechnical risk assessment; and,
- Obtain site data including soil and groundwater samples to allow further assessment of risks to human health and controlled waters receptors as a result of on-site contaminants.

Summary of Field Work

A summary of the exploratory holes and any installation details are presented in Table 3-1 below. The locations of the exploratory holes are shown in Appendix D.

Table 3-1 Exploratory Hole Summary Table

Borehole ID	Elevation (mAOD)	Final Depth (mbgl)	Response Zone (mbgl)	Response Zone Strata	Comments
BH101	67.35	25.00	1.00-3.00	Superficial: Slightly gravelly silty CLAY	Very weak weathered mudstone at 3.00m bgl
BH102	68.04	21.30	1.10-4.50	Superficial/ Weathered Bedrock: Silty/ gravelly CLAY and very weak weathered MUDSTONE	Very weak weathered mudstone from 2.80m bgl
BH103	68.21	5.26	1.10-3.00	Superficial: Slightly gravelly silty CLAY	Very weak weathered mudstone from 3.20m

Borehole ID	Elevation (mAOD)	Final Depth (mbgl)	Response Zone (mbgl)	Response Zone Strata	Comments
BH104	67.58	25.00	4.70-5.70	Superficial: Slightly gravelly SAND	Very weak mudstone containing bands of Gypsum from 10.60m bgl
BH105	67.23	7.20	4.00-6.00	Superficial: Slightly gravelly silty SAND	Stiff to very stiff clay or possibly extremely weak weathered Mudstone from 6.00m bgl
BH106	66.93	14.50	2.60-3.85	Superficial: Slightly gravelly silty CLAY	Very weak weathered mudstone from 6.00m bgl
DS101	64.40	5.20	N/A	N/A	Extremely weak weathered Mudstone from 4.10m bgl

Groundwater Monitoring and Sampling

Six exploratory hole locations (BH101-BH106) were installed with monitoring wells for subsequent ground gas and groundwater sampling. A summary of the well installations and response zone is listed above in Table 3-1.

One round of groundwater sampling was undertaken on 23rd June 2022 from each of the wells and water samples scheduled for laboratory testing. The results of this testing are provided in the factual report (LK Consult, July 2022) held in Appendix D and discussed later in this report in Sections 7 and 0.

Ground Gas Monitoring

Ground gas monitoring of the wells installed into BH101-BH106 was undertaken across 6No. monitoring rounds dating from 16th, 23rd and 30th June and 7th, 14th, and 20th July 2022. This included measurements of atmospheric pressure, peak and steady flow rate and concentrations of methane (CH_4), carbon dioxide (CO_2), oxygen (O_2), carbon monoxide (CO), hydrogen sulphide (H_2S) and volatile organic compounds (VOC).

Laboratory Investigation

Geotechnical Testing

Soil samples obtained from the investigation were sent for laboratory testing as part of the derivation of geotechnical parameters. These tests included density, moisture content and Atterberg limits, particle size distribution, one-dimensional consolidation, quick undrained triaxial, uniaxial compressive strength and point load testing. Samples were also tested for BRE suite D.

These test results are included in the Ground Investigation Factual Report (Appendix D) and are also summarised in Table 3-2.

Table 3-2 Summary of Geotechnical Testing

Test	Number of Tests
Density and Moisture Content	10
Atterberg Limits	19

Particle Size Distribution	4
One-Dimensional Consolidation	7
Quick Undrained Triaxial	11
Point Load (axial and diametral)	50
BRE Suite D	18

Geo-Environmental Sampling and Test Rationale

Representative soil samples were taken from the exploratory holes and were scheduled for a suite of chemical analysis. The testing regime was prescribed by AECOM and subcontracted to Chemtest. Samples were scheduled based on visual/ olfactory observations and results of PID head space testing as well as being scheduled in order to fully characterise the different strata underlying the site.

Copies of the test results and laboratory certificates are included in the Ground Investigation Factual Report (LK Consult, July 2022) held in Appendix D. A summary of the geo-environmental testing is summarised in Table 3-3.

Table 3-3 Summary of Geo-environmental Testing

Suite Reference	Material	Determinands	Number of Tests
Suite S – 1 (Main Soils)	Soil	Metals, pH, sulphate suite, speciated PAHs*, TPH CWG*, phenols, cyanide suite, FOC* and asbestos screen	16
Suite S – 2 (Additional Soils)	Soil	PCBs*, SVOCs* and VOCs*	14
Suite – W1 (Waters)	Water	Metals / metalloids, pH, sulphate suite, speciated PAHs, TPHCWG, phenols, ammoniacal nitrogen cyanide suite, chloride, electrical conductivity and nitrate	6
Suite – W2 (Additional Waters)	Water	PCBs, SVOCs and VOCs	6
Suite – L1 (Soil Leachate)	Leachate	Metals / metalloids, pH, sulphate suite, speciated PAHs, TPH CWG, phenols, ammoniacal nitrogen cyanide suite, chloride, electrical conductivity and nitrate	6
Suite - L2 (Leachate Additional Suite)	Leachate	PCBs, SVOCs and VOCs	6
Inert WAC Suite	Soil	WAC	6

*PAHs (polycyclic aromatic hydrocarbons), TPH CWG (Total Petroleum Hydrocarbons Criteria Working Group), PCBs (polychlorinated biphenyls), VOCs/ SVOCs (volatile/ semi-volatile organic compounds), FOC (fraction organic carbon), WAC (waste acceptance criteria)

4. Ground Summary

Introduction

The strata sequence encountered during the ground investigation is presented in Table 4-1 below. The profile is based on information provided in the Factual Report in Appendix D.

Table 4-1 Ground Profile

Stratum	Typical Description	Top of Layer		Base of Layer		Layer Thickness (m)
		(m bgl)	(m OD)	(m bgl)	(m OD)	
Made Ground	Tarmacadam underlain by MADE GROUND comprised of sandy Gravel or gravelly Sand with frequent tarmacadam fragments. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded of sandstone and limestone. 0.7m thick concrete former loading dock encountered under Tarmacadam at BH101.	0	68.21 – 64.40	0.30 – 1.00	67.71 – 63.80	0.30 – 1.00
Glacial Till - Cohesive	Firm to very stiff consistency medium to high strength slightly gravelly silty CLAY. Gravel is fine to medium subangular to subrounded of various lithologies	0.30 – 1.00	67.71 – 63.80	1.20 – 6.00	65.24 – 60.30	0.65 – 4.00
Glacial Till - Granular	Dense to very dense slightly gravelly SAND with discrete bands of stiff Clay. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded of various lithologies.	1.20 – 4.70	66.38 – 62.40	1.40 – 6.00	63.39 – 61.23	0.20 – 2.00
Bollin Mudstone Member – Weathered (Mercia Mudstone)	Very weak to extremely weak weathered MUDSTONE recovered as stiff to very stiff consistency gravelly Clay. Gravel is fine to coarse subangular to angular of mudstone.	2.80 – 6.00	65.24 – 60.30	4.50 – 10.60	63.54 - 56.98	1.00 – 4.90
Bollin Mudstone Member (Mercia Mudstone)	Weak to extremely weak MUDSTONE. Distinct weathering noted.	4.50 – 10.60	63.39 – 56.98	25.00 (Base Not Proven)	42.35	20.50 (Base Not Proven)

Geology

The investigation generally encountered up to 1m of Made Ground underlain by firm to very stiff Clay and Mercia Mudstone. The Made Ground typically comprised tarmacadam over sandy gravel subbase material. A 0.7m thick concrete former loading dock was encountered beneath the tarmacadam at BH101. In DS101 0.3m of brick, coal and ash was encountered overlying the subbase material.

The firm to very stiff Clay was interbedded with horizons of medium dense to dense sand at some locations and has been identified as Glacial Till. Weathered Mudstone bedrock was recovered as Clay at the base of all borehole locations. The weathering grade of the underlying Mercia Mudstone varies between destructured (Grade IVa) and unweathered (Grade I), extending to 25m bgl.

Groundwater

The groundwater strikes recorded during the investigation and the subsequent 6 no. monitoring visits are summarised in Table 4-2.

Table 4-2 Summary of Groundwater Data

Location	Water Strike Depth		Water Monitoring Depths	
	(m bgl)	(m OD)	(m bgl)	(m OD)
BH101	-	-	1.43 – 1.70	65.92 – 65.65
BH102	-	-	1.44 – 1.57	66.60 – 66.47
BH103	-	-	2.35 – 2.49	65.86 – 65.72
BH104	-	-	3.65 – 3.80	63.93 – 63.78
BH105	5.00	62.23	3.37 – 3.50	63.86 – 63.73
BH106	5.50	61.43	3.06 – 3.21	63.87 – 63.72
DS101	-	-	-	-

Visual and Olfactory Observations

There were no visual or olfactory observations of contamination noted during the site investigation or during the subsequent groundwater monitoring.

5. Ground Conditions and Material Properties

Introduction

This section covers the derivation of representative soil parameters for each of the strata based on the findings of the investigation and empirical relationships.

Derivation of Soil Parameters

Made Ground

Engineering properties of Made Ground cannot be relied upon and are not discussed in detail in this document.

Cohesive Glacial Till

Firm to very stiff clay comprising the cohesive Glacial Till was recorded underlying the Made Ground across the Site. Bulk density data from the triaxial and Atterberg testing ranges between 1.66Mg/m^3 and 2.01Mg/m^3, excluding a lower value which is considered to be an anomaly, with an average of 1.80Mg/m^3. Therefore, based on this value and the material description of firm to very stiff clay, a value of 19kN/m^3 is proposed for the stratum. The dry density results from testing are shown on Figure 8.

Atterberg Limit tests were carried out on samples of the cohesive Glacial Till obtained during the investigation. The results are summarised in Table 5-1 and indicate the cohesive Glacial Till is of low to intermediate plasticity with an average plasticity index of 15%. The Atterberg Limit chart is included as Figure 1 and the moisture content testing is shown on Figure 2.

Table 5-1 Summary of Atterberg Limit Tests for Cohesive Glacial Till

Soil Parameter	No. of Tests	Average Value	Range
Moisture Content (%)	18	16	4 - 25
Liquid Limit (%)	11	31	25 - 44
Plastic Limit (%)	11	16	12 - 22
Plasticity Index (%)	11	15	10 - 22

The value of ϕ'_{crit} has been determined using the correlation in BS8002, Code of Practice for Earth Retaining Structures (2015) and Figure 5.3 of CIRIA 504 Engineering in Glacial Tills. Using the average plasticity index gives a suggested value of 27° for both methods.

The uncorrected SPT N values for the strata are shown in Table 5-2 and on Figure 3. This table also includes un-drained shear strength from the SPT data using empirical relationships (c_u = f1*N values from Stroud, 1975) (5). An f1 factor of 6.5 has been used based on the strata's average plasticity index. This f1 value is the upper bound provided by Stroud, however the more conservative hand vane results have also been used to derive the design line and ensure it is moderately conservative.

Single stage unconsolidated undrained triaxial tests were also carried out on samples of the material and these results are summarised in Table 5-3. Two tests at a depth of 1.2m achieved results for 199kPa and 225kPa for BH102 and BH103 respectively, however these are deemed to be anomalies.

Table 5-4 summarises the hand vane tests undertaken at shallow depths.

Table 5-2 Summary of SPT Tests for Cohesive Glacial Till

Depth Range (m bgl)	No. of Tests	Range of Uncorrected SPT N Values	Average Uncorrected SPT N Value	Range of Undrained Shear Strength, SPT x 6.5 (kPa)	Average Undrained Shear Strength (kPa)
1 - 2	5	15 - 22	17	98 - 143	111
3 - 4	4	22 - 50	41	143 – 325	267
5 - 6	5	37 - 50	47	241 – 325	306
7 - 8	3	50	50	325	325
9 - 10	2	50	50	325	325

Table 5-3 Summary of Unconsolidated Undrained Triaxial Tests for Cohesive Glacial Till

Depth (m bgl)	No. of Tests	Undrained Shear Strength	Soil Strength
1 - 1.2	4	58 - 225	Medium to Very High
2 – 2.2	2	106 – 116	High
3	3	88 – 126	High
4	1	56	Medium

Table 5-4 Summary of Hand Vane Tests for Cohesive Glacial Till

Depth (m bgl)	No. of Tests	Undrained Shear Strength	Soil Strength
0.5	6	15 - 87	Low to High
0.75	10	6 – 96	Low to High
0.8	2	24 - 78	Low to High

Based on the undrained shear strengths from the above testing a design line of 40kPa to a depth of 66m OD and 80kPa below that is proposed based on the testing results and the strata's description as firm. The full plot is included as Figure 5.

Using the correlation E'/N=0.9 from CIRIA 143, The Standard Penetration Test (SPT): Methods and Use by Stroud, 1988 (6), and a range of N values of 13 to 27 gives a proposed E' range of 12MPa to 24MPa.

Three particle size distribution (PSD) tests were carried out on the cohesive Glacial Till. The samples were taken from boreholes BH101 and BH103, the results of which are summarised in Table 5-5 and shown on Figure 7.

Table 5-5 Summary of Particle Size Distribution Tests for Cohesive Glacial Till

Location	Depth (m bgl)	Constituents				
		Cobbles (%)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)
BH101	1.5	0	5	38	29	28
BH103	2	0	1	15	44	40
BH103	4	0	6	20	40	34

Granular Glacial Till

Thin granular layers of the Glacial Till were recorded in five of the seven locations and described as dense to very dense sand. The thickness of the layer was highly variable, ranging from thin bands to layers up to 2m thick where the material was described as containing clay bands and a PSD showed the material to be predominantly cohesive. The suggested bulk density according to BS8002, 2015 for the granular Glacial Till is 19kN/m^2 based on the description as dense to very dense sand and the location of the layer above the groundwater table.

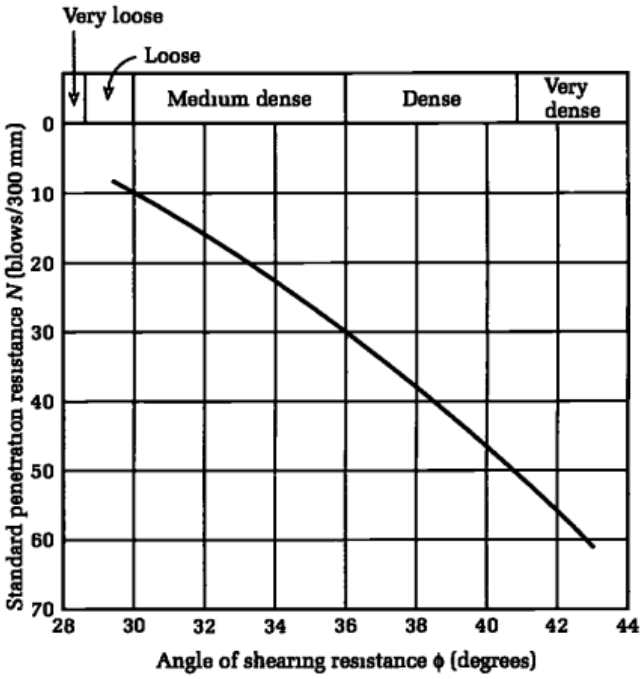
The SPT tests undertaken in these layers are summarised in Table 5-6 and shown on Figure 4.

Table 5-6 Summary of SPT Tests for Granular Glacial Till

Depth Range (m bgl)	No. of Tests	Range of Uncorrected SPT N Values	Average Uncorrected SPT N Value
2 – 3	1	23	23
4 - 5	3	26 - 50	38

The undrained internal (peak) angle of friction for the granular Glacial Till has been estimated using the representative N value and the correlation proposed by Peck et al. (1967), presented in Tomlinson Foundation Design & Construction (2001). Based on an N value of 30, the proposed angle is 36° as shown in Figure 5-1.

Figure 5-1 Extract from Tomlinson Foundation Design and Construction (2001); Relation of N-Values and Friction Angles by Peck et al. (1967)



The suggested drained modulus (E') is 30MPa based on the correlation $E'/N_{60}=1$ from CIRIA 143 and the representative N value of 30. The N value has been used rather than the N_{60} value to be more conservative as the N_{60} value would give an E' of 100MPa to 120MPa based on the energy ratios of 75% and 61% respectively. The results of the single PSD test undertaken on a sample of the granular Glacial Till from BH105 are in Table 5-7, and also on Figure 7. The results show the material is predominantly cohesive so suggest it is from one of the cohesive bands noted in the layer.

Table 5-7 Summary of Particle Size Distribution Tests for Granular Glacial Till

Location	Depth (m bgl)	Constituents				
		Cobbles (%)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)
BH105	4	0	2	19	41	38

Mercia Mudstone

A zone of weathered Mercia Mudstone, recovered as stiff to very stiff Clay, was encountered in each rotary follow on borehole. Underlying this was the Mercia Mudstone which was found to be highly variable in both depth and weathering grade. The weathering grade ranged from Grade IVa & IVb to Grade II with Grade IVa and IVb encountered at depth. The derived values have also been compared to those stated in CIRIA 570 Engineering in Mudstone.

Two dry density values were determined for the weathered Mercia Mudstone of 1.87Mg/m^3 and 1.88Mg/m^3 giving a proposed dry density of 18kN/m^3. These results are shown on the plot in Figure 8. A density of 20kN/m^3 is

proposed for the unweathered Mercia Mudstone based on BS8002 and its description as weak to extremely weak Mudstone. C570 suggests a bulk unit weight of between 18kN/m^3 and 21kN/m^3 for the Grade IV Mudstone so the value for the weathered Mercia Mudstone is at the lower end of this range. For Grades III to I, C570 suggests a bulk unit weight of between 20.5kN/m^3 and 24.5kN/m^3 so the proposed unit wight for the unweathered Mercia Mudstone is also at the lower end of this range.

The Atterberg Limit data for the weathered Mercia Mudstone (Grades IVa and IVb) is summarised in Table 5-8 and shows an average plasticity index of 20%. Using the correlation from BS8002 gives a ϕ'_{crit} of 25°. Table 7.1 of C570 suggests a value of between 25° and 32° for Grade IV so the proposed value is consistent with the lower bound value from C570. The ϕ'_{crit} of the unweathered Mercia Mudstone is assumed to be 27°. Only one Atterberg Limit test was undertaken on the unweathered strata and the result was very similar to that for the weathered layer (21% compared to 20%) however a small increase has been assumed based on the material description compared to the weathered layer. C570 suggests a value of between 32° and 42° for Grade III and greater than 40° for Grades I and II however due to the presence of weathered material at depth, a more conservative value has been proposed.

Table 5-8 Summary of Atterberg Limit Tests for Mercia Mudstone

Soil Parameter	No. of Tests	Average Value	Range
Moisture Content (%)	24	11	1 - 23
Liquid Limit (%)	8	32	18 – 47
Plastic Limit (%)	8	19	16 – 23
Plasticity Index (%)	8	20	17 - 24

26 SPT tests were undertaken in the weathered and unweathered Mercia Mudstone. Only two of these tests did not record refusals, the results are summarised in Table 5-9. Undrained shear strength values were derived based on the f1 correlation by Stroud mentioned previously and using the strata's average plasticity index of 20% to determine an f1 value of 5.4. The single unconsolidated undrained triaxial test is reported in Table 5-10. Therefore, an undrained shear strength of 150kPa is proposed for the weathered Mercia Mudstone layer.

Table 5-9 Summary of SPT Tests for Mercia Mudstone

Depth Range (m bgl)	No. of Tests	Range of Uncorrected SPT N Values	Average Uncorrected SPT N Value	Range of Undrained Shear Strength, SPT x 5.4 (kPa)	Average Undrained Shear Strength (kPa)
1 - 5	7	25 - 50	46	135 – 270	248
6 - 10	5	50	50	270	270
11 - 15	3	34 - 50	45	184 - 270	243
16 - 20	7	50	50	270	270
21 - 25	4	50	50	270	270

Table 5-10 Summary of Unconsolidated Undrained Triaxial Tests for Mercia Mudstone

Depth (m bgl)	No. of Tests	Undrained Shear Strength	Soil Strength
3	1	50	Medium

The point load tests undertaken in the unweathered Mercia Mudstone are summarised in Table 5-11 and shown on Figure 6. A c_0 conversion factor of 24 was used to calculate the UCS values based on the mudstone being a well-cemented calcareous rock. Based on these results a representative UCS value of 3MPa is proposed based on correlation with I_s and I_{s50}, these results are shown in Table 5-11. Where I_s is the uncorrected point load strength and I_{s50} is the strength corrected based on the size of the sample to a reference dimension of 50mm.

Table 5-11 Summary of Point Load Tests for Mercia Mudstone

Soil Parameter	No. of Tests	Average Value	Range
I_s (MPa)	48	0.32	0.04 – 2.14

Soil Parameter	No. of Tests	Average Value	Range
I_{s50} (MPa)	48	0.28	0.04 – 1.53
UCS (MPa)	48	6.65	0.96 – 36.72

The drained modulus, E', of the weathered Mercia Mudstone was derived from the E'/N=0.9 relationship from CIRIA 143 and using a representative N value of 45. This suggests an E' of 40MPa. This value was increased slightly to 50MPa for the unweathered layer based on the material description.

The cohesion values suggested by C570 are greater than 20kPa for Grades IV and III and greater than 25kPa for Grades I and II however more conservative values have been proposed here.

The stiffness was also checked with the rock mass stiffness correlation using the equation $E_m=jM_rq_c$ from CIRIA 181 where j is the mass factor, M_r is the modulus ratio and q_c is the UCS. A mass factor of 0.5 was selected based on an average Rock Quality Designation (RQD) of 67% and a modulus ratio of 150, based on Mercia Mudstone being a cemented mudstone. This gave an E_m of 225MPa however the more conservative value of 50MPa is used in Table 5-12.

Geotechnical Parameters

Table 5-12 details the proposed geotechnical parameters for the strata based on the information from the ground investigation. In comparison to the values suggested by C570 the proposed values for the Mercia Mudstone present more conservative estimates and generally lie at the lower bound of the range suggested by C570.

Table 5-12 Characteristic Soil Parameters Summary

Strata	γ_{DRY} (kN/m3)	Φ'_{crit} (°)	Φ'_{peak} (°)	c_u (kPa)	c' (kPa)	E' (MPa)	UCS (MPa)	v
Glacial Till - Cohesive	19	27	-	40 – 80 (See Figure 5)	0	12 - 24	-	0.3
Glacial Till - Granular	19	-	36	-	0	30	-	0.25
Bollin Mudstone Member – Weathered (Mercia Mudstone)	18	25	-	150	0	40	-	0.3
Bollin Mudstone Member (Mercia Mudstone)	19	27	-	-	0	50	3	0.3

Aggressive Ground

Soil chemistry tests to determine the potential for aggressive ground were performed on 18 No. soil samples recovered during the GI. The following properties were measured –

- Total sulphate content of soil (water soluble)
- Total sulphur content of soil
- pH of soil

Using guidance from BRE Special Digest 1 (7), the following estimates can be made

- Total potential sulphate content (3 x total sulphur content)

Should the estimate of oxidisable sulphides exceed 0.3% within a significant number of tested samples, then it can be concluded that pyrite is likely to be present within the Site. Should pyrite be present, the total potential sulphate should be considered in the assigning of a ground aggressivity classification. Brownfield conditions and mobile groundwater were assumed for the site in the assessment. The results are summarised in Table 5-13.

Table 5-13 BRE Concrete in Aggressive Ground Assessment Summary

Location	Depth (m bgl)	Strata	pH	Sulphate (2:1 Water Soluble) as SO4 (mg/l)	Total Sulphur (%)	Total Potential Sulphate (%)	Design Sulphate Class	ACEC Class
BH101	1.50	Cohesive Glacial Till	8.2	1761	0.37	1.11	DS-3	AC-3
	4.50	Mercia Mudstone	8.2	1797	0.43	1.29	DS-4	AC-4
	8.50	Mercia Mudstone	8.2	1944	4.98	14.94	DS-5	AC-5
	20.50	Mercia Mudstone	8.3	2012	1.10	3.3	DS-5	AC-5
BH102	2.00	Cohesive Glacial Till	8.5	296	0.06	0.18	DS-1	AC-1
	8.00	Mercia Mudstone	8.2	1982	0.53	1.59	DS-4	AC-4
BH103	0.75	Cohesive Glacial Till	8.5	96	0.02	0.06	DS-1	AC-1
	2.00	Cohesive Glacial Till	8.3	167	0.02	0.06	DS-1	AC-1
	4.00	Weathered Mercia Mudstone	7.8	1741	3.71	11.13	DS-5	AC-5
BH104	11.50	Mercia Mudstone	7.9	1867	6.02	18.06	DS-5	AC-5
	17.00	Mercia Mudstone	8.0	1633	5.48	16.44	DS-5	AC-5
BH105	2.00	Cohesive Glacial Till	8.3	2020	0.23	0.69	DS-3	AC-3
	4.00	Granular Glacial Till	8.6	427	<0.01	0.03	DS-1	AC-1
	6.00	Weathered Mercia Mudstone	8.2	1909	0.58	1.74	DS-4	AC-4
BH106	0.50	Cohesive Glacial Till	8.3	520	0.11	0.33	DS-2	AC-2
	6.00	Weathered Mercia Mudstone	8.0	1893	4.63	13.89	DS-5	AC-5
	8.50	Mercia Mudstone	8.0	1930	6.87	20.61	DS-5	AC-5
	13.00	Mercia Mudstone	8.1	1963	5.24	15.72	DS-4	AC-4

DS-5 and AC-5 is required for concrete in the Mercia Mudstone, including the weathered layer. DS-3 and AC-3 is required for the cohesive Glacial Till, and granular Glacial Till as only one test was undertaken in this layer and although it showed DS-1 and AC-1, this has been conservatively raised to DS-3 and AC-3.

CIRIA C570 indicates that high sulphates within the Mercia Mudstone and Cheshire Basin in particular are common due to the presence sulphates such as of gypsum (observed on the engineer's logs) and halites, contributing to differential weathering profiles.

In-Situ Contamination Tests and Observations

A summary of any significant PID readings and any visual and olfactory observations from each exploratory hole location are listed below in Table 5-14.

Table 5-14 In-situ Contamination Observations

Exploratory Hole	Max PID (ppm)	Visual/Olfactory Observations
BH101	0.0	None
BH102	0.3	None
BH103	0.1	None
BH104	0.3	None
BH105	0.3	None
BH106	1.3	None
DS101	0.5	None

6. Geotechnical Risk Assessment

Assessing Geotechnical Risk

A Geotechnical Risk Register has been compiled to show the degree of risk attached to various ground related aspects of the proposed works. The purpose of the register is to produce an assessment of the risk to the project posed by site specific ground related problems and identify suitable mitigation measures to control the risk to an acceptable level. The risk register should be developed and refined as the geotechnical design and assessment progresses such that the register will allow management of the geotechnical risks.

The degree of risk (R) is determined by combining an assessment of the likelihood (L) of the hazard with an assessment of the severity (S) of the hazard. The scale against which the likelihood and severity are measured, and the resulting degree of risk determined are presented below. The risk register is in Table 6-1.

Likelihood (L)		Severity (S)	
Very Likely	5	Very High	5
Likely	4	High	4
Probable	3	Medium	3
Unlikely	2	Low	2
Negligible	1	Very Low	1

Likelihood	5	5	10	15	20	25
	4	4	8	12	16	20
	3	3	6	9	12	15
	2	2	4	6	8	10
	1	1	2	3	4	5
		1	2	3	4	5
		Severity				

Risk rating	Response
Intolerable	Unacceptable
Substantial	Early Attention
Tolerable	Regular Attention
Trivial	Monitor

Table 6-1 Geotechnical Risk Register

Identified Geotechnical Hazard	Location	Cause	Risk before Control			Consequence	Possible Mitigation Measures
			L	S	RR (L*S)		
Aggressive ground chemistry	Scheme Wide	Made Ground, Glacial Till and Mercia Mudstone are potentially sulphide/sulphate bearing stratum.	4	3	12	Deleterious effects on buried concrete/piles.	Analyse BRE test results and design concrete mix during detailed design in accordance with BRE guidance.
Variable thickness and composition of superficial deposits and Made Ground/variable hard ground	Scheme Wide	The inherent variability of Glacial Till and Made Ground or variable rock head level and properties. Investigation found up to 1m of Made Ground, Glacial Till thickness of between 0.5m and 4m and encountered rock head at between 2.8m and 6m bgl.	4	3	12	Unsuitable method of construction. Potential presence of boulders/buried concrete structures may obstruct piling/drilling. Obstruction will be difficult to excavate or drill through. Additional cost.	Design to allow for ground conditions encountered. Works to prepare for variable conditions to those reported by the ground investigation.
Underground obstructions due to current and historical development	Scheme Wide	Known and unknown/unrecorded buried structures. BH101 encountered a former concrete loading dock at 0.3m bgl. Full extent of this loading dock is unknown.	4	3	12	Costs due to damage to plant and delays removing obstructions. Potential settlement issue in areas between proposed and existing foundations of previous structures.	Proposed work to be located away from existing foundations where possible. Extent of concrete loading dock to be proven and installation of stone columns to plan for encountering the dock and any other obstructions.
Required bearing pressure not achieved with vibro-stone columns	Scheme Wide	Ground conditions are worse than expected.	3	4	12	Additional costs and/or delays during construction due to difficulty installing stone columns. Long term poor performance of finished structure such as differential settlement.	Advice should be sought from specialist vibro-stone column contractor regarding suitability of the site and proposed development for stone columns. More onerous foundation solution or redesign of sub-structure to reduce bearing pressures may be required.
Re-grading of site	Scheme Wide	Slope stability and long-term settlement of raised earthworks. A gravity vegetated wall is proposed for the site.	3	3	9	Failure of earthworks slopes and serviceability issues with excessive total and differential settlement.	Earthwork slopes will be designed using conservative parameters from the ground investigation findings. Gravity vegetated wall is to be designed by a specialist contractor.
Unforeseen contamination	Scheme Wide	Historical contamination associated with former site uses e.g. substations and refuelling areas.	3	3	9	Risks to human health and environment, increased costs to remediate.	Review of laboratory data and further assessment to inform construction and risks to construction workers. Allowance for unforeseen contamination within risk register. Inspection and discovery strategy to be employed during earthworks and construction/demolition.
The presence of weak and compressible soils	Scheme Wide	Glacial Till was described as firm to very stiff and dense to very dense for cohesive and granular layers respectively. However soft cohesive and loose granular deposits may be present as Glacial tills are typically	2	4	8	Differential settlement as a result of differing foundation material. Failure of structures or earthworks.	Adopt conservative design based on findings of ground investigation and specify appropriate foundations.

Identified Geotechnical Hazard	Location	Cause	Risk before Control			Consequence	Possible Mitigation Measures
			L	S	RR (L*S)		
		highly variable in composition. Compressible materials may be present. Made Ground encountered to a maximum depth of 1m bgl.					
Frost susceptible soils	Scheme Wide	Construction of pavement and silt-rich soils.	2	3	6	Surface damage or alternative design. Frost heave.	During detailed design review findings of ground investigation and assess risk. Increase pavement thickness to incorporate risk.
Shrinkable clay soils	Scheme Wide	Artificial and/or superficial deposits.	2	3	6	Damage to structures due to seasonal subsidence and heave of clay soils and near trees.	Check Atterberg limits of cohesive soils and specify foundations according to relevant guidance, e.g., NHBC. Trees should be protected during construction and structures should consider the impact of the growth of young trees and potential for damage from roots.
Challenges re-using site won material for earthworks	Scheme Wide	Potential cobbles and boulders in Glacial Till.	2	3	6	Potential difficulty compacting Glacial Till as an engineered fill due to potential presence of coarse granular material. Increased costs from importing suitable material.	Import suitable engineered fill or remove coarse material from existing site won material. Carry out testing to classify material.
Weak pavement formation	Scheme Wide	Site soils including Made Ground may be variable or possess low Cu/CBR/stiffness values. This may result in weak pavement formation and differential settlement.	3	2	6	Increased cost such as resurfacing access roads and car park may be required.	Review laboratory testing results for design CBR values to inform pavement design. Undertake remediation for instance implementation of mechanical compaction, thicker capping material, ground improvement (lime improvement/soil stabilisation) or excavation and replacement.
UXO	Scheme Wide	Potential UXO related to historic military activity as a result of being part of the airport during WWII.	1	5	5	H&S impact during excavation, ground investigation, piling and construction.	UXO Desk Study & Risk Assessment for Avro Way Manchester, undertaken by Zetica (Ref P11632-22-R1, dated 19th April 2022) indicates a low risk of encountering UXO at the site. Specialist UXO supervision is therefore not recommended for future works including excavations and/or boreholes and piling, but a UXO Awareness Briefing should be given to future site operatives.

7. Contamination Assessment

Human Health Risk Assessment

Introduction to Generic Risk Assessment Methodology

AECOM has adopted a prescribed methodology for assessing risks to human health at a generic level (termed 'generic quantitative risk assessment' (GQRA) or 'Tier 2' recommended by the Environment Agency's Land Contamination Risk Management Framework (LCRM) (8)

For sites where the initial conceptual site model (iCSM) has identified one or more complete contaminant linkage to human health, it is often necessary to clarify the risks posed by that contaminant linkage by comparison of reported soil and groundwater contaminant concentrations with guideline values that represent acceptable concentrations.

The procedures outlined in EA Science Reports SC050021/SR2, SR3, SR4 and SR7 (9) (10) (11) (12) have been adopted in conjunction with the amendments to generic land-use exposure models published in DEFRA research report SP1010 detailing the derivation of Category 4 Screening Levels (C4SL) to select and develop generic assessment criteria (GAC) for soil. This approach has also been adapted to develop assessment criteria for groundwater and soil vapour.

Selection and Derivation of Stage 2 GAC

Hierarchy of Published Sources

AECOM utilises a hierarchy of published sources for Stage 2 generic assessment criteria for soil.

The hierarchy of published sources are:

- Defra Category 4 Screening Levels (C4SL)
- Land Quality Management (LQM) / Chartered Institute of Environmental Health (CIEH) Suitable for Use Levels (S4UL) for Sandy loam soil
- Environmental Industries Commission (EIC) GAC
- AECOM GAC
- Dutch Intervention Values (IV) and Serious Risk Concentrations (SRC)
- United States Environmental Protection Agency (USEPA) Regional Screening Levels (RSL)

No LQM or EIC values are available for lead, and therefore the published C4SLs for lead are the default soil GAC. Further consideration of Defra SP1010 C4SLs for other substances is made where appropriate, subject to the current limited availability to six substances.

In accordance with EA guidance co-authored by AECOM, GAC can be used as a starting point for evaluating long-term risks to human health from substances in soil. They address one specific consideration – long-term adverse effects on human health – and are designed to indicate where long-term (chronic) human health soil exposure risks are considered to be tolerable or minimal. They do not represent the "trigger" for an unacceptable risk under Part 2A of EPA 1990 and they do not address risk related to construction workers, acute exposure, ecology, controlled waters or building materials, they do not inform on the geotechnical suitability of the soil, and they do not inform on the aesthetic quality of the soil – both visual and olfactory. Therefore, the GAC have not been explicitly derived to define remediation standards and are just one component in the assessment of whether soil is suitable for use.

It is good practice to use multiple lines of evidence to support GQRA conclusions.

Proposed Land Use Scenario

The proposed land use scenario selected for the site is considered to be "Commercial Land Use" based on the site being redeveloped to include a warehouse and loading area.

Taking into consideration the soil descriptions and total organic content (TOC) found in soils samples across the site, TOC >=0.58 to <1.45% was used with a soil type ‘Sandy Loam’ to calculate the GAC.

It should be noted that Tier 2 assessments tend to be relatively conservative and are therefore suitable for screening the potential chronic long-term risks to human health at a site.

Soils Analytical Data

Soil results and environmental laboratory certificates are provided in the LK Consult Factual Report in Appendix D.

There were no exceedances of the human health GAC for a commercial land use from any of the 16 No. soil samples tested.

In addition, no asbestos was detected by the laboratory in any of the 16 No. samples screened.

Buried Drinking Water Pipes

A comparison of the soil results has been undertaken based on the following:

- United Utilities, 2019. Supplementary guidance for the selection of water pipes in land potentially affected by contamination

The results from the assessment indicates only localised exceedances of the thresholds for polyethylene pipes were obtained from very shallow depth from BH102 (0.15m) and BH103 (0.14m) for EC16 to 40 aliphatic and aromatic hydrocarbons.

Phytotoxicity (Toxicity to Plants)

Assessment of the soil testing results for potentially phytotoxic metals (copper, nickel and zinc) does not show any exceedance of the criteria provided in BS3883:2015 Specification for Topsoil and BS 8601:2013 Specification for Subsoil.

Controlled Waters Risk Assessment

Groundwater and Surface Water Generic risk assessment methodology

AECOM has a prescribed methodology for assessing risks to controlled waters at a generic level, termed 'generic quantitative risk assessment' (GQRA) or 'Tier 2' in LCRM.

For sites in England and Wales where the conceptual site model has identified a potentially complete contaminant linkage to controlled waters, the first step is to define a suitable water target value (WTV) for the identified point of compliance upon which the risk assessment can be based. For groundwater compliance points the drinking water standard (DWS) is used in England and Wales while for surface water compliance points an environmental quality standard (EQS) is adopted.

For England and Wales, Stage 2 WTV have been selected following the Level 1 assessment methodology detailed in the EA's Remedial Target Methodology (RTM) (12).

Selection of Stage 2 WTV

Selection of EQS Criteria

The selection process used to determine the freshwater and coastal EQS is presented below in order of preference:

- United Kingdom environmental quality standards including SEPA WAT-SG-53.
- PNEC derived for EU REACH registration dossiers/chemical safety reports (via the Fuel Ether REACH Consortium FERC).

When an EQS or PNEC is not available, a GAC will not be set. However, for a number of sites where groundwater has the potential to provide base-flow to surface water, the groundwater may also have resource potential and therefore also be screened against DWS based standards.

Tier 2 Assessment for Groundwater Data

The Tier 2 assessment involves the comparison of measured groundwater concentrations against the WTV. If the concentrations are below the WTVs, then the risks are considered insignificant. If the concentrations in the source are above the WTV, there is a potentially unacceptable risk to groundwater or surface water which requires further qualitative or quantitative assessment.

Whilst the hierarchies detailed above are appropriate for most sites there may be site specific conditions which require review of alternative criteria to be adopted, i.e., where an aquifer is located in an area of low environmental sensitivity and/or is considered unlikely to be utilised for potable supply or to provide base-flow to surface water. Where alternative criteria have been considered this will be highlighted.

Selection of Appropriate Controlled Waters Criteria Values

Information from the AECOM Desk Study indicates that the Superficial Deposits underlying the Site, comprising Glacial Till, is categorised as a Secondary Undifferentiated aquifer. The bedrock, comprising Bollin Mudstone, is categorised as a Secondary B aquifer.

It is likely there may be some connectivity of the groundwater with Cotteril Clough Brook (a tributary of the River Bollin) located 259m south of the site down an inferred gradient. There are no surface water abstraction points identified within the Site boundary and no groundwater abstractions licenses have been identified within 1 km. The site is also not located within 500m of a Groundwater Source Protection Zone.

The Groundsure report indicates there are no groundwater or potable water abstractions within 2km of the site. The most sensitive underlying aquifer is listed as being the Bollin Mudstone Member (Secondary B). Superficial deposits encountered immediately underlying Made Ground during the ground investigation comprised cohesive clay deposits. The thickness of the underlying clay ranged between 1.40 – 4.00m bgl. The cohesive material underlying the Made Ground is likely to provide a barrier reducing the potential for downward vertical migration of contaminants within shallow soils and therefore it is unknown if groundwater is in connectivity with Cotteril Clough Brook and the River Bolling. As such, EQS screening criteria protective of surface water receptors have been discounted and the groundwater screened against the less conservative Drinking Water Standards

Ground Water Analytical Results

One round of groundwater monitoring was undertaken at the site which included 6 No. groundwater samples from across the site (BH101 to BH106) on 23rd June 2022. Samples were submitted for groundwater analysis and compared to appropriate DWS WTV screening criteria. The laboratory analytical results for groundwater are presented in Appendix D.

PCBs, VOCs, phenols, cyanide suite and nitrate were not detected above the lower method detection limit (MDL) for any of the groundwater samples. Metals, TPHCWG, Speciated PAHs, SVOCs, and inorganics all reported results above the lower MDL.

There are reported exceedances of sodium, sulphate and chloride within groundwater samples. These are summarised as Table 7-1 below.

Leachate Analytical Results

Six soil samples were subject to leachate analysis with the results of the analysis compared to the WTV. These samples included 4 No. Made Ground samples (BH102 at 0.3m, BH105 at 0.2m and DS101 at 0.00 – 0.30m and 0.30 – 0.44m) and 2 No. natural samples from CLAY (BH101 at 2.1m) and SAND (BH104 at 1.3m).

PCBs, VOCs, SVOCs phenols and cyanide suite all reported concentrations below the lower MDL for all samples scheduled. TPHCWG, metals, speciated PAHs and inorganics all reported concentrations above the lower MDL.

Limited exceedances were exhibited for metals within a samples taken from natural soils in BH104 (1.3m bgl) and Made Ground in DS101 (0.3m bgl). Sulphate was exceeding the WTV for the sample taken from Glacial Till in BH101 (2.2m bgl). These are summarised as Table 7-2 below.

Discussion of Results

Groundwater samples were collected from all 6 No. wells by LK Consult Ltd. It appears that whilst there are several exceedances sulphate and sodium and chloride within all wells. It is probable that these relate to solution of halite and gypsum within the Glacial Tills which derive from the Merica Mudstone (also indicated as having gypsum bands and strings throughout). As there are no potable or trade groundwater abstractions in the area, this observation is not indicated to identify a significant geo-environment risk or anthropogenic contamination. Reference should be made to the engineering conclusions however with regards to aggressivity to concrete from sulphates and chlorides.

It must also be noted that leachate analysis is conservative with higher concentrations along with a wider range of metals present than obtained from groundwater testing. If excavated materials are handled appropriately during construction to prevent run-off and leaching to soils, groundwater and drains then the concentrations observed identified are not expected pose a significant risk and are likely representative of background conditions.

It is, therefore, considered that the reported metals concentrations are likely to be consistent with background conditions.

Table 7-1 Summary of Groundwater exceedances of controlled waters screening criteria

Sample Reference	Units	WTV GAC	BH101	BH102	BH103	BH104	BH105	BH106	WTV Source	Exceedances of WTV
Determinant										
Sodium		200	30	40	85	330	160	210	Drinking Water Standards	2
Sulphate	Mg/l	250	250	970	840	890	300	1300	Drinking Water Standards	5
Chloride	Mg/l	250	69	31	69	710	290	430	Drinking Water Standards	3

Table 7-2 Summary of Leachate exceedances of controlled waters screening criteria

Sample Reference	Units	WTV GAC	BH101	BH102	BH104	BH104	BH105	DS101	DS101	WTV Source	Exceedances of WTV
Depth (m)			2.1	0.3	0.1	1.3	0.2	0	0.3		
Determinant											
Heavy Metals / Metalloids											
Arsenic	µg/l	10	0.9 - 2.4	0.64	0.4	2.5	0.43	1.4	13	Drinking Water Standards	1
Beryllium	µg/l	4	<1	<1	-	140	<1	<1	6.9	Drinking Water Standards	2
Copper	µg/l	5	<0.11	<0.11	<0.11	130	0.38	<0.11	6.6	Drinking Water Standards	2
Chromium (III+VI)	µg/l	50	2.1	4.9	-	170	2.8	5.6	14	Drinking Water Standards	1
Lead	µg/l	10	<0.5	<0.5	<0.5	81	<0.5	2	9.9	Drinking Water Standards	1
Nickel	µg/l	10	<0.5 - 0.87	1.3	<0.5	130	1	<0.5	6.8	Drinking Water Standards	1
Selenium	µg/l	10	0.9 - 2.4	0.64	0.4	2.5	0.43	1.4	13	Drinking Water Standards	1
Inorganics											
Sulphate	mg/l	250	990	37	-	19	10	3.5	6.9	Drinking Water Standards	1

Ground Gas Risk Assessment

Ground Gas Monitoring Results

The generation or migration of ground gases from man-made or natural sources can pose a major hazard to buildings or other structures if the gases are able to accumulate within confined spaces. In terms of the proposed development, the main risks are that ground gases may accumulate in confined spaces in future site infrastructure.

It is understood that the development works to site will include warehouses. Therefore, there exists the potential for the accumulation of ground gases within confined spaces.

In order to determine whether gas generation is occurring at a significant rate within the site, a ground gas monitoring programme comprising 4 rounds for a commercial type building was implemented based upon the British Standard code of practice BS:8576:2013 (13).

The timing of these visits was designed to be reactive as to provide gas monitoring results across a range of atmospheric pressures and conditions including low and falling pressures. However, this was not possible during all visits. It must also be noted that some well screens were flooded during the monitoring visits which reduces the value of the monitored ground gas data.

Borehole gas screening values calculated from the steady state borehole flow rate multiplied by the peak concentration of the particular gas being considered, as defined by Wilson and Card were then compared to the level of risk specified by the characteristic situations defined within BS8485:2015+A1:2019 (14).

The calculations of gas screening values have been carried out for both methane and carbon dioxide and the worst-case adopted in order to establish the appropriate protection measures.

Full set of ground gas data can be found in Appendix D.

Classification of Gas Regime

In accordance with guidelines within BS8485, Gas Screening Values (GSVs) have been calculated to assess the significance of gas generation at the site. . A Gas Screening Value has been calculated for each monitoring well locations based on the peak gas concentration and peak steady state flow rates recorded in each monitoring well.

Gas screening values (GSV) can be calculated from the gas concentration and the flow rate:

$$GSV\ (l/hr) = \frac{Gas\ concentration\ (\%\ v/v)}{100}\ x\ \ flow\ rate\ (l/hr)$$

The corresponding Characteristic Situation (CS) for the site is based on comparison of the generated GSVs to the values given in Table 7-3 taken from BS8485 (15).

Table 7-3 Classification Scheme for Site Gas Risk Assessment (modified Wilson and Card Classification)

Characteristic Situation (CS)	Risk Classification	Gas Screening Value (CH_4/CO_2) l/hr	Additional Factors	Typical Source of Gas Generation
1	Very Low	<0.07	Typically CH_4 <1% and CO_2 <5%. Otherwise consider increase to CS2.	Natural Soil with low organic content. “Typical” Made Ground
2	Low	<0.7	Borehole air flow rate not to exceed 70l/hr.	Natural Soil with high peat/organic content. “Typical” Made Ground.
3	Moderate	<3.5	-	Old landfill. Inert Waste. Mineworkings (flooded).
4	Moderate to High	<15	Quantitative Risk Assessment required to evaluate scope of protective measures.	Mineworkings susceptible to flooding. Completed landfill (MMP 26b criteria).

Characteristic Situation (CS)	Risk Classification	Gas Screening Value (CH_4/CO_2) l/hr	Additional Factors	Typical Source of Gas Generation
5	High	<70	-	Mineworkings (unflooded) inactive with shallow workings near the surface.
6	Very High	>70	-	Recent landfill site.

Source: BS8485

The highest GSV assessed for each of the monitoring visits is provided in Table 7-4. All monitoring wells were screened within superficial deposits.

Table 7-4 Gas Monitoring Characteristic Situation – Worst Case Scenario

Exploratory Hole	Methane		Exploratory Hole	Carbon Dioxide	
	GSV (l/hr)	Characteristic Situation		GSV (l/hr)	Characteristic Situation
Round 1					
BH106	0.0001	1	BH106	0.0001	1
Round 2					
BH106	0.0001	1	BH106	0.0001	1
Round 3					
BH106	0.026	1	BH106	0.109	2
Round 4					
BH106	-0.002	1	BH106	-0.004	1
Round 5					
BH106	0.005	1	BH106	0.012	1
Round 6					
BH106	0.065	1	BH106	0.125	2

Whilst there were a number of results for methane >1% and carbon dioxide >5%, no potential sources for significant gas generation have been identified near to the site. In addition, the majority of results for methane were 0.2% or less (except for BH106 which ranged from 0.6 to 2.9% from glacial deposits). The majority of results for carbon dioxide were also <5% except for BH106 which recorded concentrations of 10.4%,12.1% and 6.2% during monitoring rounds two, three and five respectively. BH104 recorded one reading >5% with a value of 5.9% during monitoring round six.

Flow rates were low, typically below detection (0.1 litres/hour). Slightly higher flow rates were obtained from BH106 during Round 3 (0.9 litres/hour) and Round 6 (2.6 litres/hour) but 0.2 litres/hour or lower during other rounds which is potentially indicative of a constant gas generation source.

BH106 is installed into glacial clay from 1m to 5m bgl with a thin sand layer from 4.3m to 4.5m bgl with standing groundwater levels ranging from 3.06 to 3.21m bgl. The well in BH104 is installed into glacial sand from 4.7m to 5.7m bgl and flooded by groundwater.

The worst case scenario for the site would be to classify the site as Characteristic Situation (CS)2 based on two sets of results for carbon dioxide from BH106. However, all other gas screening values are within CS1.

At present the design shows the area around BH106 to be landscaping and car parking. In addition, the higher flow rates from BH106 are not consistent and this well is installed within the glacial clay.

It is noted that the water level within BH104 and BH105 was consistently above the entire screened section of the installation during the monitoring works. This may have resulted in unrepresentative concentrations of ground gas being recorded at these locations.

Ground Gas Risk Assessment for Construction and Maintenance Workers

Depleted Oxygen Concentrations

The monitoring results show that oxygen concentrations range from 0.4% v/v to 20.4% v/v during the six monitoring rounds. Depleted oxygen concentration (i.e., less than 18% v/v) was detected at 4 No. monitoring well locations (BH101, BH102, BH104, and BH106).

Table 7-5 summarises the physiological effects of an oxygen deficient atmosphere.

Table 7-5 Physiological Effects of Oxygen Depletion

Oxygen Concentration (%v/v)	Physiological Effects
19 – 21	Normal range of concentration in the atmosphere
17	Faster, deeper breathing, slight impairment of judgement.
10-16	Initial signs of anoxia leading to emotional upsets; abnormal fatigue upon exertion.
6-10	Nausea, vomiting, unconsciousness; collapse may occur.
<6	Convulsions, gasping respiration, death.

Based on the oxygen data recorded across the site, it is concluded that there is potential risk to construction workers entering excavations or other enclosed spaces at the site. Oxygen levels should be monitored if excavating on site near these locations.

Methane

Explosion Risk

The presence of methane within a certain range poses an explosion risk within enclosed spaces. The limits of flammability, i.e., the Lower Explosion Limit (LEL) and Upper Explosion Limit (UEL) are 5% v/v and 15% v/v, respectively. Where methane concentrations are encountered between these two ranges there is the possibility of ignition/explosion. However, concentrations above this should not necessarily be considered safe, because on dilution with air the composition may fall within this flammable range.

Assessment

Methane concentrations were recorded across the site in the range of <0.0 v/v to 2.9% v/v. The concentration recorded are below the LEL.

Carbon Dioxide

For carbon dioxide there is no risk of flammability. However, there is a risk of asphyxiation and as such there are toxicity limits of 0.5% v/v for an 8-hour long term Workplace Exposure Limit (WEL) and 1.5% v/v for a 15-minute Workplace Exposure Limit (WEL) Health & Safety Executive document *EH40/2005 Workplace exposure limits* (16)

Concentrations of carbon dioxide were reported in the range of <0.0% to 12.1% v/v during the monitoring visits. The concentrations of carbon dioxide recorded at 4 no. locations exceed the 8-hour long term OEL and 2 no. locations exceed the 15-minute WEL on several occasions.

Carbon Monoxide

A long term (8 hour) workplace exposure limit of 30ppm and a short term (15 minute) workplace exposure limit of 200ppm are provided in EH40/2005 given for carbon monoxide.

Concentrations of carbon monoxide were reported in the range of <0 to 11 ppm during the monitoring visits.

Hydrogen Sulphide

A long term (8-hour) workplace exposure limit of 5ppm and a short term (15 minute) workplace exposure limit of 10ppm are specified for hydrogen sulphide in EH40/2005.

Concentrations of hydrogen sulphide were not recorded above the limit of detection of 1ppm during the monitoring visits.

Volatile Vapours

Reference to the soils and groundwater testing undertaken during the ground investigation reports that potentially volatile contaminants such as VOC group chemicals, BTEX and lighter fraction TPHs are below the level of

detection. PID readings during ground gas monitoring were all <5ppm. As such risk from volatile contaminants is considered unlikely provided that during demolition an inspection and discovery strategy is maintained to remain vigilant and remove any visual/olfactory contamination during clearance works.

Waste Classification

A preliminary waste classification has been undertaken on the soils sampled during the ground investigation. The assessment has been based on the spot samples collected from across the site rather than specifically targeting soils proposed for excavation and disposal, and, as such, should be considered an indicative assessment only.

It should also be noted that the waste classification is only relevant to soils excavated with a view to being disposed of off-site as waste during construction.

Waste Assessment Methodology

The samples have been classified in accordance with Technical Guidance WM3 (1st Edition Version 1.2.GB), published by the Environment Agency (EA) in October 2021 (18). The following steps have been undertaken to classify the soils sampled:

- Setting of an initial European Waste Catalogue (EWC) code (transposed into UK legislation as the List of Wastes Regulations). This is based on our current understanding of the soils present at the site that may require disposal.
- Review of the chemical composition of the soils based on the Conceptual Site Model developed for the site, and the laboratory analysis completed on samples recovered from the ground investigation.
- Comparison of reported concentrations of dangerous substances in the waste against threshold levels for hazardous and non-hazardous waste classifications.
- Proposal of final classification and EWC code.

The waste classification was carried out using HazWasteOnline™ (HWOL), which is a licensed online software package that provides an accurate and auditable tool for the classification of waste materials, taking account of the WM3 guidance and British regulations.

European Waste Catalogue Code (List of Wastes Regulations)

Soils potentially requiring off-site disposal are considered to align with ‘Construction and Demolition Wastes (Including Excavated Soil from Contaminated Sites)’ which has waste code 17.

From this code, the sub-code 17 05 04 (soil and stones other than those mentioned in 17 05 03*) and its hazardous mirror entry 17 05 03* (soil and stones containing dangerous substances) are selected as the most appropriate waste categories for further classification.

Determination of Waste Classification

HWOL uses the solid waste analysis from sample testing to classify materials as ‘Hazardous’ or ‘Non Hazardous’ (in accordance with EA WM3 Technical Guidance). The tool also sometimes refers to a ‘Potentially Hazardous’ classification, which is unique to HWOL. A ‘Potentially Hazardous’ classification is normally identified where a hazardous property could be present simply because a determinand is detected in a sample, i.e. there is no threshold other than its presence or absence. Identifying this as ‘Potentially Hazardous’ enables the assessor to consider this further and, where appropriate, include further justification as to why the sample should be adopted as either ‘Hazardous’ or ‘Non-Hazardous’.

For some analytes (primarily inorganics), the laboratory analysis does not identify the compound present in the waste but instead reports the individual species that make up that component, such as cations and anions. The WM3 guidance states that if it is not possible to ascertain which substances might be present based on the process/activity that produced the waste, the most conservative classification should therefore be initially assumed for each component and the waste assessed accordingly.

Where analytical results for solids are reported on a dry weight basis i.e. the concentration of the substance in the sample after any moisture has been driven off, a moisture content correction is applied to adjust the chemical concentrations to take account of moisture in the samples. The specific mineralogy of metal(loid)s is also considered in the selection of metal species for assessment, where appropriate.

WAC Assessment

Following the classification of the waste as hazardous/non-hazardous, the available waste acceptance criteria (WAC) analytical results have been compared to landfill WAC[1] to identify appropriate disposal routes for the waste materials should they require disposal to landfill.

Data Assessment and Results

The laboratory soil chemical data for the scheduled soil samples have been considered in this preliminary waste classification assessment. The output generated from HWOL is included in Appendix F. All of the 16 no. samples from 7 no. exploratory hole locations were screened as part of this assessment; 9 no. of which were from Made Ground and 7 no. from natural ground. The sample depths ranged from 0.3 – 2.2 m bgl.

Parameters which were reported at a concentration below the laboratory method detection limit (MDL) in all samples were excluded from the assessment.

As part of the assessment, AECOM has assumed the following (where applicable) for all samples:

Total petroleum hydrocarbons (TPH). A judgement was taken to overrule a '*Potentially Hazardous'* classification on selected samples relating to the Hazard Property HP3(i) '*Flammable*'. These were triggered due to the presence of total petroleum hydrocarbons and the potential identified for flammable liquids; for which there is no threshold other than presence or absence. This Hazardous Property was discounted as this is a solid waste without a free draining liquid phase and with no evidence of free product. This adjustment removed the '*Potentially Hazardous'* classification.

Classification of material

A total of 2 samples were classified as Hazardous and 14 samples were classified as Non-hazardous based on the HWOL assessment of the reported analytical results.

The two samples classified as Hazardous BH102 (0.15-0.30m) and BH103 (0.14-0.40m), were Hazardous for TPH (and pH BH102/0.15-0.3). Both samples were collected from Made Ground layers located below tarmacadam surfacing and are likely to relate to the presence of tarmacadam fragments which had fallen in from breaking out the surface above.

All the soil samples were also screened for asbestos and none of them showed any detections.

WAC Assessment

A total of 6No. samples were scheduled for WAC analyses. The list of them is present in Table 7-6.

Table 7-6 WAC Samples Summary

Sample ID	Depth (m bgl)	Meet Inert Waste Landfill Criteria
BH105	0.2-0.4	Yes
BH104	0.1-0.3	Yes
BH106	1.4-1.5	Yes
BH101	2.1-2.2	No (exceed sulphate)
BH102	1.7-1.8	No (exceed sulphate)
DS101	0.0-0.3	Yes

As shown in Table 7-6, 2No. out of 6No. samples do not meet the Inert Waste Landfill criteria as they exceed the criteria for sulphate.

[1] Set out in the Landfill (England and Wales) (Amendment) Regulations 2004

In the event that soils are generated for waste disposal during construction, further WAC testing may be required to decide on whether non-hazardous soil can be disposed as inert material. The number of samples to be tested will depend on the tonnage of material to be disposed of, and samples must be representative of the overall material. Sampling guidelines are identified at https://www.gov.uk/guidance/dispose-of-waste-to-landfill#sampling-frequency. Where material will be disposed of where no (or insufficient) WAC samples were obtained during this ground investigation, additional samples will have to be obtained.

Waste Disposal

The Landfill Directive introduced to the UK via the Landfill Regulations (England and Wales) 2002 aims to reduce reliance on landfill as a disposal option. The Regulations include updated Waste Acceptance Criteria (WAC) as limit values for waste destined for various classes of landfill.

The developer has a statutory responsibility under the Duty of Care Regulations of the Environmental Protection Act 1990 to ensure that contaminated soil and water are disposed of off-site at a suitably licensed waste management facility in a safe and approved manner.

To comply with the Duty of Care all wastes taken off-site, in solid or liquid form, must be handled by a registered waste carrier and be accompanied by a consignment note that describes the waste.

Material Reuse

Any material that is not required or intended to be discarded as waste can be considered for reuse, either as part of the development or on another site. To do so, appropriate, risk-based criteria for re-use should be adopted. Re-use of arisings on site is either a waste management activity requiring an Environmental Permit or an Exemption or an activity that can be self-regulated under the CL: AIRE DoWCoP. Only a registered ‘Qualified Person’ can sign off the required Declaration.

It is anticipated that materials arising from the scheme will comprise mostly Made Ground and clay. It is therefore concluded that, subject to compliance with geotechnical requirements and parameters, and subject to an assessment of environmental suitability, at least some of the materials could be suitable for reuse. Depending, however, on the volumes of material proposed for beneficial reuse and the number of representative samples available for consideration, additional sampling and analysis may be required in order to inform such an approach.

8. Revised Conceptual Model and Risk Assessment (Tier 2 Assessment)

Introduction

The conceptial site model has been updated based on the findings of the intrusive investigation and is summarised below.

Identified Source of Contamination

Table 8-1 shows the contaminants which have been identified at the site. Soil has been removed as a potential source as although Made Ground is present on site there are no exceedances of human health GAC and no asbestos detected.

Table 8-1 Identified Sources

Potential Source	Location	Description
S1	On Site	Made Ground – Building 401 including refrigeration and air-con units, and electrical generators
S2	On Site	Made Ground – former aircraft standings
S3	On Site	Electrical Substation 'Z' and electrical housings
S4	On Site	MAG Bus depot including vehicle wash, and fuel and AdBlue storage tanks.
S5	Off Site	Made Ground – Building 402 site including associated electrical substation, chemical storage, and diesel tank.
S6	Off Site	Made ground associated with current and past land uses of the surrounding airport infrastructure including Hangar 5 and Hangar 3 inc refuelling depot and foul water pump.

Potential Receptors

Potential pathways associated with the proposed development are shown in Table 8-2.

Table 8-2 Potential Receptors

Receptor Reference	Receptor	Description
R1	Human Health: Acute	Future site users – Site visitors.
R2	Human Health: Chronic	Future site users – workers at the site.
R3	Human Health: Acute	Adjacent site users – workers and road users (During construction phase)
R4	Water Environment: Superficial Aquifer	Secondary Undifferentiated Aquifer in the Superficial Glacial Till
R5	Water Environment: Bedrock Aquifer	Secondary B Aquifer in the Bollin Mudstone Member
R6	Water Environment: Surface waters	Cotteril Clough 345m SW of the site
R7	Flora	Plants, trees, and landscaping

Receptor Reference	Receptor	Description
R8	Buildings & Infrastructure: Concrete	Future proposed foundations and services at the site may be impacted by contamination in the ground. Concrete foundations can be corroded if perched groundwaters or leachates have high sulphate levels.
R9	Buildings & Infrastructure: Structures	Proposed structures may be impacted by accumulation of ground gases.
R10	Buildings & Infrastructure: Services	Potable water supply pipes and other service may be impacted by contamination in the ground. Toxic and corrosive contaminants can migrate through water supply pipes
R11	Buildings & Infrastructure: Gas/ damp membranes	Potential for hydrocarbons in soils and ground waters may deteriorate membranes.

Potential Pathways

Potential receptors associated with the potential development are shown in Table 8-3.

Table 8-3 Potential Pathways

Pathway Reference	Receptor	Description
P1	Human Health	Direct Pathway: Direct contact, dermal absorption, or ingestion of soil.
P2	Human Health	Indirect Pathway: Inhalation of soil particulates derived from soils.
P3	Human Health	Indirect Pathway: Inhalation of soil vapour derived from soils or groundwater
P4	Human Health	Indirect Pathway: Migration of hazardous gases/vapours via permeable strata into confined spaces (asphyxiation/ explosion)
P5	Water Environment: Groundwater	Indirect Pathway: Leaching of chemicals and vertical / lateral migration via permeable unsaturated strata to shallow and/ or deep groundwater
P6	Water Environment: Groundwater	Indirect Pathway: Vertical migration of impacted shallow groundwater to the deeper Secondary B aquifer.
P7	Water Environment: Groundwater/ surface water	Indirect Pathway: Lateral migration of impacted groundwater to off-site surface water.
P8	Water environment: Surface water	Indirect pathway: Migration via underground drainage / sewers (including granular backfilling materials), spillage / loss / run-off from the surface direct to receiving water.
P9	Buildings & Infrastructure: Concrete	Direct Pathway: Direct contact of buried concrete with contaminated soils (i.e. hydrocarbons) and aggressive ground conditions (pH and sulphate).
P10	Buildings & Infrastructure: Supply pipes	Direct Pathway: Direct contact of services and supply pipes with contaminated soils.
P11	Buildings & Infrastructure: Structures	Indirect Pathway: Migration of hazardous gases/vapours via permeable strata into enclosed spaces and service/utility trenches
P12	Buildings & Infrastructure: Gas/ damp membranes	Indirect Pathway: Potential for hydrocarbons in soils and ground waters may deteriorate membranes.
P13	Ecosystems: Flora.	Direct pathway: Direct contact with contaminated soils.

Environmental Risk Assessment

Current best practice recommends that the determination of risk due to contaminated land is based on the principle of risk assessment, as outlined in the Environment Agency LCRM guidance (8).

For a risk to be present, there must be a viable contaminant linkage, i.e. a mechanism whereby a source impacts on a sensitive receptor via a pathway.

Assessments of risks associated with each of these contaminant linkages are discussed in the following sections.

Using criteria broadly based on those presented CIRIA C655 the magnitude of the risk associated with potential contamination at the Site has been assessed. To do this an estimate is made of:

- The magnitude of the potential consequence (i.e., severity);
- The magnitude of probability (i.e., likelihood).

The severity of the risk is classified according to the criteria in Table 8-4.

Risk Assessment Framework

Table 8-4 Description of Severity of Risk

Term	Description
Severe	– Acute risks to human health likely to result in "significant harm" (e.g. very high concentrations of contaminants/ground gases) – Catastrophic damage to buildings/property (e.g. by explosion, sites with high gassing potential, extensive VOC contamination) – Major pollution of controlled waters (e.g. surface watercourses or major aquifers/source protection zones) – Short term risk to a particular ecosystem
Medium	– Chronic (long-term) risk to human health likely to result in "significant harm" (e.g. elevated concentration of contaminants/ground gases) – Pollution of sensitive controlled waters (e.g. surface watercourses or major/minor aquifers) – Significant effects on sensitive ecosystems or species
Mild	– Pollution of non-sensitive waters (e.g. smaller surface watercourses or non-aquifers) – Significant damage to crops, buildings, structures or services (e.g. by explosion, sites with medium gassing potential, elevated concentrations of contaminants)
Minor	– Non-permanent human health effects (requirement for protective equipment during site works to mitigate health effects) – Damage to non-sensitive ecosystems or species – Minor (easily repairable) damage to buildings, structures or services (e.g. by explosion, sites with low gassing potential)

The probability of the risk occurring is classified according to the criteria in Table 8-5.

Table 8-5 Likelihood of Risk Occurrence

Likelihood	Explanation
High	Contaminant linkage may be present that appears very likely in the short-term and risk is almost certain to occur in the long term, or there is evidence of harm to the receptor.
Likely	Contaminant linkage may be present, and it is probable that the risk will occur over the long term.
Low	Contaminant linkage may be present and there is a possibility of the risk occurring, although there is no certainty that it will do so.
Unlikely	Contaminant linkage may be present but the circumstances under which harm would occur even in the long-term are improbable.

An overall evaluation of the level of risk is gained from a comparison of the severity and probability, as shown in Table 8-6.

Table 8-6 Risk based on Comparison of Likelihood and Severity

		Severity			
		SEVERE	**MEDIUM**	**MILD**	**MINOR**
Likelihood	**HIGH**	Very High	High	Moderate	Low
	LIKELY	High	Moderate	Moderate/Low	Low
	LOW	Moderate	Moderate/Low	Low	Very Low
	UNLIKELY	Moderate/Low	Low	Very Low	Very Low

LCRM Assessment of Risk

In 2019, the UK government issued new guidance on the evaluation and management of contaminated land, *LCRM*. Current contaminated land guidance in LCRM (19) categorises risk at Stage 1 Tier 2 (i.e. PRA) as follows:

- Acceptable; and
- Unacceptable.

However, no framework for assessing the risk has been published to accompany the guidance, so the CIRIA C552 assessment framework constitutes best practice in this regard. To align the risk rankings in Section 10.2 with the LCRM rankings and with the Part 2A definitions, the following matrix has been utilised. This conversion is demonstrated in Table 8-7 below.

Table 8-7 Conversion to LCRM Risk Categories

	Acceptable	Unacceptable
Very Low		
Low		
Moderate/Low		
Moderate*		
High		
Very High		

* *This risk category spans both acceptable and unacceptable. This is intentional as it is this risk band that tends to have the greatest level of uncertainty associated with it. Acceptability will dependent on site-specific circumstances and level of confidence in the available evidence*
For a risk to be unacceptable, the contaminant linkage should be associated with at least a "medium" severity as defined in Table 6.5 of C552 and the probability should (in the majority of cases) be at least "likely" as defined in Table 6.4 of C552.

These risk categories represent the level of risk as it is currently understood from the information available at this time.

Revised Risk Assessment

Following the ground investigation, the CSM presented in the preliminary risk assessment has been revised and is provided in the Table 8-8. The potential risks are based on the assumption that no additional mitigation measures are introduced for contamination.

The risk assessment undertaken with in this section does not consider acute linkages for construction and maintenance workers. AECOM anticipates that these acute linkages will be managed by appropriate health and safety measures.

Table 8-8 Environmental Risk Assessment

Source	Pathway	Receptor	Initial Risk	Revised Potential Severity	Revised Likelihood of Occurrence	Revised Risk	Potential Risk (LCRM)	Link Reference	Justification
On-Site sources of CoPCs Made Ground and potential contaminants associated with Building 401, former aircraft standings, electrical substation 'Z' and MAG bus depot. (S1, S2, S3, S4)	Direct contact, dermal absorption, or ingestion of soil (P1) Indirect Pathway: Inhalation of soil particulates derived from soils (P2)	Human Health: Acute: Future site visitors (R1) Human Health: Chronic: Future site users (R2)	Low	Mild	Low	Low	Acceptable	1	No exceedances recorded when screening soil samples against criteria protective of Human Health receptors. Any risks during the construction phase are considered to be mitigated with use of appropriate PPE. Hardstanding at surface level in final construction considered to act as a barrier to direct contact. Suitable clean cover layers should be applied over Made Ground in any areas of landscaping. A watching brief should be undertaken during enabling works for unidentified contamination and risk assessment and remediation (if required) applies to remove the risk.
		Adjacent site users – workers and road users (During construction phase) (R3)	Moderate/Low	Mild	Unlikely	Very Low	Acceptable	2	As above. The Principal Contractor should ensure that appropriate measures are undertaken during construction to avoid the spread of dust.
	Inhalation of Soil Vapour (P3)	Human Health: Acute: Future site visitors (R1) Human Health: Chronic: Future site users (R2)	Low	Mild	Unlikely	Very Low	Acceptable	3	Reference to the soils and groundwater testing undertaken during the ground investigation reports that potentially volatile contaminants such as VOC group chemicals, BTEX and lighter fraction TPHs are below the level of detection. PID readings during ground gas monitoring were all <5ppm. As such risk from volatile contaminants is considered unlikely provided that during demolition an inspection and discovery strategy is maintained to remain vigilant and remove any visual/olfactory contamination during clearance works.
		Adjacent site users – workers and road users (During construction phase) (R3)	Moderate/Low	Mild	Unlikely	Very Low	Acceptable	4	As above. The Principal Contractor should ensure that appropriate measures are undertaken during construction to avoid the spread of vapour (if encountered).
	Migration of hazardous gases/vapours into confined spaces (Human Health) (P4)	Human Health: Acute: Future site visitors (R1) Human Health: Chronic: Future site users (R2)	Moderate	Medium	Unlikely	Low	Unacceptable	*5*	The site has been classified as CS1 with respect to CH04 and CI2 ground gas risk. CS2 conditions were encountered in the one area of the site designated for landscaping. Considering inherent protection with a warehouse style building with significant thickness floor slab, lack of gas generating source and probability that building management and operations (e.g. roller doors) will prevent gas build up. The risk of these pathways being realised is considered unlikely.
		Buildings & Infrastructure: Structures, Services & Membranes (R9, R10, R11)	Moderate/Low	Mild	Unlikely	Very Low	Acceptable	6	
	Leaching of chemicals and vertical / lateral migration via permeable unsaturated strata to shallow groundwater (P5)	Shallow groundwater – Secondary un-differentiated Aquifer (R3)	Moderate	Medium	Low	Moderate/Low	Unacceptable	7	Several exceedances have been reported within the groundwater and leachate samples. In the case of groundwater it is expected that the sulphate, sodium and chloride concentrations observed are related to residual solution deposits of gypsum from the glacial erosion of the Mercia Mudstone, i.e. natural conditions. With respect to leachate samples, the conservative nature of the testing combined with the generally low concentrations encountered does not raise concern. Given covering of the site with hardstanding, general permeability of Glacial Till and lack of any other receptor other than the Secondary Undifferentiated Aquifer (i.e., abstractions). Risk to Controlled Waters on this site from migrating groundwater or leaching contaminants is considered to be low.
	Vertical migration of impacted shallow groundwater to the	Deep Groundwater Secondary B aquifer of	Moderate/Low	Medium	Unlikely	Low	Acceptable	8	

Source	Pathway	Receptor	Initial Risk	Revised Potential Severity	Revised Likelihood of Occurrence	Revised Risk	Potential Risk (LCRM)	Link Reference	Justification
	deeper secondary B aquifer (P6)	the Bollin Mudstone Member (R4)							A watching brief should be undertaken during enabling works for unidentified contamination and risk assessment and remediation (if required) applies to remove the risk.
	Lateral migration of impacted groundwater off-site to surface water (P7)	Surface Waters, Cotteril Clough (R5)	Moderate/Low	Medium	Unlikely	Low	Acceptable	9	
	Lateral migration of surface waters / shallow ground waters via underground drainage / sewers (including granular backfilling materials), spillage / loss / run-off from the surface direct to surface water (P8)	Surface Waters, Cotteril Clough (R5)	Low	Medium	Unlikely	Low	Acceptable	10	
	Direct contact of buried concrete with contaminated soils (P9)	Buildings & Infrastructure: Concrete and Services (R8, R10)	Moderate	Mild	Low	Low	Unacceptable	11	Exceedances of United Utility guidance for the selection of water pipes in land potentially affected by contamination only obtained from very shallow soils (<0.2m depth) for EC16-40 range petroleum hydrocarbons have been noted but not from deeper samples or for other contaminants. With appropriate management of the risks from aggressive ground (sulphates – see geotechnical risk assessment) via application of appropriate AC and DS classification for concrete, water supply pipe risk assessment and specification (or deeper placement of pipes, these risks can be mitigated. A watching brief should be undertaken during enabling works for unidentified contamination and risk assessment and remediation (if required) applies to remove the risk.
	Direct contact of services and supply pipes with contaminated soils (P10)		Moderate	Mild	Low	Low		12	
	Indirect Pathway: Migration of hazardous gases/vapours via permeable strata into enclosed spaces and service/utility trenches (P11)	Buildings & Infrastructures (Structures and services (R9, R10)	Moderate	Mild	Unlikely	Very Low	Unacceptable	13	The site has been classified as CS1 with respect to CH04 and CI2 ground gas risk. CS2 conditions were encountered in the one area of the site designated for landscaping. Considering inherent protection with a warehouse style building with significant thickness floor slab, lack of gas generating source and probability that building management and operations (e.g. roller doors) will prevent gas build up. The risk of these pathways being realised is considered unlikely.
	Indirect Pathway: Potential for hydrocarbons in soils and ground waters may deteriorate membranes (P12)	Buildings & Infrastructures (Gas/ damp membranes R11)	Moderate	Mild	Unlikely	Very Low	Unacceptable	14	Significant concentrations of hydrocarbons within soils and groundwater have not been detected.
	P13 – Direct contact with contaminated soils	R7 – Flora & fauna	Low	Mild	Low	Very Low	Acceptable	15	Significant concentrations of contaminants were not observed within soils testing. The results of this ground investigation should be passed to a suitably qualified landscape architect to specify tolerable planting

Source	Pathway	Receptor	Initial Risk	Revised Potential Severity	Revised Likelihood of Occurrence	Revised Risk	Potential Risk (LCRM)	Link Reference	Justification
Off-Site sources of CoPCs Made Ground and contamination associated with current and historic surrounding land uses, including Building 402 and associated diesel tank and substation, and the wider airport infrastructure including Hangar 3 and 5. (S5, S6)	Direct contact, dermal absorption, or ingestion of soil (P1) Indirect Pathway: Inhalation of soil particulates derived from soils (P2)	Human Health: Acute: Future site visitors (R1) Human Health: Chronic: Future site users (R2)	Low	Medium	Unlikely	Low	Acceptable	16	Referring to above linkages significant contamination with soils, groundwater have not been encountered. Additionally ground gas conditions are considered to be classified as a CS1 type situation. There is no evidence of offsite sources influencing the site. It is probable that the permeability of the Glacial Till and Mercia Mudstone are preventing onsite migration. However, during enabling works consideration should be given to incoming service trenches and if these are acting as preferential pathways for migration. A watching brief should be undertaken during enabling works for unidentified contamination and risk assessment and remediation (if required) applies to remove the risk.
	Inhalation of soil vapour (P3)	Human Health: Acute: Future site visitors (R1)	Low	Medium	Unlikely	Low	Acceptable	17	
		Human Health: Chronic: Future site users (R2)	Low	Medium	Unlikely	Low		18	
	Migration of hazardous gases/vapours into confined spaces (P4)	Human Health: Chronic: Future site users (R2)	Moderate/Low	Medium	Low	Low	Acceptable	19	
		Buildings & Infrastructure: Structures, Services & Membranes (R9, R10, R11)	Moderate/Low	Medium	Low	Low	Acceptable	20	
	Leaching of chemicals and vertical / lateral migration via permeable unsaturated strata to shallow and/ or deep groundwater (P5)	Secondary Undifferentiated Aquifer in superficial Glacial Till (R3) Deep Groundwater Secondary B aquifer of the Bollin Mudstone Member (R4)	Moderate/Low	Medium	Low	Low	Acceptable	21	
	Vertical migration of impacted shallow groundwater to the deeper secondary B aquifer (P6)	Deep Groundwater Secondary B aquifer of the Bollin Mudstone Member (R4)	Moderate/Low	Medium	Low	Low	Acceptable	22	

Source	Pathway	Receptor	Initial Risk	Revised Potential Severity	Revised Likelihood of Occurrence	Revised Risk	Potential Risk (LCRM)	Link Reference	Justification
	Indirect Pathway: Migration of hazardous gases/vapours via permeable strata into enclosed spaces and service/utility trenches (P11)	Buildings & Infrastructures (Structures and services (R9, R10)	Moderate/Low	Medium	Low	Low	Acceptable	22	

Discussion of Risks to Construction Workers & Off-site Receptors During Construction Works.

AECOM understands that the proposed development works will be undertaken in compliance with Construction Design and Management (CDM) 2015 regulations.

Prior to work commencing, a health and safety risk assessment should be carried out by the appointed Principal Contractor developed in accordance with current health and safety regulations. This assessment should cover potential risks to construction staff, permanent site staff and the local population. Based on the findings of this risk assessment, appropriate mitigation measures should be implemented during the construction period.

The greatest potential for generation of dust will be during the site works and therefore dust generation should be kept to a minimum in accordance with general best practice, as outlined in, for example, ‘Environmental Good Practice on Site’, CIRIA Publication C692 (21)to reduce this risk.

The risk to construction workers during the excavation and construction phases in terms of potential exposure to high concentrations of contaminants is considered to be low as no exceedances of the GAC have been found.

Asbestos containing material was not identified during the ground investigation.

9. Engineering Assessment

Rockhead Profile

The ground investigation data showed the top of the weathered Mercia Mudstone to be at between 60.30m and 65.24m OD with the unweathered Mercia Mudstone at 56.98m to 63.39m OD. This rockhead profile is shown on Figure 9 and indicates shallower rockhead towards the north of the site at approximately 63m OD compared to 57m to 60m OD at the southern end of the site.

Groundwater

The depth at which groundwater was encountered during the investigation was found to be variable across the Site. Groundwater monitoring noted the groundwater level at approximately 66m OD at the locations BH101, BH102 and BH103 whereas at BH104, BH105 and BH106 the groundwater was noted at approximately 64m OD. This suggests a higher groundwater level to the north east of the site.

Where groundwater is encountered in excavations in cohesive Glacial Till during construction, sump pumping should be adequate to drain the excavations. Where water bearing granular Glacial Till is present it may be necessary to dewater to below the proposed excavation depth prior to excavation. If the excavations are to remain open prior to laying foundations or installing services or drainage measures, they should be maintained to keep the excavations dry and prevent softening of clay or loosening of sand in the base. Buried concrete should be designed to withstand the ground and groundwater aggressivity based on the findings of Section 5.

Six falling head permeability tests were undertaken, one in each of BH101 to BH106, at depths of between 1m and 4m bgl. All tests failed to determine a value for the permeability as they did not reach the required H/Ho value of 0.37. The H/Ho is the ratio between the measured groundwater ‘Head’ above baseline conditions at any time during the test to the same ‘Head’ following the addition of water at the start of the test, in accordance with BS5930.

Foundations

It is understood that vibro-stone columns supporting pad footings are being considered as the foundation option for the site. Some buried foundations were encountered during the ground investigation which could pose an obstruction to driving stone columns. No significant boulders were encountered in the Glacial Till, but hard driving conditions could be anticipated in the Mercia Mudstone which could affect the stone columns. Advice should be sought from a specialist contractor on the suitability of vibro-stone columns as a method to support the foundation loads to achieve the required performance criteria.

Piled foundations may also be suitable for the Site however the settlement limits (both total and differential) for the structure should be reviewed before selecting the foundation method. Piles may derive capacity from a combination of skin friction and end bearing in the superficial soils and in rock. Pile diameters and lengths will be dictated by design loads. The piles would also be affected by the potential for buried obstructions and hard driving conditions in the Mercia Mudstone.

Shallow pad or raft foundations may also be suitable, depending on the loading, settlement requirements and depth to competent founding material, in this case the Mercia Mudstone.

Subgrade Conditions

Lightweight deflectometer tests were undertaken at 0.30m intervals in hand dug inspection pits to determine equivalent California Bearing Ratio (CBR) values to a maximum depth of 0.90m bgl due to constraints operating the equipment. These are summarised in Table 9-1.

Table 9-1 Lightweight Deflectometer Testing Result Summary

Stratum	Depth (m bgl)	CBR (%) Location					
		DS101	BH102	BH103	BH104	BH105	BH106
Made Ground	0.30	8	33	26	21	11	-
	0.60	-	23	-	-	-	-
Glacial Till - Cohesive	0.30	-	-	-	-	-	6
	0.60	10	-	3	9	4	15
	0.90	6	11	5	4	7	4

CBR values of between 8% and 33% were recorded in the Made Ground. The Made Ground encountered in DS101, with a CBR of 8%, was described as a gravelly sandy silt, unlike the other locations which described the Made Ground as sub-base which is likely to have affected this result. The CBR in the cohesive Glacial Till was recorded as between 3% and 15%.

Natural subgrade soils will be predominantly cohesive Glacial Till of low to intermediate plasticity with an average plasticity index of 15%. A correlation with undrained shear strength, c_u, of CBR=c_u/23 is commonly cited in subgrade assessment for short term CBR values. Based on the undrained shear strength of 40kPa to a depth of 66m OD for the cohesive Glacial Till, a short term CBR of 1.7% is recommended.

As the design is yet to be finalised, neither a thick nor thin construction has been selected. For a 'thin' design, defined as where the depth to subgrade is 300mm, the plasticity data for the cohesive Glacial Till suggests a CBR value for natural sub-grade soil of 3.5%. For a 'thick' layered construction, defined as a depth to subgrade of 1200mm, a design CBR of 5.5% may be adopted. These values are both at the lower end of the range achieved for the strata during the ground investigation. These values are based on Interim Advice Note 73/06 Rev 1 (2009) and assume that for design, in-situ undrained shear strengths will be checked at the time of excavation.

Depending on final founding levels, subgrade soils may also comprise granular soils as granular layers are situated within the Glacial Till at depths of between 1m and 5m bgl. This is unlikely to be detrimental to the performance of the subgrade, provided the granular material does not contain perched groundwater which could soften the cohesive material. If groundwater is encountered the granular material must be drained. Where granular Glacial Till is present, a CBR of 6% can be used for design, however this unlikely based on the layer thicknesses encountered during the investigation. This value assumes that during construction the formation level and any loose ground is carefully compacted, and any soft spots dug out and replaced with well compacted engineered granular fill.

Earthworks & Re-use of Site Won Materials

The Mercia Mudstone will not be suitable for reuse on site and the Glacial Till will require re-classification beforehand. The Made Ground may also be suitable for reuse, provided sufficient compaction can be achieved to obtain the required strength and provided that it is not contaminated. The Glacial Till and Made Ground would need to undergo general classification testing to ensure they are acceptable for reuse. Compaction may be sensitive to water content and groundwater levels, and therefore due consideration of these factors should be considered and implemented during construction. If compaction is not achieved a coarse grained granular fill should be used in its place.

Where filling is required, these operations should be carried out in a controlled manner, in accordance with current design standards. At this preliminary stage, recompaction should be carried out to at least 95% of the material's maximum dry density to reduce long term settlement under paved areas. If final plot levels are to be reduced or an excess of site won material is generated during construction works, the site won material should be managed in accordance with the Client's duties under waste regulations.

Following excavation, the natural foundation level shall be proof rolled, given the shallow water table and high fines content of the Glacial Sand a vibrating roller should not be used.

10. Conclusions

The ground investigation encountered up to 1m of Made Ground which generally comprised sub-base material. A 0.7m thick concrete former loading dock was encountered at BH101. The Made Ground was underlain by Glacial Till, primarily cohesive with some granular layers up to 2m thick. The cohesive Glacial Till was described as firm to very stiff clay whilst the granular Glacial Till was dense to very dense sand. Underlying the Glacial Till is Mercia Mudstone, a weathered layer of very weak to extremely weak Mercia Mudstone, recovered as clay, up to 5m thick was found at the top the Mercia Mudstone. The Mudstone was described as weak to extremely weak with distinct weathering noted. The weathered grade varied from Grade IVa & IVb to II, with both Grade IVa and IVb encountered at depth. Groundwater was encountered through both strikes and monitoring at between 61m and 66m OD, within the cohesive Glacial Till.

Tests for aggressiveness to concrete of the soils have been undertaken. A Design Sulphate Class of DS-5 and Aggressive Chemical Environment Classification of AC-5 has been identified for both the weathered and unweathered Mercia Mudstone. DS-3 and AC-3 are recommended for the cohesive and granular Glacial Till.

Buried foundations were encountered during the ground investigation which could obstruct either stone columns, should they be selected as the foundation solution, or other intrusive works. No significant boulders were encountered in the Glacial Till, but hard driving conditions could be encountered in the Mercia Mudstone. The foundation option should be chosen once the proposed loadings and total and differential settlement limits are agreed. Due to this risk, advice should be sought from a specialist contractor on the suitability of vibro-stone columns. Shallow foundations may be suitable to the north of the site where the depth to the Mercia Mudstone is approximately 3m bgl, with mass concrete used to achieve the founding level where required. However to the south of the site, when the Mercia Mudstone is at approximately 6m bgl, shallow foundations are unlikely to be suitable without the use of ground improvement such as vibro-stone columns.

The Mercia Mudstone material will not be suitable for re-use on site. The Glacial Till and Made Ground may be suitable providing they are re-classified beforehand to prove their suitability.

A design CBR of 3.5% and 5.5% is recommended for a thin and thick construction respectively for the cohesive Glacial Till. A value of 6% is recommended for the granular Glacial Till. Any Made Ground should be removed prior to pavement construction.

No exceedances of assessment criteria for human health have been obtained and no asbestos was detected within the soil samples screened by the laboratory. Therefore, the risk to human health from soil contamination is considered to be low.

Soils results were screened against criteria protective of water pipes. Localised exceedances of threshold values for polyethylene pipes were recorded in shallow Made Ground samples.

No exceedances of the assessment criteria for potentially phytotoxic metals (copper, nickel and zinc) in topsoil or subsoil have been identified.

The majority of results for ground gas are consistent with CS1, although the gas screening values from two rounds of monitoring from BH106 installed in shallow glacial deposits are within a CS2 classification for carbon dioxide. The highest overall concentrations of carbon dioxide were obtained from BH106 (3.8% to 12.1%) which along with the highest flow rates (0.9 and 2.6 litres/hour) from monitoring at the site resulted in the CS2 classification. No potentially significant sources for ground gas generation have been identified and the risks to future development are likely to be low particularly given the nature of the proposed development and where no preferential pathways are introduced.

The controlled waters assessment highlighted exceedances of the Drinking Water Standard derived Water Target Values for sodium, sulphate and chloride. It is probable that these relate to solution of halite and gypsum within the Glacial Tills which derive from the Merica Mudstone (also indicated as having gypsum bands and strings throughout). As there are no potable or trade groundwater abstractions in the area, this observation is not indicated to identify a significant geo-environment risk or anthropogenic contamination.

The controlled waters assessment also determined limited exceedances for metals within leachate samples taken from natural soils in BH104 (1.3m bgl) and Made Ground in DS101 (0.3m bgl). Sulphate was exceeding the WTV

for the sample taken from Glacial Till in BH101 (2.2m bgl). It is expected that this is due to the conservative nature of the testing. If excavated materials are handled appropriately during construction to prevent run-off and leaching to soils, groundwater and drains then the concentrations observed identified are not expected pose a significant risk and are likely representative of background conditions.

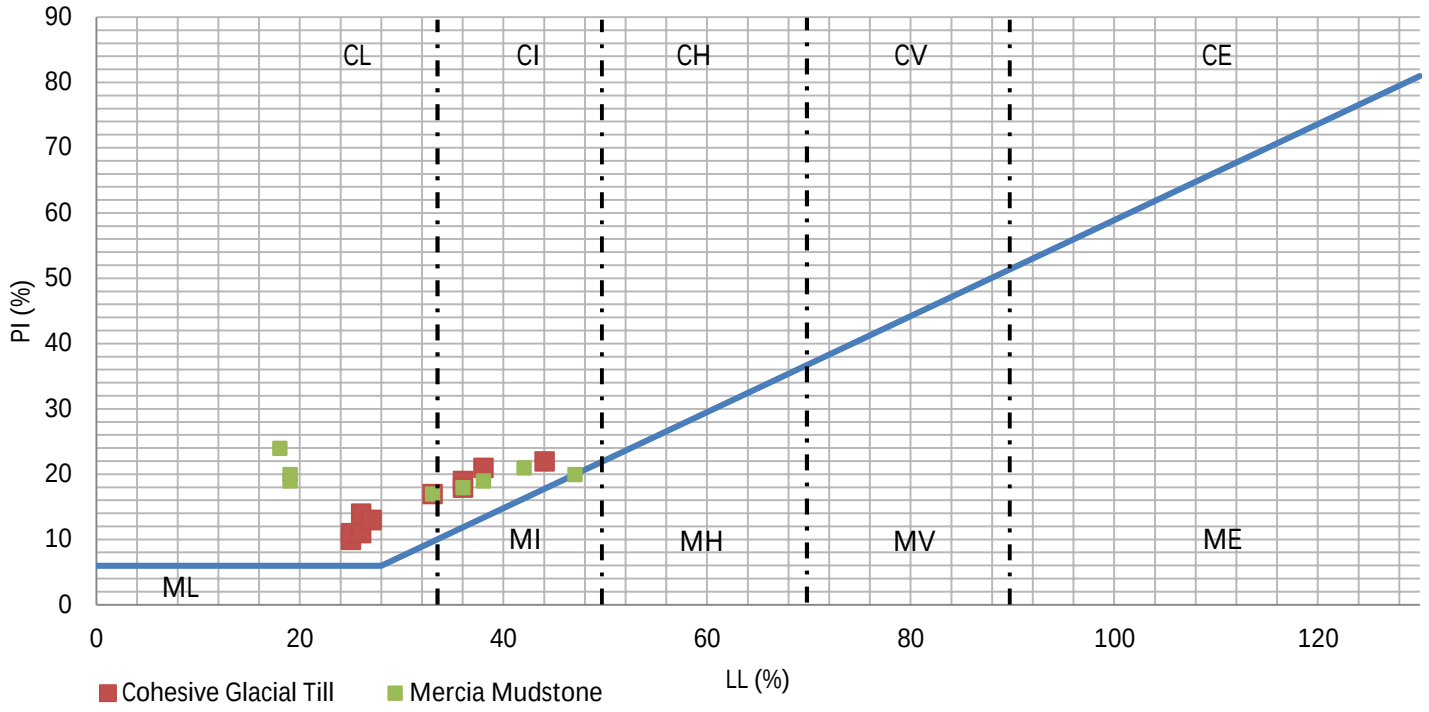
The two soil samples classified as Hazardous BH102 (0.15-0.30m) and BH103 (0.14-0.40m) have been identified as Hazardous for petroleum hydrocarbons and also pH in BH102 (0.15-0.3m). Both samples were collected from Made Ground layers where tarmacadam fragments which had fallen in from breaking out the surface above. WAC analysis was also undertaken and despite the sample from BH101 being identified as non-hazardous it did not meet the inert waste criteria due to sulphate exceedances.

Recommendations

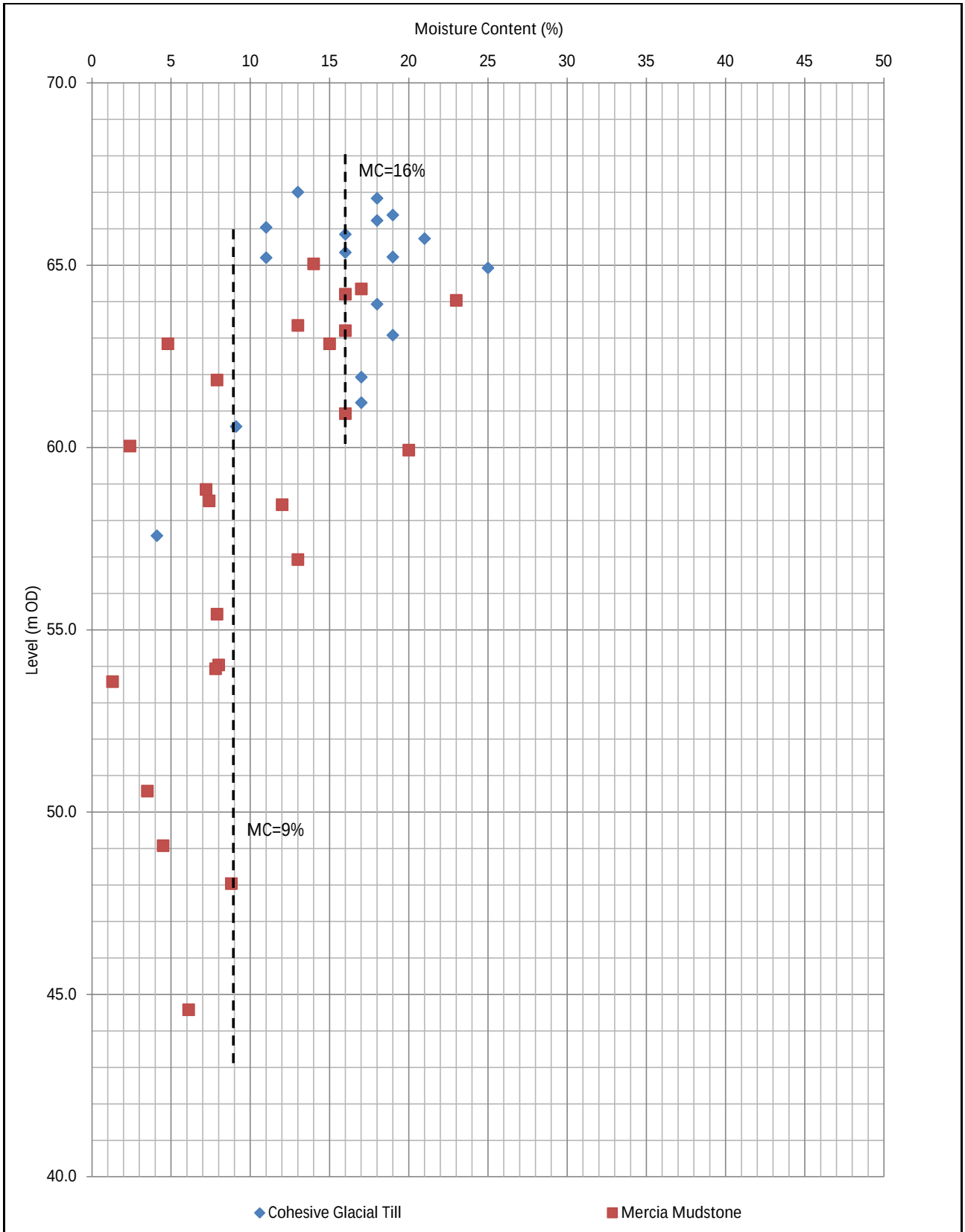
- The foundation solution should be selected following a review of structural loads and settlement criteria.
- The design of ground improvement such as stone columns or deep foundations such as piles should consider the potential for buried obstructions or hard driving conditions. Advice from a specialist vibro-stone column contractor should be sought regarding their suitability.
- Merica Mudstone material should not be re-used and Made Ground and Glacial Till should only be reused following re-classification and testing.
- The Design Sulphate and Aggressive Chemical Environment classification should be used (DS-5 and AC-5 for Merica Mudstone, DS-3 and AC-3 for Glacial Till) for buried concrete. The design The CBR values stated above should also be used for either a thin or thick construction and cohesive of granular Glacial Till.
- An inspection and discovery strategy should be maintained during enabling works for any visual/olfactory contamination evidence of contamination. If encountered risk assessment should be undertaken to determine the appropriate remedial action to eliminate source receptor pathways.
- The future development should utilise the appropriate specification of materials for buried drinking water supply pipes which will need to be agreed with the water authority.
- The risks to controlled waters are considered to be low based on the existing site but it will be necessary to consider potential risks if new preferential pathways could be introduced as part of the development as to whether these could increase the potential for contaminant migration.
- The overall results from the ground gas monitoring, in addition to no potentially significant sources of gas having been identified, do not indicate that gas protection measures should be required for the proposed development as the warehouse is likely to include an inherent level of gas protection particularly where floor joints and penetrations are sealed. Further consideration could be required where preferential pathways are introduced to ensure the risks remain low. In addition, BH106 is not located within the proposed building footprint.
- Where possible excavated material should be re-used in the construction works as the most sustainable approach. However, where material is not suitable for re-use or is surplus to requirements, this will need to be removed off-site to a licensed facility for disposal or recycling. It will still be necessary for the Contractor to confirm the waste classification of any materials removed off-site for disposal.

11. Figures

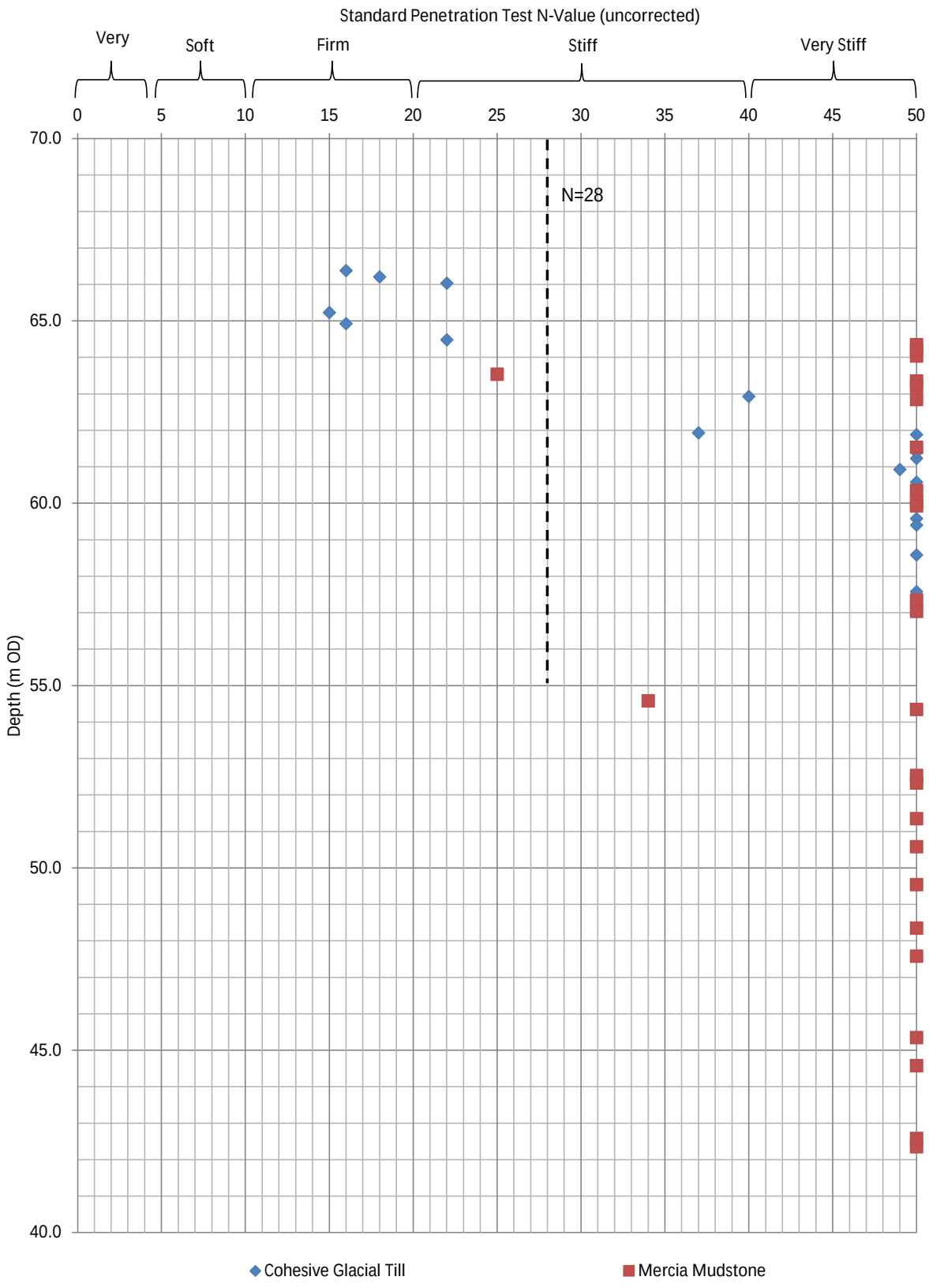
1. Atterberg Limit Plot
2. Moisture Content vs Level Plot
3. SPT vs Level Plot (Cohesive)
4. SPT vs Level Plot (Granular)
5. Cu vs Level Plot
6. UCS vs Level Plot
7. PSD Plot
8. Dry Density vs Level Plot
9. Rockhead Profile Section
10. SPT Profile Section



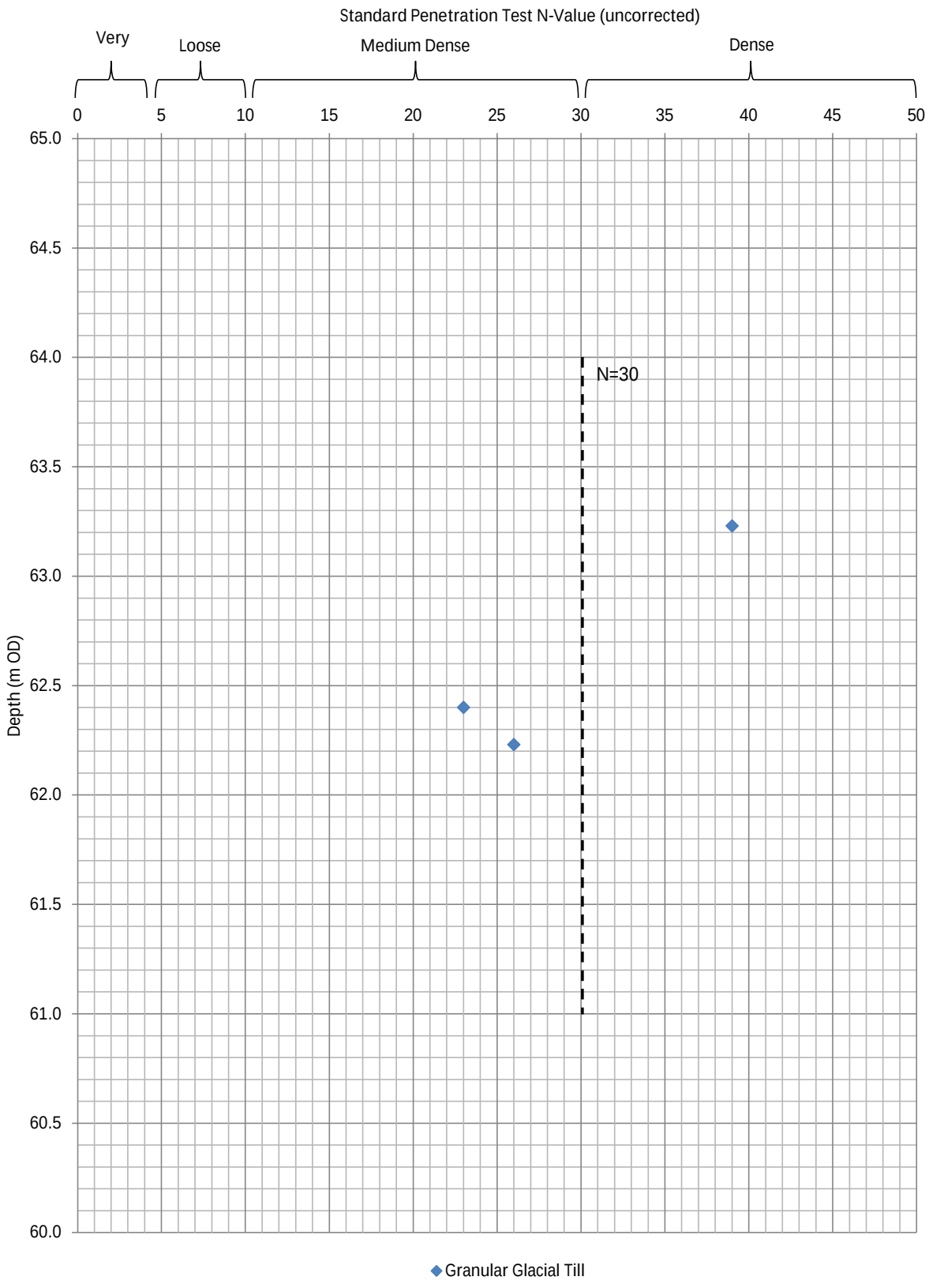
Title: Atterberg Limit Plot		AECOM	
Project: Manchester Airport Building 401			
Number: 60663052	Figure No. 1	Designed: JM	Checked: AA
		Date: 02/08/2022	



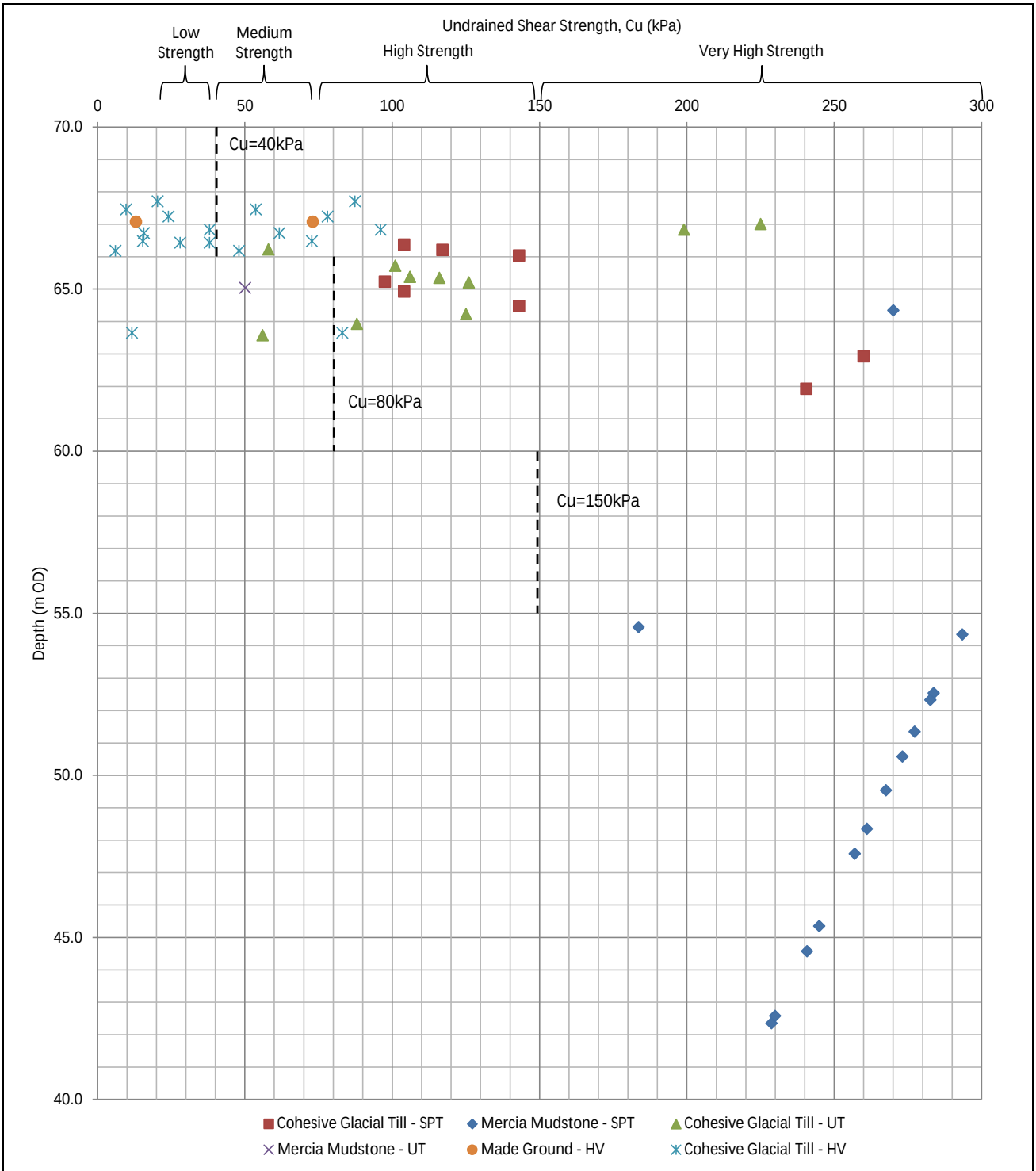
Title: MC (%) vs Level (m OD) Plot				AECOM
Project: Manchester Airport Building 401				
Number: 60663052	Figure No. 2		Designed: JM	Checked: AA
			Date: 02/08/2022	



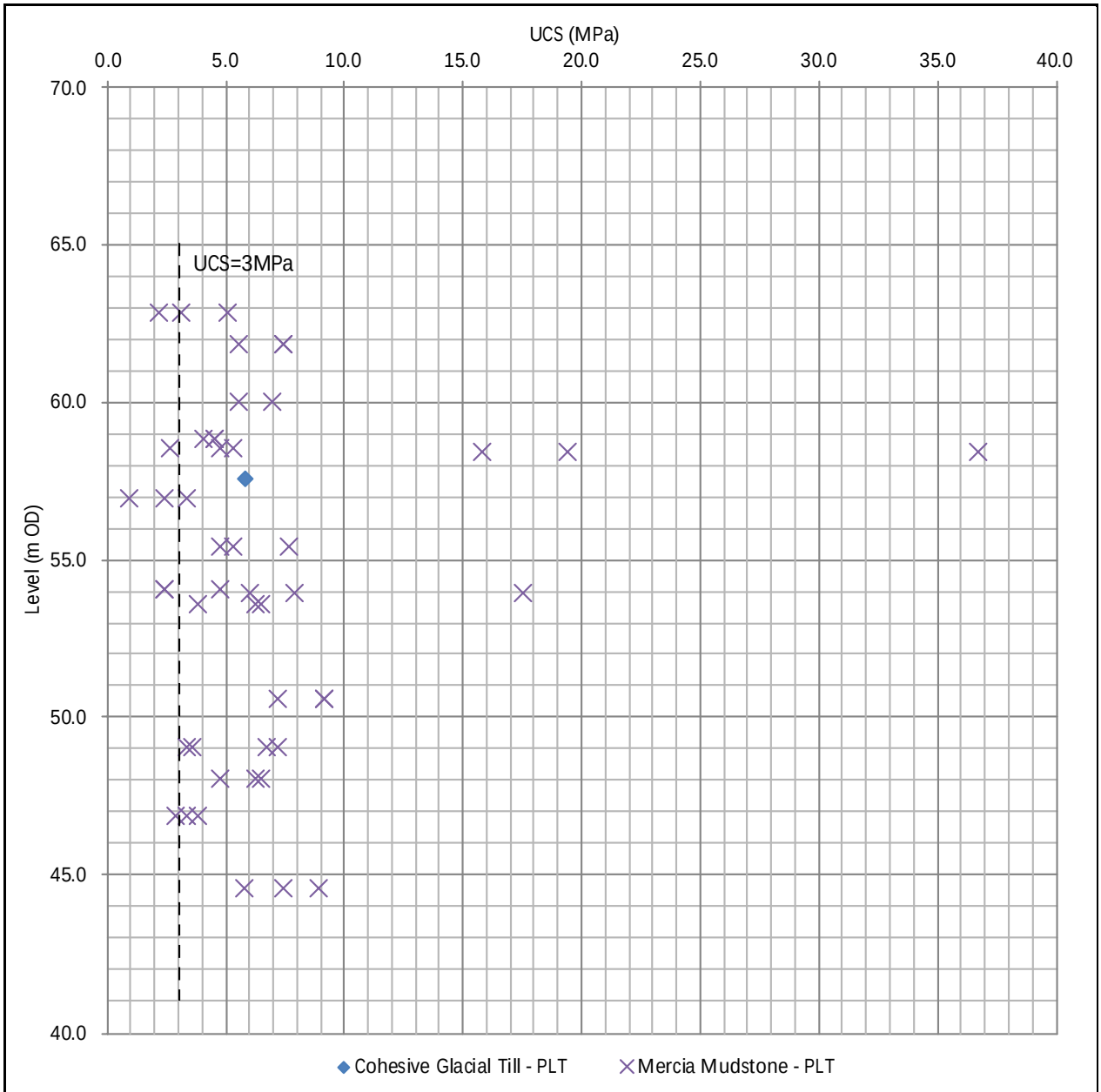
Title: SPT vs Depth (m AOD) Plot				
Project: Manchester Airport Building 401				
Number: 60663052	Figure No. 3		Designed: JM	Checked: AA
			Date: 02/08/2022	



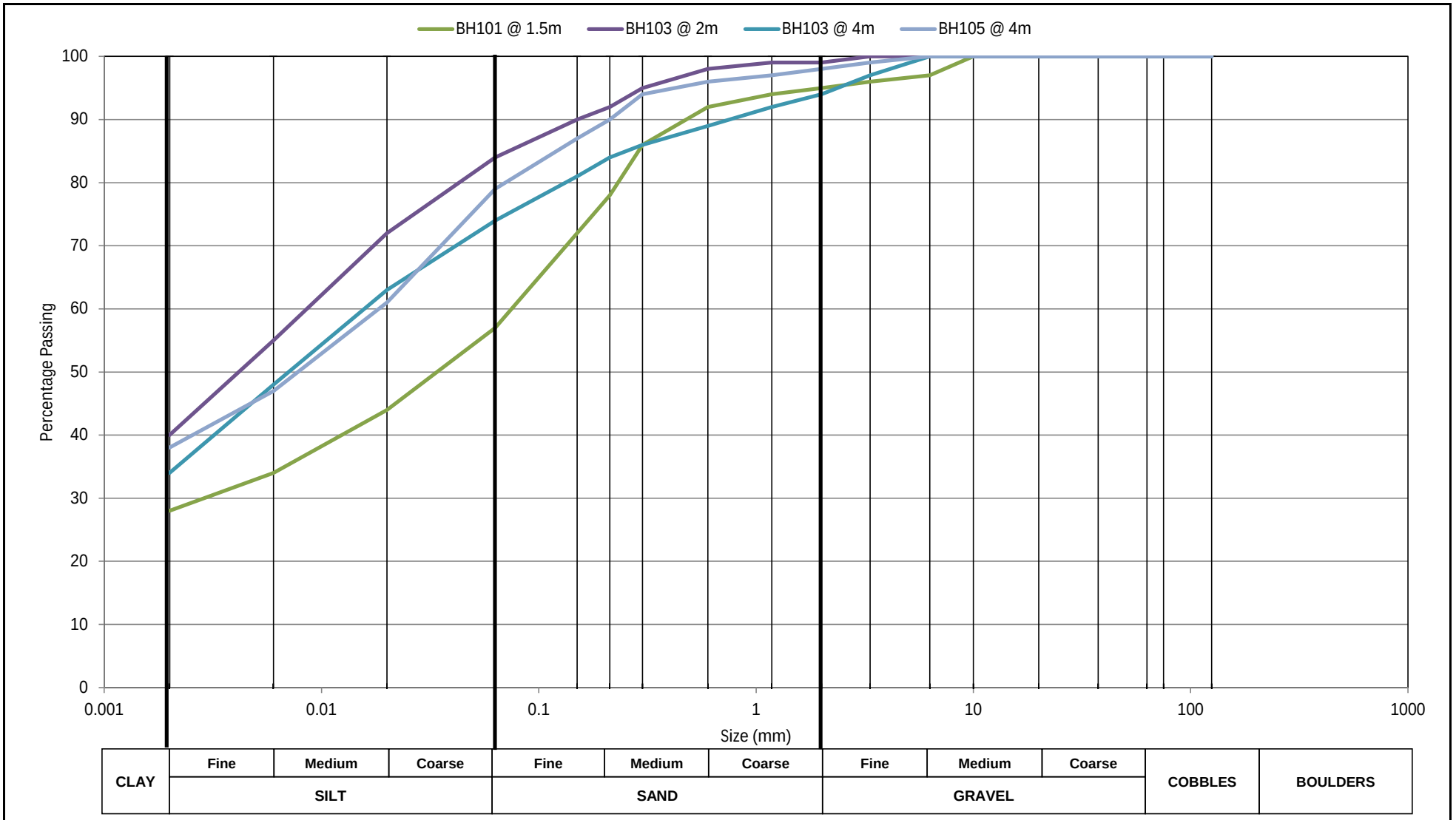
Title: SPT vs Depth (m AOD) Plot				
Project: Manchester Airport Building 401				
Number: 60663052	Figure No. 4		Designed: JM	Checked: AA
			Date: 02/08/2022	



Title: Undrained Shear Strength vs Depth (m AOD) Plot			
Project: Manchester Airport Building 401			
Number: 60663052	Figure No: 5	Designed: JM	Checked: AA
		Date: 02/08/2022	

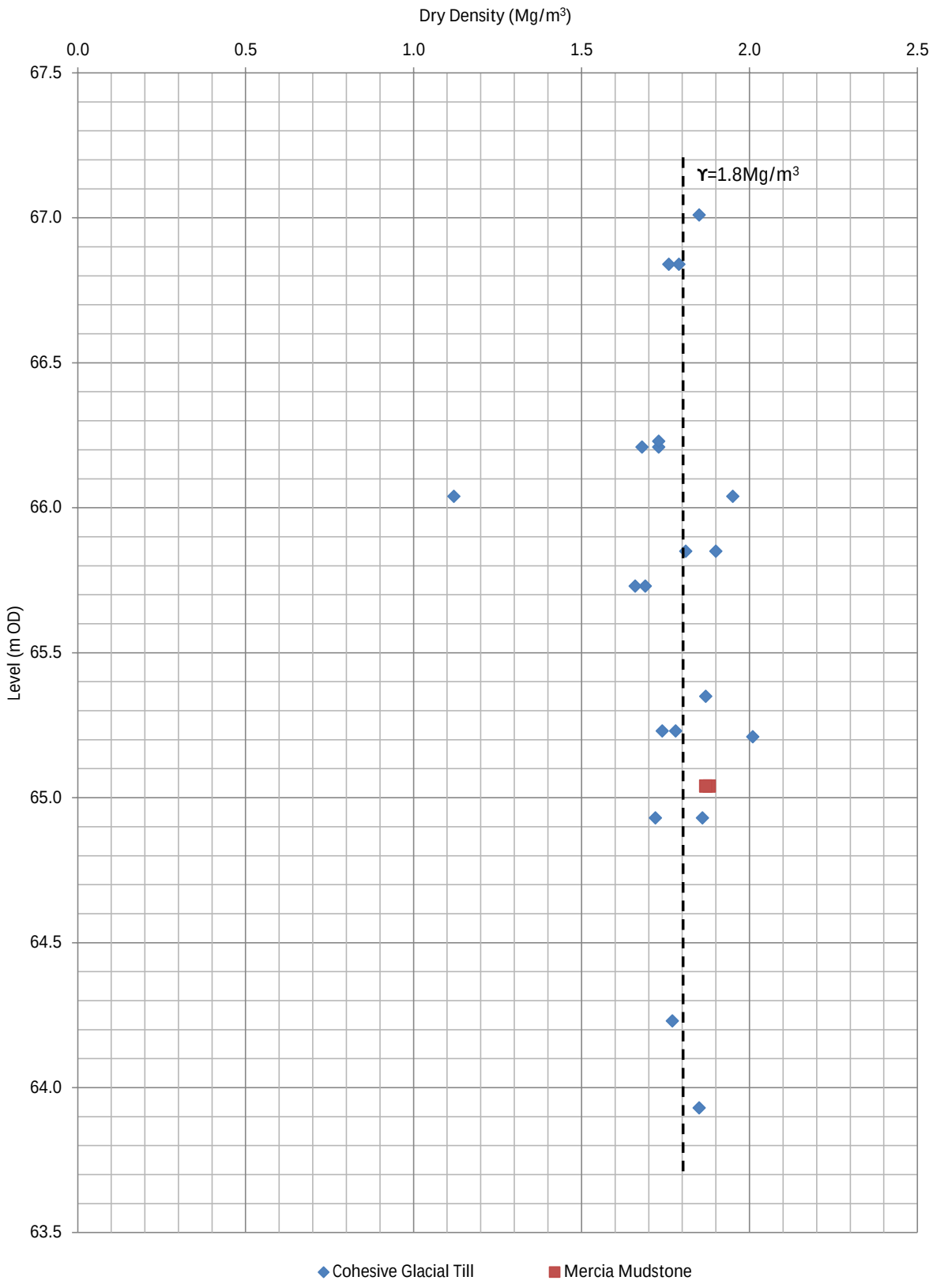


Title: UCS (MPa) vs Level (m OD) Plot			AECOM
Project: Manchester Airport Building 401			
Number: 60663052	Figure No: 6	Designed: JM	Checked: AA
		Date: 02/08/2022	



Title:	PSD Results - Glacial Till	Figure No.	7
Project:	Manchester Airport Building 401	Designed: JM	Date: 02/08/2022
Number:	60663052	Approved: AA	

AECOM



Title:	Dry Density (Mg/m^3) vs Level (m OD) Plot			
Project:	Manchester Airport Building 401			
Number: 60663052		Figure No. 8	Designed: JM	Checked: AA
			Date: 02/08/2022	

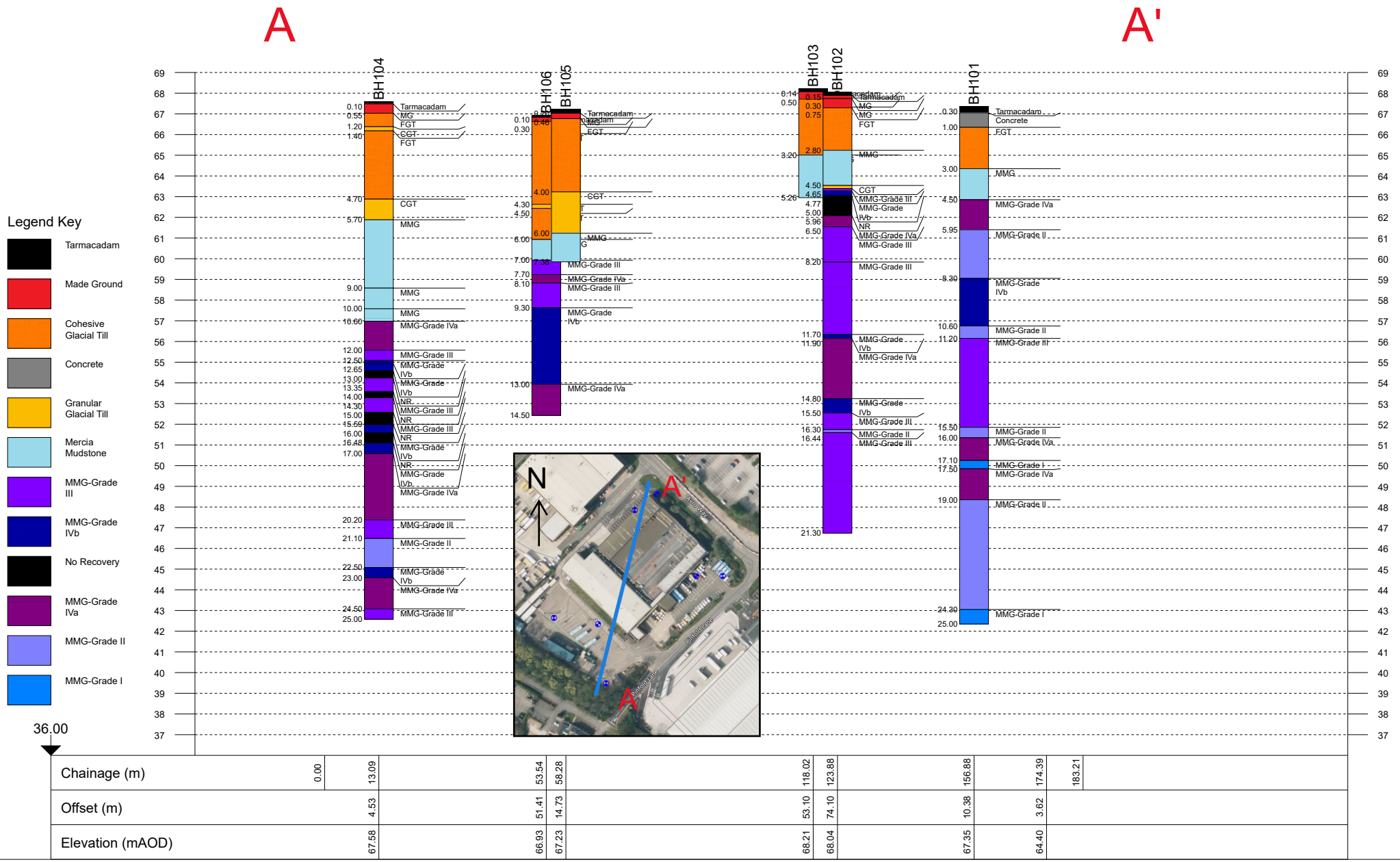
Project No: 60663052
Location: Manchester Airport

Figure 9 Rockhead Profile Section

Engineer: AECOM

Scale
Vertical: 1:250
Horizontal: 1:1250

AECOM



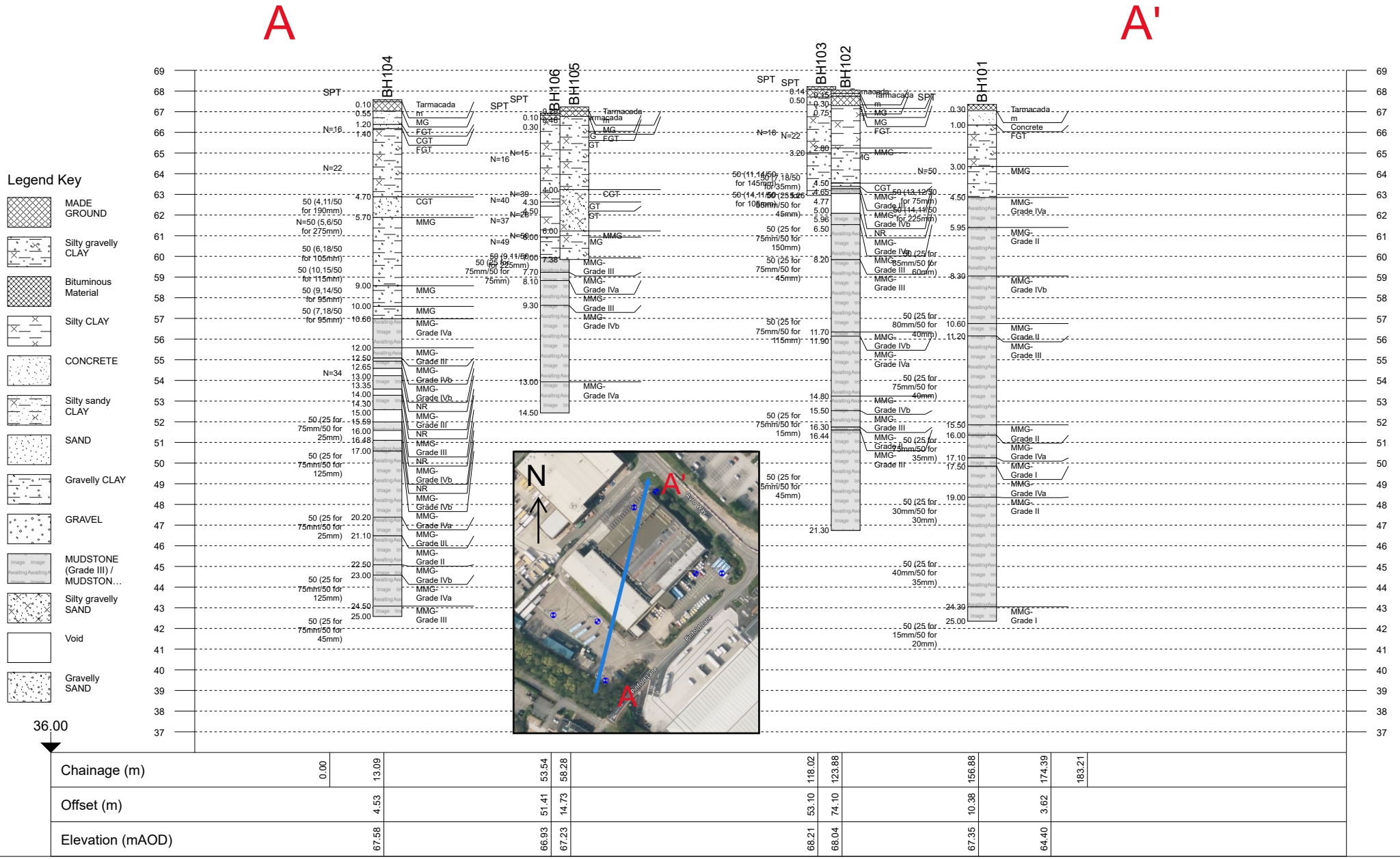
Project No: 60663052
Location: Manchester Airport

Figure 10 SPT Profile Section

Engineer: AECOM

Scale
Vertical: 1:250
Horizontal: 1:1250

AECOM



12. References

1. **AECOM.** *Manchester Airport Building 401 Phase 1 Tier 1 Geo-Environmentla and Geotechnical Assessment .* 2021.
2. —. *Project Quantum (AECOM) Report No: MAN-19-60592411.* 2019.
3. **ESG.** *Manchester Airport Bus Depot Relocation, Wilmslow: Factual Report on Ground Investigation (Report No: F6042-16).* 2017.
4. **BGS.** *Sheet 98 Stockport Drift and and Solid 1:50,000 series.* 1977.
5. **BSI.** *Code of Practice for Foundations.* s.l. : BSI, 2020. BS 8004:2015+A1:2020.
6. **CIRIA.** *Report 143 The Standard Penetration Test (SPT): methods and use.* 1995.
7. **BRE.** *Concrete in Aggressive Ground (Special Digest 1).* 2005. BRE SD1:2005.
8. **Environment Agency.** *Land Contamination: Risk Management (LC:RM).* 2020.
9. —. *Derivation and use of soil screening values for assessing ecological risks.* s.l. : Environment Agency, 2022.
10. —. *mpilation of Data for Priority Organic Pollutants for Derivation of Soil Guideline Values.* 2008.
11. —. *Human health toxicological assessment of contaminants in soil (SR2).* 2009.
12. **Environment Agerncy.** *Remedial Targets Methodology, Hydrogeological Risk Assessment for Land Contamination.* 2006.
13. **BSI.** *Guidance on Investigations for Ground Gas.* 2013. BS 8576:2013.
14. —. *Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings.* s.l. : BSI, 2019. BS 8485:2015+A1:2019 .
15. **Institute, British Standards.** *BS 8485:2015 “Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings.* s.l. : BSI, 2015. BS8485: 2015.
16. **HSE.** *Eh40/2005 Workplace Exposure Limits.* 2005.
17. **Health and Safety Executive.** *EH40/2005 Workplace exposure limits.* s.l. : HSE, 2018.
18. **Environment Agency.** *Technical Guidance WM3: Waste Ca=kassufucautib - Guidance on the classification and assessment of waste.* 2021.
19. —. Land contamination risk management. [Online] 2020. [Cited: 22 November 2019.] https://www.gov.uk/guidance/land-contamination-how-to-manage-the-risks.
20. **Health and Safety Executive .** *The Construction (Design and Management) Regulations .* 2015.
21. **CIRIA.** *Environmental good practice on site (third edition) C692.* 2010.
22. **CIRA.** *Contaminated land risk assessment. A guide to good practice (C552).* 2001.
23. **CIRIA.** *Assessing risks posed by hazardous ground gases to buildings (C665).* 2007.
24. **CIRIA.** *Engineering in glacial tills (C504)*. 1999.
25. **CIRIA.** *Engineering in mercia mudstone (C570)*. 2001.
26. **The Coal Authority.** British Geological Survey. *The Coal Authority Interactive Map Viewer.* [Online] BGS, 02 09 2022. [Cited: 02 09 2022.] https://mapapps2.bgs.ac.uk/coalauthority/home.html.
27. **CL:AIRE.** *Definition of Waste: Industry Code of Practice (DoW:CoP).* London : CL:AIRE, 2011.

Appendix A Proposed Development Plan

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Notes

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2. If received electronically it is the recipients responsibility to print to correct scale. Only written dimensions should be used.
3. This drawing should be read in conjunction with all other relevant drawings and specifications.

Building 402

Junction adjusted to allow HGV Access

Avro Way

New Car Park access

New Substation Location

32 spaces (inc. 2 acc)

4 Level Access

18 spaces (inc. 1 acc)

Cycles

2 Level Access

3 Level Access

16 spaces (inc. 1 acc)

35000

Unit 2

20k

40000

42000

Offices (1st)

Unit 1a

36k

54000

Offices (1st)

Unit 1b

21k

32000

126000

Level Access Door

Gas

Cycles

22 spaces (inc. 1 acc)

Unit 1c

26k

40000

56000

Landscaping

Pinfold Lane

N

10m

SCALE 1:500

Rev	Description	By	Ckd	Date
P01	First Issue	LL	MJH	02/08/21

MAKING COMPLEX EASY

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Client: MAGPROPERTY

Project: MAG, Building 401, Manchester Airport

Title: Masterplan Option 16B

RPS Project Number	Scale @ A1	Date Created
NK020598	1:500	02/08/21
Task Team Manager	**Information Author**	**Task Information Manager**
KRP	LL	MJH

Status: S2 (Suitable for Information)

Document Number: 020598-RPS-SI-XX-DR-A-9030

Revision: P01

Project Code - Originator - Zone - Level - Type - Role - Drawing Number

rpsgroup.com

Appendix B Groundsure Report

Groundsure
LOCATION INTELLIGENCE

Enviro+Geo
Insight

AVRO WAY, MANCHESTER, M90 5PY

Order Details

Date: 26/08/2021

Your ref: MAG_Building_401

Our Ref: GS-8153066

Client: Aecom Infrastructure and Environment UK Ltd

Site Details

Location: 380906 384825

Area: 2.11 ha

Authority: Manchester City Council

Summary of findings p. 2

OS MasterMap site plan p.13

Aerial image p. 8

groundsure.com/insightuserguide

Contact us with any questions at:
info@groundsure.com
08444 159 000

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
14	1.1	Historical industrial land uses	3	3	6	7	-
15	1.2	Historical tanks	0	0	13	24	-
17	1.3	Historical energy features	1	0	6	4	-
18	1.4	Historical petrol stations	0	0	0	0	-
18	1.5	Historical garages	0	0	0	0	-
18	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
19	2.1	Historical industrial land uses	3	5	6	9	-
20	2.2	Historical tanks	0	0	41	45	-
24	2.3	Historical energy features	1	0	12	4	-
25	2.4	Historical petrol stations	0	0	0	0	-
25	2.5	Historical garages	0	0	0	0	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
26	3.1	Active or recent landfill	0	0	0	0	-
26	3.2	Historical landfill (BGS records)	0	0	0	0	-
27	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
27	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
27	3.5	Historical waste sites	0	0	0	0	-
27	3.6	Licensed waste sites	0	0	0	0	-
27	3.7	Waste exemptions	0	1	4	4	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
29	4.1	Recent industrial land uses	1	0	61	-	-
33	4.2	Current or recent petrol stations	0	0	0	1	-
34	4.3	Electricity cables	0	0	0	0	-
34	4.4	Gas pipelines	0	0	0	0	-
34	4.5	Sites determined as Contaminated Land	0	0	0	0	-

34	**4.6**	**Control of Major Accident Hazards (COMAH)**	0	0	1	0	-
35	4.7	Regulated explosive sites	0	0	0	0	-
35	**4.8**	**Hazardous substance storage/usage**	0	0	2	1	-
36	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
36	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
36	**4.11**	**Licensed pollutant release (Part A(2)/B)**	0	0	2	2	-
37	4.12	Radioactive Substance Authorisations	0	0	0	0	-
37	**4.13**	**Licensed Discharges to controlled waters**	0	0	0	11	-
39	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
39	4.15	Pollutant release to public sewer	0	0	0	0	-
39	4.16	List 1 Dangerous Substances	0	0	0	0	-
39	4.17	List 2 Dangerous Substances	0	0	0	0	-
40	4.18	Pollution Incidents (EA/NRW)	0	0	0	0	-
40	4.19	Pollution inventory substances	0	0	0	0	-
40	4.20	Pollution inventory waste transfers	0	0	0	0	-
40	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
41	**5.1**	**Superficial aquifer**	Identified (within 500m)				
43	**5.2**	**Bedrock aquifer**	Identified (within 500m)				
45	**5.3**	**Groundwater vulnerability**	Identified (within 50m)				
46	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
46	5.5	Groundwater vulnerability- local information	None (within 0m)				
47	5.6	Groundwater abstractions	0	0	0	0	0
48	**5.7**	**Surface water abstractions**	0	0	0	0	5
49	5.8	Potable abstractions	0	0	0	0	0
49	5.9	Source Protection Zones	0	0	0	0	-
50	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-

Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
51	6.1	Water Network (OS MasterMap)	0	0	0	-	-

51	6.2	Surface water features	0	0	0	-	-
52	**6.3**	**WFD Surface water body catchments**	2	-	-	-	-
52	**6.4**	**WFD Surface water bodies**	0	0	0	-	-
53	**6.5**	**WFD Groundwater bodies**	2	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
54	7.1	Risk of Flooding from Rivers and Sea (RoFRaS)	None (within 50m)				
54	7.2	Historical Flood Events	0	0	0	-	-
54	7.3	Flood Defences	0	0	0	-	-
54	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
55	7.5	Flood Storage Areas	0	0	0	-	-
56	7.6	Flood Zone 2	None (within 50m)				
56	7.7	Flood Zone 3	None (within 50m)				
Page	Section	Surface water flooding					
57	**8.1**	**Surface water flooding**	1 in 30 year, 0.1m - 0.3m (within 50m)				
Page	Section	Groundwater flooding					
59	**9.1**	**Groundwater flooding**	Low (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
60	**10.1**	**Sites of Special Scientific Interest (SSSI)**	0	0	0	1	1
61	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
61	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
61	10.4	Special Protection Areas (SPA)	0	0	0	0	0
61	10.5	National Nature Reserves (NNR)	0	0	0	0	0
62	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
62	**10.7**	**Designated Ancient Woodland**	0	0	1	0	9
63	10.8	Biosphere Reserves	0	0	0	0	0
63	10.9	Forest Parks	0	0	0	0	0
63	10.10	Marine Conservation Zones	0	0	0	0	0
63	**10.11**	**Green Belt**	0	0	0	1	2
64	10.12	Proposed Ramsar sites	0	0	0	0	0

64	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
64	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
64	10.15	Nitrate Sensitive Areas	0	0	0	0	0
65	10.16	Nitrate Vulnerable Zones	0	0	0	0	0
66	**10.17**	**SSSI Impact Risk Zones**	3	-	-	-	-
68	**10.18**	**SSSI Units**	0	0	0	1	1
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
70	11.1	World Heritage Sites	0	0	0	-	-
70	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
70	11.3	National Parks	0	0	0	-	-
70	11.4	Listed Buildings	0	0	0	-	-
71	11.5	Conservation Areas	0	0	0	-	-
71	11.6	Scheduled Ancient Monuments	0	0	0	-	-
71	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
72	**12.1**	**Agricultural Land Classification**	Grade 3 (within 250m)				
73	12.2	Open Access Land	0	0	0	-	-
73	12.3	Tree Felling Licences	0	0	0	-	-
73	12.4	Environmental Stewardship Schemes	0	0	0	-	-
73	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
74	**13.1**	**Priority Habitat Inventory**	3	3	3	-	-
75	13.2	Habitat Networks	0	0	0	-	-
75	13.3	Open Mosaic Habitat	0	0	0	-	-
75	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
76	**14.1**	**10k Availability**	Identified (within 500m)				
77	14.2	Artificial and made ground (10k)	0	0	0	0	-
78	**14.3**	**Superficial geology (10k)**	1	0	1	0	-

79	14.4	Landslip (10k)	0	0	0	0	-
80	14.5	Bedrock geology (10k)	1	0	3	0	-
81	14.6	Bedrock faults and other linear features (10k)	0	0	2	0	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
82	15.1	50k Availability	Identified (within 500m)				
83	15.2	Artificial and made ground (50k)	0	0	0	0	-
83	15.3	Artificial ground permeability (50k)	0	0	-	-	-
84	15.4	Superficial geology (50k)	1	0	0	0	-
85	15.5	Superficial permeability (50k)	Identified (within 50m)				
85	15.6	Landslip (50k)	0	0	0	0	-
85	15.7	Landslip permeability (50k)	None (within 50m)				
86	15.8	Bedrock geology (50k)	1	0	1	0	-
87	15.9	Bedrock permeability (50k)	Identified (within 50m)				
87	15.10	Bedrock faults and other linear features (50k)	0	0	1	0	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
88	16.1	BGS Boreholes	9	4	27	-	-
Page	Section	Natural ground subsidence					
91	17.1	Shrink swell clays	Very low (within 50m)				
92	17.2	Running sands	Very low (within 50m)				
93	17.3	Compressible deposits	Negligible (within 50m)				
94	17.4	Collapsible deposits	Very low (within 50m)				
95	17.5	Landslides	Very low (within 50m)				
96	17.6	Ground dissolution of soluble rocks	Negligible (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
97	18.1	Natural cavities	0	0	0	0	-
98	18.2	BritPits	0	0	0	0	-
98	18.3	Surface ground workings	0	0	1	-	-
98	18.4	Underground workings	0	0	0	0	0
98	18.5	Historical Mineral Planning Areas	0	0	0	0	-

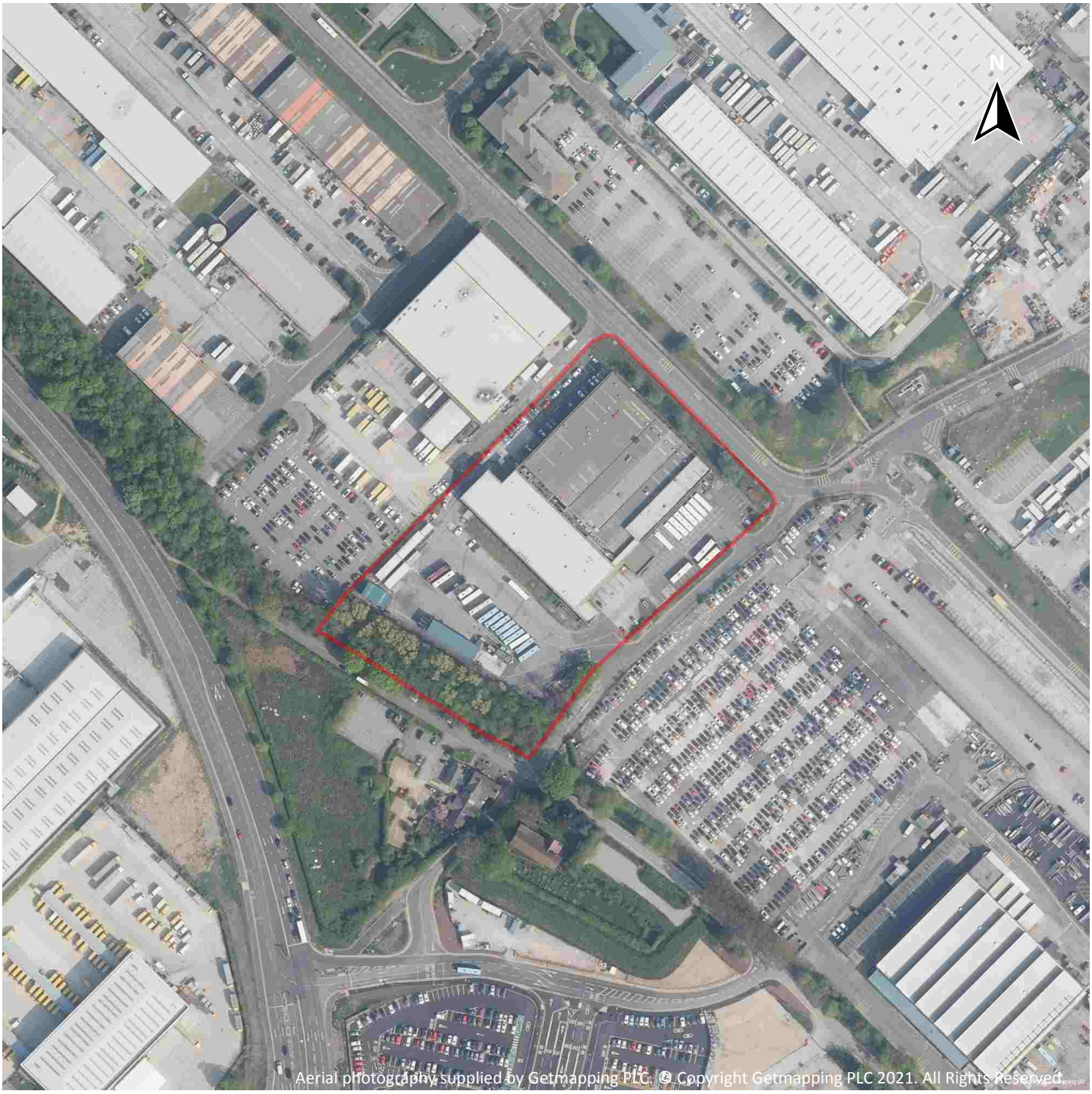
99	18.6	Non-coal mining	0	0	0	0	0
99	18.7	Mining cavities	0	0	0	0	0
99	18.8	JPB mining areas	None (within 0m)				
99	18.9	Coal mining	None (within 0m)				
99	**18.10**	**Brine areas**	Identified (within 0m)				
100	18.11	Gypsum areas	None (within 0m)				
100	18.12	Tin mining	None (within 0m)				
100	18.13	Clay mining	None (within 0m)				

Page	Section	Radon	
101	**19.1**	**Radon**	Less than 1% (within 0m)

Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
102	**20.1**	**BGS Estimated Background Soil Chemistry**	3	0	-	-	-
102	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
102	20.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-

Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
103	21.1	Underground railways (London)	0	0	0	-	-
103	21.2	Underground railways (Non-London)	0	0	0	-	-
103	21.3	Railway tunnels	0	0	0	-	-
103	21.4	Historical railway and tunnel features	0	0	0	-	-
103	21.5	Royal Mail tunnels	0	0	0	-	-
104	21.6	Historical railways	0	0	0	-	-
104	21.7	Railways	0	0	0	-	-
104	21.8	Crossrail 1	0	0	0	0	-
104	21.9	Crossrail 2	0	0	0	0	-
104	21.10	HS2	0	0	0	0	-

Recent aerial photograph



Capture Date: 22/04/2019

Site Area: 2.11ha

Recent site history - 2016 aerial photograph

Capture Date: 21/04/2016

Site Area: 2.11ha

Recent site history - 2010 aerial photograph

Capture Date: 17/10/2010

Site Area: 2.11ha

Recent site history - 2005 aerial photograph

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Capture Date: 02/09/2005

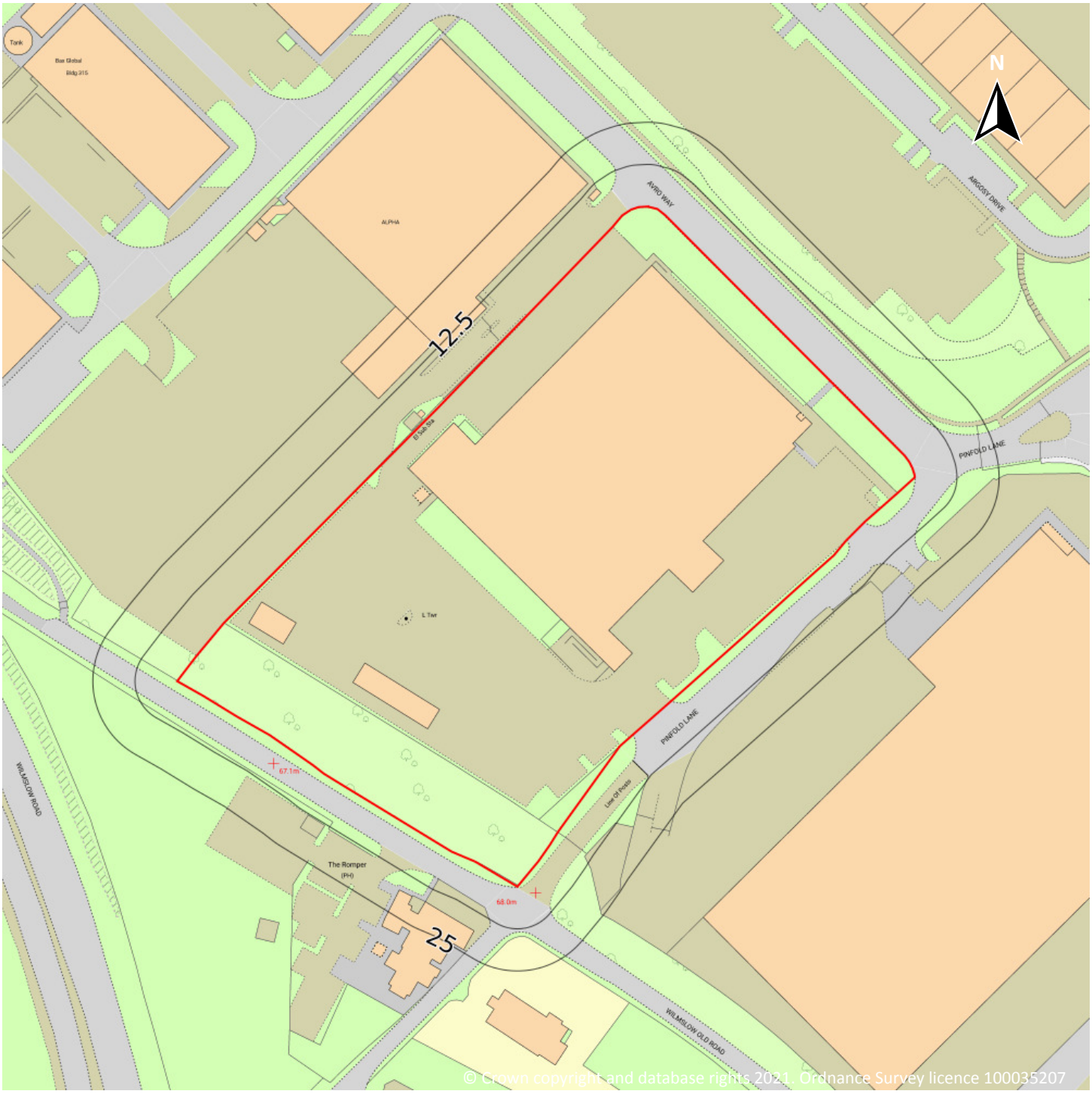
Site Area: 2.11ha

Recent site history - 2000 aerial photograph

Capture Date: 27/06/2000

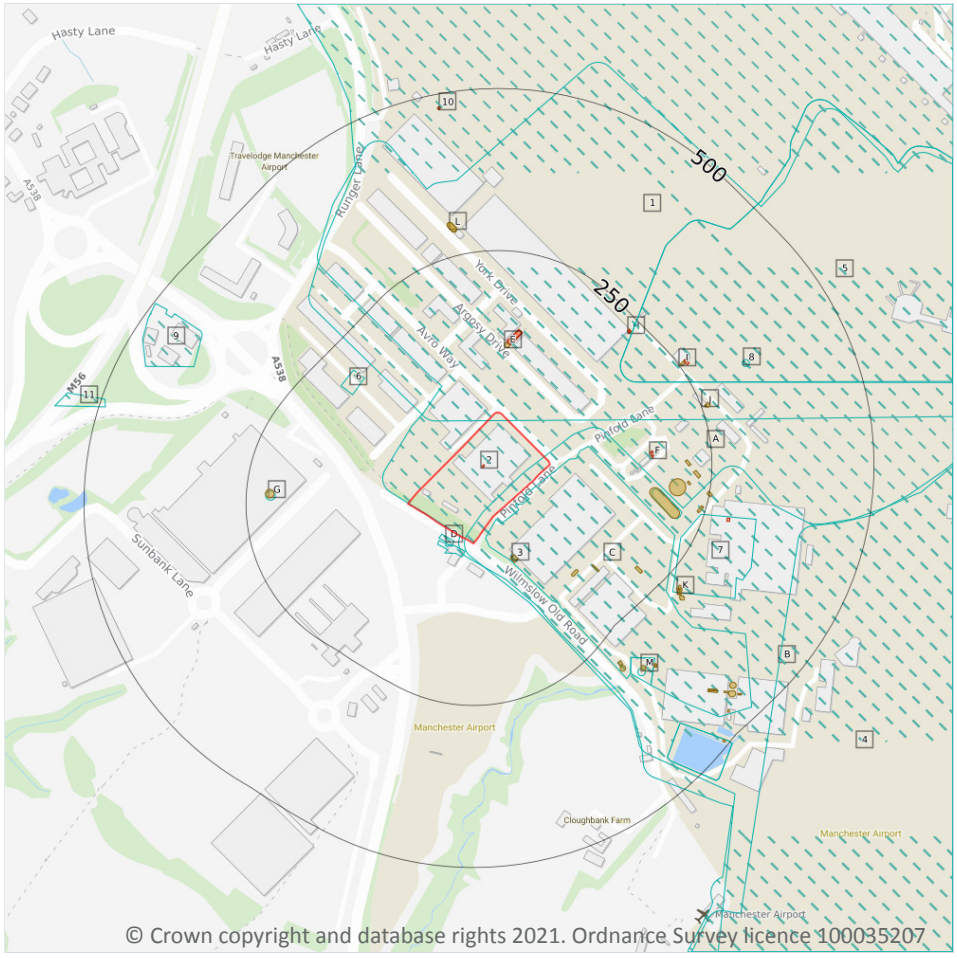
Site Area: 2.11ha

OS MasterMap site plan



Site Area: 2.11ha

1 Past land use



Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

1.1 Historical industrial land uses

Records within 500m	19

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 14**

ID	Location	Land use	Dates present	Group ID
1	**On site**	**Airport**	**1995**	**845359**

ID	Location	Land use	Dates present	Group ID
A	**On site**	**Airport**	**1989**	**878654**
B	**On site**	**Airport**	**1953**	**989364**
C	6m SE	Unspecified Commercial/Industrial	1974	796960
D	11m SW	Smithy	1938	943361
D	17m SW	Smithy	1899 - 1910	885346
A	164m E	Unspecified Tanks	1989	815435
4	175m NE	Airport	1974 - 1975	897813
5	175m NE	Airport	1967	844689
6	177m NW	Wireless Station	1989	802256
G	205m W	Unspecified Tank	1989	825000
7	231m SE	Unspecified Works	1974	830660
M	299m SE	Sewage Works	1974	811850
M	320m SE	Unspecified Tank	1974	824998
8	334m NE	Unspecified Tank	1975	824999
9	392m NW	Unspecified Depot	1989 - 1995	914596
B	422m SE	Unspecified Pit	1989	853250
B	422m SE	Unspecified Pit	1974	950609
11	490m W	Cuttings	1995	963338

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	**37**

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 14**

ID	Location	Land use	Dates present	Group ID
3	59m SE	Unspecified Tank	1968 - 1987	126292
E	101m N	Unspecified Tank	1987 - 1995	146099
C	146m SE	Tanks	1995 - 1996	126339
C	158m SE	Tanks	1995 - 1996	142707
A	159m E	Tanks	1987 - 1996	137116
A	187m E	Unspecified Tank	1995 - 1996	131170
C	206m SE	Unspecified Tank	1987 - 1996	128311
G	207m W	Unspecified Tank	1987	114872
A	209m E	Unspecified Tank	1987 - 1996	143016
A	214m E	Unspecified Tank	1995 - 1996	143549
A	222m E	Unspecified Tank	1987 - 1996	125562
A	238m E	Unspecified Tank	1987 - 1996	147552
A	246m E	Unspecified Tank	1987 - 1996	148025
I	252m NE	Unspecified Tank	1987 - 1992	125764
J	255m E	Unspecified Tank	1995 - 1996	131304
J	257m E	Unspecified Tank	1987 - 1990	149283
K	273m SE	Tanks	1968	125152
K	273m SE	Tanks	1968	136089
K	276m SE	Unspecified Tank	1987	114873
K	285m SE	Unspecified Tank	1987 - 1996	129923
L	286m N	Tanks	1995	136308
L	287m N	Tanks	1990 - 1991	135148
M	289m SE	Unspecified Tank	1995 - 1996	139784
M	296m SE	Unspecified Tank	1995 - 1996	145845
M	321m SE	Unspecified Tank	1987 - 1996	149270
M	334m SE	Unspecified Tank	1987 - 1990	127696
M	336m SE	Unspecified Tank	1995	128767
B	419m SE	Unspecified Tank	1987 - 1990	133887

ID	Location	Land use	Dates present	Group ID
B	420m SE	Unspecified Tank	1995	143162
B	421m SE	Unspecified Tank	1987 - 1995	130265
B	436m SE	Unspecified Tank	1995 - 1996	123647
B	438m SE	Unspecified Tank	1987	136269
B	444m SE	Unspecified Tank	1995 - 1997	127078
B	455m SE	Unspecified Tank	1968	141112
B	456m SE	Unspecified Tank	1968	139281
B	464m SE	Unspecified Tank	1995 - 1997	129845
B	490m SE	Unspecified Tank	1995 - 1997	147089

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	**11**

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 14**

ID	Location	Land use	Dates present	Group ID
2	**On site**	**Electricity Substation**	**1987**	**61802**
E	106m N	Electricity Substation	1995	66850
E	106m N	Electricity Substation	1987 - 1991	78382
F	156m E	Electricity Substation	1987 - 1996	67847
F	156m E	Electricity Substation	1987 - 1990	73083
H	228m NE	Electricity Substation	1992	68947
H	229m NE	Electricity Substation	1987	64893
I	259m NE	Electricity Substation	1992	64065
I	259m NE	Electricity Substation	1987	79361

ID	Location	Land use	Dates present	Group ID
A	286m E	Electricity Substation	1987	61807
10	476m N	Electricity Substation	1990	61816

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	0

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'.

This data is sourced from Ordnance Survey / Groundsure.

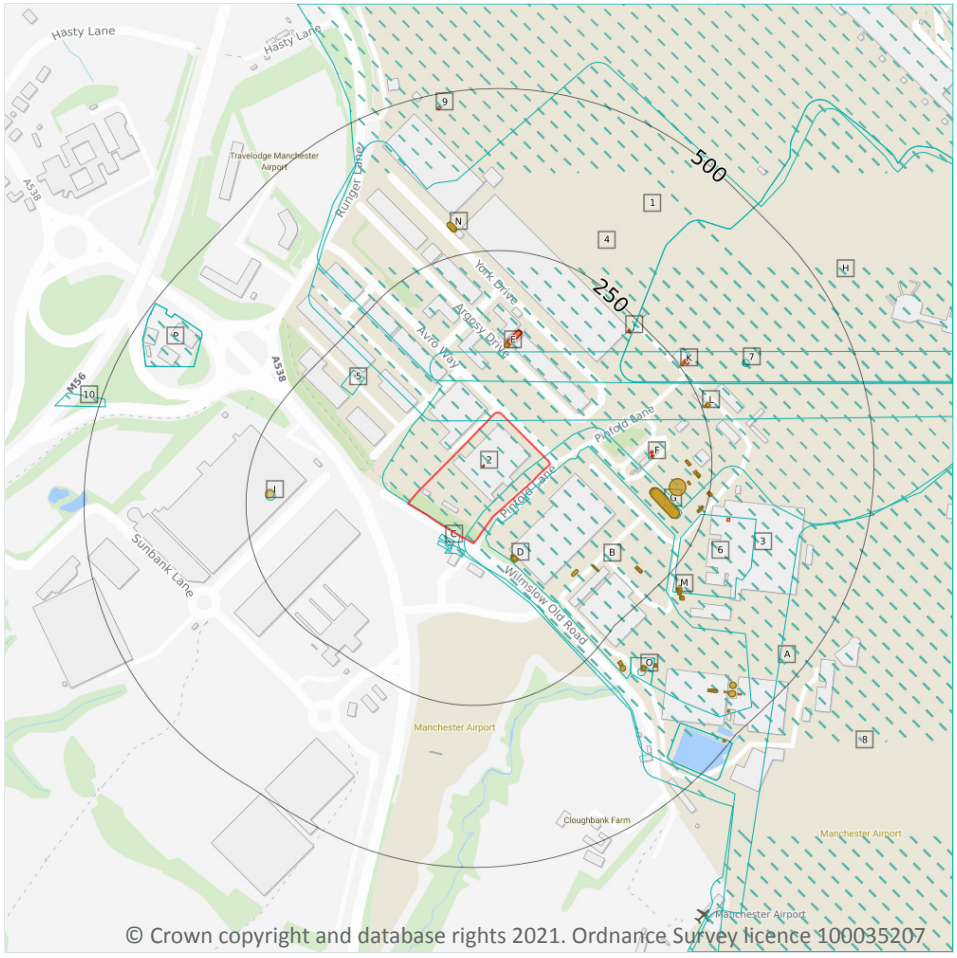
1.6 Historical military land

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

2.1 Historical industrial land uses

Records within 500m	23

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 19**

ID	Location	Land Use	Date	Group ID
1	**On site**	**Airport**	**1995**	**845359**
3	**On site**	**Airport**	**1989**	**878654**
A	**On site**	**Airport**	**1953**	**989364**

ID	Location	Land Use	Date	Group ID
B	6m SE	Unspecified Commercial/Industrial	1974	796960
C	11m SW	Smithy	1938	943361
C	17m SW	Smithy	1910	885346
C	20m SW	Smithy	1899	885346
4	48m N	Airport	1989	878654
G	164m E	Unspecified Tanks	1989	815435
H	175m NE	Airport	1967	844689
H	175m NE	Airport	1975	897813
5	177m NW	Wireless Station	1989	802256
I	205m W	Unspecified Tank	1989	825000
6	231m SE	Unspecified Works	1974	830660
O	299m SE	Sewage Works	1974	811850
O	320m SE	Unspecified Tank	1974	824998
7	334m NE	Unspecified Tank	1975	824999
P	392m NW	Unspecified Depot	1995	914596
P	392m NW	Unspecified Depot	1989	914596
8	400m E	Airport	1974	897813
A	422m SE	Unspecified Pit	1989	853250
A	422m SE	Unspecified Pit	1974	950609
10	490m W	Cuttings	1995	963338

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	**86**

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 19**

ID	Location	Land Use	Date	Group ID
D	59m SE	Unspecified Tank	1987	126292
D	60m SE	Unspecified Tank	1968	126292
D	60m SE	Unspecified Tank	1973	126292
D	60m SE	Unspecified Tank	1968	126292
E	101m N	Unspecified Tank	1995	146099
E	101m N	Unspecified Tank	1987	146099
E	101m N	Unspecified Tank	1990	146099
E	101m N	Unspecified Tank	1991	146099
B	146m SE	Tanks	1995	126339
B	146m SE	Tanks	1996	126339
B	158m SE	Tanks	1995	142707
B	158m SE	Tanks	1996	142707
G	159m E	Tanks	1987	137116
G	159m E	Tanks	1990	137116
G	161m E	Tanks	1995	137116
G	161m E	Tanks	1996	137116
G	187m E	Unspecified Tank	1995	131170
G	187m E	Unspecified Tank	1996	131170
B	206m SE	Unspecified Tank	1987	128311
B	206m SE	Unspecified Tank	1990	128311
I	207m W	Unspecified Tank	1987	114872
G	209m E	Unspecified Tank	1987	143016
G	209m E	Unspecified Tank	1990	143016
B	209m SE	Unspecified Tank	1995	128311
B	209m SE	Unspecified Tank	1996	128311
G	209m E	Unspecified Tank	1995	143016
G	209m E	Unspecified Tank	1996	143016
G	214m E	Unspecified Tank	1995	143549

ID	Location	Land Use	Date	Group ID
G	214m E	Unspecified Tank	1996	143549
G	222m E	Unspecified Tank	1987	125562
G	222m E	Unspecified Tank	1990	125562
G	226m E	Unspecified Tank	1995	125562
G	226m E	Unspecified Tank	1996	125562
G	238m E	Unspecified Tank	1987	147552
G	238m E	Unspecified Tank	1990	147552
G	239m E	Unspecified Tank	1995	147552
G	239m E	Unspecified Tank	1996	147552
G	246m E	Unspecified Tank	1987	148025
G	246m E	Unspecified Tank	1990	148025
G	247m E	Unspecified Tank	1995	148025
G	247m E	Unspecified Tank	1996	148025
K	252m NE	Unspecified Tank	1992	125764
K	253m NE	Unspecified Tank	1987	125764
L	255m E	Unspecified Tank	1995	131304
L	255m E	Unspecified Tank	1996	131304
L	257m E	Unspecified Tank	1987	149283
L	257m E	Unspecified Tank	1990	149283
M	273m SE	Tanks	1968	136089
M	273m SE	Tanks	1968	125152
M	273m SE	Tanks	1968	136089
M	276m SE	Unspecified Tank	1987	114873
M	277m SE	Tanks	1968	125152
M	285m SE	Unspecified Tank	1987	129923
M	285m SE	Unspecified Tank	1990	129923
N	286m N	Tanks	1995	136308
M	287m SE	Unspecified Tank	1995	129923

ID	Location	Land Use	Date	Group ID
M	287m SE	Unspecified Tank	1996	129923
N	287m N	Tanks	1990	135148
N	287m N	Tanks	1991	135148
O	289m SE	Unspecified Tank	1995	139784
O	289m SE	Unspecified Tank	1996	139784
O	296m SE	Unspecified Tank	1995	145845
O	296m SE	Unspecified Tank	1996	145845
O	321m SE	Unspecified Tank	1987	149270
O	321m SE	Unspecified Tank	1990	149270
O	323m SE	Unspecified Tank	1995	149270
O	323m SE	Unspecified Tank	1996	149270
O	334m SE	Unspecified Tank	1987	127696
O	334m SE	Unspecified Tank	1990	127696
O	336m SE	Unspecified Tank	1995	128767
A	419m SE	Unspecified Tank	1987	133887
A	419m SE	Unspecified Tank	1990	133887
A	420m SE	Unspecified Tank	1995	143162
A	421m SE	Unspecified Tank	1987	130265
A	422m SE	Unspecified Tank	1995	130265
A	436m SE	Unspecified Tank	1995	123647
A	436m SE	Unspecified Tank	1996	123647
A	438m SE	Unspecified Tank	1987	136269
A	444m SE	Unspecified Tank	1995	127078
A	444m SE	Unspecified Tank	1997	127078
A	455m SE	Unspecified Tank	1968	141112
A	456m SE	Unspecified Tank	1968	139281
A	464m SE	Unspecified Tank	1995	129845
A	464m SE	Unspecified Tank	1997	129845

ID	Location	Land Use	Date	Group ID
A	490m SE	Unspecified Tank	1995	147089
A	490m SE	Unspecified Tank	1997	147089

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	**17**

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 19**

ID	Location	Land Use	Date	Group ID
2	**On site**	**Electricity Substation**	**1987**	**61802**
E	106m N	Electricity Substation	1995	66850
E	106m N	Electricity Substation	1987	78382
E	106m N	Electricity Substation	1990	78382
E	106m N	Electricity Substation	1991	78382
F	156m E	Electricity Substation	1987	67847
F	156m E	Electricity Substation	1990	67847
F	156m E	Electricity Substation	1987	73083
F	156m E	Electricity Substation	1990	73083
F	156m E	Electricity Substation	1995	67847
F	156m E	Electricity Substation	1996	67847
J	228m NE	Electricity Substation	1992	68947
J	229m NE	Electricity Substation	1987	64893
K	259m NE	Electricity Substation	1992	64065
K	259m NE	Electricity Substation	1987	79361
G	286m E	Electricity Substation	1987	61807
9	476m N	Electricity Substation	1990	61816

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	0

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'.

This data is sourced from Ordnance Survey / Groundsure.

3 Waste and landfill

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Site Outline

Search buffers in metres (m)

Waste exemptions

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	0

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.

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

3.5 Historical waste sites

Records within 500m	0

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

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

3.6 Licensed waste sites

Records within 500m	0

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

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

3.7 Waste exemptions

Records within 500m	9

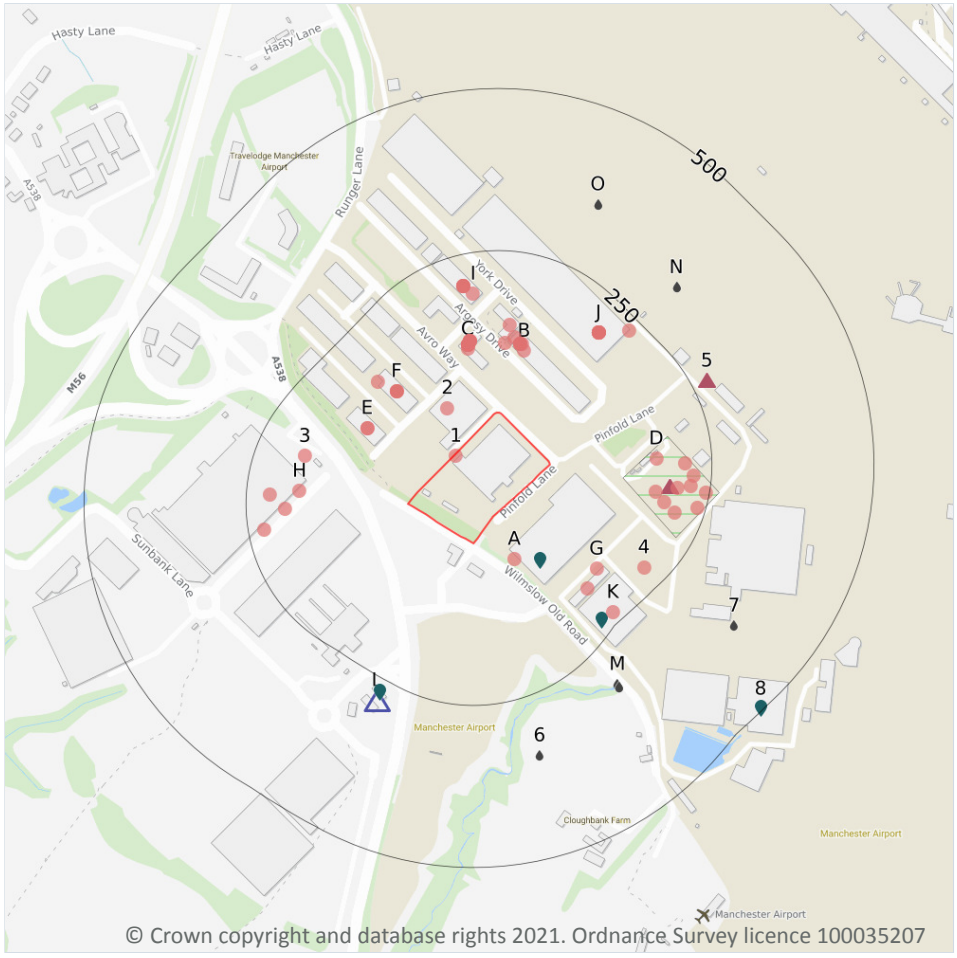
Activities involving the storage, treatment, use or disposal of waste that are exempt from needing a permit. Exemptions have specific limits and conditions that must be adhered to.

Features are displayed on the Waste and landfill map on **page 26**

ID	Location	Site	Reference	Category	Sub-Category	Description
1	43m NW	BAM Construction, Pinfold Lane, Avro Way, World Freight Terminal, Manchester Airport, Manchester, M90 5AF	WEX089429	Using waste exemption	Not on a farm	Use of waste in construction
A	126m SE	Hanger 3 Fuelling Farm Olympic House MANCHESTER M90 1QX	EPR/UE5840MZ/A001	Using waste exemption	Non-Agricultural Waste Only	Use of waste in construction
A	126m SE	Materials Innovation Factory University of Liverpool Grove Street Liverpool L69 7ZJ	EPR/HE5744GP/A001	Treating waste exemption	Non-Agricultural Waste Only	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
A	126m SE	Materials Innovation Factory University of Liverpool Grove Street Liverpool L69 7ZJ	EPR/HE5744GP/A001	Using waste exemption	Non-Agricultural Waste Only	Use of waste in construction
2	213m SW	MAG DHL Warehouse Sunbank Lane	EPR/JE5382DE/A001	Using waste exemption	Non-Agricultural Waste Only	Use of waste in construction
3	282m E	Manchester Airport, Pinfold Lane, off Avro Way, Manchester, M90 5XA	WEX162999	Using waste exemption	Not on a Farm	Use of waste in construction
B	473m NW	Hale Depot, M56 Hunction 6, Wilmslow Road Roundabout, Hale, Altrincham, WA15 8XL	WEX164848	Treating waste exemption	Not on a Farm	Treatment of waste aerosol cans
B	473m NW	Hale Motorway Maintenance Compound, Wilmslow Road Roundabout, Hale, Altrincham, WA15 8XL	WEX168955	Storing waste exemption	Not on a farm	Storage of waste in secure containers
B	473m NW	Hale Motorway Maintenance Compound, Wilmslow Road Roundabout, Hale, Altrincham, WA15 8XL	WEX168955	Storing waste exemption	Not on a farm	Storage of waste in a secure place

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

4 Current industrial land use



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Site Outline

Search buffers in metres (m)

Recent industrial land uses

Current or recent petrol stations

Control of Major Accident Hazards

Hazardous substance storage/usage

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

Licensed Discharges to controlled waters

4.1 Recent industrial land uses

Records within 250m	62

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 29**

ID	Location	Company	Address	Activity	Category
1	**On site**	**Electricity Sub Station**	**Greater Manchester, M90**	**Electrical Features**	**Infrastructure and Facilities**
2	58m NW	Alpha LSG	402 Avro Way, Manchester Airport, Manchester, Greater Manchester, M90 5AF	Aeroplanes	Industrial Products
A	65m SE	Tank	Greater Manchester, M90	Tanks (Generic)	Industrial Features

ID	Location	Company	Address	Activity	Category
B	103m N	Air Canada	Building 300, World Freight Terminal, Manchester Airport, Manchester, Greater Manchester, M90 5UY	Distribution and Haulage	Transport, Storage and Delivery
B	108m N	Tank	Greater Manchester, M90	Tanks (Generic)	Industrial Features
C	108m NW	Supply 2 Order	Building 308, World Freight Terminal, Manchester Airport, Manchester, Greater Manchester, M90 5PZ	Container and Storage	Transport, Storage and Delivery
B	111m N	N N R Global Logistics	Unit 2 Building 301, World Freight Terminal, Manchester Airport, Manchester, Greater Manchester, M90 5UX	Distribution and Haulage	Transport, Storage and Delivery
B	111m N	Warme Heating Ltd	Unit 6 Building 301, World Freight Terminal, Manchester Airport, Manchester, Greater Manchester, M90 5UX	Industrial Repairs and Servicing	Repair and Servicing
B	111m N	Davies Turner Plc	Unit 10 Building 301, World Freight Terminal, Manchester Airport, Manchester, Greater Manchester, M90 5UX	Distribution and Haulage	Transport, Storage and Delivery
B	111m N	T Q Express	Unit 7 Building 301, World Freight Terminal, Manchester Airport, Manchester, Greater Manchester, M90 5UX	Airlines and Airline Services	Transport, Storage and Delivery
B	112m N	Select Euro Transport	Unit 11 Building 301, World Freight Terminal, Manchester Airport, Manchester, Greater Manchester, M90 5UX	Distribution and Haulage	Transport, Storage and Delivery
C	114m N	R & M Developments Ltd	Room 212, Building 308 World Freight Terminal, Manchester Airport, Manchester, Greater Manchester, M90 5PZ	Civil Engineers	Engineering Services
C	114m N	A Z Freight Services Ltd	Building 308 Room 5 Manchester Airport, Ringway Road, Manchester, Greater Manchester, M90 5PZ	Airlines and Airline Services	Transport, Storage and Delivery
C	114m N	Noatum Logistics Ltd	Room 219 Building 308, World Freight Terminal, Manchester Airport, Manchester, Greater Manchester, M90 5PZ	Distribution and Haulage	Transport, Storage and Delivery
C	114m N	E M S Cargo Ltd	Room 11-14 Building 308, World Freight Terminal, Manchester Airport, Manchester, Greater Manchester, M90 5PZ	Distribution and Haulage	Transport, Storage and Delivery
C	114m N	Atlantic Pacific Global Logistics	Room 201-202 Building 308, World Freight Terminal, Manchester Airport, Manchester, Greater Manchester, M90 5PZ	Distribution and Haulage	Transport, Storage and Delivery
C	114m N	Evolution Logistics	Room 108-110 Building 308, World Freight Terminal, Manchester Airport, Manchester, Greater Manchester, M90 5PZ	Distribution and Haulage	Transport, Storage and Delivery

ID	Location	Company	Address	Activity	Category
C	114m N	Air Sea Worldwide	Room 101-102 Building 308, World Freight Terminal, Manchester Airport, Manchester, Greater Manchester, M90 5PZ	Airlines and Airline Services	Transport, Storage and Delivery
C	118m N	Future Forwarding	Building 308, World Freight Terminal, Manchester Airport, Manchester, Greater Manchester, M90 5PZ	Distribution and Haulage	Transport, Storage and Delivery
C	118m N	Puma Cargo Ltd	Room 11-14 Building 308, World Freight Terminal, Manchester Airport, Manchester, Greater Manchester, M90 5PZ	Distribution and Haulage	Transport, Storage and Delivery
C	118m N	C B I Global Freight Management	Room 213-214 Building 308, World Freight Terminal, Manchester Airport, Manchester, Greater Manchester, M90 5PZ	Distribution and Haulage	Transport, Storage and Delivery
C	118m N	A I T Worldwide Logistics Ltd	Building 308, World Freight Terminal, Manchester Airport, Manchester, Greater Manchester, M90 5PZ	Airlines and Airline Services	Transport, Storage and Delivery
C	118m N	Maurice Ward Group	Building 308, World Freight Terminal, Manchester Airport, Manchester, Greater Manchester, M90 5PZ	Distribution and Haulage	Transport, Storage and Delivery
B	119m N	Electricity Sub Station	Greater Manchester, M90	Electrical Features	Infrastructure and Facilities
E	125m NW	Mapcargo	1st Floor Building 314, World Freight Terminal, Manchester Airport, Manchester, Greater Manchester, M90 5EX	Distribution and Haulage	Transport, Storage and Delivery
E	125m NW	Air Menzies International	Building 314, World Freight Terminal, Manchester Airport, Manchester, Greater Manchester, M90 5EX	Distribution and Haulage	Transport, Storage and Delivery
F	133m NW	D B Schenker	Building 315 World Freight Terminal, Manchester Airport, Manchester, Greater Manchester, M90 5BG	Distribution and Haulage	Transport, Storage and Delivery
F	133m NW	Tranzfast Logistica UK Ltd	Building 315, World Freight Terminal, Manchester Airport, Manchester, Greater Manchester, M90 5BG	Airlines and Airline Services	Transport, Storage and Delivery
F	133m NW	Red Head International	Building 315, World Freight Terminal, Manchester Airport, Manchester, Greater Manchester, M90 5BG	Distribution and Haulage	Transport, Storage and Delivery
B	136m N	Vantec World Transport Manchester	Room 117-119 Building 308, World Freight Terminal, Manchester Airport, Manchester, Greater Manchester, M90 5PZ	Distribution and Haulage	Transport, Storage and Delivery
F	164m NW	Tank	Greater Manchester, M90	Tanks (Generic)	Industrial Features

ID	Location	Company	Address	Activity	Category
D	164m E	Electricity Sub Station	Greater Manchester, M90	Electrical Features	Infrastructure and Facilities
G	166m SE	Tank	Greater Manchester, M90	Tanks (Generic)	Industrial Features
D	168m E	Tank	Greater Manchester, M90	Tanks (Generic)	Industrial Features
H	169m W	Electricity Sub Station	Greater Manchester, M90	Electrical Features	Infrastructure and Facilities
3	176m NW	Electricity Sub Station	Greater Manchester, M90	Electrical Features	Infrastructure and Facilities
G	180m SE	Airline Services Ltd	Hangar 4, Pinfold Lane, Manchester Airport, Manchester, Greater Manchester, M90 5YF	Aeroplanes	Industrial Products
D	186m E	Tank	Greater Manchester, M90	Tanks (Generic)	Industrial Features
I	187m N	A F I	Unit 1/A Building 303, World Freight Terminal, Manchester Airport, Manchester, Greater Manchester, M90 5UJ	Airlines and Airline Services	Transport, Storage and Delivery
H	190m W	Electricity Sub Station	Greater Manchester, M90	Electrical Features	Infrastructure and Facilities
J	194m NE	Airline Cargo Management Ltd	Building 300, World Freight Terminal, Manchester Airport, Manchester, Greater Manchester, M90 5BA	Airlines and Airline Services	Transport, Storage and Delivery
J	194m NE	Dunwoody Airline	Building 300, World Freight Terminal, Manchester Airport, Manchester, Greater Manchester, M90 5UY	Distribution and Haulage	Transport, Storage and Delivery
J	194m NE	Air Liaison	Building 300, World Freight Terminal, Manchester Airport, Manchester, Greater Manchester, M90 5UY	Airlines and Airline Services	Transport, Storage and Delivery
J	194m NE	Singapore Airlines Cargo	Building 300, World Freight Terminal, Manchester Airport, Manchester, Greater Manchester, M90 5UY	Distribution and Haulage	Transport, Storage and Delivery
J	194m NE	Omni Airline Services	Building 300, World Freight Terminal, Manchester Airport, Manchester, Greater Manchester, M90 5BA	Distribution and Haulage	Transport, Storage and Delivery
J	194m NE	Globe Air Cargo	Building 300, World Freight Terminal, Manchester Airport, Manchester, Greater Manchester, M90 5UY	Airlines and Airline Services	Transport, Storage and Delivery
D	200m E	Tank	Greater Manchester, M90	Tanks (Generic)	Industrial Features

ID	Location	Company	Address	Activity	Category
I	202m N	Trilogy Freight	Unit 1a Building 303, World Freight Terminal, Manchester Airport, Manchester, Greater Manchester, M90 5UJ	Distribution and Haulage	Transport, Storage and Delivery
I	202m N	S O S Air Cargo Ltd	Unit 1a Building 303, World Freight Terminal, Manchester Airport, Manchester, Greater Manchester, M90 5UJ	Distribution and Haulage	Transport, Storage and Delivery
I	202m N	Blacksmith Freight Services	Unit 5 Building 303, World Freight Terminal, Manchester Airport, Manchester, Greater Manchester, M90 5UJ	Distribution and Haulage	Transport, Storage and Delivery
I	202m N	Fedex Trade Networks	Unit 2 Building 303, World Freight Terminal, Manchester Airport, Manchester, Greater Manchester, M90 5UJ	Airlines and Airline Services	Transport, Storage and Delivery
D	207m E	Tank	Greater Manchester, M90	Tanks (Generic)	Industrial Features
D	209m E	Tank	Greater Manchester, M90	Tanks (Generic)	Industrial Features
H	214m W	Tank	Greater Manchester, M90	Tanks (Generic)	Industrial Features
4	215m SE	Tank	Greater Manchester, M90	Tanks (Generic)	Industrial Features
D	219m E	Tank	Greater Manchester, M90	Tanks (Generic)	Industrial Features
D	223m E	Tank	Greater Manchester, M90	Tanks (Generic)	Industrial Features
H	225m W	Electricity Sub Station	Greater Manchester, M90	Electrical Features	Infrastructure and Facilities
J	231m NE	Electricity Sub Station	Greater Manchester, M90	Electrical Features	Infrastructure and Facilities
K	233m SE	Aeroco Group	Hangar 4 Western Maintenance Area, Manchester Airport, Manchester, Greater Manchester, M90 5YP	Aviation Engineers	Engineering Services
D	238m E	Tank	Greater Manchester, M90	Tanks (Generic)	Industrial Features
D	244m E	Tank	Greater Manchester, M90	Tanks (Generic)	Industrial Features

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m	**1**

Open, closed, under development and obsolete petrol stations.

Features are displayed on the Current industrial land use map on **page 29**

ID	Location	Company	Address	LPG	Status
L	284m SW	BP	Wilmslow Road, Icon Manchester Airport, Altrincham, Greater Manchester, WA15 0PT	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	1

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.

Features are displayed on the Current industrial land use map on **page 29**

ID	Location	Company	Address	Operational status	Tier
D	115m E	Air BP Limited	Air BP Limited, Manchester Airport, Pinfold Lane, Manchester, Greater Manchester, M90 5AX	Current COMAH Site	COMAH Lower Tier Operator

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	3

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.

Features are displayed on the Current industrial land use map on **page 29**

ID	Location	Details	
D	187m E	Application reference number: 065383/HSC/SOUTH2/02 Application status: Approved Application date: 03/10/2002 Address: Air BP Ltd, c/o Manchester Airport Storage and Hydrant Company Ltd, Pinfold Lane, Manchester Airport, Manchester, Greater Manchester, England, M90 5XA	Details: Storage Of Jet A1 Fuel Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified
D	187m E	Application reference number: 065383/HSC/SOUTH2/02 Application status: Historical Consent Application date: 03/10/2002 Address: Pinfold Lane, Manchester Airport, Manchester, M90 5XA	Details: Storage Of Jet A1 Fuel Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified
5	273m NE	Application reference number: 059375/HSC/SOUTH2/00 Application status: Unknown Application date: 31/01/2001 Address: Shell UK Ltd, Pinfold Lane, Manchester Airport, Ringway, M90 5XR	Details: Hazardous Substances Consent For Storage Of Aviation AVGAS Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified

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	4

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 29**

ID	Location	Address	Details	
A	98m SE	Fls Aerospace Ltd, Runger Lane, M90 5FL	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
K	229m SE	Airline Services Limited, Hanger 4, Western Maintenance Area, Manchester Airport M90 5YP	Process: Dry Cleaning Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified
L	270m SW	BP Airport City, BP Airport City SF Connect, Airport City South, Wilmslow Road, Manchester, WA15 0PT	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

ID	Location	Address	Details	
8	496m SE	Air Livery Plc, Off Pinfold Lane, Hanger 2, Manchester Airport, Manchester, M90 5BA	Process: Respraying of Road Vehicles Status: Current 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 29**

ID	Location	Address	Details	
M	310m SE	MANCHESTER AIRPORT DOUBLEWOOD BROOK, DOUBLE WOOD BROOK OUTFALL, MANCHESTER AIRPORT, MANCHESTER, GREATER MANCHESTER, M90 1QX	Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: 016992832 Permit Version: 1 Receiving Water: COTTERIL CLOUGH BROOK	Status: SURRENDERED UNDER EPR 2010 Issue date: - Effective Date: 30/09/1994 Revocation Date: 16/11/2015
M	314m SE	MANCHESTER AIRPORT: SITE DRAINAGE, AND CONTAINMENT SYSTEM, OLYMPIC HOUSE, OFF THE DOMESTIC APPROACH ROAD, MANCHESTER, M90 1QX	Effluent Type: TRADE DISCHARGES - SITE DRAINAGE Permit Number: EPRCB3299EN Permit Version: 1 Receiving Water: RIVER BOLLIN & NEARBY TRIBS	Status: NEW ISSUED UNDER EPR 2010 Issue date: 30/10/2015 Effective Date: 16/11/2015 Revocation Date: 14/02/2019
M	314m SE	MANCHESTER AIRPORT: SITE DRAINAGE, AND CONTAINMENT SYSTEM, OLYMPIC HOUSE, OFF THE DOMESTIC APPROACH ROAD, MANCHESTER, M90 1QX	Effluent Type: TRADE DISCHARGES - SITE DRAINAGE Permit Number: EPRCB3299EN Permit Version: 1 Receiving Water: RIVER BOLLIN & NEARBY TRIBS	Status: NEW ISSUED UNDER EPR 2010 Issue date: 30/10/2015 Effective Date: 16/11/2015 Revocation Date: 14/02/2019

ID	Location	Address	Details	
M	314m SE	MANCHESTER AIRPORT: SITE DRAINAGE, AND CONTAINMENT SYSTEM, OLYMPIC HOUSE, OFF THE DOMESTIC APPROACH ROAD, MANCHESTER, M90 1QX	Effluent Type: TRADE DISCHARGES - SITE DRAINAGE Permit Number: EPRCB3299EN Permit Version: 2 Receiving Water: RIVER BOLLIN & NEARBY TRIBS	Status: VARIED UNDER EPR 2010 Issue date: 15/02/2019 Effective Date: 15/02/2019 Revocation Date: -
M	314m SE	MANCHESTER AIRPORT: SITE DRAINAGE, AND CONTAINMENT SYSTEM, OLYMPIC HOUSE, OFF THE DOMESTIC APPROACH ROAD, MANCHESTER, M90 1QX	Effluent Type: TRADE DISCHARGES - SITE DRAINAGE Permit Number: EPRCB3299EN Permit Version: 2 Receiving Water: RIVER BOLLIN & NEARBY TRIBS	Status: VARIED UNDER EPR 2010 Issue date: 15/02/2019 Effective Date: 15/02/2019 Revocation Date: -
N	328m NE	MANCHESTER AIRPORT: SITE DRAINAGE, AND CONTAINMENT SYSTEM, OLYMPIC HOUSE, OFF THE DOMESTIC APPROACH ROAD, MANCHESTER, M90 1QX	Effluent Type: TRADE DISCHARGES - SITE DRAINAGE Permit Number: EPRCB3299EN Permit Version: 1 Receiving Water: RIVER BOLLIN & NEARBY TRIBS	Status: NEW ISSUED UNDER EPR 2010 Issue date: 30/10/2015 Effective Date: 16/11/2015 Revocation Date: 14/02/2019
N	328m NE	MANCHESTER AIRPORT: SITE DRAINAGE, AND CONTAINMENT SYSTEM, OLYMPIC HOUSE, OFF THE DOMESTIC APPROACH ROAD, MANCHESTER, M90 1QX	Effluent Type: TRADE DISCHARGES - SITE DRAINAGE Permit Number: EPRCB3299EN Permit Version: 2 Receiving Water: RIVER BOLLIN & NEARBY TRIBS	Status: VARIED UNDER EPR 2010 Issue date: 15/02/2019 Effective Date: 15/02/2019 Revocation Date: -
6	342m S	THE ROMPER PS, THE ROMPER PUBLIC HOUSE, WILMSLOW ROAD, ALTRINCHAM, GREATER MANCHESTER, WA15 8XJ	Effluent Type: SEWAGE & TRADE COMBINED - UNSPECIFIED Permit Number: 016993171 Permit Version: 1 Receiving Water: COTERILL CLOUGH	Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date: 20/03/1997 Effective Date: 20/03/1997 Revocation Date: -
O	355m NE	AIRCRAFT STANDS SWO, MANCHESTER AIRPORT PLC, RINGWAY	Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: 016991392 Permit Version: 1 Receiving Water: RIVER BOLLIN	Status: REVOKED - UNSPECIFIED Issue date: - Effective Date: 01/10/1994 Revocation Date: 31/10/1994
O	355m NE	AIRCRAFT STANDS SWO, MANCHESTER AIRPORT PLC, RINGWAY	Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: 016991392 Permit Version: 2 Receiving Water: RIVER BOLLIN	Status: REVOKED - UNSPECIFIED Issue date: - Effective Date: 01/11/1994 Revocation Date: 02/12/1994

ID	Location	Address	Details	
7	377m SE	MANCHESTER AIRPORT DOUBLEWOOD BROOK, DOUBLE WOOD BROOK OUTFALL, MANCHESTER AIRPORT, MANCHESTER, GREATER MANCHESTER, M90 1QX	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: 016990207 Permit Version: 1 Receiving Water: COTTERILL CLOUGH BROOK	Status: REVOKED - UNSPECIFIED Issue date: - Effective Date: 01/06/1980 Revocation Date: 26/04/1991

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	0

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

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.

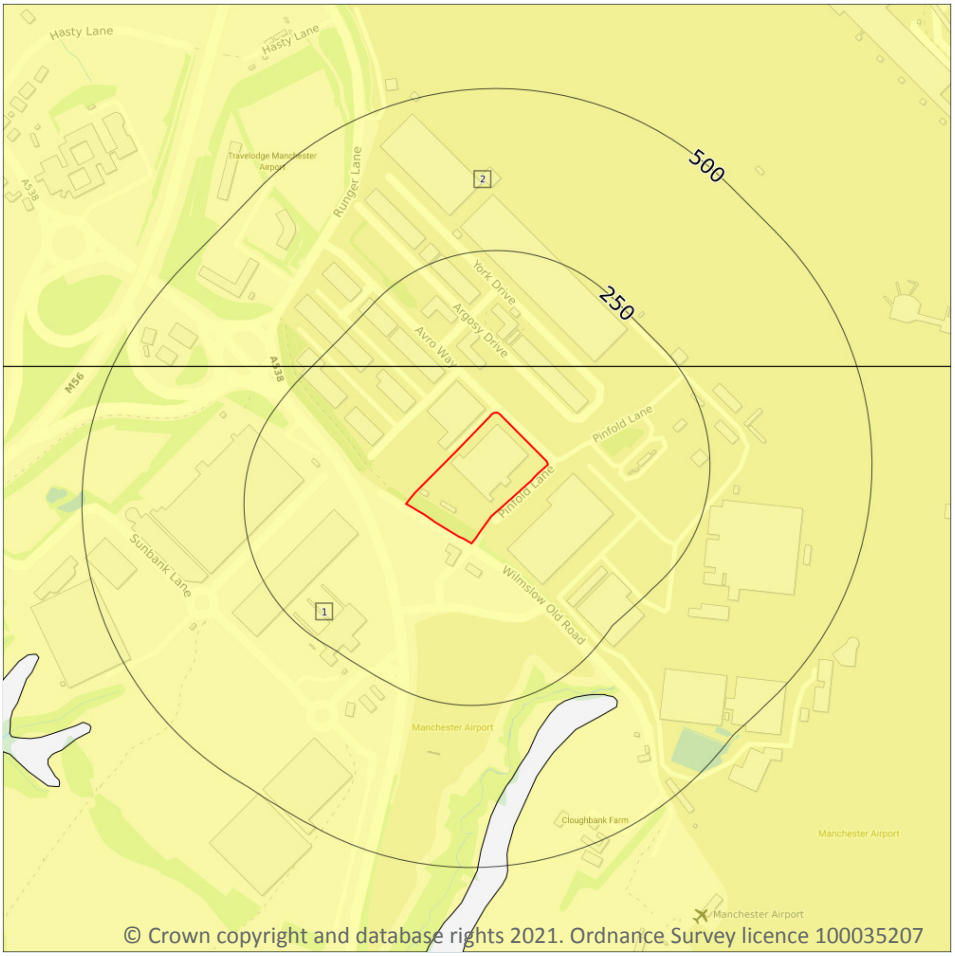
4.21 Pollution inventory radioactive waste

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



Site Outline

Search buffers in metres (m)

- Principal
- Secondary A
- Secondary B
- Secondary Undifferentiated
- Unproductive
- Unknown

5.1 Superficial aquifer

Records within 500m	2

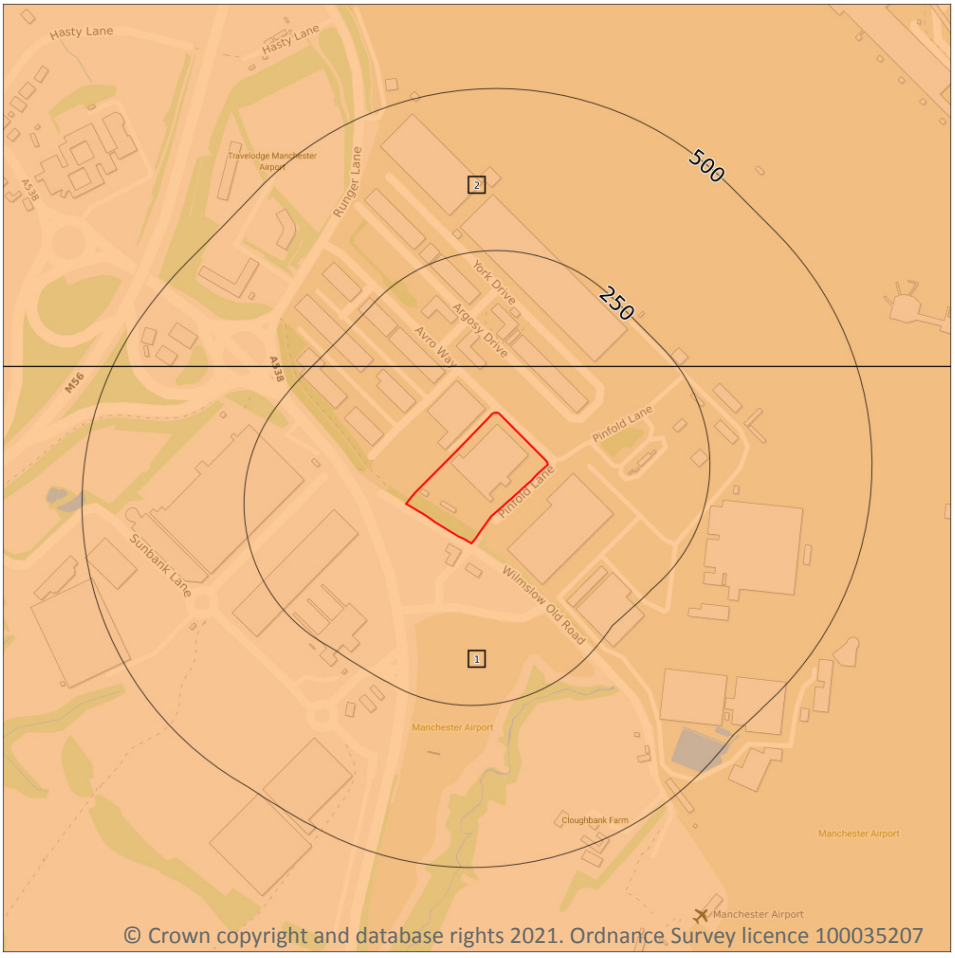
Aquifer status of groundwater held within superficial geology.

Features are displayed on the Hydrogeology map on **page 41**

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	71m N	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

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

Bedrock aquifer



Site Outline

Search buffers in metres (m)

- Principal
- Secondary A
- Secondary B
- Secondary Undifferentiated
- Unproductive

5.2 Bedrock aquifer

Records within 500m	2

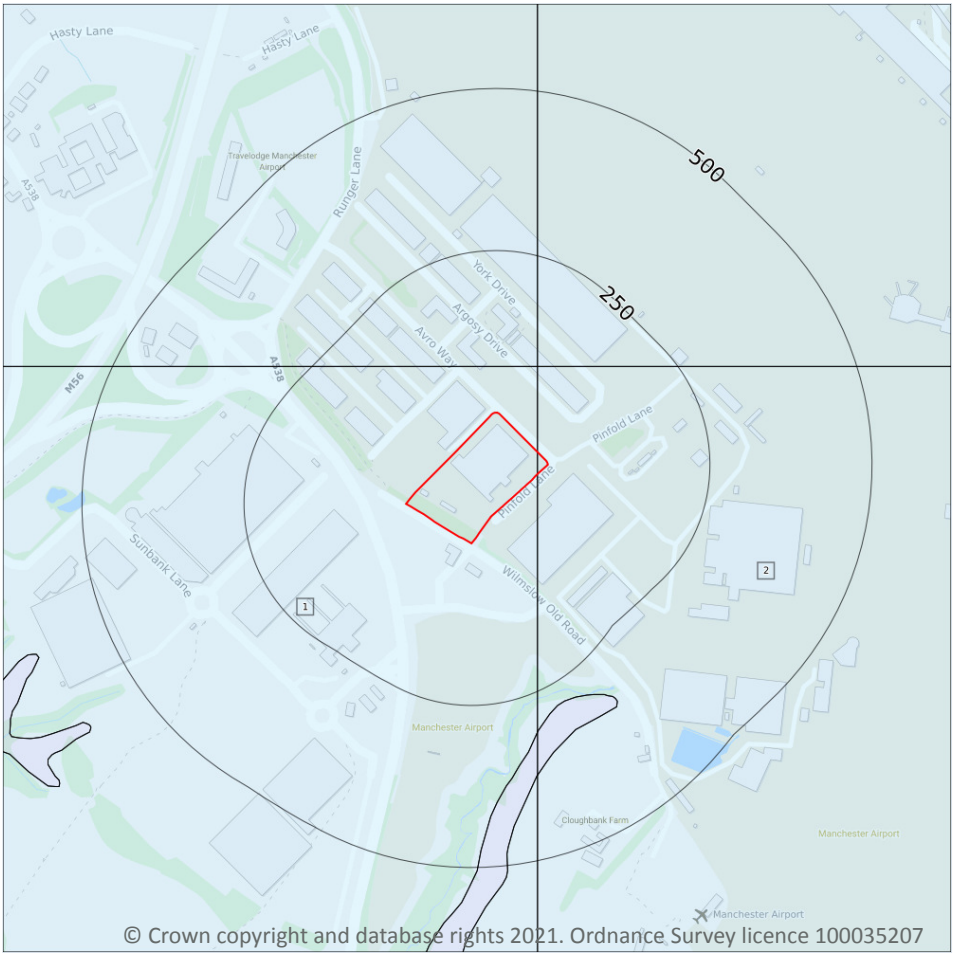
Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on **page 43**

ID	Location	Designation	Description
1	**On site**	**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**
2	71m N	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	2

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 45**

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: Secondary Flow mechanism: Well connected fractures
2	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: Secondary 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.

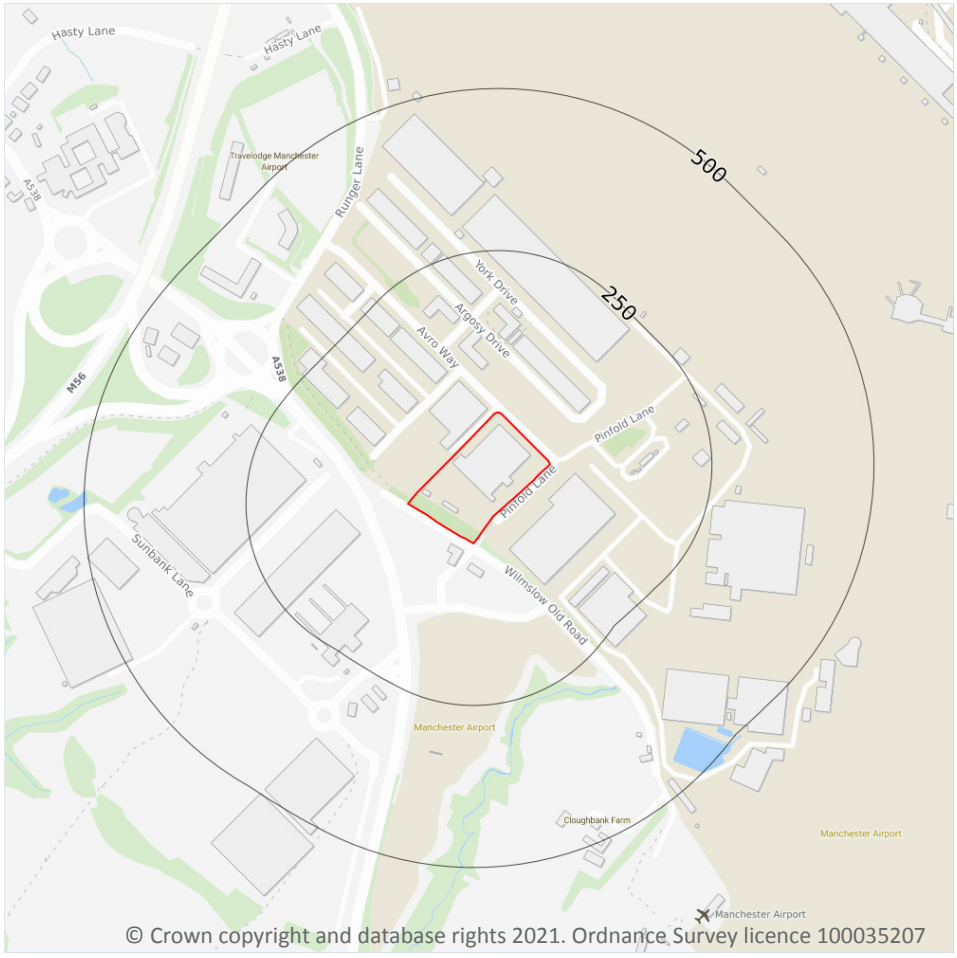
5.5 Groundwater vulnerability- local information

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



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	0

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.

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

5.7 Surface water abstractions

Records within 2000m	5

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.

Features are displayed on the Abstractions and Source Protection Zones map on **page 47**

ID	Location	Details	
-	1827m NW	Status: Historical Licence No: 2569017036/R1 Details: Spray Irrigation - Direct Direct Source: Surface, Non-Tidal - North West Region Point: UNDERGROUND STORAGE TANK FED BY LOCAL SURFACE DRAINAGE Data Type: Point Name: RINGWAY GOLF CLUB LIMITED Easting: 379536 Northing: 386114	Annual Volume (m^3): 5000 Max Daily Volume (m^3): 71.5 Original Application No: - Original Start Date: 28/04/2004 Expiry Date: 31/03/2018 Issue No: 1 Version Start Date: 28/04/2004 Version End Date: -
-	1827m NW	Status: Active Licence No: 2569017036/R02 Details: Spray Irrigation - Direct Direct Source: Surface, Non-Tidal - North West Region Point: UNDERGROUND STORAGE TANK FED BY LOCAL SURFACE DRAINAGE Data Type: Point Name: RINGWAY GOLF CLUB LIMITED Easting: 379536 Northing: 386114	Annual Volume (m^3): 5,000 Max Daily Volume (m^3): 60 Original Application No: - Original Start Date: 01/04/2018 Expiry Date: 31/03/2030 Issue No: 1 Version Start Date: 01/04/2018 Version End Date: -
-	1842m NW	Status: Historical Licence No: 2569017036 Details: Spray Irrigation - Direct Direct Source: Surface, Non-Tidal - North West Region Point: UNDERGROUND STORAGE TANK FED BY LOCAL SURFACE DRAINAGE Data Type: Point Name: THE SECRETARY Easting: 379500 Northing: 386100	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 13/07/1999 Expiry Date: 12/07/2004 Issue No: 1 Version Start Date: 13/07/1999 Version End Date: -

ID	Location	Details	
-	1842m NW	Status: Historical Licence No: 2569017036/R1 Details: Spray Irrigation - Direct Direct Source: Surface, Non-Tidal - North West Region Point: UNDERGROUND STORAGE TANK FED BY LOCAL SURFACE DRAINAGE Data Type: Point Name: RINGWAY GOLF CLUB LIMITED Easting: 379500 Northing: 386100	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 28/04/2004 Expiry Date: 31/03/2018 Issue No: 1 Version Start Date: 28/04/2004 Version End Date: -
-	1842m NW	Status: Historical Licence No: 2569017036/R1 Details: Spray Irrigation - Direct Direct Source: Surface, Non-Tidal - North West Region Point: UNDERGROUND STORAGE TANK FED BY LOCAL SURFACE DRAINAGE Data Type: Point Name: RINGWAY GOLF CLUB LIMITED Easting: 379500 Northing: 386100	Annual Volume (m^3): 5000 Max Daily Volume (m^3): 71.5 Original Application No: - Original Start Date: 28/04/2004 Expiry Date: 31/03/2018 Issue No: 1 Version Start Date: 28/04/2004 Version End Date: -

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

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	0

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

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m	0

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.

This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site	2

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 51**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
1	**On site**	**River WB catchment**	**Timperley Brook**	**GB112069061260**	**Bollin, Dean, Upper Mersey**	**Upper Mersey**
2	**On site**	**River WB catchment**	**Bollin (River Dean to Ashley Mill)**	**GB112069061381**	**Bollin, Dean, Upper Mersey**	**Upper Mersey**

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

6.4 WFD Surface water bodies

Records identified	2

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 51**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
3	259m S	River	Bollin (River Dean to Ashley Mill)	GB112069061381	Moderate	Good	Moderate	2016
-	2314m NW	River	Timperley Brook	GB112069061260	Moderate	Good	Moderate	2016

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

6.5 WFD Groundwater bodies

Records on site	2

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 51**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
A	**On site**	**Weaver and Dane Quaternary Sand and Gravel Aquifers**	**GB41202G991700**	**Poor**	**Poor**	**Good**	**2015**
A	**On site**	**Weaver and Dane Quaternary Sand and Gravel Aquifers**	**GB41202G991700**	**Poor**	**Poor**	**Good**	**2016**

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

7 River and coastal flooding

7.1 Risk of Flooding from Rivers and Sea (RoFRaS)

Records within 50m	0

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition; 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).

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

7.6 Flood Zone 2

Records within 50m	0

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.

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

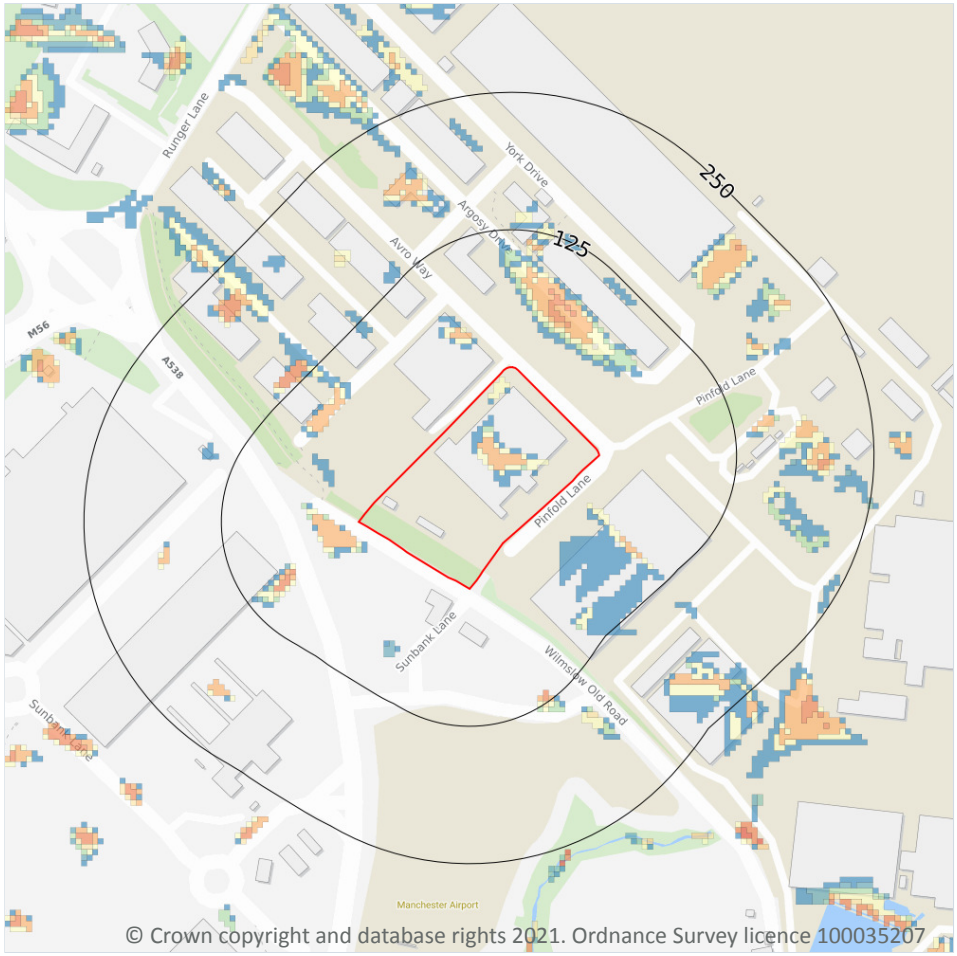
7.7 Flood Zone 3

Records within 50m	0

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.

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, 0.1m - 0.3m**

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 57**

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 0.3m and 1.0m
1 in 250 year	Between 0.3m and 1.0m
1 in 100 year	Between 0.3m and 1.0m
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	**Low**
Highest risk within 50m	**Low**

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 59**

This data is sourced from Ambiental Risk Analytics.

10 Environmental designations

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Site Outline

Search buffers in metres (m)

Sites of Special Scientific Interest (SSSI)

Designated Ancient Woodland

Green Belt

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m	2

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.

Features are displayed on the Environmental designations map on **page 60**

ID	Location	Name	Data source
A	345m S	Cotteril Clough	Natural England

ID	Location	Name	Data source
B	720m S	Cotteril Clough	Natural England

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	10

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.

Features are displayed on the Environmental designations map on **page 60**

ID	Location	Name	Woodland Type
A	210m SE	Cotterill Clough	Ancient & Semi-Natural Woodland
2	519m SW	Sunbank Wood	Ancient & Semi-Natural Woodland
B	720m S	Cotterill Clough	Ancient & Semi-Natural Woodland
4	1093m SW	Bollin Bank	Ancient & Semi-Natural Woodland
5	1112m N	Davenport Green Wood	Ancient & Semi-Natural Woodland
-	1259m W	Hennersley Bank	Ancient & Semi-Natural Woodland
8	1512m SE	Oversley Farm Wood	Ancient & Semi-Natural Woodland
-	1513m W	Warburton Wood	Ancient & Semi-Natural Woodland
-	1877m SW	Unknown	Ancient Replanted Woodland
-	1889m S	Unknown	Ancient & Semi-Natural Woodland

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	3

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

Features are displayed on the Environmental designations map on **page 60**

ID	Location	Name	Local Authority name
1	344m S	Merseyside and Greater Manchester	Manchester
3	542m NW	Merseyside and Greater Manchester	Trafford
6	1224m SW	Merseyside and Greater Manchester	Cheshire East

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.

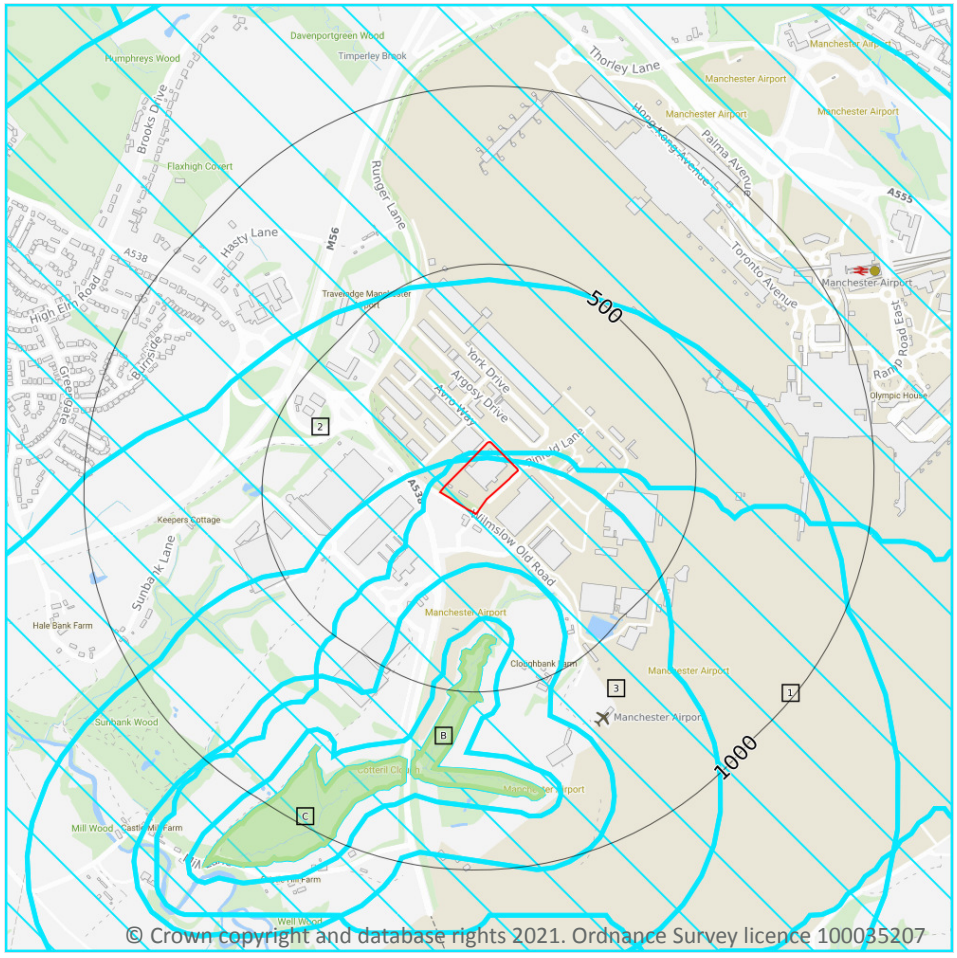
10.16 Nitrate Vulnerable Zones

Records within 2000m	0

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.

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

SSSI Impact Zones and Units



Site Outline

Search buffers in metres (m)

SSSI Impact Risk Zones

SSSI Units

- Not recorded
- Favourable
- Unfavourable - Recovering
- Unfavourable - No change
- Unfavourable - Declining
- Partially destroyed
- Destroyed

10.17 SSSI Impact Risk Zones

Records on site	3

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 66**

ID	Location	Type of developments requiring consultation
1	On site	**Infrastructure - Pipelines, pylons and overhead cables. Any transport proposal including road, rail and by water (excluding routine maintenance). Airports, helipads and other aviation proposals Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction. Rural non-residential - Large non residential developments outside existing settlements/urban areas where net additional gross internal floorspace is > 1,000m² or footprint exceeds 0.2ha Residential - Residential development of 100 units or more. Rural residential - Any residential development of 50 or more houses outside existing settlements/urban areas. Air pollution - Any industrial/agricultural development that could cause AIR POLLUTION (incl: industrial processes, livestock & poultry units with floorspace > 500m², slurry lagoons > 200m² & manure stores > 250t). Combustion - General combustion processes >20MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion Waste - Landfill. Incl: inert landfill, non-hazardous landfill, hazardous landfill. Composting - Any composting proposal with more than 500 tonnes maximum annual operational throughput. Incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management. Discharges - Any discharge of water or liquid waste of more than 2m³/day to ground (ie to seep away) or to surface water, such as a beck or stream (NB This does not include discharges to mains sewer which are unlikely to pose a risk at this location). Water supply - Large infrastructure such as warehousing / industry where net additional gross internal floorspace is > 1,000m² or any development needing its own water supply**
2	On site	**Infrastructure - Pipelines, pylons and overhead cables. Any transport proposal including road, rail and by water (excluding routine maintenance). Airports, helipads and other aviation proposals Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction. Residential - Residential development of 100 units or more. Rural residential - Any residential development of 50 or more houses outside existing settlements/urban areas. Air pollution - Any industrial/agricultural development that could cause AIR POLLUTION (incl: industrial processes, livestock & poultry units with floorspace > 500m², slurry lagoons > 200m² & manure stores > 250t). Combustion - General combustion processes >20MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion Waste - Landfill. Incl: inert landfill, non-hazardous landfill, hazardous landfill. Composting - Any composting proposal with more than 500 tonnes maximum annual operational throughput. Incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management. Water supply - Large infrastructure such as warehousing / industry where net additional gross internal floorspace is > 1,000m² or any development needing its own water supply**

ID	Location	Type of developments requiring consultation
3	**On site**	**Infrastructure - Pipelines, pylons and overhead cables. Any transport proposal including road, rail and by water (excluding routine maintenance). Airports, helipads and other aviation proposals** **Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction.** **Rural non-residential - Large non residential developments outside existing settlements/urban areas where net additional gross internal floorspace is > 1,000m² or footprint exceeds 0.2ha** **Residential - Residential development of 100 units or more.** **Rural residential - Any residential development of 50 or more houses outside existing settlements/urban areas.** **Air pollution - Any development that could cause AIR POLLUTION (incl: industrial/commercial processes, livestock & poultry units, slurry lagoons/manure stores).** **Combustion - All general combustion processes. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion.** **Waste - Mechanical and biological waste treatment, inert landfill, non-hazardous landfill, hazardous landfill, household civic amenity recycling facilities construction, demolition and excavation waste, other waste management** **Composting - Any composting proposal. Incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management.** **Discharges - Any discharge of water or liquid waste that is discharged to ground (ie to seep away) or to surface water, such as a beck or stream (NB this does not include discharges to mains sewer which are unlikely to pose a risk at this location).** **Water supply - Large infrastructure such as warehousing / industry where net additional gross internal floorspace is > 1,000m² or any development needing its own water supply**

This data is sourced from Natural England.

10.18 SSSI Units

Records within 2000m	**2**

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.

Features are displayed on the SSSI Impact Zones and Units map on **page 66**

ID:	B
Location:	345m S
SSSI name:	Cotteril Clough
Unit name:	Eastern Woodland
Broad habitat:	Broadleaved, Mixed And Yew Woodland - Lowland
Condition:	Favourable
Reportable features:	

Feature name	Feature condition	Date of assessment
Lowland mixed deciduous woodland	Favourable	13/06/2013
Wet woodland	Favourable	13/06/2013

ID: C
Location: 720m S
SSSI name: Cotteril Clough
Unit name: Western Woodland
Broad habitat: Broadleaved, Mixed And Yew Woodland - Lowland
Condition: Favourable
Reportable features:

Feature name	Feature condition	Date of assessment
Lowland mixed deciduous woodland	Favourable	30/05/2014
Wet woodland	Favourable	30/05/2014

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

11 Visual and cultural designations

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	0

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.

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.

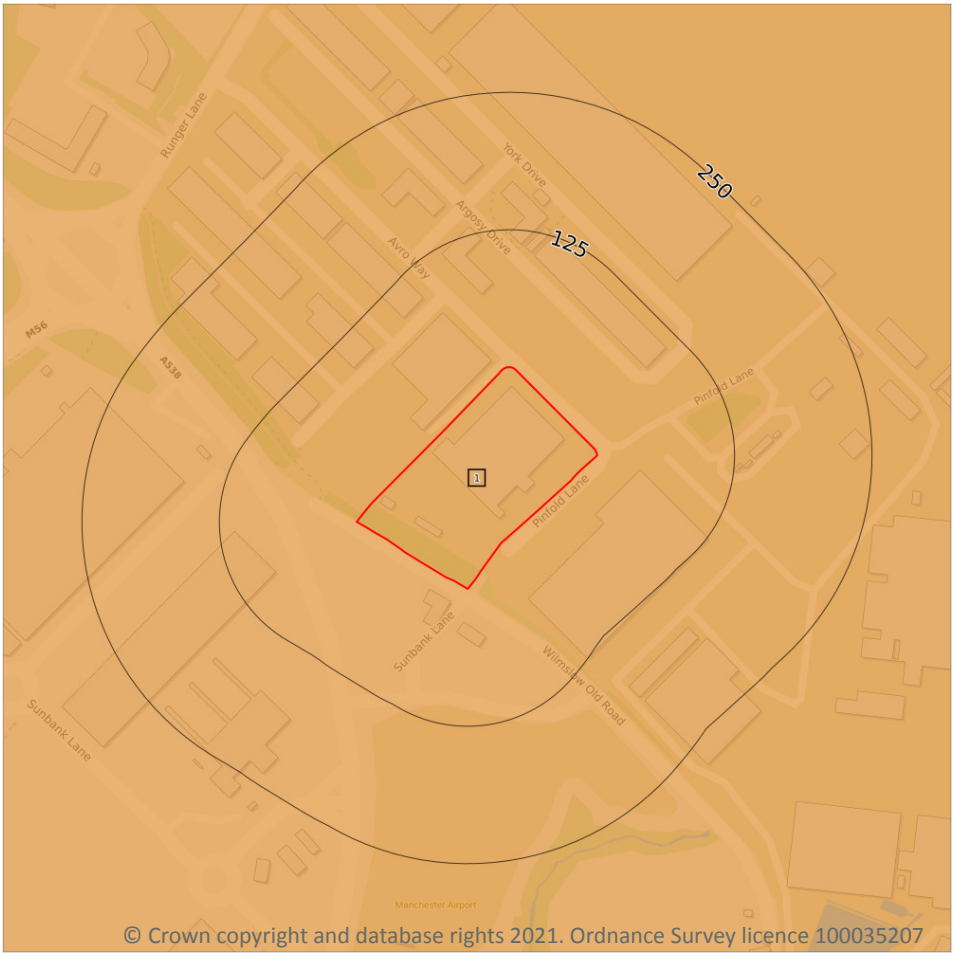
11.7 Registered Parks and Gardens

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 72**

ID	Location	Classification	Description
1	On site	Grade 3	Good to moderate quality agricultural land. Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2.

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

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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	9

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 74**

ID	Location	Main Habitat	Other habitats
1	**On site**	**Deciduous woodland**	**Main habitat: DWOOD (INV > 50%)**
A	**On site**	**Deciduous woodland**	**Main habitat: DWOOD (INV > 50%)**
A	**On site**	**Deciduous woodland**	**Main habitat: DWOOD (INV > 50%)**
2	37m NW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)

ID	Location	Main Habitat	Other habitats
B	40m NW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
B	41m NW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
C	77m NW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
C	80m NW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
3	210m SE	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.

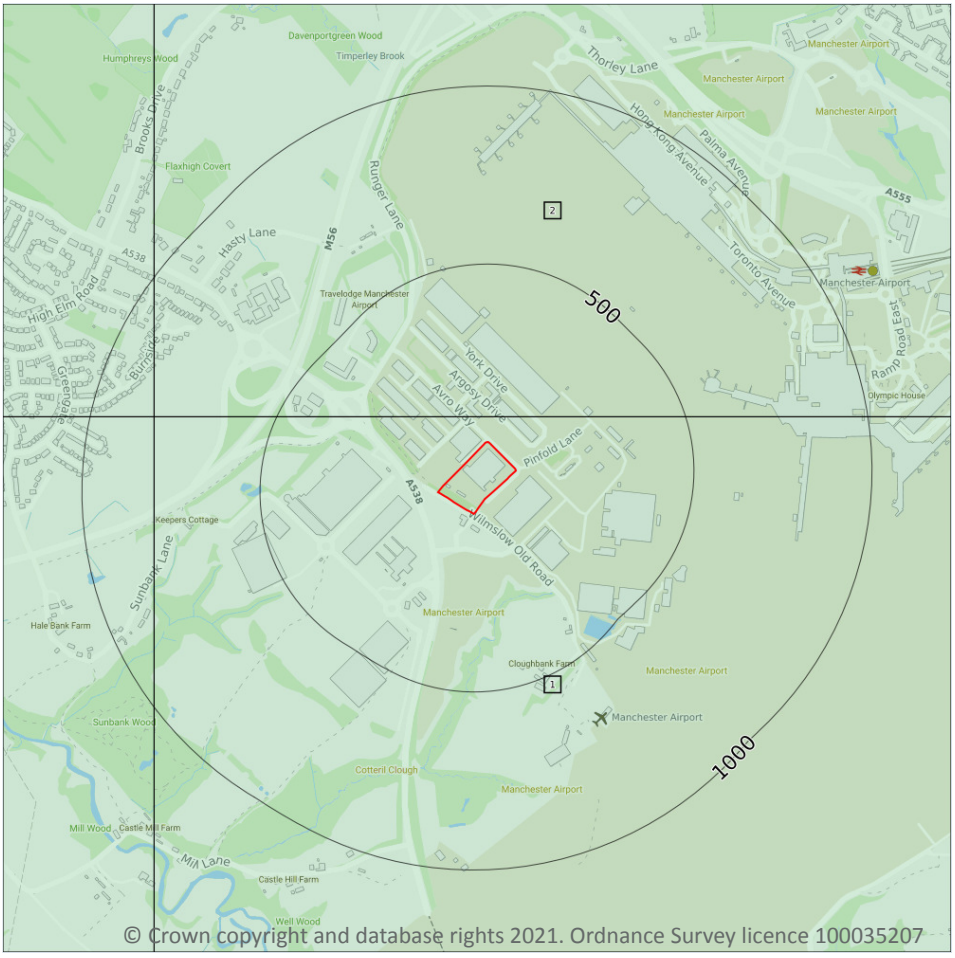
13.4 Limestone Pavement Orders

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 76**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**No coverage**	**Full**	**Full**	**No coverage**	**SJ88SW**
2	71m N	No coverage	Full	Full	No coverage	SJ88NW

This data is sourced from the British Geological Survey.

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

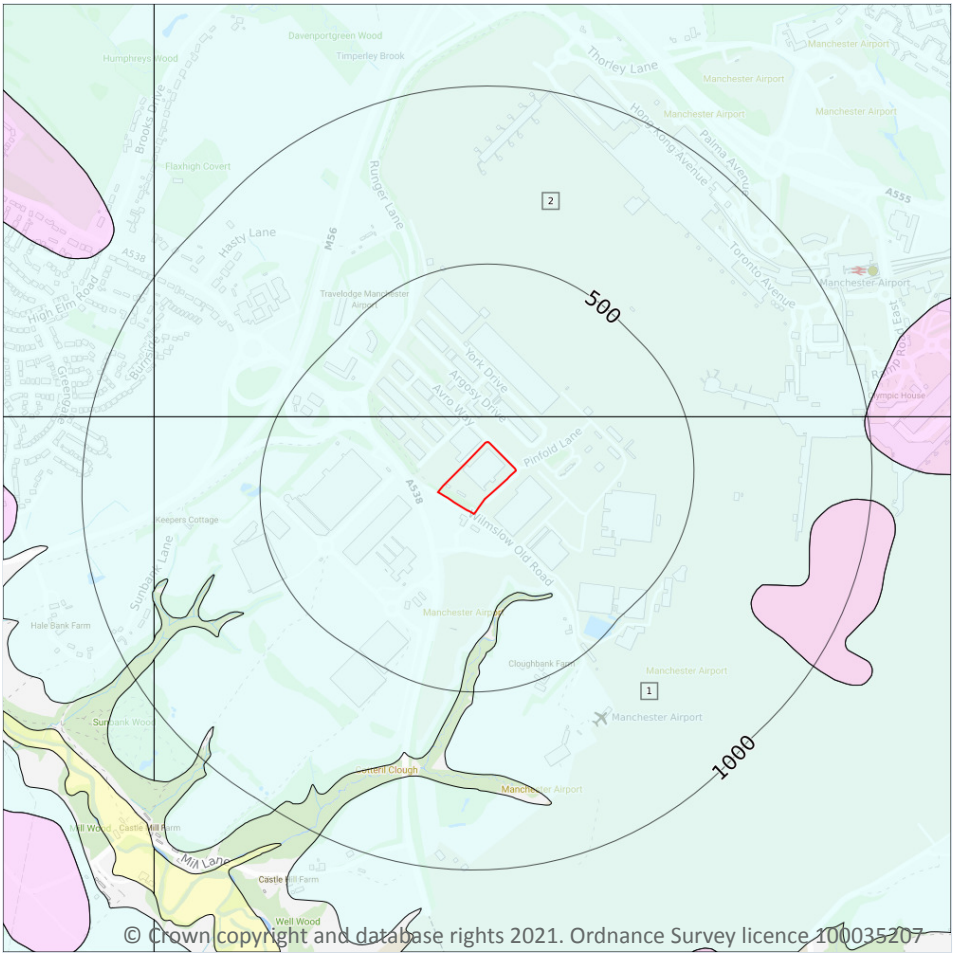
14.2 Artificial and made ground (10k)

Records within 500m	0

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.

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Superficial



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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 **2**

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 78**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**TILLD-DMTN**	**Till, Devensian - Diamicton**	**Diamicton**
2	71m N	TILLD-DMTN	Till, Devensian - Diamicton	Diamicton

This data is sourced from the British Geological Survey.

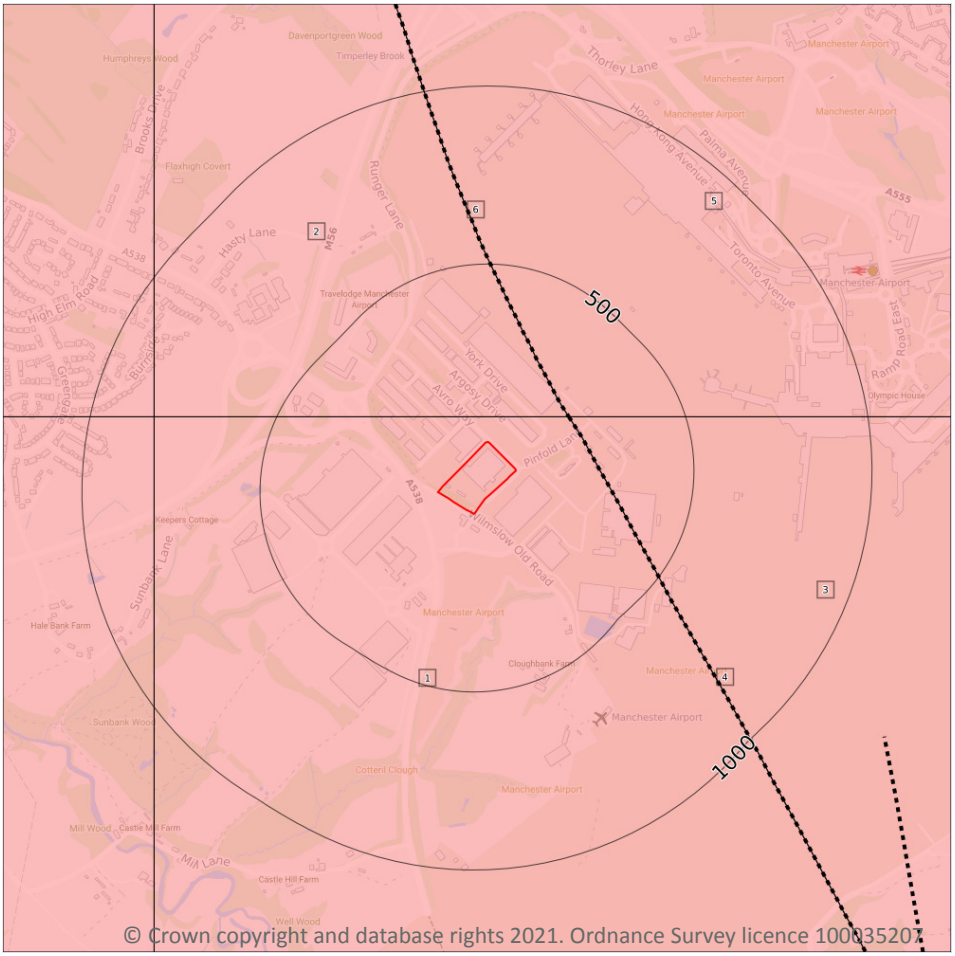
14.4 Landslip (10k)

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



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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 **4**

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 80**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**BOM-MDST**	**Bollin Mudstone Member - Mudstone**	**Anisian Age**
2	71m N	BOM-MDST	Bollin Mudstone Member - Mudstone	Anisian Age
3	206m NE	BOM-MDST	Bollin Mudstone Member - Mudstone	Anisian Age
5	210m NE	BOM-MDST	Bollin Mudstone Member - Mudstone	Anisian Age

This data is sourced from the British Geological Survey.

14.6 Bedrock faults and other linear features (10k)

Records within 500m	**2**

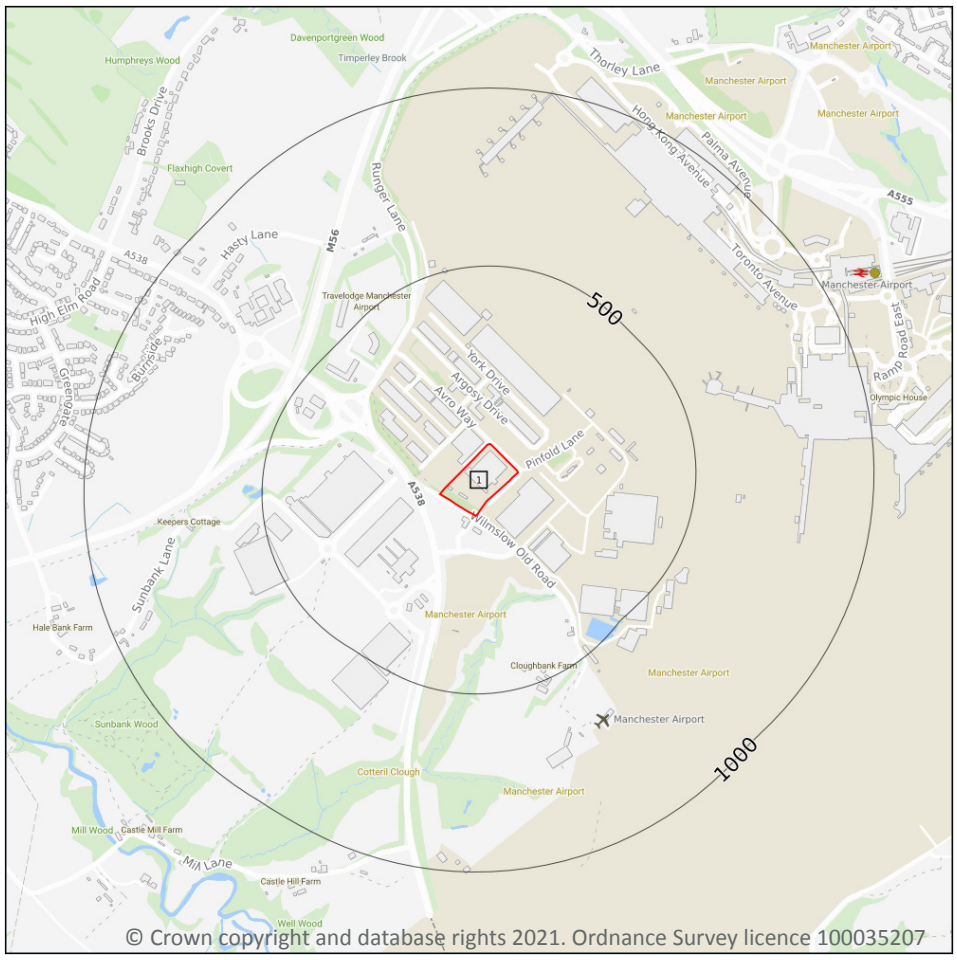
Linear features at the ground or bedrock surface at 1:10,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 80**

ID	Location	Category	Description
4	206m NE	FAULT	Normal fault, inferred; crossmarks on downthrow side
6	210m NE	FAULT	Normal fault, inferred; crossmarks on downthrow side

This data is sourced from the British Geological Survey.

15 Geology 1:50,000 scale - Availability



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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 82**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**No coverage**	**Full**	**Full**	**Full**	**EW098_stockport_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	0

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.

This data is sourced from the British Geological Survey.

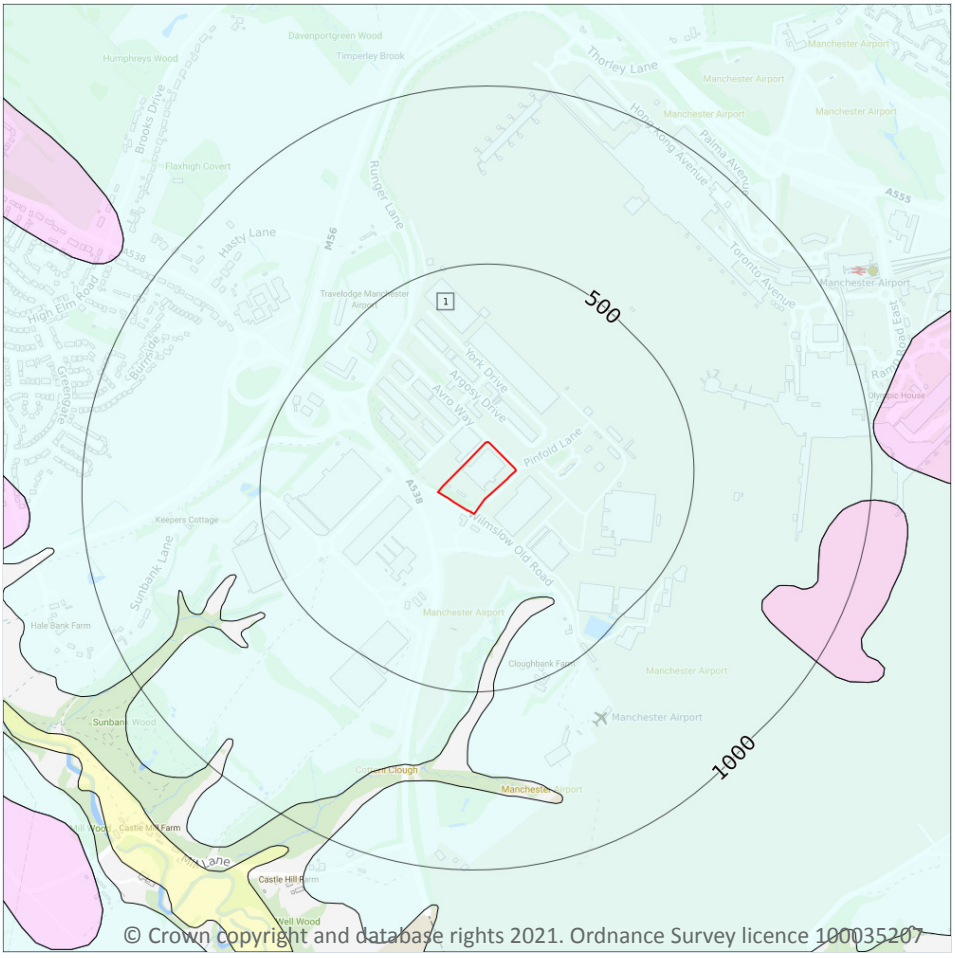
15.3 Artificial ground permeability (50k)

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 artificial 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 - Superficial



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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 **1**

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 84**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**TILLD-DMTN**	**TILL, DEVENSIAN**	**DIAMICTON**

This data is sourced from the British Geological Survey.

15.5 Superficial 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 superficial deposits (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	**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.

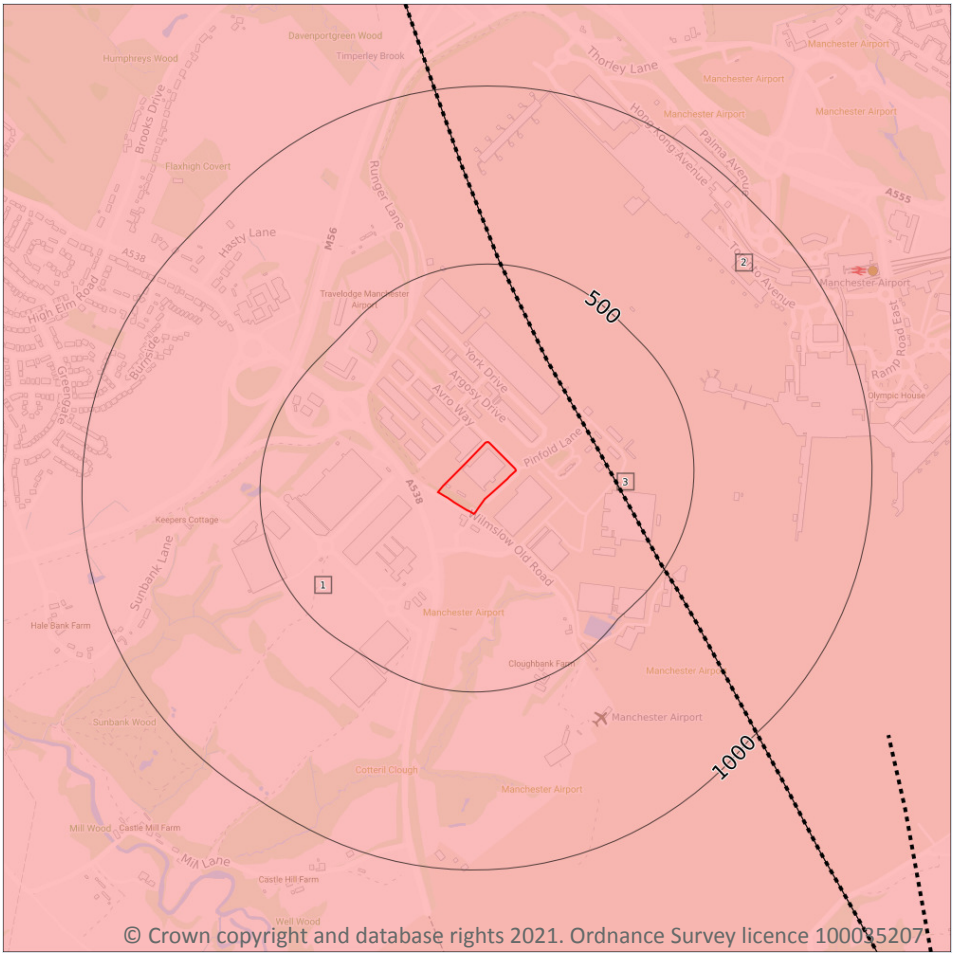
15.7 Landslip permeability (50k)

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 **2**

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 86**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**BOM-MDST**	**BOLLIN MUDSTONE MEMBER - MUDSTONE**	**ANISIAN**
2	229m NE	BOM-MDST	BOLLIN MUDSTONE MEMBER - MUDSTONE	ANISIAN

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	**Fracture**	**Low**	**Low**

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m	1

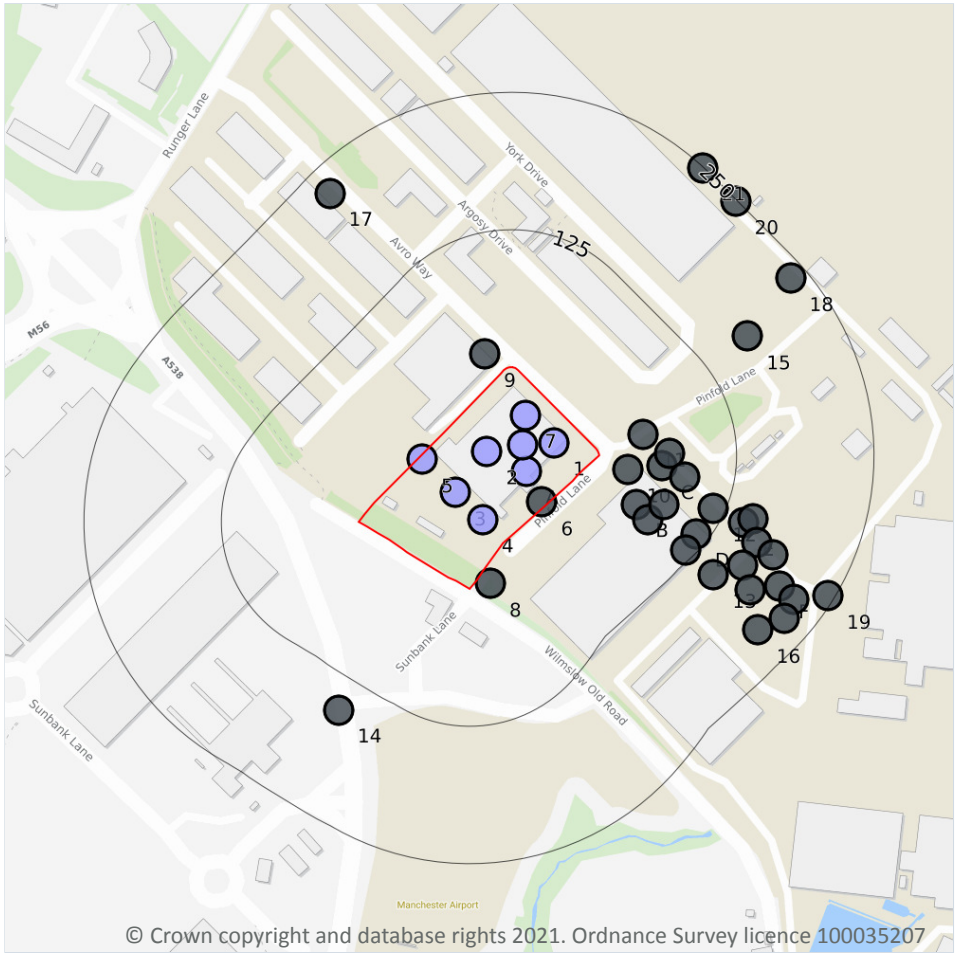
Linear features at the ground or bedrock surface at 1:50,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 86**

ID	Location	Category	Description
3	229m NE	FAULT	Fault, inferred

This data is sourced from the British Geological Survey.

16 Boreholes



Site Outline

Search buffers in metres (m)

Confidential

0 - 10m

10 - 30m

30m+

Unknown

16.1 BGS Boreholes

Records within 250m	40

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 88**

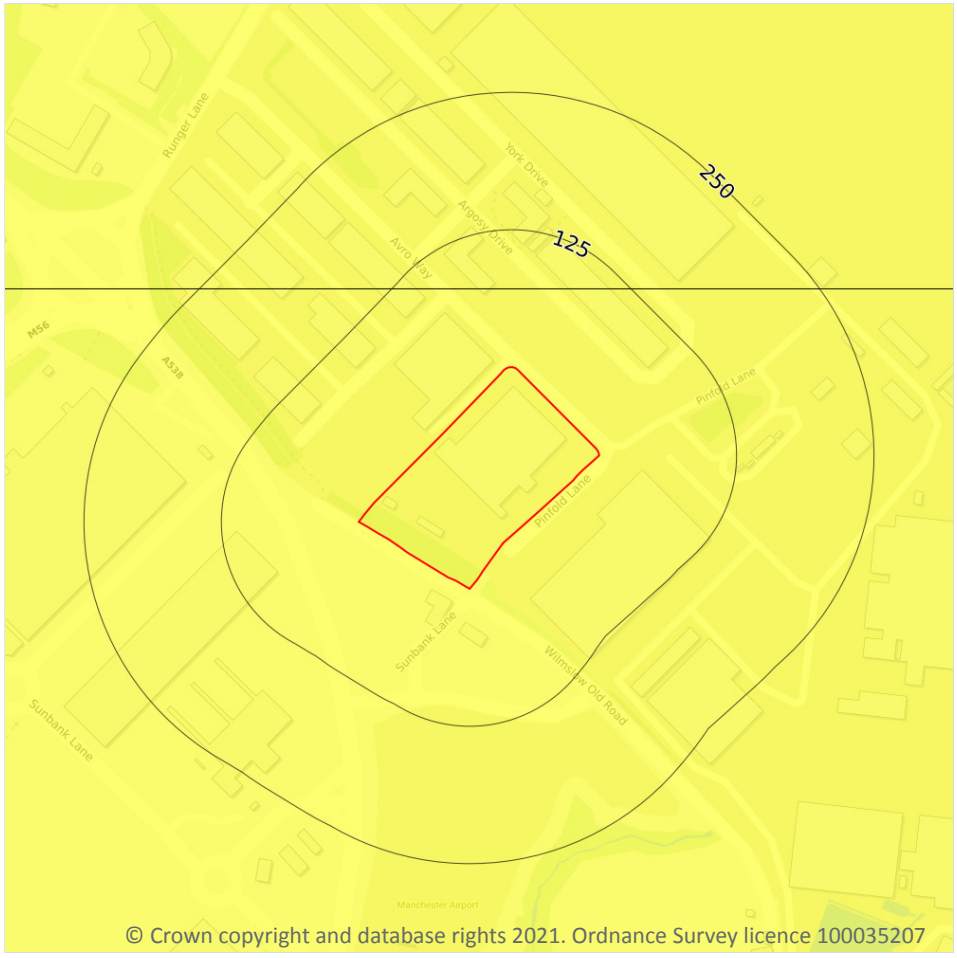
ID	Location	Grid reference	Name	Length	Confidential	Web link
1	On site	380975 384860	MARRIOTT IN-FLITE SERVICES LTD, MANCHESTER AIRPORT 4	4.0	N	17877423
2	On site	380914 384852	MARRIOTT IN-FLITE SERVICES LTD, MANCHESTER AIRPORT 1	4.0	N	17877420

ID	Location	Grid reference	Name	Length	Confidential	Web link
3	**On site**	**380885 384815**	**CATERAIR INTERNATIONAL, MANCHESTER AIRPORT BH7.**	**4.0**	**N**	**18525494**
4	**On site**	**380910 384790**	**CATERAIR INTERNATIONAL, MANCHESTER AIRPORT BH8.**	**4.0**	**N**	**18525495**
5	**On site**	**380855 384845**	**CATERAIR INTERNATIONAL, MANCHESTER AIRPORT BH6.**	**4.0**	**N**	**18525493**
6	**On site**	**380964 384806**	**SURFACE WTR OUTFALL R BOLLIN**	**-**	**Y**	**N/A**
7	**On site**	**380949 384885**	**MARRIOTT IN-FLITE SERVICES LTD, MANCHESTER AIRPORT 2**	**4.0**	**N**	**17877421**
A	**On site**	**380950 384834**	**MARRIOTT IN-FLITE SERVICES LTD, MANCHESTER AIRPORT 3**	**4.0**	**N**	**17877422**
A	**On site**	**380946 384858**	**MARRIOTT IN-FLITE SERVICES LTD, MANCHESTER AIRPORT 5**	**4.5**	**N**	**17877424**
8	12m SE	380917 384732	SURFACE WTR OUTFALL R BOLLIN	-	Y	N/A
9	23m NW	380912 384941	CARGO PHASE 4 DEVELOPMENT 1	-	Y	N/A
10	29m SE	381042 384836	MTMF RINGWAY 1	-	Y	N/A
11	44m E	381056 384868	SURFACE WTR OUTFALL R BOLLIN	-	Y	N/A
B	56m SE	381050 384804	MTMF RINGWAY TP 2	-	Y	N/A
C	58m E	381073 384839	MTMF RINGWAY TP 1	-	Y	N/A
C	64m E	381080 384850	HANGAR 5 MANCHESTER AIRPORT H5WS1	-	Y	N/A
B	73m SE	381060 384790	HANGAR 5 MANCHESTER AIRPORT H5WS2	-	Y	N/A
B	74m SE	381075 384804	MTMF RINGWAY TP 3	-	Y	N/A
C	80m E	381094 384829	MTMF RINGWAY 2	-	Y	N/A
D	113m SE	381104 384777	MTMF RINGWAY TP 4	-	Y	N/A
12	115m SE	381120 384800	HANGAR 5 MANCHESTER AIRPORT H5WS3	-	Y	N/A
D	117m SE	381095 384762	MTMF RINGWAY 3	-	Y	N/A
E	145m SE	381147 384787	MTMF RINGWAY TP 5	-	Y	N/A
13	150m SE	381120 384740	HANGAR 5 MANCHESTER AIRPORT H5WS4	-	Y	N/A
E	151m E	381156 384791	SURFACE WTR OUTFALL R BOLLIN	-	Y	N/A
14	155m SW	380779 384617	SURFACE WTR OUTFALL R BOLLIN	-	Y	N/A
E	164m SE	381159 384769	MTMF RINGWAY 4	-	Y	N/A

ID	Location	Grid reference	Name	Length	Confidential	Web link
E	164m SE	381146 384749	MTMF RINGWAY TP 7	-	Y	N/A
15	172m NE	381151 384957	SURFACE WTR OUTFALL R BOLLIN	-	Y	N/A
E	182m SE	381174 384758	MTMF RINGWAY TP 6	-	Y	N/A
E	184m SE	381153 384726	MTMF RINGWAY TP 8	-	Y	N/A
F	202m SE	381180 384730	HANGAR 5 MANCHESTER AIRPORT H5WS5	-	Y	N/A
16	214m SE	381160 384690	HANGAR 5 MANCHESTER AIRPORT H5WS6	-	Y	N/A
F	220m SE	381193 384718	MTMF RINGWAY TP 9	-	Y	N/A
F	224m SE	381184 384700	MTMF RINGWAY 5	-	Y	N/A
17	226m NW	380771 385087	CARGO PHASE 4 DEVELOPMENT 2	-	Y	N/A
18	235m NE	381190 385010	AIRCRAFT WASTE DISPOSAL 1	-	Y	N/A
19	244m SE	381224 384721	SURFACE WTR OUTFALL R BOLLIN	-	Y	N/A
20	249m NE	381140 385080	INTERNATIONAL APRON EXTENSION PHASE II TP3	-	Y	N/A
21	249m NE	381110 385110	INTERNATIONAL APRON EXTENSION PHASE II TP2	-	Y	N/A

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	1

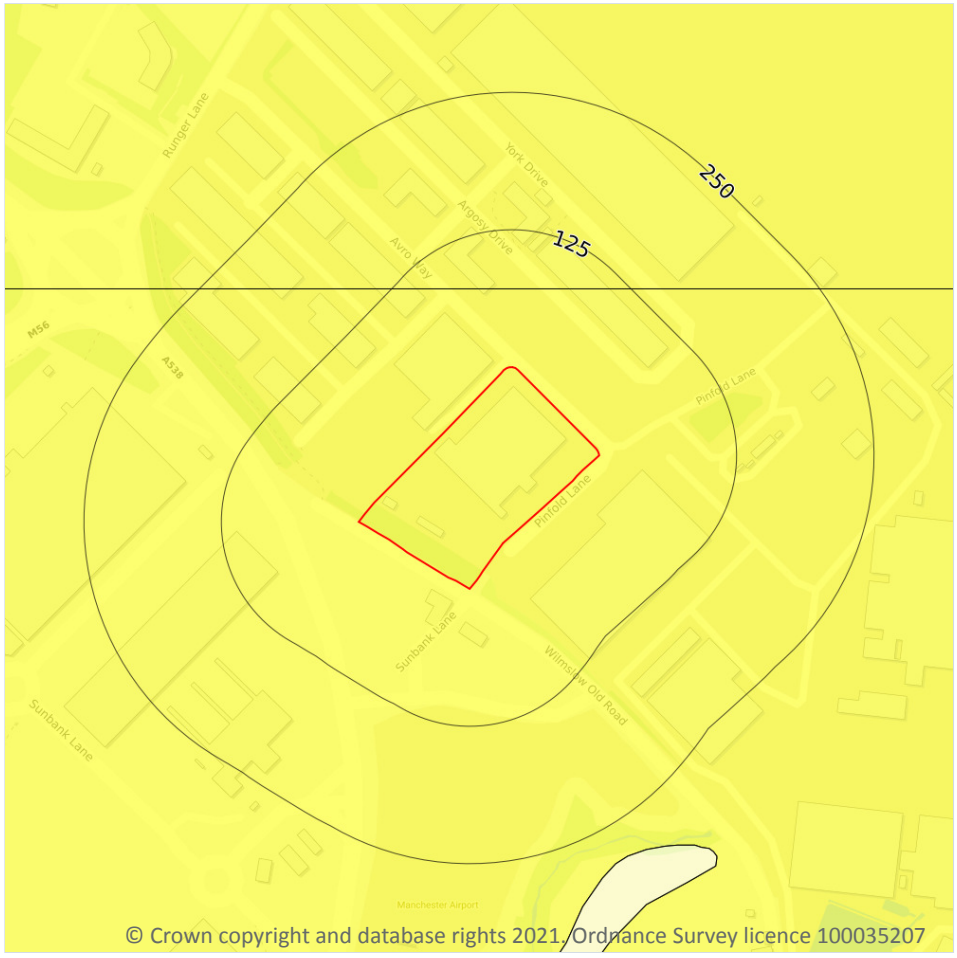
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and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

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 91**

Location	Hazard rating	Details
On site	**Very low**	**Ground conditions predominantly low plasticity.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Running sands



Site Outline

Search buffers in metres (m)

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

17.2 Running sands

Records within 50m	1

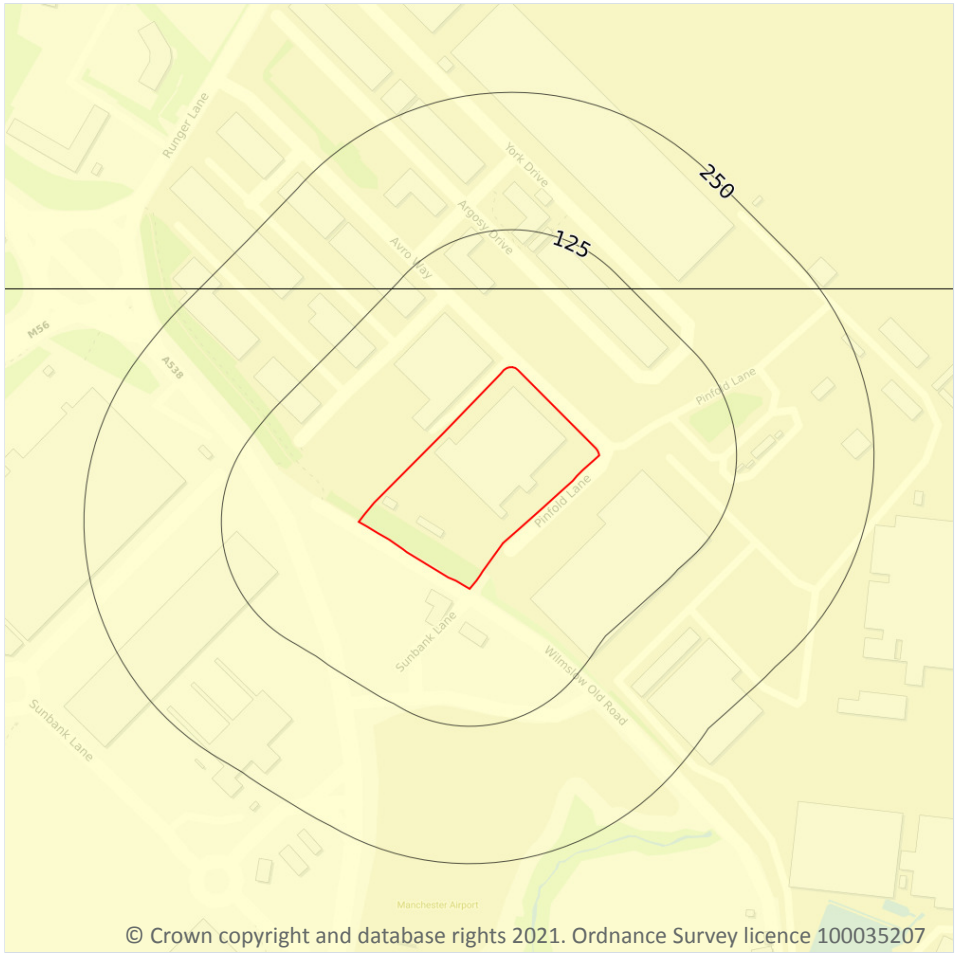
The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

Features are displayed on the Natural ground subsidence - Running sands map on **page 92**

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.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Compressible deposits



Site Outline

Search buffers in metres (m)

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

17.3 Compressible deposits

Records within 50m	1

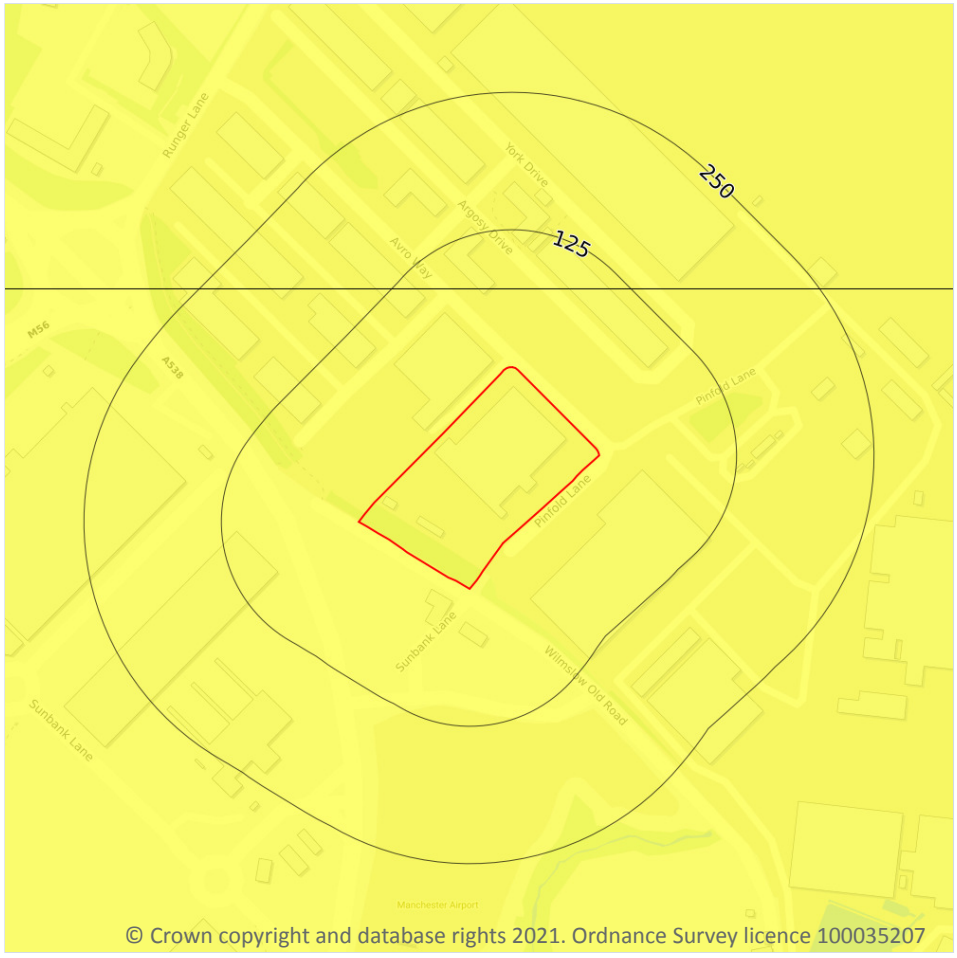
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 93**

Location	Hazard rating	Details
On site	**Negligible**	**Compressible strata are not thought to occur.**

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	1

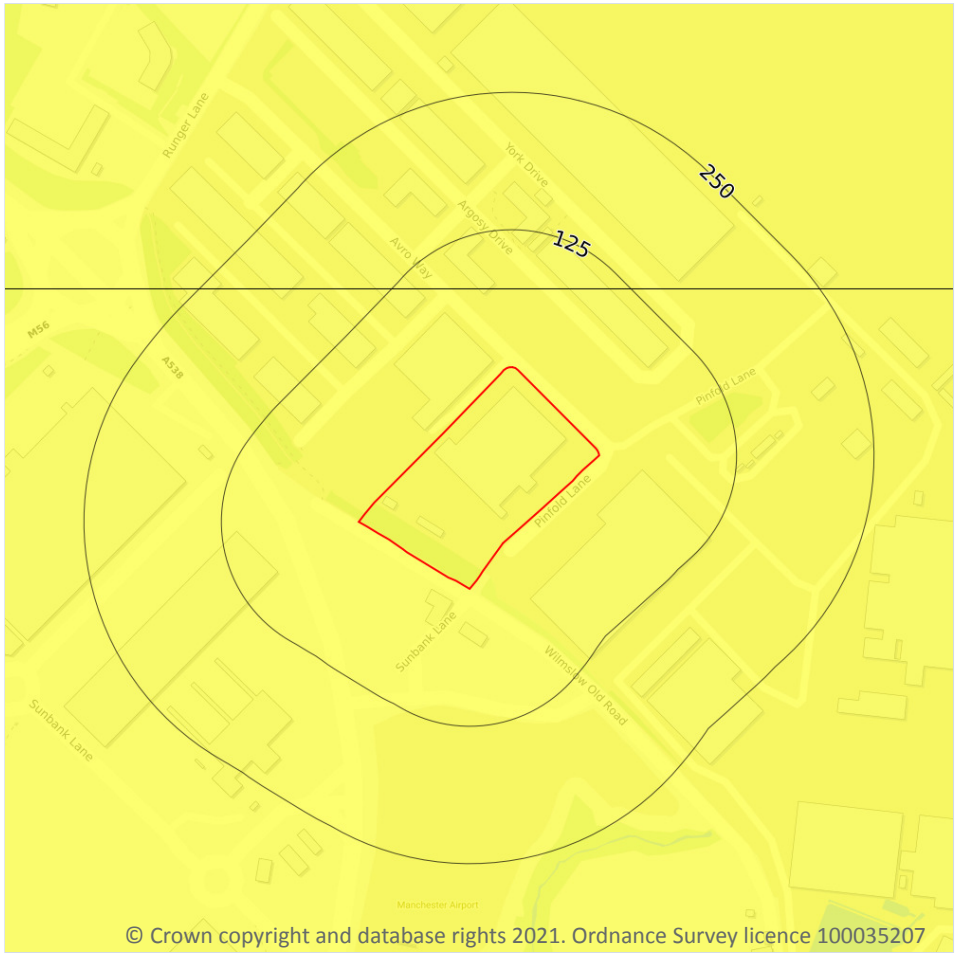
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 94**

Location	Hazard rating	Details
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



Site Outline

Search buffers in metres (m)

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

17.5 Landslides

Records within 50m	1

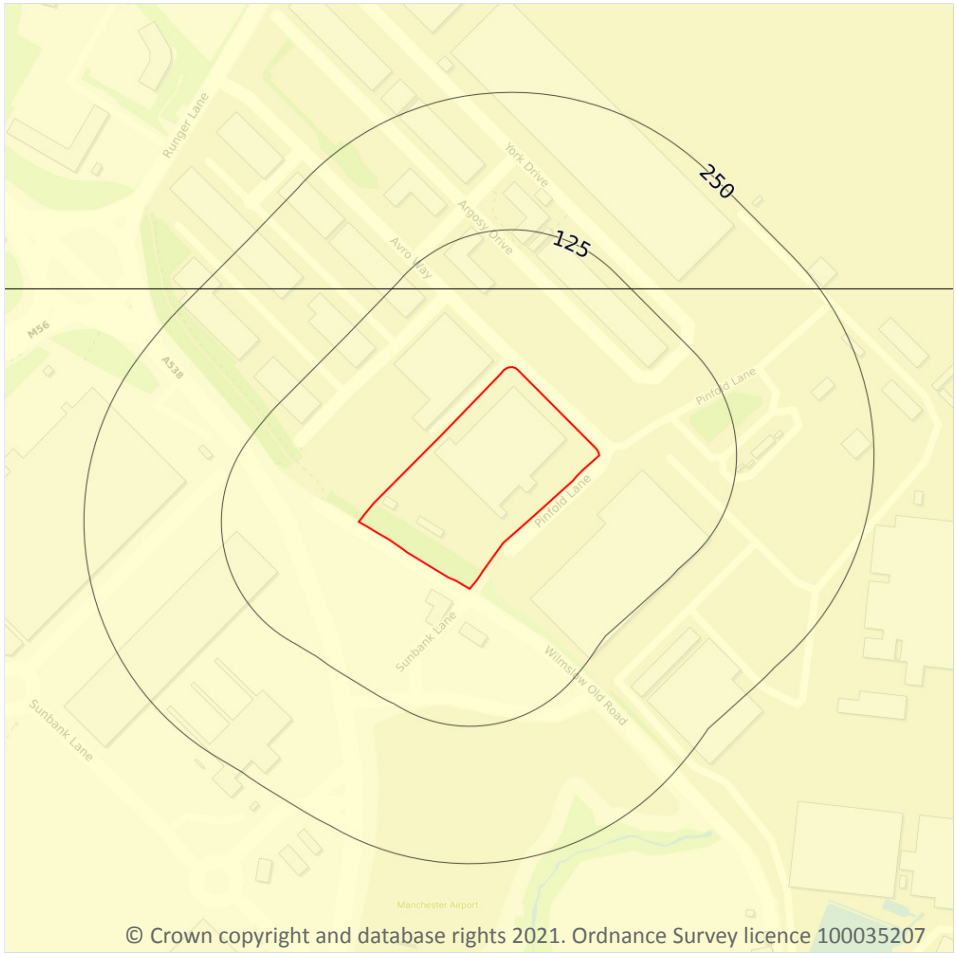
The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

Features are displayed on the Natural ground subsidence - Landslides map on **page 95**

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



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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

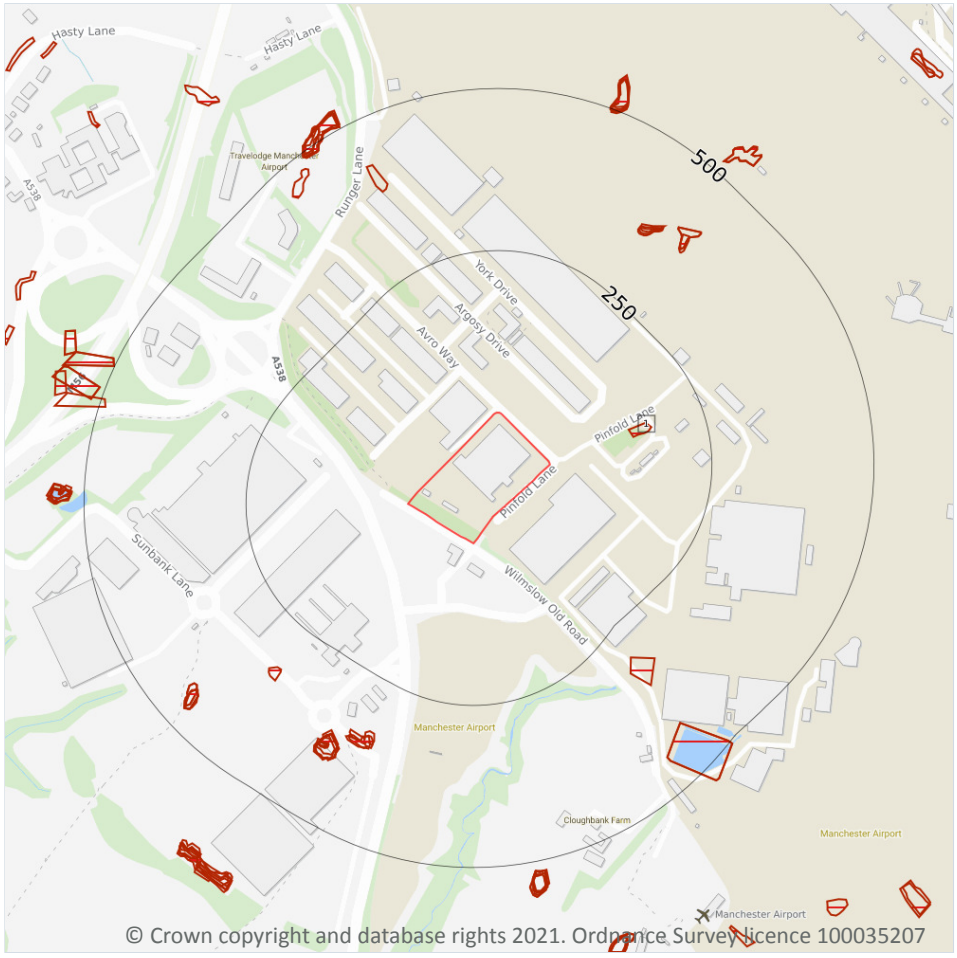
The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 96**

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, ground workings and natural cavities



Site Outline

Search buffers in metres (m)

- Natural cavities (Area)
- Natural cavities (Point)
- BritPits
- Surface ground workings
- Underground workings
- Historical Mineral Planning Areas
- Mining Cavities

Non Coal Mining

- Sporadic underground mining of restricted extent possible
- Localised small scale underground mining possible
- Small scale mining possible
- Underground mining known or likely within or in close proximity
- Underground mining known within or in very close proximity

18.1 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.

18.2 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.

18.3 Surface ground workings

Records within 250m	1

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, ground workings and natural cavities map on **page 97**

ID	Location	Land Use	Year of mapping	Mapping scale
1	133m NE	Pond	1974	1:10000

This is data is sourced from Ordnance Survey/Groundsure.

18.4 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.

18.5 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	0

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).

This data is sourced from the British Geological Survey.

18.7 Mining cavities

Records within 1000m	0

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.

This data is sourced from Stantec UK Ltd.

18.8 JPB mining areas

Records on site	0

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

This data is sourced from Johnson Poole and Bloomer.

18.9 Coal mining

Records on site	0

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

This data is sourced from the Coal Authority.

18.10 Brine areas

Records on site	1

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.

Location	Details
On site	**The site is located within the Cheshire Brine Compensation District. The extraction of brine over many years has caused some properties within the Cheshire area to be at risk of subsidence. This subsidence can occur a considerable distance from the location of the extraction and further assessment is recommended. A Cheshire Salt search can be obtained direct from Groundsure or your preferrred search provider.**

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

18.11 Gypsum areas

Records on site	**0**

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.12 Tin mining

Records on site	**0**

Generalised areas that may be affected by historical tin mining.

This data is sourced from Mining Searches UK.

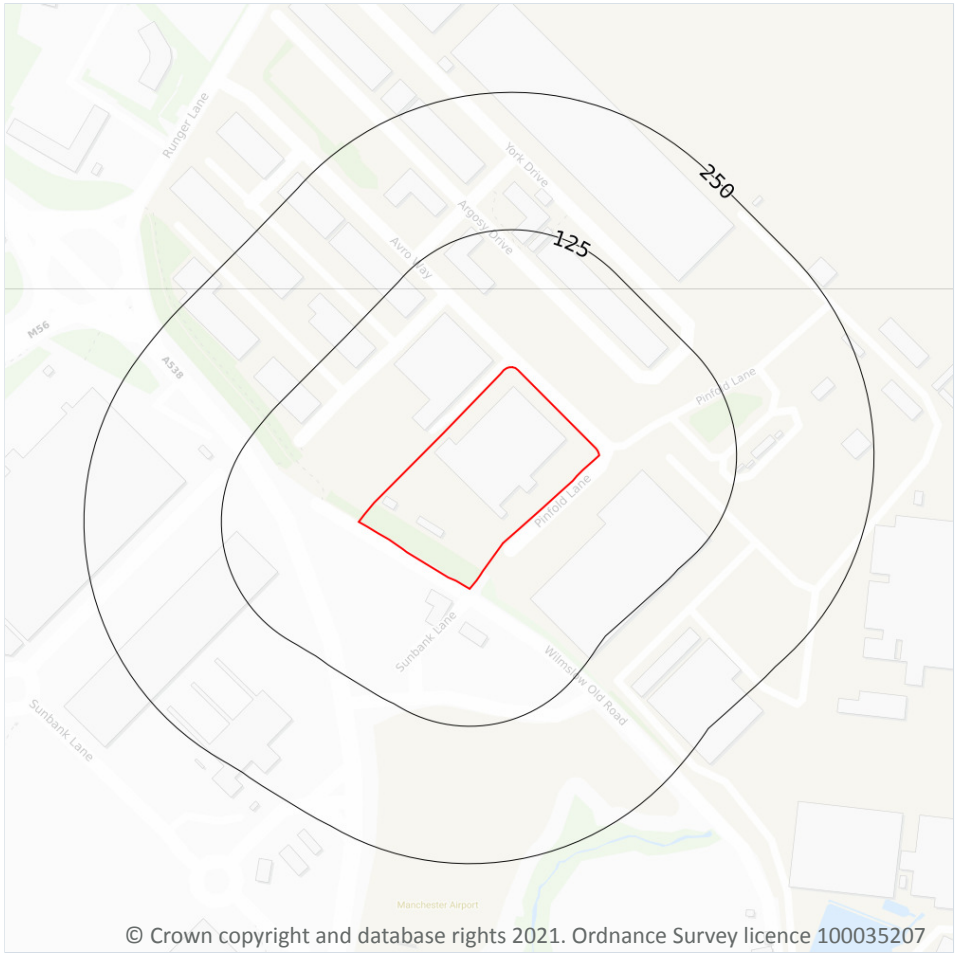
18.13 Clay mining

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 Radon



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Site Outline

Search buffers in metres (m)

- Greater than 30%
- Between 10% and 30%
- Between 5% and 10%
- Between 3% and 5%
- Between 1% and 3%
- Less than 1%

19.1 Radon

Records on site	1

Estimated percentage of dwellings exceeding the Radon Action Level. This data is the highest resolution radon dataset available for the UK and is produced to a 75m level of accuracy to allow for geological data accuracy and a 'residential property' buffer. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain. The data was derived from both geological assessments and long term measurements of radon in more than 479,000 households.

Features are displayed on the Radon map on **page 101**

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

This data is sourced from the British Geological Survey and Public Health England.

20 Soil chemistry

20.1 BGS Estimated Background Soil Chemistry

Records within 50m	3

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 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 mg/kg**

This data is sourced from the British Geological Survey.

20.2 BGS Estimated Urban Soil Chemistry

Records within 50m	0

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).

This data is sourced from the British Geological Survey.

20.3 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.

21 Railway infrastructure and projects

21.1 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.

21.2 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.

21.3 Railway tunnels

Records within 250m	0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

21.4 Historical railway and tunnel features

Records within 250m	0

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.

This data is sourced from Ordnance Survey/Groundsure.

21.5 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.

21.6 Historical railways

Records within 250m	0

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

This data is sourced from OpenStreetMap.

21.7 Railways

Records within 250m	0

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

This data is sourced from Ordnance Survey and OpenStreetMap.

21.8 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.

21.9 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.

21.10 HS2

Records within 500m	0

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.

This data is sourced from HS2 ltd.

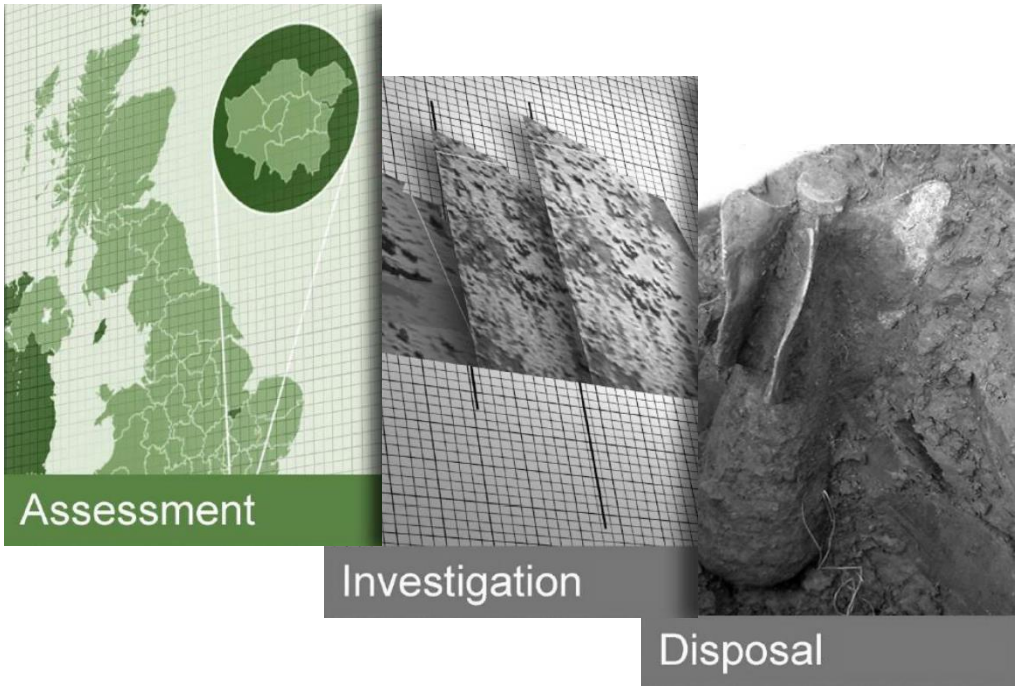
Data providers

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-jan-2020/.

Appendix C UXO Desk Study & Risk Assessment



Avro Way, Manchester - UXO Desk Study & Risk Assessment

Drafted by William Holford
Checked by Joe Lingard
Authorised by Stefan Lang

Document Title	**UXO Desk Study & Risk Assessment**
Document Ref.	**P11632-22-R1**
Revision	**A**
Project Location	**Avro Way, Manchester**
Client	**AECOM**
Date	**19th April 2022**

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UXO DESK STUDY & RISK ASSESSMENT

EXECUTIVE SUMMARY

Key findings: No significant sources of Unexploded Ordnance (UXO) hazard have been identified.

Key actions: UXO awareness briefing for staff involved in excavations.

UXO Hazard Assessment

Between 1943 and 1957 the Site was encompassed by Royal Air Force (RAF) Ringway, a military airfield used primarily for production and training. The Site comprised part of the western dispersal area.

No records have been found to indicate that the Site was bombed and no other significant sources of UXO hazard have been identified on the Site.

Given this, it is considered that the Site has a low UXO hazard level, as shown in the following Figure, reproduced as Figure 5 in the main report.

The UXO hazard zone plan of the Site is also given in the accompanying P11632-22-R1-MAP01-A.

UXO hazard zone plan of the Site

Source: OpenStreetMap *Not to Scale*

Legend					
	Very Low		Low		Moderate
	High		Very High		Site boundary

It should be noted that the potential for encountering UXO on a former military airfield can never be totally discounted and that heightened awareness of the potential UXO hazard should be maintained by site staff.

The main findings of the report are summarised below.

- No records of bombing or military activity on the Site during World War One (WWI) have been found.
- In 1935 Manchester Corporation opened an airfield at Ringway. During World War Two (WWII) RAF Ringway was established on the airfield, serving primarily as a base for aircraft production and training.
- During WWII RAF Ringway was identified by the Luftwaffe as a significant strategic target. No records have been found indicating that HE bombs fell on the Site during WWII. The nearest bomb fell approximately 1km southeast of the Site during a raid on the 29th November 1940.
- Post-WWII military aircraft production continued at RAF Ringway, which also served as a base for an Auxiliary Air Force (AAF)/Royal Auxiliary Air Force (RAAF) fighter squadron.
- In 1957 the RAAF was disbanded, and RAF Ringway ceased to exist. Military aircraft production continued at Ringway airfield until 1977.
- Today Ringway Airfield is used for civil operations under the name Manchester Airport. The Site has since been redeveloped as part of the airport cargo area.

Data Confidence Level

The findings of this report were based on good corroborative evidence of the military activity and bombing on the Site.

Proposed Works

It is understood that the Site will be levelled and redeveloped.

Initial works on the Site are understood to comprise ground investigations, including boreholes to maximum depths of 15m bgl. Future works may include further ground investigations, excavations and piling.

Risk Assessment

The Table below, reproduced as Table 6 in the main report, provides a UXO risk assessment for the proposed works on the Site.

Further details on the methodology for the risk assessment are provided in Section 7.2 of the main report.

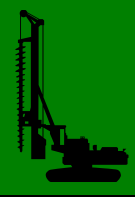
UXO risk assessment for the Site

Potential UXO Hazard	Anticipated Works	PE	PD	P = PE x PD	Likelihood	Severity	Risk Rating	UXO Risk
UXB	Shallow Excavations	1	1	1	1	5	5	Low
	Deep Excavations	1	1	1	1	5	5	Low
	Boreholes/Piling	1	1	1	1	4	4	Low
Other UXO	Shallow Excavations	1	1	1	1	4	4	Low
	Deep Excavations	1	1	1	1	4	4	Low
	Boreholes/Piling	1	1	1	1	3	3	Low
PE (Probability of Encounter), PD (Probability of Detonation), P (Overall Probability)								
Shallow Excavations defined as <1.0m below ground level (bgl.)								

Risk Mitigation Plan

The Table below, reproduced as Table 7 in the main report, summarises the UXO risk for proposed works on the Site and recommended actions.

Summary of UXO risk and mitigation recommendations

Proposed Works	UXO Risk	Recommended Mitigation
Excavations		**UXO awareness briefing** – Given the Site's military history it is recommended that a formal UXO awareness briefing is provided to staff involved in excavation.
Boreholes/Piling		**Proceed with works**

In summary, it is recommended that staff involved in excavation are provided with a formal awareness briefing so that they take appropriate action in the event of a suspect find.

What Do I Do Next?

If you require a quote for an awareness briefing, or have any questions, contact us via phone (01993 886682) or email (uxo@zetica.com) and we can help.

If you have requirements to identify other buried hazards (such as mapping utilities or obstructions) we can provide these surveys.

If proposed works on the Site change, or additional works are planned, contact Zetica for a re-assessment of the UXO risk and the risk mitigation requirements.

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Accompanying GIS Data

P11632-22-R1-MAP01-A (UXO Desk Study)

ABBREVIATIONS

AA	Anti-Aircraft
AAF	Auxiliary Air Force
ALARP	As Low As Reasonably Practicable
ANS	Air Navigation School
ARP	Air Raid Precaution
ATA	Air Transport Auxiliary
AXO	Abandoned Explosive Ordnance
BD	Bomb Disposal
BDO	Bomb Disposal Officer
BDU	Bomb Disposal Unit
CMD	Conventional Munitions Disposal
DAB	Delayed Action Bomb
DCLG	Department of Communities and Local Government
EO	Explosive Ordnance
EOC	Explosive Ordnance Clearance
EOR	Explosive Ordnance Reconnaissance
ERW	Explosive Remnants of War
ESA	Explosive Substances and Articles
FAC	Fairey Aviation Company
FFE	Free From Explosives
FRS	Fling Refresher School
HAA	Heavy Anti-Aircraft
HE	High Explosive
HSE	Health and Safety Executive
IB	Incendiary Bomb
IED	Improvised Explosive Device
IEDD	Improvised Explosive Device Disposal
JSEODOC	Joint Services EOD Operations Centre
LAA	Light Anti-Aircraft
MC	Manchester Corporation
MoD	Ministry of Defence
MU	Maintenance Unit
OB	Oil Bomb
OTU	Operational Training Unit
PM	Parachute Mine
PTS	Parachute Training School
PUCA	Pick Up and Carry Away
RAF	Royal Air Force
RAAF	Royal Auxiliary Air Force
TEP	Time Expired Pyrotechnics
USAAF	United States Army Air Force
UXAA	Unexploded Anti-Aircraft
UXB	Unexploded Bomb
UXO	Unexploded Ordnance
WWI	World War One
WWII	World War Two

UXO DESK STUDY & RISK ASSESSMENT

Please read: Zetica has colour coded each paragraph. Paragraphs with black text on a white background are paragraphs that provide site-specific information or information specifically researched as part of this project.

Boxed paragraphs in a dark green text with a green background are paragraphs providing general information and, where appropriate, links to online resources giving further detail. These are all available at www.zeticauxo.com. If you cannot gain access to these resources, Zetica can forward them on request.

1 INTRODUCTION

1.1 Project Outline

Zetica Ltd was commissioned by AECOM to carry out a detailed Unexploded Ordnance (UXO) Desk Study and Risk Assessment for an area of approximately 4.4 hectares (ha) off Avro Way, Manchester Airport, Greater Manchester (the 'Site').

The aim of this report is to gain a fair and representative view of the UXO hazard for the Site and its immediate surrounding area in accordance with the Construction Industry Research and Information Association (CIRIA) C681 'Unexploded Ordnance (UXO), a Guide for the Construction Industry'.

Where appropriate, this hazard assessment includes:

- Likelihood of ordnance being present.
- Type of ordnance (size, filling, fuze mechanisms).
- Quantity of ordnance.
- Potential for live ordnance.
- Probable location.
- Ordnance condition.

It should be noted that some military activity providing a source of UXO hazard may not be recorded and therefore there cannot be any guarantee that all UXO hazards affecting the Site have been identified in this report.

1.2 Sources of Information

Zetica Ltd researched the military history of the Site and its surrounding area using a range of information sources. The main sources of information are detailed in the following sections and referenced at the end of this report.

1.2.1 Zetica Ltd Defence Related Site Records

Zetica Ltd's in-house records were consulted, including reference books and archived materials from past work in the region. Relevant documents have been cited within the bibliography of this report.

1.2.2 Zetica Ltd Bombing Density Records and Maps

Reference has been made to the Zetica Ltd bomb risk maps located on Zetica's website (http://zeticauxo.com/downloads-and-resources/risk-maps/)

1.2.3 Ministry of Defence and Government Records

Government departments and units within the Ministry of Defence (MoD) were approached for information of past and present military activity in the area. These included the Department of Communities and Local Government (DCLG) records of abandoned bombs.

1.2.4 Other Historical Records, Maps and Drawings

Numerous reference documents including historical maps, aerial photographs and drawings have been consulted from sources such as the National Archives, the Royal Air Force (RAF) Museum, the US National Archives & Records Administration (NARA), the Imperial War Museum (IWM), Historic England and the Defence of Britain Project.

The British Geological Survey (BGS) was consulted for borehole information.

1.2.5 Local Authority Records

Information was obtained from Greater Manchester County Council, Lancashire County Council, and Cheshire County Council.

1.2.6 Local Record Offices and Libraries

Greater Manchester County Record Office, Lancashire Archives, and Cheshire Archives and Local Studies were consulted for records.

1.2.7 Local Historical and Other Groups

Local history groups and archaeological bodies were consulted, including the Greater Manchester Historic Environment Record (HER).

1.3 Data Confidence Level

In general, there is a high level of confidence in the researched information sources used for this report. Exceptions to this are specifically detailed in the text of the report.

2 THE SITE

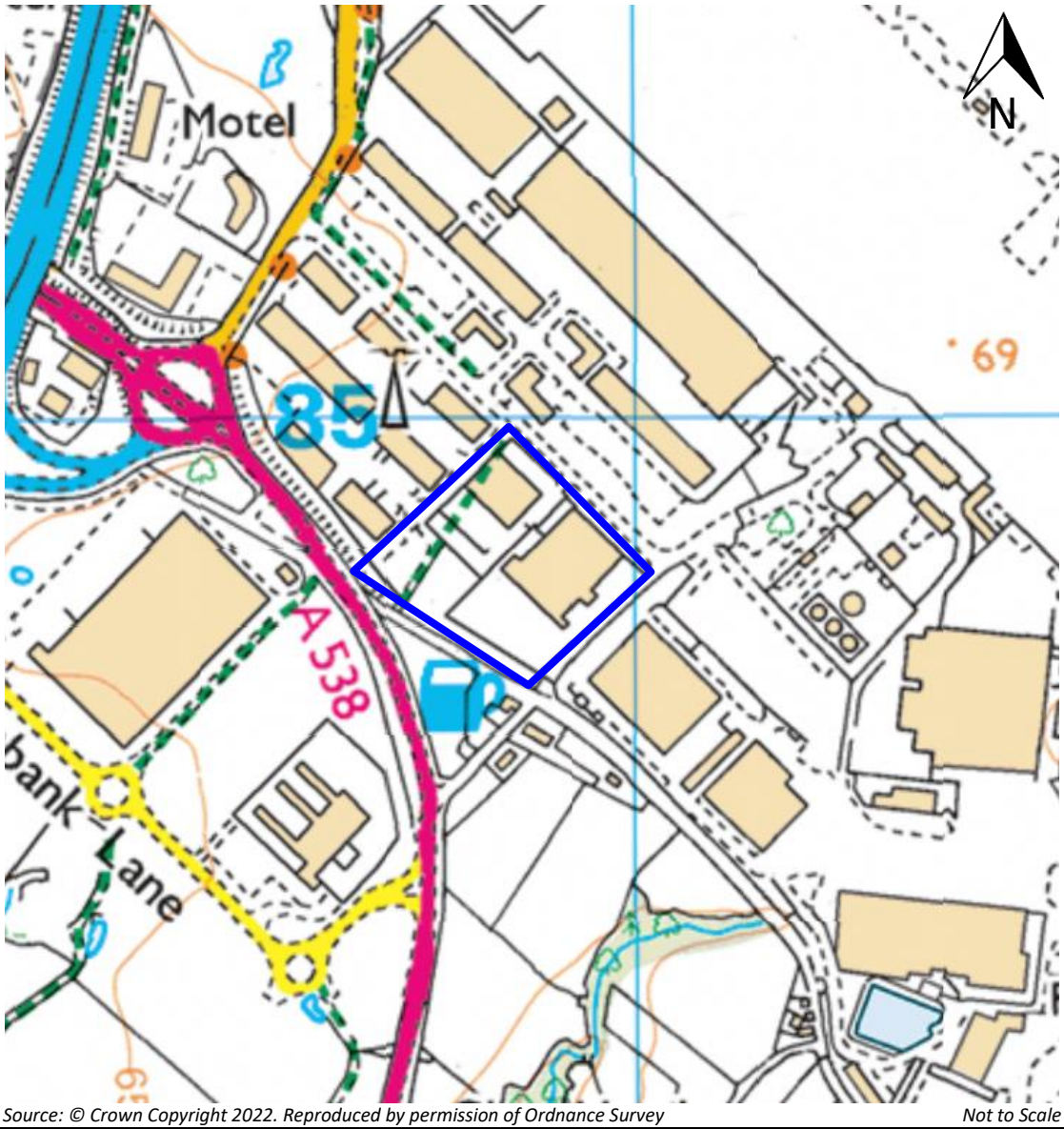
2.1 Site Location

The Site is centred on Ordnance Survey National Grid Reference (OSNGR) SJ 808848. It is located approximately 13km south of central Manchester.

The Site comprises commercial properties and hardstanding. It is bounded to the north by commercial properties off Avro Way, to the east by Avro Way, to the south by Pinfold Lane, and to the west by Wilmslow Road and Wilmslow Old Road.

Figure 1 is a Site location map and Plate 1 is a recent aerial photograph of the Site.

Figure 1 Site location map



Source: © Crown Copyright 2022. Reproduced by permission of Ordnance Survey *Not to Scale*

Legend	Site boundary

Plate 1 Recent aerial photograph of the Site

Source: Google Earth *Not to Scale*

Legend	Site boundary

3 MILITARY ACTIVITY

The following sections outline the recorded military activity in the vicinity of the Site. The potential UXO hazard from WWI and WWII bombing is detailed in Section 4.

Each sub-section provides hyperlinks to further information on potential sources of UXO hazard. These are also available at www.zeticauxo.com. If you cannot gain access to these resources, Zetica can forward them on request.

3.1 Military Airfields

For further information on military airfields, and the potential UXO hazards associated with them, see Appendix 2.1. Alternatively, use the following link.

- Military Airfields

Between 1943 and 1957 the Site comprised part of the western dispersal area at RAF Ringway. A brief operational history of the airfield is provided below.

3.1.1 RAF Ringway

In 1935 the Manchester Corporation (MC) began construction of an airfield at Ringway, intended to serve as the city's primary civil airport. Initially Ringway consisted of a grass landing field and a terminal building with adjoining hangar. During WWII Ringway was never officially requisitioned and remained under the ownership and partial management of the MC.

Aircraft Production at Ringway Airfield

From June 1937 the Fairey Aviation Company (FAC) used Ringway for the testing, modification, and assembly of aircraft manufactured off-site. Fairey's works initially comprised a hangar and paint shop in the northwest corner of the airfield, adjacent to the south-eastern boundary of the Site. These were expanded during WWII and remained in use until October 1977.

Further aircraft production and development was carried out by the Avro company, present from May 1939. Avro's presence at Ringway was mainly concerned with experimentation and testing of prototype aircraft, including the Avro Lancaster. Avro left Ringway in January 1946.

Table 1 is a summary of military aircraft produced at RAF Ringway between 1937 and 1977.

Table 1 Summary of aircraft produced by FAC & Avro at Ringway, 1937-1977

Type	Quantity
Fairey Battle	1,165
Fairey Fulmar	600
Bristol Beaufighter	498
Fairey Barracuda	1,190
Handley-Page Halifax	661
Fairey Spearfish	2
Fairey Delta	1
de Havilland Vampire	97
Fairey Firefly	75
de Havilland Venom	37
Fairey Gannet	102
Avro Manchester	2
Avro Lancaster	3
Avro York	101
Avro Lincoln	2
Avro Tudor	1

Aircraft produced at RAF Ringway were taken to forward bases by pilots of No. 14 Ferry Pool Air Transport Auxiliary (ATA). This unit disbanded in September 1945.

Military Operations at RAF Ringway

In February 1939 an Auxiliary Air Force (AAF) squadron, No. 613 City of Manchester, was formed at Ringway for army co-operation duties. Further facilities including additional hangars were built to accommodate it. No. 613 Squadron left Ringway in September 1939.

From early 1940 a number of other units were present at Ringway, concerned with operational training and the calibration of Anti-Aircraft (AA) defences. These departed by December 1942.

In June 1940 Britain's first airborne forces were established at RAF Ringway by Churchill's personal order. Experimentation, development, and training all took place under a series of different establishments. To avoid disrupting airfield operations, live landings and drops were usually made at Tatton Park (SJ 758812), approximately 6.3km southwest of the Site. In March 1946 the last airborne forces left, by which time 429,800No. jumps had been carried out.

In March 1941 RAF Army Cooperation Command Anti-Gas School opened at Ringway. It carried out a series of exercises involving airborne chemical warfare and left in November 1943.

In June 1941 construction of the first concrete runways began at RAF Ringway. These went through several subsequent upgrades. In 1943 the volume of aircraft production necessitated the construction of further concrete dispersal areas, the western part of which encompassed the Site.

Plate 2 is an aerial photograph of RAF Ringway, dated the 10th August 1945. The Site comprised a concrete dispersal area and part of an adjoining field.

The airfield technical area and the locations of the FAC works, Avro works, and hangars used by the PTS are also highlighted. 3No. ammunition stores have also been identified.

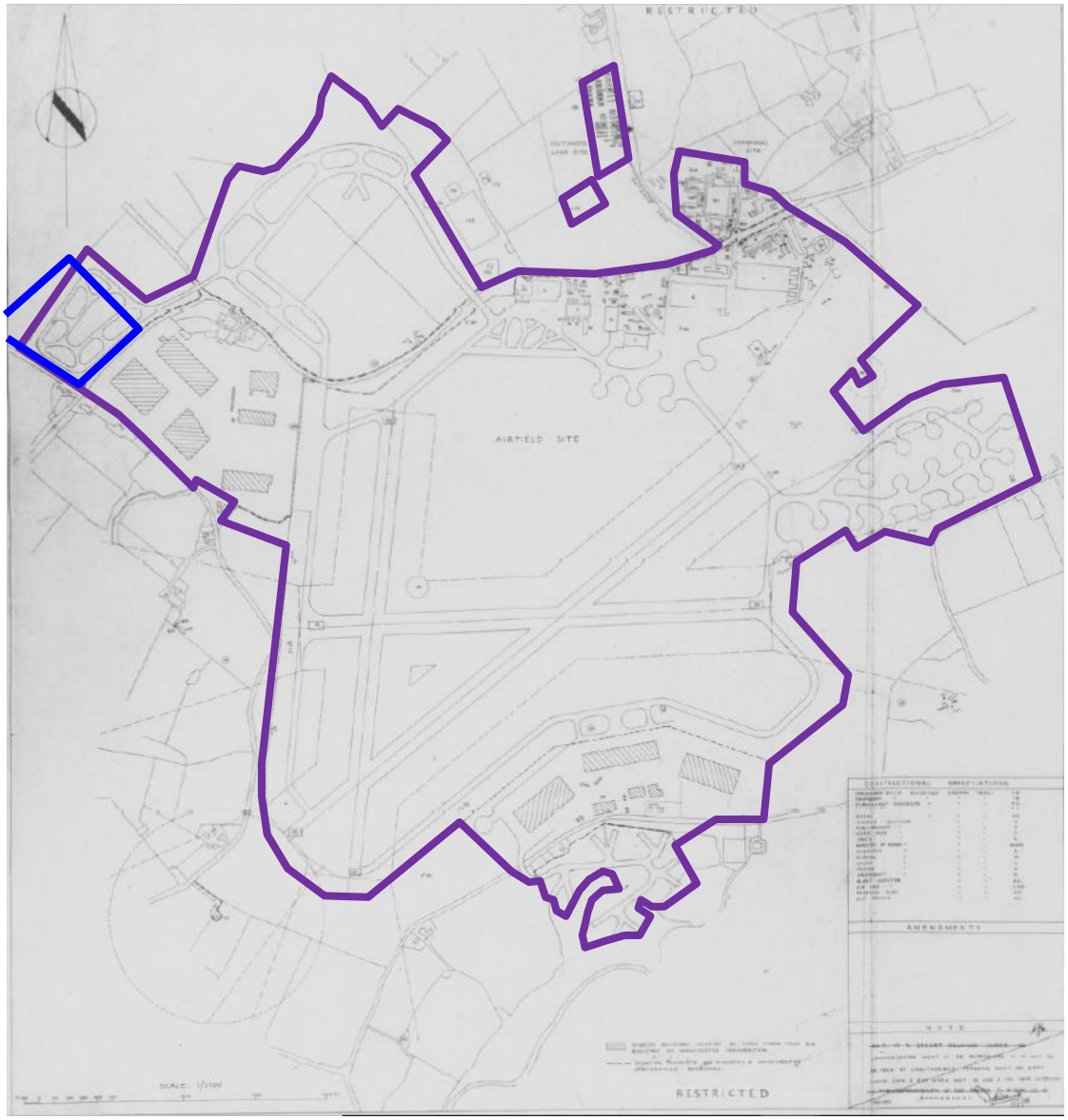
Plate 2 Aerial photograph, 10th August 1945

Source: Historic England *Not to Scale*

Legend	Site boundary	Airfield boundary	Technical area
	FAC works	Avro works	PTS Hangars
	Ammunition stores		

Figure 2 is a plan of RAF Ringway, dating from June 1946.

Figure 2 Plan of RAF Ringway, June 1946



Source: RAF Museum *Not to Scale*

Legend	Site boundary	Airfield boundary

In 1946, No. 613 City of Manchester Squadron was reformed at Ringway as part of the Royal Auxiliary Air Force (RAAF). It served in a reserve fighter role and was disbanded along with the rest of the RAAF in 1957. Ringway then returned wholly to civilian use.

Details of activities at RAF Ringway that may provide a source of UXO hazard are given in the Sections below.

3.1.2 Airfield Activities at RAF Ringway

Pipe Mines

No records of pipe mines being installed at RAF Ringway have been found.

Aircraft Dispersals

From 1943 the Site formed part of RAF Ringway's western dispersal area.

Dispersal areas were used for the parking of aircraft. Aircraft preparing for or returning from sorties would have been armed and disarmed on dispersal areas.

Potential UXO Hazard

There is the potential for unused SAA and cannon shells to have been 'swept out' on dispersal areas from aircraft returning from operational sorties.

Given that RAF Ringway was mainly used for aircraft production and training. The majority of aircraft at RAF Ringway are unlikely to have been armed, though the possibility that SAA and cannon shells were 'swept out' onto the Site cannot be fully discounted.

Bomb and Munitions Stores

No records of bomb and munitions storage on the Site have been found.

The nearest munitions storage was located near Hangar No. 6, approximately 1km east of the Site (see Plate 2). RAF Ringway's pyrotechnics store was located at the northeast corner of the airfield, approximately 1.6km east of the Site.

Bomb and munitions stores are not considered to provide a source of UXO hazard to the Site.

Small Arms Ranges and Machine Gun Test Butts

No records of any small arms ranges or machine gun test butts on the Site have been found.

1No. machine gun test butt was located near Hangar No. 5, approximately 1.5km east of the Site. These butts were also used for anti-gas training (see below).

Figure 3 is a plan of RAF Ringway dating from June 1946, showing the test butts.

Figure 3 Plan of RAF Ringway, June 1946

Source: RAF Museum

Legend	Test butts ○

Small arms ranges at RAF Ringway are not considered to provide a source of UXO hazard to the Site.

Bombing Ranges

No records of any bombing ranges at RAF Ringway have been found.

Aircraft Breaking

Extensive aircraft breaking operations took place at RAF Ringway between May 1943 and 1946.

Plate 3 is an aerial photograph of RAF Ringway identifying large numbers of aircraft awaiting breaking, parked around the airfield's southern dispersal areas, approximately 1.4km southeast of the Site. Plate 3 also identifies several scrap heaps and a number of aircraft in the process of being broken down.

Plate 3 Aerial photograph of aircraft breaking locations, 10th August 1945

Source: Scholefield *Not to Scale*

Legend	Aircraft breaking

No records have been found to indicate that aircraft breaking activities encroached onto the Site.

Aircraft breaking is not considered to provide a source of UXO hazard to the Site.

Munitions Disposal Areas

No records of any official munitions disposal areas at RAF Ringway have been found.

As with any busy military airfield during WWII, it was common for munitions disposal to occur at a convenient location, often in remote and uninhabited areas such as woodland and areas around the peripheries of the airfield.

As part of a concrete dispersal, it is likely that the Site would have been considered unsuitable for such activities.

Munitions disposal areas are not considered to provide a source of UXO hazard to the Site.

Airfield Defences

No records of airfield defences on the Site have been found.

RAF Ringway was defended by at least 8No. ground defence posts, consisting of pillboxes and associated weapons pits. The nearest recorded ground defence post was located southeast of the FAC factory, approximately 0.6km southeast of the Site.

Additionally, a guard post was established on Yewtree Lane, approximately 0.2km northeast of the Site.

Important military sites such as airfields were often protected by mobile Light Anti-Air (LAA) guns which could occupy the same position for a considerable length of time. The guns were also moved to meet particular perceived threats.

At least 8No. LAA defence posts were established to defend RAF Ringway. These are likely to have been armed with 20mm or 40mm cannon, or machine guns. The nearest was located to the east of the FAC factory, approximately 0.4km southeast of the Site.

Airfield defences are not considered to provide a source of UXO hazard to the Site.

Military Training

During WWII RAF Ringway was used for training by airborne forces, including parachute drops and glider landings. These exercises used hangars on the eastern part of the airfield, approximately 1km east of the Site.

Between 1939 and 1945 several anti-invasion exercises were carried out to test the defences of RAF Ringway. From 10th March 1941 to 1st November 1943 these conventional exercises were complemented by chemical warfare defence training carried out by the RAF Army Cooperation Command Anti-Gas School. These exercises may have also involved battalions of the local Home Guard.

No records have been found to indicate that these exercises at RAF Ringway involved the use of live ammunition. Chemical warfare defence exercises at RAF Ringway used both real and simulated gas, utilising a specialized gas chamber co-located with the airfield's test butts, approximately 1.5km east of the Site.

Potential UXO Hazard

No records have been found to indicate that military training exercises encroached onto the Site during WWII.

As an operational military airfield anti-invasion training exercises could have taken place anywhere within the boundary of RAF Ringway. As such, the potential for SAA and close-combat munitions to have been spilled on the Site cannot be totally discounted.

3.2 Aircraft Crashes

For further information on military aircraft crashes, and the potential UXO hazards associated see Appendix 2.2. Alternatively, use the following link.

- Aircraft Crashes

Records have been found indicating that at least 18No. military aircraft crashed at RAF Ringway.

It should be noted that due to the number and regularity of aircraft crashes at RAF Ringway, many incidents were simply logged but not always accurately recorded.

The nearest recorded crashes are detailed below. Further crashes are recorded in Appendix 5.

17th May 1940

1No. Lockheed Hudson I (N7365) bomber aircraft crashed west of RAF Ringway, approximately 0.8km southwest of the Site.

1st February 1941

1No. Curtis P-36 Mohawk IV (AR664) fighter aircraft crashed northeast of RAF Ringway, approximately 1km southeast of the Site.

23rd November 1941

1No. General Aircraft Hotspur (BT488) military glider crashed near RAF Ringway, within approximately 1km of the Site.

8th March 1942

1No. Airspeed Horsa (DP600) military glider crashed near RAF Ringway, within approximately 1km of the Site.

29th May 1942

1No. Armstrong Whitworth Whitley (serial number unknown) bomber aircraft crashed on RAF Ringway, approximately 0.8km southeast of the Site.

3rd June 1942

1No. Armstrong Whitworth Albemarle (serial number unknown) transport aircraft crashed on the runway at RAF Ringway, approximately 1km southeast of the Site.

27th September 1943

1No. Supermarine Spitfire (serial number unknown) fighter aircraft crashed on the runway at RAF Ringway, approximately 1km southeast.

23rd February 1944

2No. Armstrong Whitworth Whitley V (LA 948 and LA 895) bomber aircraft collided at the junction of Runway 10/28 and Runway 06/24, approximately 1.1km southeast of the Site. LA 948 was thrown into the air and crashed near Hangar No. 2, approximately 1km east of the Site.

15th November 1948

1No. Avro York (MW327) transport aircraft crashed in a field at Cloughbank Farm, approximately 0.5km southeast of the Site.

11th May 1950

1No. Supermarine Spitfire F.22 (PK599) fighter aircraft crashed at RAF Ringway, approximately 0.8km southeast of the Site.

Potential UXO Hazard

Some of these crashes may have resulted in the scatter of SAA from aircraft guns over a wide area, including on the Site. SAA is not considered to provide a significant UXO hazard (see Appendix 1).

Given that RAF Ringway was primarily used for training and aircraft production, it is considered unlikely that aircraft operating from there would have been armed. It is likely that any bombs aboard aircraft that crashed at RAF Ringway would have been removed to allow airfield operations to continue.

Aircraft crashes are not considered to provide a significant source of UXO hazard to the Site.

3.3 Defences

For further information on military defences, and the potential UXO hazards associated with them, follow the links below:

- Anti-Aircraft Guns
- Anti-Invasion Defences
- Barrage Balloons
- Bombing Decoys
- Home Guard
- Mined Locations
- Mortar & Gun Emplacements
- Pillboxes

Aside from those mentioned in Section 3.1, no further military defences have been identified on or in close proximity to the Site. The nearest are described below.

3.3.1 Anti-Aircraft Guns

During WWI there were 2No. Anti-Aircraft (AA) batteries within 10km of the Site. The nearest was located at Hough End (SD 825935), approximately 8.5km north of the Site. It was armed with 1No. 6-pounder (-pdr) gun.

During WWII there were 7No. Heavy AA (HAA) and ZAA batteries within 10km of the Site. The nearest was located south of RAF Ringway (SJ 820826), approximately 2.3km south of the Site. Its armament is unknown.

The nearest recorded WWII AA shell incident to the Site is described below.

22nd December 1940

1No. AA shell fell on Hangar No. 5 at RAF Ringway, approximately 1.3km east of the Site.

Potential UXO Hazard

Given the number of HAA gun batteries in the surrounding area during WWII, the potential for an Unexploded Anti-Aircraft (UXAA) shell to have fallen on the Site unnoticed, whilst unlikely, cannot be totally discounted.

3.3.2 Bombing Decoys

The nearest recorded bombing decoy was located at Tatton Park (SJ 765823), approximately 5.3km southwest of the Site.

Bombing decoys are not considered to provide a source of UXO hazard to the Site.

3.3.3 Home Guard

Units from the 49th Lancashire (Manchester) Battalion were active in the vicinity of the Site and responsible for patrolling local transport hubs and strategic targets such as airfields.

Home Guard troops are likely to have been involved in the preparation and maintenance of defences at RAF Ringway (see Section 3.1).

Potential UXO Hazard

It should be noted that records of Home Guard activities were rarely kept. Storage and disposal of munitions by the Home Guard was poorly documented and surplus supplies were often buried or dumped in lakes and ponds.

Given the irregular nature of this activity, the possibility of items of UXO being discovered at any locations occupied or used for training by the Home Guard can never be totally discounted.

3.4 Explosives Factories, Munitions Depots and Disposal Areas

For further information on explosives factories, munitions depots and disposal areas, and the potential UXO hazards associated with them, follow the links below:

- Explosives Factories
- Munitions Depots
- Munitions Disposal Areas

Other than those detailed in Section 3.1.2 no records of any explosives factories, munitions depots or munitions disposal areas on or in close proximity to the Site have been found.

3.5 Firing Ranges and Military Training Areas

For further information on firing ranges and military training areas, and the potential UXO hazards associated with them, follow the links below:

- Artillery Ranges
- Bombing Ranges
- Military Training Areas
- Small Arms Ranges

Other than those detailed in Section 3.1.2 no records of any firing ranges or military training areas on or in close proximity to the Site have been found.

3.6 Other Military Establishments

No other military establishments have been identified on or in close proximity to the Site.

4 BOMBING

4.1 WWI Bombing

For further information on WWI bombing in the UK, and the potential UXO hazard associated with it, see Appendix 2.3. Alternatively, use the following link.

- WWI Bombing

No records have been found indicating that the Site was bombed during WWI.

4.2 WWII Bombing

For further information on WWII bombing in the UK, and the potential UXO hazard associated with it, see Appendix 2.4. Alternatively, use the following link.

- WWII Bombing

No records have been found indicating that the Site was bombed during WWII. Details of WWII bombing in the vicinity of the Site are provided in the following sections.

4.2.1 Bombing in Manchester and at RAF Ringway

From prior to the declaration of war in 1939, Britain was subject to reconnaissance flights by the Luftwaffe who were building up a photographic record of potential targets. Manchester's industrial conurbations and port made it a principal target and the Luftwaffe possessed detailed target photographs of the area from as early as 1937. RAF Ringway itself was also highlighted as a potential target for Luftwaffe bombing.

Air raids on Manchester began in August 1940 and continued until 1945. The heaviest raid on the city occurred between the 22nd and 24th December 1940, the 'Manchester Blitz', during which more than 400No. High Explosive (HE) bombs and 30,000No. Incendiary Bombs (IB) fell on the city. In total more than 1,710No. HE bombs and 115No. Parachute Mines (PM) fell across the Manchester region during WWII.

Bombing was concentrated on the ship canal, docks, and major industrial works in Manchester city centre and Salford, approximately 12km north of the Site. RAF Ringway itself was raided on only 2No. occasions, both occurring in late 1940.

4.2.2 Strategic Targets

The Site was located in a predominantly suburban area where the main strategic targets were RAF Ringway and its resident aircraft production facilities.

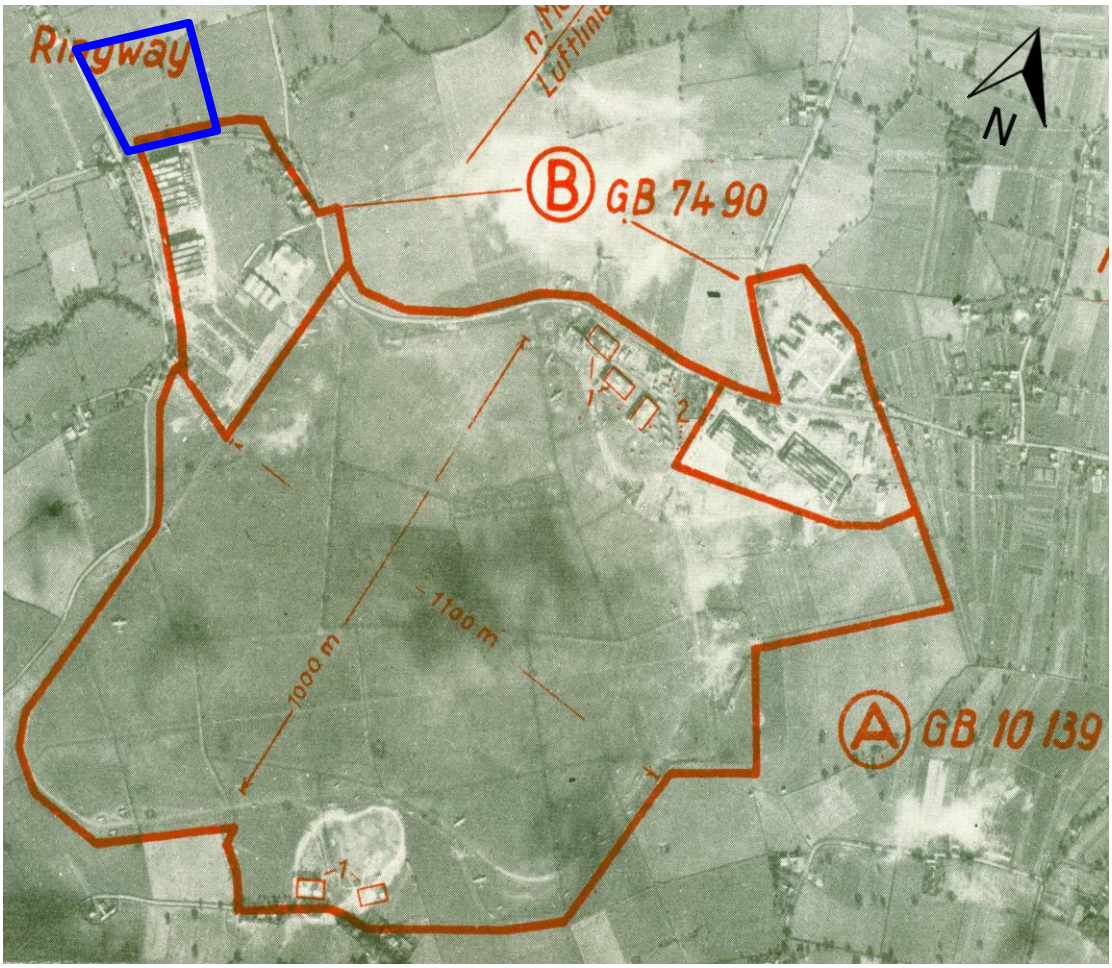
Plate 4 is a Luftwaffe target photograph of RAF Ringway, dating from November 1940. Several structures to the northeast of the airfield are misidentified as part of the FAC's aircraft factory.

Several targets are identified as summarised in Table 2.

Table 2 Luftwaffe targets in the vicinity of the Site

Target No.	Target
A (GB 10139)	RAF Ringway
A (1)	Hangars
A (2)	Accommodation and outbuildings
B (GB 7490)	FAC Aircraft Factory

Plate 4 Luftwaffe target photograph of RAF Ringway, November 1940



Source: NARA *Not to Scale*

Legend	Site boundary

4.2.3 Bombing Densities and Incidents

Table 3 gives details of the overall bombing statistics recorded for the Local Authority Districts of the Site and surrounding districts. These were categorised as Rural Districts (RD), Urban Districts (UD), Municipal or Metropolitan Boroughs (MB) and County Boroughs (CB). WWII bomb density levels are defined below:

<5 bombs per 405ha is a Very Low regional bombing density.

5-15 bombs per 405ha is Low.

15-50 bombs per 405ha is Moderate.

50-250 bombs per 405ha is High.

>250 bombs per 405ha is Very High.

Table 3 Bombing statistics

Area	Bombs Recorded				
	High Explosive	Parachute Mines	Other	Total	Bombs per 405ha (1000 acres)
Bucklow RD	**247**	**7**	**4**	**258**	**5.6**
Manchester CB	712	18	7	737	27.0
Altrincham MB	76	0	0	76	21.9
Cheadle & Gatley UD	36	0	0	36	6.8
Wilmslow UD	41	2	0	43	5.6
Hale UD	12	0	0	12	5.3
Bowden UD	2	2	0	4	3.7
Knutsford UD	6	0	0	6	2.4
Macclesfield RD	82	6	3	91	1.3

Note that Table 3 excludes the figures for IBs. Discrepancies between this list and other records, such as bomb clearance records, demonstrate that this data is likely to under-represent actual bombing.

Details of the nearest recorded bombing incidents to the Site are given in the following section.

29th November 1940

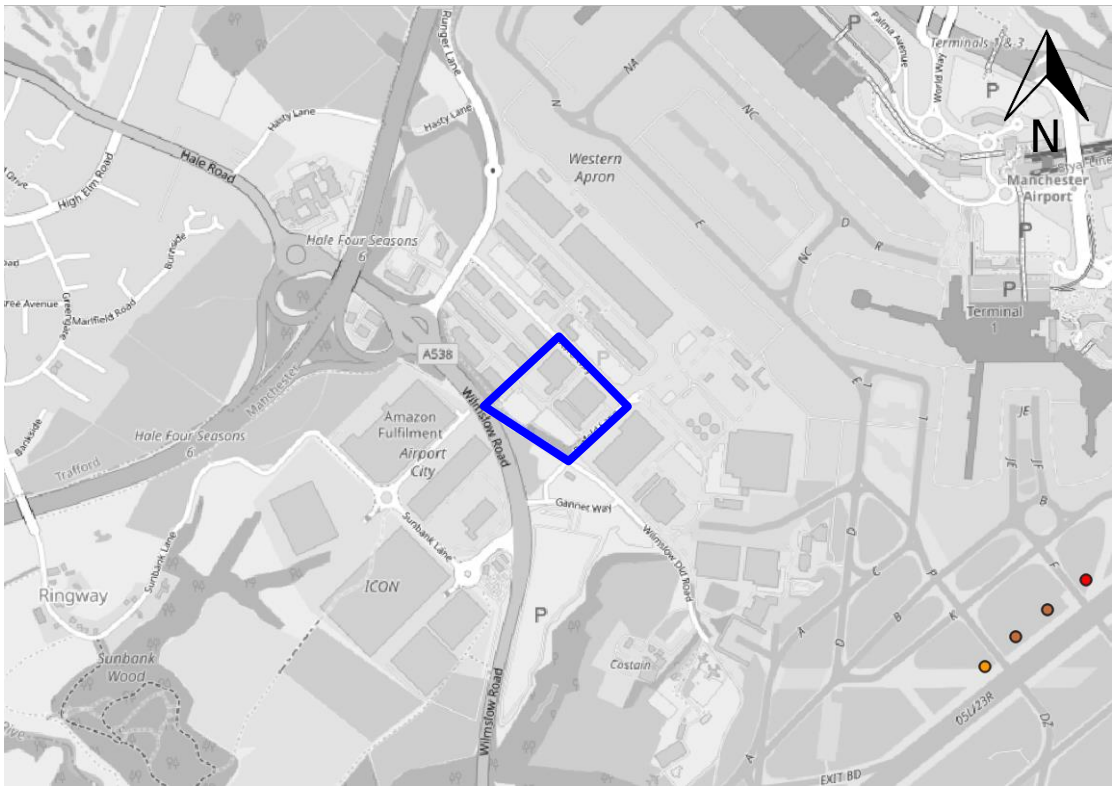
1No. HE bomb, 2No. Delayed Action Bombs (DAB), and 1No. Oil Bomb (OB) fell on grass at RAF Ringway, approximately 1km southeast of the Site.

Figure 4 is a map showing the approximate location of recorded bomb impacts in the immediate vicinity of the Site. IBs shown are indicative of larger numbers of similar devices that fell within the given area.

The map has been compiled from a number of different sources, including air raid incident reports, historical aerial photographs and bomb census maps.

The bomb map is also given in the accompanying P11632-22-R1-MAP01-A.

Figure 4 Compiled bomb map for the vicinity of the Site

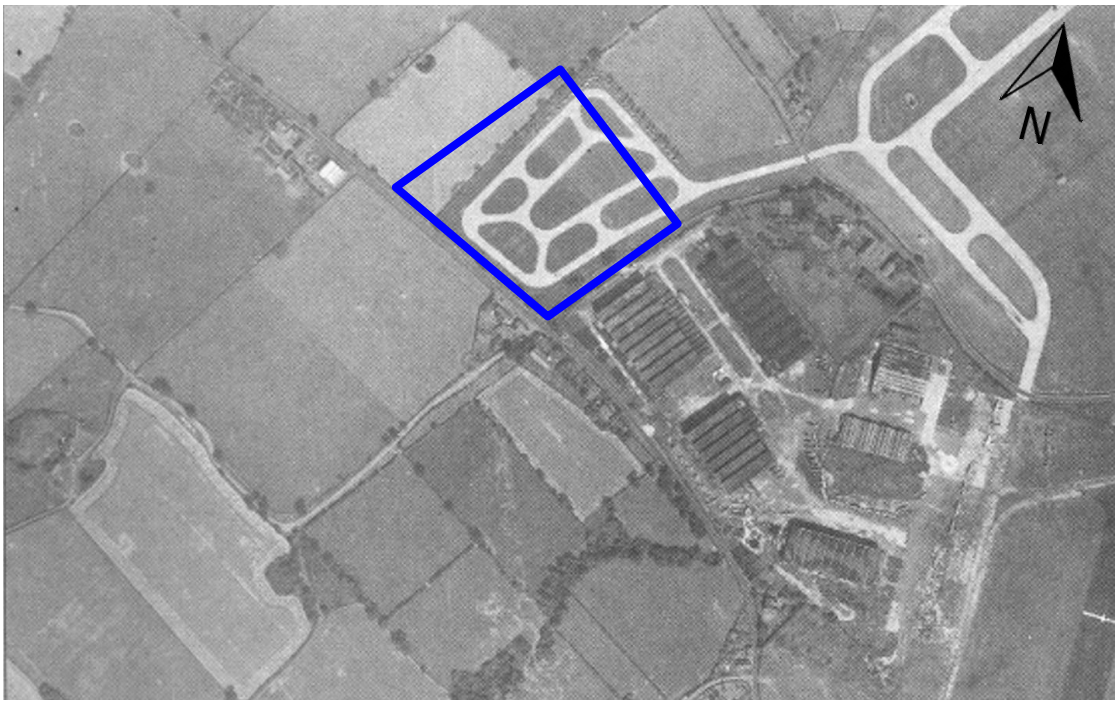


Source: OpenStreetMap *Not to Scale*

Legend	Site boundary	HE bomb	DAB	OB

Plate 5 is an aerial photograph dated the 10th August 1945. No bomb damage has been identified on or in the vicinity of the Site.

Plate 5 Compiled bomb map for the vicinity of the Site



Source: Historic England *Not to Scale*

Legend	Site boundary

Potential UXO Hazard

No records have been found indicating that the Site was bombed and no bomb damage has been identified on the Site on historical aerial photography.

WWII bombing is not considered to provide a source of UXO hazard to the Site.

4.2.4 Geology and Bomb Penetration Depths

It is important to consider the geological materials present at the time that a bomb was dropped in order to establish its maximum penetration depth.

At the time of writing, no Site-specific ground investigation data was available.

Information provided by the Client, British Geological Survey (BGS) 1:50,000 Sheet 98 Stockport (Solid), and BGS borehole records from nearby investigations have been consulted to get an indicative overview of the Site geology.

The geology of the Site is understood to consist of Made Ground, over Devensian Till, overlying the Bollin Mudstone Member.

Table 4 provides an estimate of average maximum bomb penetration depths for parts of the Site which comprised concrete dispersal areas, assuming WWII ground conditions of 2m Made Ground (modelled as gravel), over 8m of stiff clay, overlying more than 20m of weak rock.

Table 4 Estimated average maximum bomb penetration depths on former hardstanding

Estimated average bomb penetration depths for anticipated geology		
Bomb Weight	50kg	3.5m
	250kg	6.0m
	500kg	8.5m

Table 5 provides an estimate of average maximum bomb penetration depths for the remainder of the Site assuming WWII ground conditions of 10m of stiff clay overlying more than 20m of weak rock.

Table 5 Estimated average maximum bomb penetration depths on remainder of Site

Estimated average bomb penetration depths for anticipated geology		
Bomb Weight	50kg	5.5m
	250kg	8.0m
	500kg	11.5m

These calculations can be refined on receipt of further Site-specific information.

The estimated bomb penetration depths given in Tables 4 and 5 are from the WWII ground level and are based on the following assumptions:

a) High level release of the bomb resulting in an impact velocity of 260m/s (>5,000m altitude).

b) A strike angle of 10 to 15 degrees to the vertical.

c) That the bomb is stable, both in flight and on penetration.

d) That no retarding units are fitted to the bomb.

e) That the soil type is homogenous.

A high altitude release of a bomb will result in ground entry at between 10° and 15° to the vertical with the bomb travelling on this trajectory until momentum is nearly lost. The bomb will then turn abruptly to the horizontal before coming to rest. The distance between the centre of the entry hole and the centre of the bomb at rest is known as the 'offset'. A marked lateral movement from the original line of entry is common.

Low-level attacks may have an impact angle of 45° or more, which will frequently lead to a much greater amount of offset movement during soil penetration.

The average offset is one third of the penetration depth, i.e. an offset of 2m may be expected for a 50kg bomb in dry silts and clays. If hard standings or Made Ground were present during WWII, bomb penetration depths would have been significantly reduced but offset distances may have been up to four times greater.

5 EXPLOSIVE ORDNANCE CLEARANCE ACTIVITIES

Official UK bombing statistics have been compiled from both British and German sources. There were differences in the way the figures were originally reported and collated which has led to discrepancies in the summary data.

Based on data from 1939 to 1945, War Office statistics indicate that 200,195No. HE bombs exploded within Great Britain. Additionally, 25,195No. HE bombs (representing 11%) were recorded as UXBs. However, records from the Royal Engineers who were responsible for bomb disposal at the time indicate that as of 27th February 1946 upwards of 45,000No. UXBs were disposed of.

On average 8.5% of UXBs later self-exploded. In some cases the bombs had delayed action fuzes or were never intended to explode, their purpose being to cause inconvenience and fear. Given the discrepancy in records and the fact that UXBs are still being found unexpectedly, it is clear that the original figures are understated and provide only an approximation of the number of potential UXBs in the UK.

War Office statistics also show that between October 1940 and May 1941 most of the UXBs (93%) were either 50kg or 250kg. It should be noted that details of the recovery and the size of the UXB were not always accurately reported.

The larger WWII UXBs are often difficult to recover due to both penetration depths and the presence of two or more fuzes, combined with more sensitive fillings of explosive mixtures including Amatol and Trialen.

5.1 Abandoned Bombs

For further information on abandoned bombs, and the potential UXO hazard associated with them, follow the link below:

- Abandoned Bombs

No records have been found indicating that any officially abandoned bombs are located on the Site.

5.2 EOC Tasks

Zetica holds no records of post-WWII EOC tasks having taken place in the vicinity of the Site.

6 UXO HAZARD ASSESSMENT

6.1 UXO Hazard Level

The definitions for the levels of UXO hazard are provided below.

Definitions of UXO Hazard Level for a Site	
Hazard Level	**Definition**
Very Low	There is positive evidence that UXO is not present, e.g. through physical constraints or removal.
Low	There is no positive evidence that UXO is present, but its occurrence cannot be totally discounted.
Moderate	There is positive evidence that ordnance was present or that other uncharted ordnance may be present as UXO.
High	There is positive evidence that UXO is present.
Very High	As high, but requires immediate or special attention due to the potential hazard.

Between 1943 and 1957 the Site was encompassed by RAF Ringway, a military airfield used primarily for production and training. The Site comprised part of the western dispersal area.

No records have been found to indicate that the Site was bombed and no other significant sources of UXO hazard have been identified on the Site.

Given this, it is considered that the Site has a low UXO hazard level, as shown in Figure 5.

The UXO hazard zone plan of the Site is also given in the accompanying P11632-22-R1-MAP01-A.

Figure 5 UXO hazard zone plan of the Site

Source: OpenStreetMap *Not to Scale*

Legend	Very Low		Low		Moderate	
	High		Very High		Site boundary	

It should be noted that the potential for encountering UXO on a former military airfield can never be totally discounted and that heightened awareness of the potential UXO hazard should be maintained by site staff.

7 UXO RISK ASSESSMENT

7.1 Proposed Works

It is understood that the Site will be levelled and redeveloped.

Initial works on the Site are understood to comprise ground investigations, including boreholes to maximum depths of 15m bgl. Future works may include further ground investigations, excavations and piling.

7.2 Risk Assessment Methodology

A UXO risk assessment has been undertaken for the proposed works, taking into consideration the identified UXO hazard.

Firstly, the probability of encountering UXO (PE) has been considered and rated for the different construction techniques, as detailed below.

Probability of Encounter (PE)	Rating
Frequent, highly likely, almost certain.	5
Probable, more likely to happen than not.	4
Occasional, increased chance or probability.	3
Remote, unlikely to happen but could.	2
Improbable, highly unlikely.	1
Impossible	0

Secondly, the probability of detonating a UXO (PD) has been considered and rated for the different construction techniques, as detailed below.

Probability of Detonation (PD)	Rating
Frequent, highly likely, almost certain.	5
Probable, more likely to happen than not.	4
Occasional, increased chance or probability.	3
Remote, unlikely to happen but could.	2
Improbable, highly unlikely.	1
Impossible	0

Next, the probability of encountering and detonating the UXO (PE x PD) have been used to generate an overall likelihood rating (P).

P = PE x PD	LIKELIHOOD of Encounter and Detonation	Rating
21 to 25	Frequent, highly likely, almost certain.	5
16 to 20	Probable, more likely to happen than not.	4
6 to 15	Occasional, increased chance or probability.	3
2 to 5	Remote, unlikely to happen but could.	2
1	Improbable, highly unlikely.	1
0	Impossible	0
P ranges from 25, a certainty of UXO being encountered and detonated on the Site by engineering activity, to 0, a certainty that UXO does not occur on the Site and will not be detonated by engineering activity.		

The likelihood of encountering and detonating UXO during site works is multiplied by the severity of such an event occurring (P x S), in order to provide a risk level using the following matrix.

Severity (S)	Rating
Multiple fatalities	5
Major injury, long term health issues, single fatality.	4
Minor injury, short term health issues, no fatalities.	3
First aid case but no lost time or ill health.	2
Minor injuries, no first aid.	1
No injuries.	0

UXO Risk Matrix							
	SEVERITY (S)						
LIKELIHOOD (P)		5	4	3	2	1	0
	5	25	20	15	10	5	0
	4	20	16	12	8	4	0
	3	15	12	9	6	3	0
	2	10	8	6	4	2	0
	1	5	4	3	2	1	0
	0	0	0	0	0	0	0

7.3 UXO Risk Level

The UXO risk assessment for proposed works on the Site is given in Table 6.

Table 6 UXO risk assessment for the Site

Potential UXO Hazard	Anticipated Works	PE	PD	P = PE x PD	Likelihood	Severity	Risk Rating	UXO Risk
UXB	Shallow Excavations	1	1	1	1	5	5	Low
	Deep Excavations	1	1	1	1	5	5	Low
	Boreholes/Piling	1	1	1	1	4	4	Low
Other UXO	Shallow Excavations	1	1	1	1	4	4	Low
	Deep Excavations	1	1	1	1	4	4	Low
	Boreholes/Piling	1	1	1	1	3	3	Low
PE (Probability of Encounter), PD (Probability of Detonation), P (Overall Probability)								
Shallow Excavations defined as <1.0m below ground level (bgl.)								

8 RISK MITIGATION PLAN

Key findings: No significant sources of UXO hazard have been identified.

Key actions: UXO awareness briefing for staff involved in excavations.

8.1 UXO Risk Summary

Table 7 summarises the UXO risk for proposed works on the Site and recommended actions.

Table 7 Summary of UXO risk and mitigation recommendations

Proposed Works	UXO Risk	Recommended Mitigation
Excavations		**UXO awareness briefing** – Given the Site's military history it is recommended that a formal UXO awareness briefing is provided to staff involved in excavation.
Boreholes/Piling		**Proceed with works**

In summary, it is recommended that staff involved in excavation are provided with a formal awareness briefing so that they take appropriate action in the event of a suspect find.

8.2 Risk Mitigation Techniques

8.2.1 UXO Awareness Briefing

Typically ~1hour in duration, these briefings will be expected to provide site workers with:-

- Background to the potential UXO hazards that could be encountered.
- Awareness of how the UXO hazard could present a risk.
- Knowledge of what to do in the event that a suspect item is encountered.

The briefing is to be provided along with back-up materials such as UXO awareness posters, emergency contact numbers and other background information to assist site workers in becoming familiar with what potential UXO can look like.

The materials can also be used by key staff to pass on the relevant points of the induction to others who visit or work on the Site.

By providing the UXO awareness briefing, it ensures that in the unlikely event that UXO is encountered:-

- All site staff take appropriate action.
- A support mechanism and points of contact are established.
- The likelihood of harm to people or property is reduced.
- Significant delays to site work are prevented.

8.3 What Do I Do Next?

If you require a quote for an awareness briefing, or have any questions, contact us via phone (01993 886682) or email (uxo@zetica.com) and we can help.

If you have requirements to identify other buried hazards (such as mapping utilities or obstructions) we can provide these surveys.

If proposed works on the Site change, or additional works are planned, contact Zetica for a re-assessment of the UXO risk and the risk mitigation requirements.

APPENDICES

Appendix 1 Anticipated Ordnance Types

The probability of encountering UXO on the Site is considered to be low. As with any similar site in the UK, there is always a background risk of finding ordnance and potential types to be encountered are detailed below. For a more comprehensive set of ordnance data sheets, see http://zeticauxo.com/downloads-and-resources/ordnance-data-sheets/.

Information Data Sheet

Category Small Arms Ammunition
Type Various

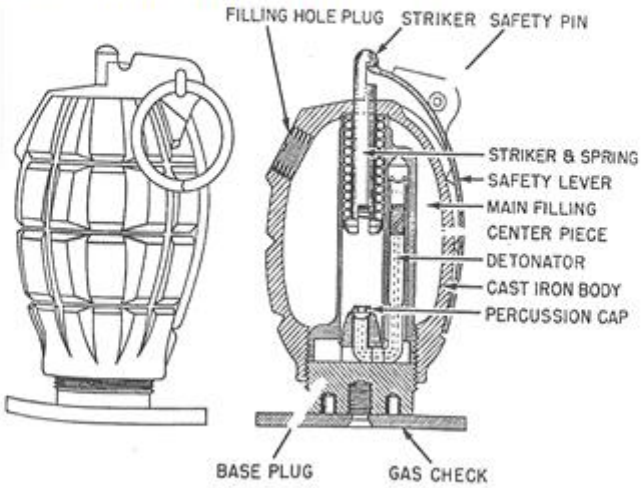
Description: Small Arms Ammunition (SAA) is one of the more recognisable categories of ordnance which is primarily designed for anti-personnel use. SAA include items such as bullets, generally up to a calibre (diameter) of 20mm.

Generally small arms ordnance has a relatively low risk as UXO, although the larger calibre categories may have the same detonation risk as larger high explosive ordnance.

SAA is often associated with discarded ammunition boxes around firing practice ranges and training areas and is often found scattered across former military airfields as a result of aircraft crashes and localised disposal.

Information Data Sheet

Category Grenades (British)
Type No. 36 Hand Grenade ('Mills Bomb')



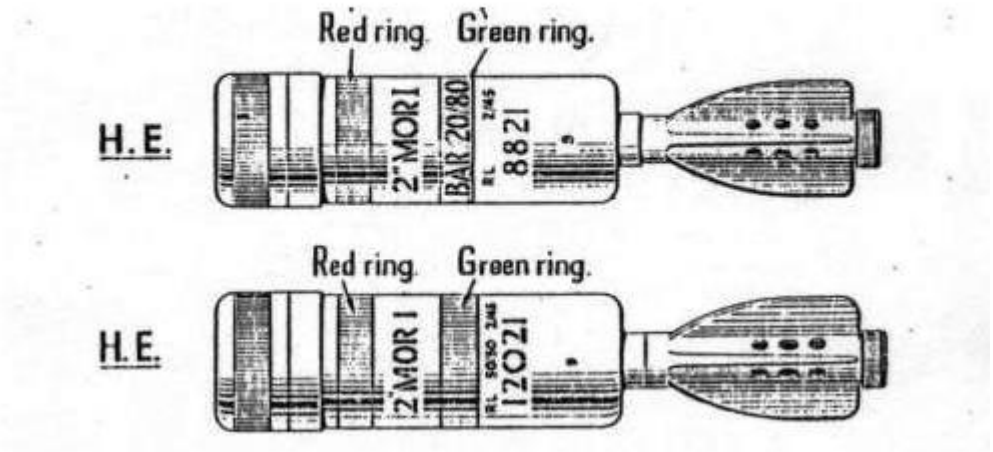
Variants	-	**Dimensions**	101.6mm x 61mm (4" x 2.4")
Weight	2 lbs	**Delay**	4 seconds
Filling	Baratol	**Material**	Cast Iron

Description Lemon-shaped, cast-iron body filled with high explosive. Three holes in the body; one in the base for priming, one near the top for filling; one on the top holding striker.

Function Used as a defence against enemy personnel.

Information Data Sheet

Category Mortar (British)
Type 2-Inch Mortar Bomb



Variants	14	**Length**	11.4" x 2"
Weight	2.5lbs	**Firing Mechanism**	Trip (small trigger)
Calibre	50.8mm (2.0 inches)	**Rate of Fire**	8 rounds per minute

Description Pear-shaped steel body with 6 or 8 vanes. Originally painted buff yellow or dark grey. Filled with c TNT, granular TNT or powdered Amatol. Also smoke, illumination and practice versions.

Function Small enough to be carried by one man, with a range limited to 500 yards, the 2" mortar was usec an anti-personnel role.

Information Data Sheet

Category Bomb (Luftwaffe)
Type Sprengbombe-Cylindrisch (SC) 50kg

Variants 8

Body Dimensions 762 x 200mm (30" x 7.9")

Weight 55kg (122lbs)

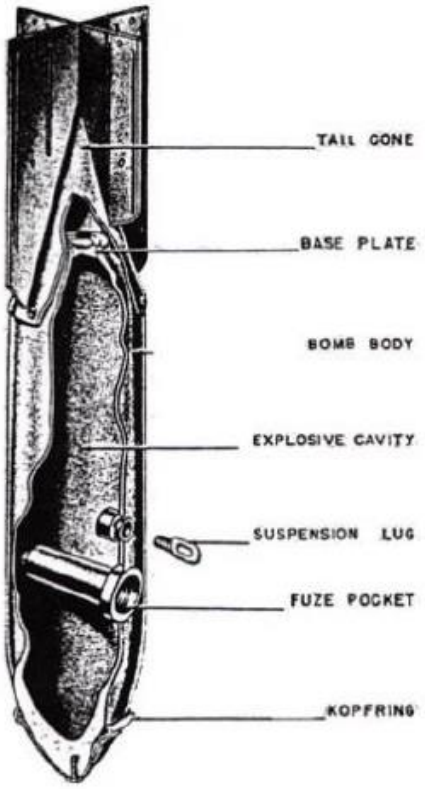
Charge Weight 25kg (54lbs)

Fuze Single electric impact fuze. Some have short time delay

Composition Sheet steel

Description Thick nose welded to a steel body. Nose may be attached to Kopfring (a triangular section steel ring) or spike. Suspension bolt in eye/body and sheet metal tail attached to body with rivets/screws. Originally painted green-grey with a yellow stripe on the tail. Cast TNT, Amatol or Trialen filling.

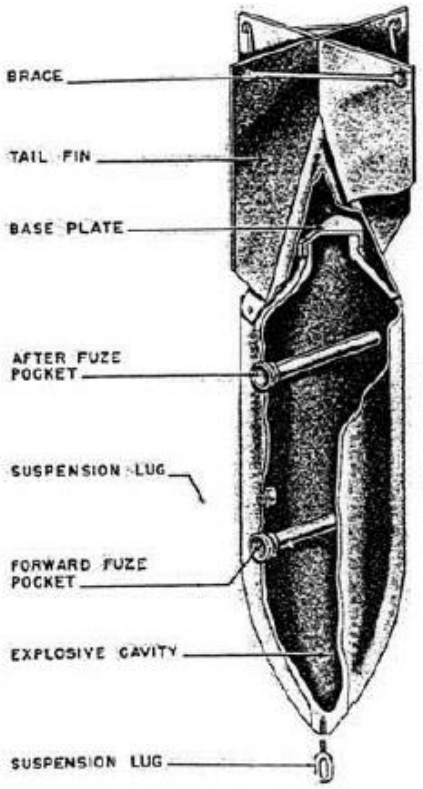
Function Designed to maximise shock waves through air, water and earth and for general demolition. Used against easily damageable targets, including roads, aircraft hangars, rolling stock and small buildings. Spike bombs/ 'Stabo' (SC 50 with spikes attached to nose) were used against rail lines and country roads, with Kopfring used against naval targets.



Information Data Sheet

Category Bomb
Type Sprengbombe-Cylindrisch (SC) 250kg

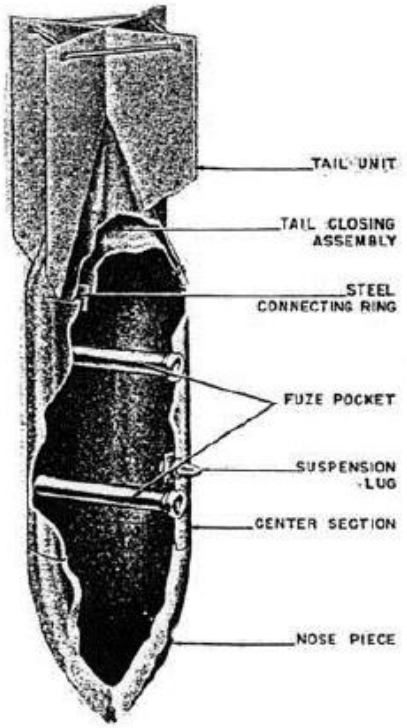
Variants	8
Body Dimensions	1194mm x 368mm (47" x 14.5")
Weight	249-264 kg (548-582lbs)
Charge Weight	130-145 kg (287-320lbs)
Fuze	Electric impact fuze/electric clockwork time fuse & electric anti-disturbance fuze
Composition	Sheet steel with stays
Description	Thick nose welded to steel body. Nose may be attached to Kopfring (triangular section steel ring) or spike. Sheet metal tail attached to body with rivets/ screws. Suspension eye bolt in the nose/body. Originally painted green-grey with a yellow stripe on the tail. TNT; amatol; TNT and aluminium powder, naphthalene, ammonium nitrate and wax/ wood meal filling.
Function	Designed to maximise shock waves through air, water and earth and general demolition. Used against railway installations, large buildings, ammunition depots and below-ground installations (to 8m). Spike bombs/ 'Stabo' (SC 50 with spikes attached to nose) used against rail lines and country roads.



Information Data Sheet

Category Bomb
Type Sprengbombe-Cylindrisch (SC) 500kg

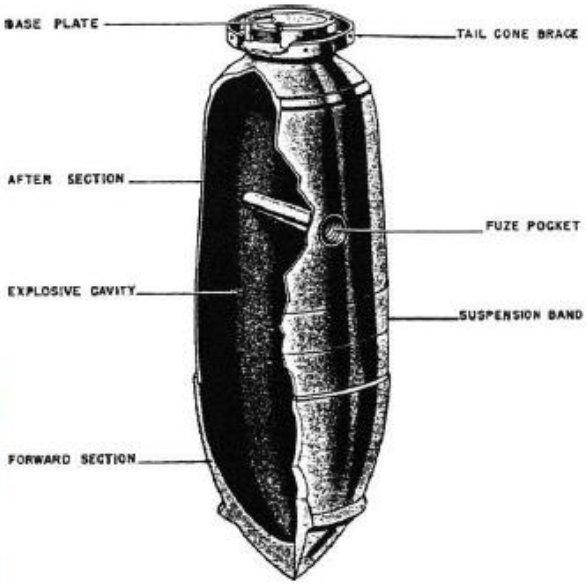
Variants	-
Body Dimensions	1414–1486mm x 470mm (55.7-58.5" x 18.5")
Weight	500kg (1,100lbs)
Charge Weight	220kg (484lbs)
Fuze	Electric impact fuze/electric clockwork time fuse & electric anti-disturbance fuze.
Composition	Sheet steel with stays or drum
Description	Thick nose welded to steel body. Nose may be attached to Kopfring (triangular section steel ring). Tail either steel sheet or drum-shaped. Suspension band. Originally painted green-grey/ buff (some later versions sky blue) with yellow stripe on tail. Filled with amatol, TNT or trialen.
Function	Designed to maximise shock waves through air, water and earth and for general demolition. Used against railway property, large buildings, shipping and below-ground installations.

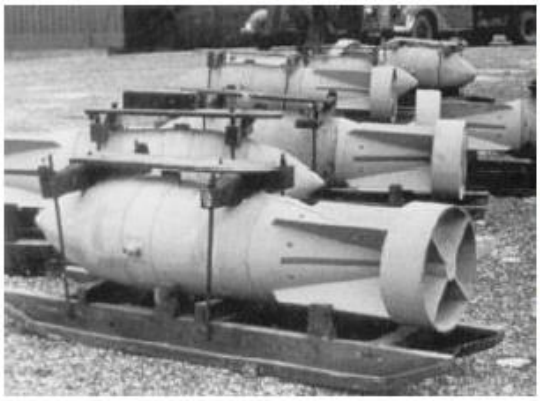


Information Data Sheet

Category Bomb
Type Sprengbombe-Cylindrisch (SC) 1,000kg (HERMANN)

Variants	3
Body Dimensions	1742-1905mm x 648–660mm (68.6-75" x 25.5-26")
Weight	1,000-1,088kg (2,204-2,398lbs)
Charge Weight	529-619kg (1,166-1,364lbs)
Fuze	Electric impact fuze/ electric clockwork time fuze & electric anti-disturbance fuze
Composition	Magnesium alloy with drum
Description	Thick nose welded to steel body. Nose attached to Kopfring (triangular section steel ring). Drum-shaped tail made of magnesium alloy. Suspension band. Originally painted sky-blue. Filled with amatol, TNT/aluminium/wood meal or trialen.
Function	Designed to maximise shock waves through air, water and earth and for general demolition.

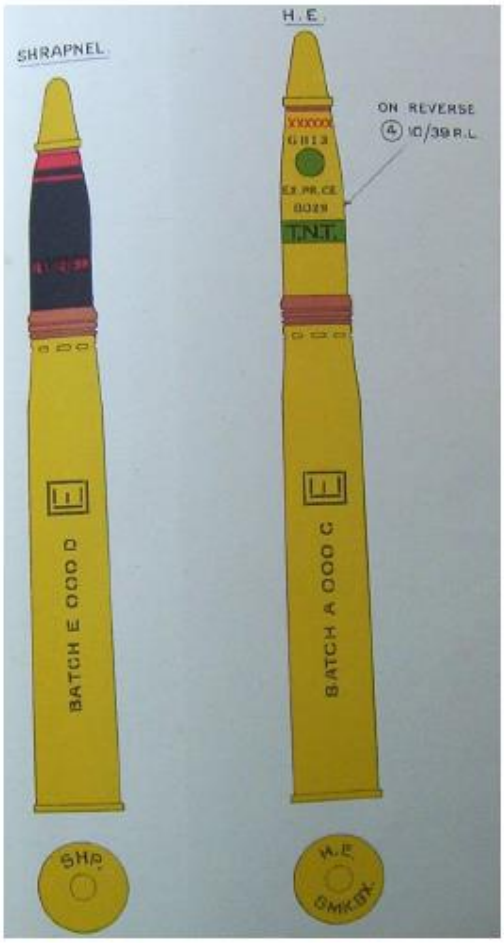




Information Data Sheet

Category Projectile
Type 3.7" Anti-Aircraft Shell

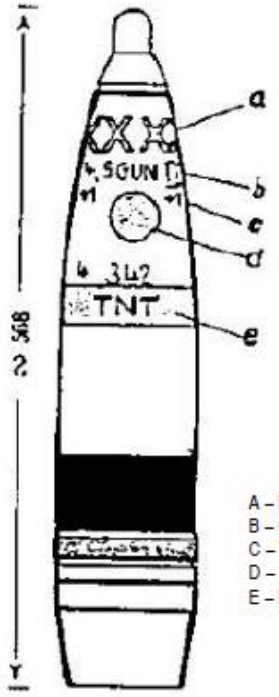
Variants	6
Body Dimensions	94mm x 360mm (3.7 x 14.7")
Weight	12.7kg (28lb)
Fuze	Mechanical time fuze
Composition	Cast steel
Description	Brass cartridge case. Square-based shell with tapered nose, filled with Amatol, TNT or RDX/TNT. MK6 had forward centring bands and a wider driving band.
Function	Used as a defence against enemy aircraft, fired from fixed batteries and mobile mountings. Could fire approximately 20 rounds per minute with a maximum ceiling of 41,000ft and horizontal range of 20,600 yards.



Information Data Sheet

Category Projectile
Type 4.5" Shell (Mark II – Anti-Aircraft)

Variants	-
Body Dimensions	114mm x 566mm (4.5" x 21.9")
Weight	24.9kg (55lb)
Fuze	Mechanical time fuze
Composition	Cast steel
Description	Square-based, tapered-nosed shell filled with TNT or Amatol. Steel casing, rotating band of either copper or gilding metal located 3.5" in front of the base end with single groove.
Function	Used as field artillery and adapted for use in anti-aircraft defence from fixed batteries. Rate of fire of 8 rounds per minute, maximum ceiling of 44,000ft and horizontal range of 22,800 yards.



A – Missile Identification
B – Gun and Bullet Type
C – Weight
D – Smoke pot
E – Explosives Ring

Information Data Sheet

Category Grenades (British)
Type No. 76 Self-Igniting Phosphorus Grenade

Variants -

Dimensions 152.4mm x 63.5mm (6" x 2.5")

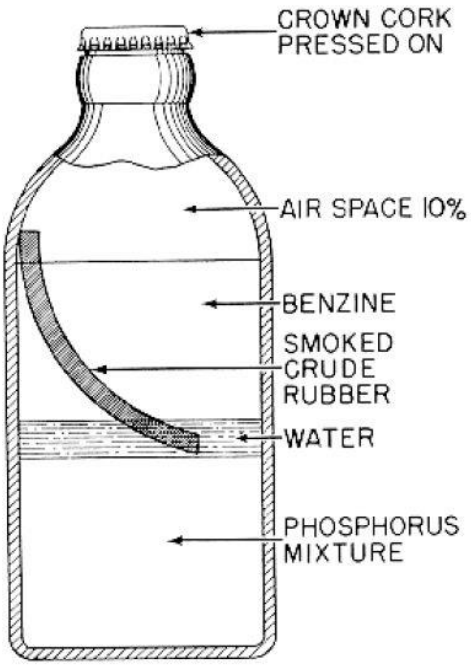
Weight 1lb

Fuze Self-igniting upon breakage

Material Glass

Description Glass bottle filled with white phosphorus, benzene, water and crude rubber.

Function Introduced as an emergency anti-tank measure for the Home Guard early in WWII. Intended to ignite the engine compartment of advancing tanks.



Appendix 2 Sources of UXO Hazard

The sections below provide background information on the potential sources of UXO hazard (albeit low) affecting the Site. For a more comprehensive set of UXO information sheets, see http://zeticauxo.com/downloads-and-resources/uxo-information-sheets/.

Appendix 2.1 Military Airfields

During WWII, there was an urgent need for an increasing number of military airfields in the UK. This requirement grew further as the war progressed, particularly after the arrival of American troops in 1942. Airfields were constructed for a variety of purposes, including training, as fighter and bomber stations, and for maintenance units (MUs).

Many former airfield sites have not been significantly redeveloped in the post-WWII period. As such, a number of potential sources of UXO relating to former airfield activity still remain. The types of UXO that may be present depends on the operational history of the airfield. Almost all military airfields had a similar set of features to include ordnance storage and disposal areas, alongside offensive and defensive weapons.

Pipe Mines: Pipe mines were laid beneath critical infrastructure such as runways and designed to be detonated in the event of an invasion to prevent enemy use of the airfield. Airfields that were most likely to have been equipped with pipe mines were those considered vulnerable to invasion, particularly along the South and East Coast.

Airfields further inland, and those built after the main threat of German invasion had passed, are unlikely to have had pipe mines installed.

Whilst the majority of the pipe mines at airfields were removed at the end of WWII, it is known that some were left in situ or were not detected during post-WWII clearance operations. Pipes mines are periodically found during development at former airfields.

Bomb and Munitions Stores: These were typically constructed in a remote area of an airfield, linked to the perimeter track by a service road. Bomb stores often contained a combination of both practice and live ordnance, in addition to components such as fuzes, detonators and gaines.

Munitions stores also often held close combat ordnance (such as grenades and mortars) and small arms ammunition for airfield defence.

Whilst the bomb stores at airfields were typically subjected to ordnance clearance operations during decommissioning, the sophistication and thoroughness of the clearance was often insufficient to ensure confidence that most of the potential UXO were removed. Incidents of ordnance burial and the accidental spillage of smaller munitions components in the vicinity of the bomb stores is known to have occurred, although such disposal usually occurred in designated areas away from the storage area.

Machine Gun Test Butts: On an airfield, the butts were a designated area where aircraft tested their guns. The butts were often located at the end of access runways or dispersals and incorporated a mound of Made Ground, sand or soil into which firing took place. Whilst machine gun rounds were typically tested at the butts, some aircraft fired cannon shells into the butts.

Small Arms Ranges: Small arms ranges (such as rifle ranges) and close combat ranges (such as mortar and grenade ranges) were provided for training the troops involved in ground defence of the airfield. (See the small arms ranges information sheet for further information on these sites).

Munitions Disposal Areas: For any operational military airfield, using an ordnance disposal facility is required. During wartime, this typically took the form of a burning or burial pit and commonly took place in areas around the perimeter of an airfield, away from aircraft operations and buildings.

The most likely disposal operations at airfields during WWII involved the burial or burning of aircraft ammunition and close combat munitions related to airfield defence. Larger munitions, such as bombs, were usually returned to regional ordnance depots, for reuse or for disposal. It is known, however, that the buried disposal of HE bombs occurred at some airfields and UXBs relating to such practices are occasionally found.

Aircraft Breaking: Specialist Maintenance Units (MU) were responsible for the modification, maintenance and repair of damaged aircraft. Those aircraft considered beyond all repair were stripped of useful and salvageable parts and disposed of in a pit or 'aircraft graveyard', usually in areas around the perimeter of an airfield. Waste from aircraft disposal should be considered hazardous. It contains a range of conventional contaminants and potentially radioactive materials (such as radium from luminescent dials).

Appendix 2.2 Aircraft Crashes

These were a common occurrence during the exigencies of wartime. Collisions, damage sustained during operational duty, pilot error and adverse weather conditions were all causes for crashes.

The nature of aircraft crashes means that debris was often scattered over a wide area around the crash site, sometimes up to a distance of two miles.

Aircraft crash sites provide a potential source of UXO hazard, largely depending on the type of aircraft that crashed, its operational status, its ordnance load and any efforts made to clear up the crash site. The MoD advises that if crashed aircraft are found, the safest policy is to leave them alone where possible. Unless disturbed there is no statutory requirement for the MoD to clear such sites.

The most common source of ordnance associated with aircraft crash sites is small arms ammunition. This may be scattered over a wide area but does not typically constitute a significant UXO hazard. Some later aircraft designs were armed with cannons, the shells of which contain a higher explosive content.

Bomber aircraft crashing with full or partial bomb loads provide a further potential hazard. If the crash site was inaccessible or remote it would commonly be left during wartime. As such, UXBs may still be present around bomber aircraft crash sites.

It is generally the case that post-WWII crash sites are more thoroughly cleared of debris and residues than those which occurred during wartime.

It should be noted that in some cases where a fatal crash site is located, the disturbance of the site may be prohibited due to its status as a war grave.

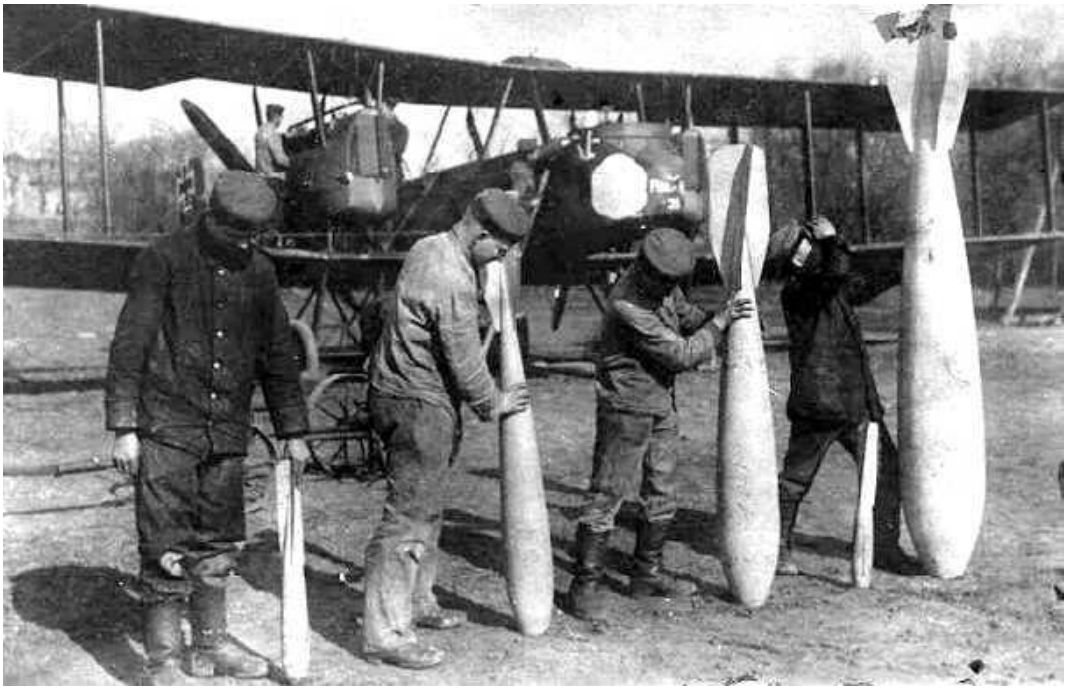
Appendix 2.3 WWI Bombing

It is not generally realised that during World War One (WWI) significant bombing took place across some areas of the UK. An estimated 9,000No. German bombs were dropped on Britain during the course of 51No. airship and 52No. aircraft raids. It was the first time that strategic aerial bombardment had been used. More than 1,400No. people were killed during these raids.

Most air raids were carried out on London and Southeast England. Areas along the East Coast were also targeted regularly due to their proximity to the European continent. Bombing raids further inland were rare and West England and Wales were out of reach for German aircraft of the time.

Aerial bombing during WWI initially relied on visual aiming, with bombsights not developed until later in the war. The inaccuracy inherent in this method meant that bombs often fell some way from their intended targets.

The first recorded raid against England occurred on the 21st December 1914 when 2No. high explosive bombs fell near the Admiralty Pier at Dover. Zeppelin raids intensified during 1915 and 1916, with aircraft raids becoming more frequent after 1917. The last raid of WWI took place on the 19th May 1918, when 38 Gotha and 3 Giant aircraft bombed London and surrounding districts, dropping a total of more than 2,500lbs of bombs.



The potential of coming across an Unexploded Bomb (UXB) from WWI is far less likely than a WWII UXB given the lower bombing densities during raids in the Great War.

Some areas which were subjected to sustained bombing raids, such as parts of London and coastal towns, recorded a higher number of UXB. In these areas, where there has been no significant development for the last century, the potential of a UXB remaining from WWI cannot be totally discounted.

Appendix 2.4 WWII Bombing

Bombing raids began in the summer of 1940 and continued until the end of WWII. Bombing densities generally increased towards major cities or strategic targets such as docks, harbours, industrial premises, power stations and airfields. In addition to London, industrial cities and ports, including Birmingham, Coventry, Southampton, Liverpool, Hull and Glasgow, were heavily targeted, as well as seaside towns such as Eastbourne and cathedral cities such as Canterbury.

The German bombing campaign saw the extensive use of both High Explosive (HE) bombs and Incendiary Bombs (IBs). The most common HE bombs were the 50kg and 250kg bombs, although 500kg were also used to a lesser extent. More rarely 1,000kg, 1,400kg and 1,800kg bombs were dropped.

The HE bombs tended to contain about half of their weight in explosives and were fitted with one or sometimes two fuzes. Not all HE bombs were intended to explode on impact. Some contained timing mechanisms where detonation could occur more than 70 hours after impact.

Incendiary devices ranged from small 1kg thermite filled, magnesium bodied Incendiary Bombs (IBs) to a 250kg 'Oil Bomb' (OB) and a 500kg 'C300' IB. In some cases the IBs were fitted with a bursting charge. This exploded after the bomb had been alight for a few minutes causing burning debris to be scattered over a greater area. The C300 bombs were similar in appearance to 500kg HE bombs, although their design was sufficiently different to warrant a specially trained unit of the Royal Engineers to deal with their disposal.

Anti-Personnel (AP) bombs and Parachute Mines (PMs) were also deployed. 2No. types of anti-personnel bombs were in common use, the 2kg and the 12kg bomb. The 2kg bomb could inflict injury across an area up to 150m away from the impact. PMs (which were up to 4m in length) could be detonated either magnetically or by noise/vibration.

Anti-shipping parachute mines were commonly dropped over navigable rivers, dockland areas and coastlines. The Royal Navy was responsible for ensuring that the bombs were made safe. Removal and disposal was still the responsibility of the Bomb Disposal Unit of the Royal Engineers.

In 1944, the Germans introduced new weapons; the V1, a 'flying bomb' and guided missile, and the V2, a ballistic missile rocket that travelled at such speed that no one could see or hear its approach. London was the main target for these attacks.

WWII bomb targeting was inaccurate, especially in the first year of the war. A typical bomb load of 50kg HE bombs mixed with IBs which was aimed at a specific location might not just miss the intended target but fall some considerable distance away.

It is understood that the local Civil Defence authorities in urban areas had a comprehensive system for reporting bomb incidents and dealing with any Unexploded Bombs (UXB) or other UXO. In more rural areas, fewer bombing raids occurred. It is known that Air Raid Precaution (ARP) records under-represent the number and frequency of bombs falling in rural and coastal areas. Bombs were either released over targets or as part of 'tip and run' raids where bomber crews would drop their bombs to avoid anti-aircraft fire or Allied fighter aircraft on the route to and from other strategic targets. Bombs dropped as a result of poor targeting or 'tip and run' raids on rural and coastal areas often went unrecorded or entered as 'fell in open country' or 'fell in the sea'. The Luftwaffe are thought to have dropped approximately 75,000 tons of bombs on Britain throughout the Second World War and an estimated 11% of all bombs dropped during the war failed to detonate.

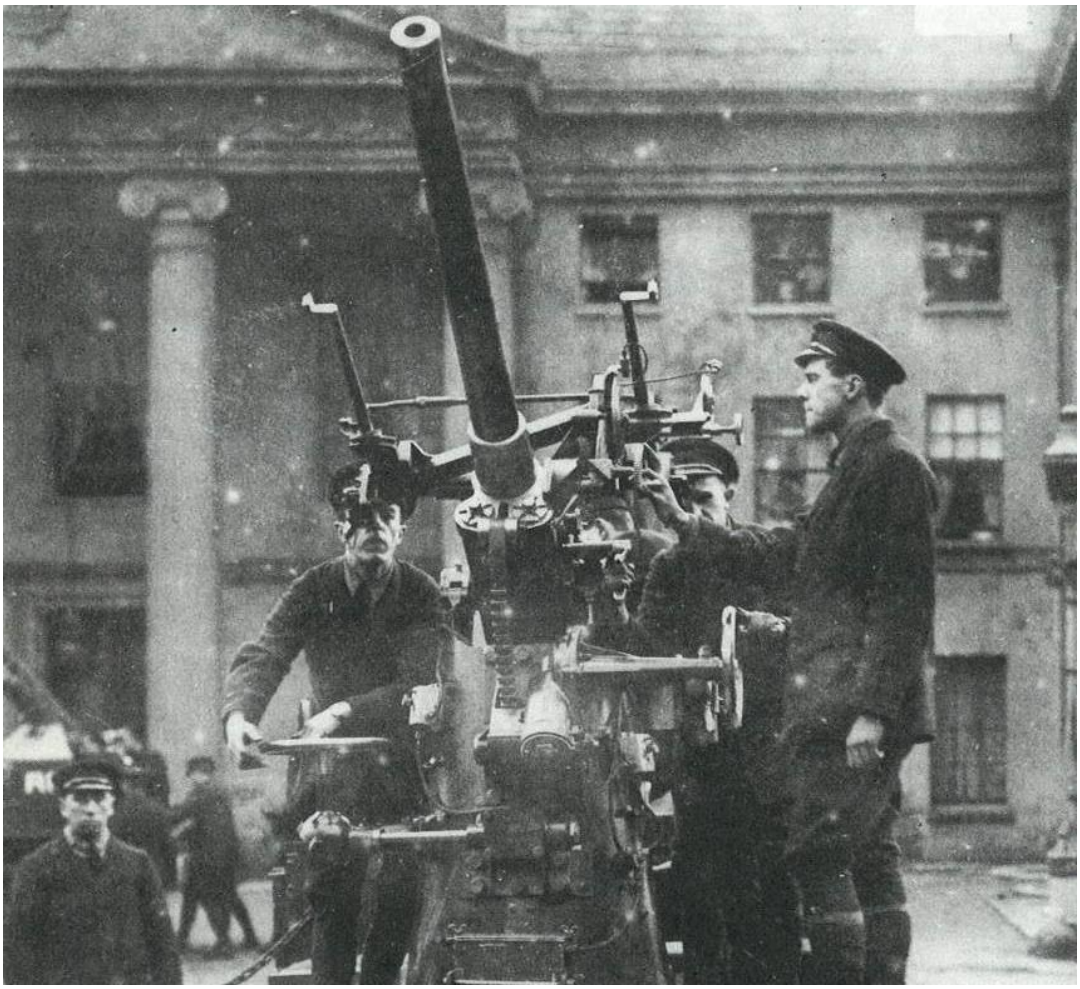
The potential for a UXB hazard to exist on a site depends on a variety of factors. Were there strategic targets in the surrounding area? Was the site bombed? Could a UXB impact have been missed? Even in rural areas, the potential for UXB cannot be totally discounted and therefore it is essential that detailed local bombing records are obtained when assessing the UXB hazard on any site.

Appendix 2.5 Anti-Aircraft Guns

As aerial bombardment first began during WWI, Anti-Aircraft (AA) gun batteries were established were gradually established throughout much of England to counter German bombing raids. By June 1916, there were approximately 271No. AA guns and 258No. searchlight installations defending London alone.

Common AA defences during WWI included 3-inch, 75 millimetre, 6-pounder and 1-pounder guns. Many of these guns were mobile, being mounted on lorry chassis. They were driven about following the course of an airship and fired from any area of open land.

During WWI, Unexploded AA (UXAA) shells, could land up to 13km from the firing point, although more typically fell within 10km.



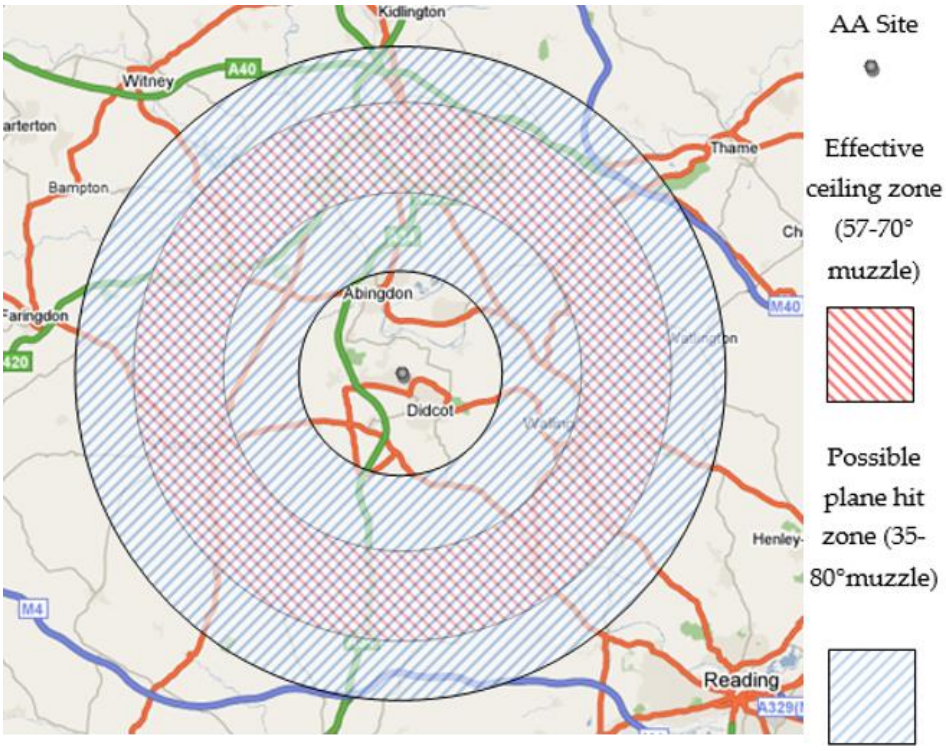
AA gun batteries were used extensively during WWII to counter the threat posed by enemy aircraft. In many instances, AA shells caused damage to Allied territory and in some areas caused significant numbers of civilian fatalities.

During WWII, AA shells could land up to 27km from the firing point, although more typically fell within 15km. These could be distributed over a wide area.

3No. types of AA batteries existed:

- **Heavy Anti-Aircraft (HAA)** batteries of large guns (typically 3.7", 4.5" and 5.25" calibre) designed to engage high flying bomber aircraft. These tended to be relatively permanent gun emplacements.
- **Light Anti-Aircraft (LAA)** weaponry, designed to counter low flying aircraft. These were often mobile and were moved periodically to new locations around strategic targets such as airfields. They typically fired 40mm shells and machine gun ammunition.
- **Rocket batteries (ZAA)** firing 3" or 3.7" AA rockets with a maximum altitude of 5,800m and a ground range of 9km were typically permanent emplacements.

Unexploded AA (UXAA) shells were a common occurrence during WWII. As the figure below demonstrates, shells were unlikely to fall in the immediate vicinity of a gun battery but in the surrounding area. This would be dependent upon the angle of fire and the flight height of the attacking aircraft.



AA batteries were deliberately targeted by the Luftwaffe and therefore areas surrounding a gun battery may have a greater risk of UXB being present.

Munitions stores were also established around AA batteries. These stored the shells for the batteries and small arms ammunition for troops manning the position. Such stores were typically removed at the end of WWII, although some disposal may have occurred in the immediate vicinity of the gun battery.

Appendix 3 Recent UXO Finds

UXO finds in the UK are a regular occurrence, although they almost never result in an accidental detonation.

It is still important to note that explosives rarely lose effectiveness with age. In some instances, mechanisms such as fuzes and gaines can become more sensitive and more prone to detonation, regardless of whether the device has been submersed in water or embedded in silt, clay or similar materials.

The effects of an accidental UXO detonation are usually extremely fast, often catastrophic and invariably traumatic to any personnel involved. Such occurrences are largely restricted to current theatres of war and overseas minefields, with occasional events in mainland Europe.

Zetica, and other commercial EOD companies, uncover and make safe thousands of items of UXO each year, though details are rarely made public knowledge.

Publicly-recorded discoveries do also occur regularly, as demonstrated by the list of recent significant UXO finds in the UK below. To keep up to date with the latest UXO finds, visit http://zeticauxo.com/news/.

On the 3rd February 2020, a 500kg German UXB was found on a building site in Soho, London. It was removed by an EOD team.

On the 18th April 2020, a 500lb British UXB was discovered by a farmer near Drayton in Oxfordshire. The area had been used as an RAF practice bombing range during WWII and after an in-situ disposal was completed the item was found to have contained no explosives.

On the 4th May 2020, a UXB was discovered by builders at Kings Hill on the former RAF West Malling airfield, the fourth found since 2017. It was destroyed in a controlled explosion.

On the 1st December 2020, a research vessel discovered an unexploded marine mine containing 350kg of explosives in Wemyss Bay in the Firth of Clyde. RN divers investigated the item and destroyed it.

On the 4th February, 2No. anti-tank mines were discovered on Slapton Sands in Devon. They had been uncovered by recent storms and were destroyed.

On the 26th February 2021, a 1,000kg German “Hermann” UXB was discovered by builders at Exeter University campus (see plate below). It was investigated and detonated in-situ following the evacuation of nearby properties and University halls of residence.

On the 29th March 2021, 1No. 250lb UXB was discovered on the seabed near Hinkley Point C harbour, Bristol. A maritime exclusion was imposed while the item was investigated and then destroyed in a controlled explosion.

On the 10th May 2021, 1No. Anti-Aircraft shell dating from WWII was found by a member of the public in Horsham, Surrey. It was destroyed in-situ by a bomb disposal unit.

On the 17th May 2021, 1No. Sea Wolf missile was brought onboard a fishing vessel near Brixham in Devon. A Royal Navy EOC team destroyed the missile in a controlled explosion.

On the 1st June 2021, a cache of approximaetly 100No. hand grenades dating from WWII were found in a Nottinghamshire forest, a possible relic from nearby wartime camps. They were destroyed.

On the 23rd July 2021, 1No. 18lb artillery shell dating from WWI was discovered in a private garden in Bloxham, Oxfordshire. It was transported to a nearby field where it was destroyed in a controlled explosion.

On the 24th July 2021, 1No. 500lb British UXB was uncovered during construction works in Goole, East Yorkshire. Reports indicated that the UXB had been jettisoned by a Lancaster bomber aircraft prior to crashing nearby in WWII. The item was investigated and destroyed.

On the 18th August 2021, 1No. UXB was found by construction workers on a Site in Earl Sterndale, Derbyshire. Upon inspection the UXB was deemed to be dangerous and a controlled detonation was undertaken.

On the 10th September 2021, EOD teams destroyed 25No. mortars which had been washed up onto beaches around Nairn and Ardersier in Morayshire. These beaches had been used during WWII for training prior to the D-Day landings in Normandy.

On the 18th October, 1No. 18.5lb artillery shell was discovered during the clearing-out of a farmyard barn near Aberfeldy in Perthshire. The shell dated from WWI and was removed.

On the 12th November 2021, 1No. unexploded artillery shell was found on a housing development site in Wrexham, Wales. It was detroyed in controled explosion.

On the 15th December 2021, approximately 200No. artillery shells were discovered at a construction site located within the former Royal Ordnance Factory at Swynnerton in Staffordshire. The shells were removed and destroyed.

On the 15th December 2021, 1No. apparent UXB was snagged by a fishing trawler off the Norfolk Coast and then detonated, causing significant damage to the vessel. Upon further investigation, it was concluded that the UXB had been dropped in the water during WWII.

On the 2nd January 2022, 1No. heavily deteriorated 105mm artillery shell was discovered by dogwalkers on a beach in Cumbria. This may have originated on one of the several offshore ranges which have been operational along the nearby coastline since WWII.

Between the 24th and 27th January 2022, 5No. empty artillery shells were uncovered at a construction site in Manchester. These were likely linked to a shell-production factory which had been active on the site during WWII.

On the 17th February 2022, 1No. WWI-era Mk1 Mills hand grenade was found in the River Frome in Dorset by magnet fishermen. This was the third grenade to be pulled from the same stretch of the river over the past year. It was inspected by local police and destroyed.

Appendix 4 Glossary and Definitions

Abandoned Explosive Ordnance (AXO)	Abandoned Explosive Ordnance is explosive ordnance that has not been used during an armed conflict, that has been left behind or disposed of by a party to an armed conflict, and which is no longer under control of that party. Abandoned explosive ordnance may or may not have been primed, fuzed, armed or otherwise prepared for use.
Close Combat Munitions	Items of ordnance thrown, propelled or placed during land warfare, to include grenades, mortars, projectiles, rockets and land mines.
Demil	Derived from the term 'Demilitarisation', it refers to the break down and the recycling or disposal of ordnance components.
Detonation	The high-speed chemical breakdown of an energetic material producing heat, pressure, flame and a shock wave.
Device	This term is used for any component, sub-assembly or completed ordnance, which may or may not have an explosive risk. It can apply to detonators, primers, gaines, fuzes, shells or bombs.
Explosive	The term explosive refers to compounds forming energetic materials that under certain conditions chemically react, rapidly producing gas, heat and pressure. Obviously, these are extremely dangerous and should only be handled by qualified professionals.
Explosive Ordnance (EO)	Explosive Ordnance is all munitions containing explosives, nuclear fission or fusion materials and biological and chemical agents. This includes bombs and warheads, guided and ballistic missiles, artillery, mortar, rocket, small arms ammunition, mines, torpedoes, depth charges, pyrotechnics, cluster bombs & dispensers, cartridge & propellant actuated devices, electro-explosive devices, clandestine & improvised explosive devices, and all similar or related items or components explosive in nature.
Explosive Ordnance Clearance (EOC)	Explosive Ordnance Clearance is a term used to describe the operation of ordnance detection, investigation, identification and removal, with EOD being a separate operation.
Explosive Ordnance Disposal (EOD)	Explosive Ordnance Disposal is the detection, identification, on-site evaluation, rendering safe, recovery and final disposal of unexploded explosive ordnance.
Explosive Ordnance Reconnaissance (EOR)	Explosive Ordnance Reconnaissance is the detection, identification and on-site evaluation of unexploded explosive ordnance before Explosive Ordnance Disposal.
Explosive Remnants of War (ERW)	Explosive Remnants of War are Unexploded Ordnance (UXO) and Abandoned Explosive Ordnance (AXO), excluding landmines.

Explosive Substances and Articles (ESA)	Explosive substances are solid or liquid substances (or a mixture of substances), which are either: • capable by chemical reaction in itself of producing gas at such a temperature and pressure and at such a speed as to cause damage to the surroundings. • designed to produce an effect by heat, light, sound, gas or smoke, or a combination of these as a result of a non-detonative, self-sustaining, exothermic reaction. Explosive article is an article containing one or more explosive substances.
Fuze	A fuze is the part of an explosive device that initiates the main explosive charge to function. In common usage, the word fuze is used indiscriminately, but when being specific (and in particular in a military context), fuze is used to mean a more complicated device, such as a device within military ordnance.
Gaine	Small explosive charge that is sometimes placed between the detonator and the main charge to ensure ignition.
Geophysical survey	A geophysical survey is essentially a range of methods that can be used to detect objects or identify ground conditions without the need for intrusive methods (such as excavation or drilling). This is particularly suited to ordnance as disturbance of ordnance items is to be avoided where ever possible.
Gold line	This is the estimated limit of blast damage from an explosive storage magazine. It usually means that development within this zone is restricted.
High Explosive	Secondary explosives (commonly known as High Explosives (HE)) make up the main charge or filling of an ordnance device. They are usually less sensitive than primary explosives. Examples of secondary explosives are: Nitro glycerine (NG), Trinitrotoluene (TNT), AMATOL (Ammonia nitrate + TNT), Gunpowder (GP), and Cyclotrimethylenetrinitramine (RDX).
Munition	Munition is the complete device charged with explosives, propellants, pyrotechnics, initiating composition, or nuclear, biological or chemical material for use in military operations, including demolitions. This includes those munitions that have been suitably modified for use in training, ceremonial or non-operational purposes. These fall into three distinct categories:- • inert - contain no explosives whatsoever. • live - contain explosives and have not been fired. • blind - have fired but failed to function as intended.

Primary Explosive	Primary explosives are usually extremely sensitive to friction, heat, and pressure. These are used to initiate less sensitive explosives. Examples of primary explosives are: Lead Azide, Lead Styphnate, and Mercury Fulminate. Primary explosive are commonly found in detonators.
Propellants	Propellants provide ordnance with the ability to travel in a controlled manner and deliver the ordnance to a predetermined target. Propellants burn rapidly producing gas, pressure and flame. Although usually in solid form they can be produced in liquid form. Examples of propellants are: Ballistite often found in a flake form and Cordite used in small arms ammunition.
Pyrotechnic	A pyrotechnic is an explosive article or substance designed to produce an effect by heat, light, sound, gas or smoke, or a combination of any of these, as a result of non-detonative, self-sustaining, exothermic chemical reactions.
Small Arms Ammunition (SAA)	SAA includes projectiles around 12mm or less in calibre and no longer than approximately 100mm. They are fired from a variety of weapons, including rifles, pistols, shotguns and machine guns.
Unexploded Anti-Aircraft (UXAA) Shell	UXAA shells are army ordnance commonly containing HE, though they can also contain pyrotechnic compounds that produce smoke. Most commonly, these were 3.7” and 4.5” HE shells, although they ranged from 2” to 5.25” calibre.
Unexploded Bomb (UXB)	UXB is a common term for unexploded air-dropped munitions.
Unexploded Ordnance (UXO)	UXO is explosive ordnance that has been either primed, fuzed, armed or prepared for use and has been subsequently fired, dropped, launched, projected or placed in such a manner as to present a hazard to operations, persons or objects and remains unexploded either by malfunction or design.
V1	The Vergeltungswaffe-1, V-1, also designated Fieseler Fi 103/FZG-76, known colloquially in English as the Flying Bomb, Buzz Bomb or Doodlebug, was the first guided missile used in WWII and the forerunner of today's cruise missile.
V2	The Vergeltungswaffe 2 (V-2) (‘Reprisal Weapon 2’) was the first ballistic missile. It was used by the German Army primarily against Belgian and British targets during the later stages of WWII. The V-2 was the first man-made object launched into space, during test flights that reached an altitude of 189km (117 miles) in 1944.

Appendix 5 Aircraft Crashes

17th May 1940

1No. Lockheed Hudson I (N7365) bomber aircraft crashed west of RAF Ringway, approximately 0.8km southwest of the Site.

1st February 1941

1No. Curtis P-36 Mohawk IV (AR664) fighter aircraft crashed northeast of RAF Ringway, approximately 1km southeast of the Site.

1No. Fairey Fulmar II (N4043) fighter aircraft crashed on the southwest side of RAF Ringway, approximately 2.7km south of the Site.

23rd November 1941

1No. General Aircraft Hotspur (BT488) military glider crashed near RAF Ringway, within approximately 1km of the Site.

8th March 1942

1No. Airspeed Horsa (DP600) military glider crashed near RAF Ringway, within approximately 1km of the Site.

1st May 1942

1No. Avro Lancaster I (L7529) bomber aircraft crashed on the northeast corner of RAF Ringway, approximately 1.6km northeast of the Site.

29th May 1942

1No. Armstrong Whitworth Whitley (serial number unknown) bomber aircraft crashed on RAF Ringway, approximately 0.8km southeast of the Site.

31st May 1942

1No. Miles Master (serial number unknown) training aircraft crashed on the northeast corner of RAF Ringway, approximately 1.6km northeast of the Site.

3rd June 1942

1No. Armstrong Whitworth Albemarle (serial number unknown) transport aircraft crashed on the runway at RAF Ringway, approximately 1km southeast of the Site.

17th September 1942

1No. Vickers Wellington (serial number unknown) bomber aircraft crashed on the northeast side of RAF Ringway, approximately 1.4km northeast of the Site.

30th January 1943

1No. Vickers Wellington (serial number unknown) bomber aircraft crashed on the southwest side of RAF Ringway, approximately 1.3km south of the Site.

7th March 1943

1No. B-24J, Liberator III (FK218) bomber aircraft crashed on open ground approximately 1.5km east of the Site.

16th March 1943

1No. North American P-51 Mustang (serial number unknown) fighter aircraft crashed on the east side of RAF Ringway, approximately 1.5km southeast of the Site.

20th September 1943

1No. Armstrong Whitworth Whitley (serial number unknown) bomber aircraft crashed on RAF Ringway, approximately 1.1km south of the Site.

27th September 1943

1No. Supermarine Spitfire (serial number unknown) fighter aircraft crashed on the runway at RAF Ringway, approximately 1km southeast.

23rd February 1944

2No. Armstrong Whitworth Whitley V (LA 948 and LA 895) bomber aircraft collided at the junction of Runway 10/28 and Runway 06/24, approximately 1.1km southeast of the Site. LA 948 was thrown into the air and crashed near Hangar No. 2, approximately 1km east of the Site.

16th March 1945

1No. B-17 Flying Fortress (serial number unknown) bomber aircraft crashed at the junction of Runway 10/28 and Runway 06/24, approximately 1.1km southeast of the Site.

15th November 1948

1No. Avro York (MW327) transport aircraft crashed in a field at Cloughbank Farm, approximately 0.5km southeast of the Site.

11th May 1950

1No. Supermarine Spitfire F.22 (PK599) fighter aircraft crashed at RAF Ringway, approximately 0.8km southeast of the Site

Appendix 6 Bibliography

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

Bulloch G, Steeds J E, Green K, Sainsbury M G, Brockwell J S, & Slade N J, R&D Technical Report P5-042/TR/03, Land Contamination: Technical Guidance on Special Sites: Explosives Manufacturing & Processing Sites

Cheshire County Council, Wartime Cheshire, 1939-1945, 1995

CIRIA, 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, 2000

Cocroft W D, Thomas R J, Cold War, 2003

Department of the Environment, Sampling Strategies for Contaminated Land, Department of the Environment: Contaminated Land Research Report, CLR Report No. 4, 1994.

Delve K, The Military Airfields of Britain: Northern England, 2006

Dobinson C S, Twentieth Century Fortifications in England, Volume I 1, Anti-aircraft artillery, England's air defence gun sites. 1914 – 46. Council for British Archaeology, 1996

Dobinson C S, Twentieth Century Fortifications in England, Volume I 2, Anti-aircraft artillery, Site gazetteer, WWI. Council for British Archaeology, 1996

Dobinson C S, Twentieth Century Fortifications in England, Volume I. 3. Anti-aircraft artillery, 1914-46, Site gazetteer, WWII HAA & ZAA. Council for British Archaeology, 1996

Dobinson C S, Twentieth Century Fortifications in England, Volume I 4, Anti-aircraft artillery, Site gazetteer, WWII LAA. Council for British Archaeology, 1996

Dobinson C S, Twentieth Century Fortifications in England, Volume I 5, Anti-aircraft artillery, Sources. Council for British Archaeology, 1996

Dobinson C S, Twentieth Century Fortifications in England, Volume II, Anti-invasion defences of WWII. Council for British Archaeology, 1996

Dobinson C S, Twentieth Century Fortifications in England, Volume III, Bombing decoys of WWII, England's passive air defence 1939-45. Council for British Archaeology, 1996

Dobinson C S, Twentieth Century Fortifications in England, Volume VIII, Civil defence in WWII, Protecting England's Civil Population. Council for British Archaeology, 1996

Dobinson C S, Twentieth Century Fortifications in England, Supporting paper AA/1 Searchlight sites in WWII. Council for British Archaeology, 1996

Dobinson C S, Fields of Deception, Britain's Bombing Decoys of World War II, 2000

Dobinson C S, AA Command, 2001

Fegan T, The Baby Killers, 2002

Greenacre J, Churchill's Spearhead: The Development of Britain's Airborne Forces During World War II, 2010

Hardy C, Manchester at War, 2005

Manchester Evening News, Our Blitz: Red Skies over Manchester, 1945

Morris J, German Air Raids on Britain 1914-1918, 1993

Phythian G, Blitz Britain: Manchester and Salford, 2015

Price A, Blitz on Britain 1939-45, 2000

Ramsey W, The Blitz Then and Now, Vol 1, 1987

Ramsey W, The Blitz Then and Now, Vol 2, 1988

Ramsey W, The Blitz Then and Now, Vol 3, 1990

Robinson B R, Aviation in Manchester: A Short History, 1977

Scholefield R A, Airfield Focus No. 6: Ringway, 1937-1992, 1992

Scholefield R A, Manchester Airport, 1998

Smith D, Action Stations: Military Airfields of Wales and the North West, 1981

Smith D, Britain's Military Airfields 1939-1945, 1989

Smith J C, Luftwaffe over Manchester: The Blitz Years: 1940-1944, 2003

Zetica, ZeticaUXO Handbook: a guide to dealing with UXO during construction, 2018

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Appendix D Factual Report

BUILDING 401,
MANCHESTER AIRPORT

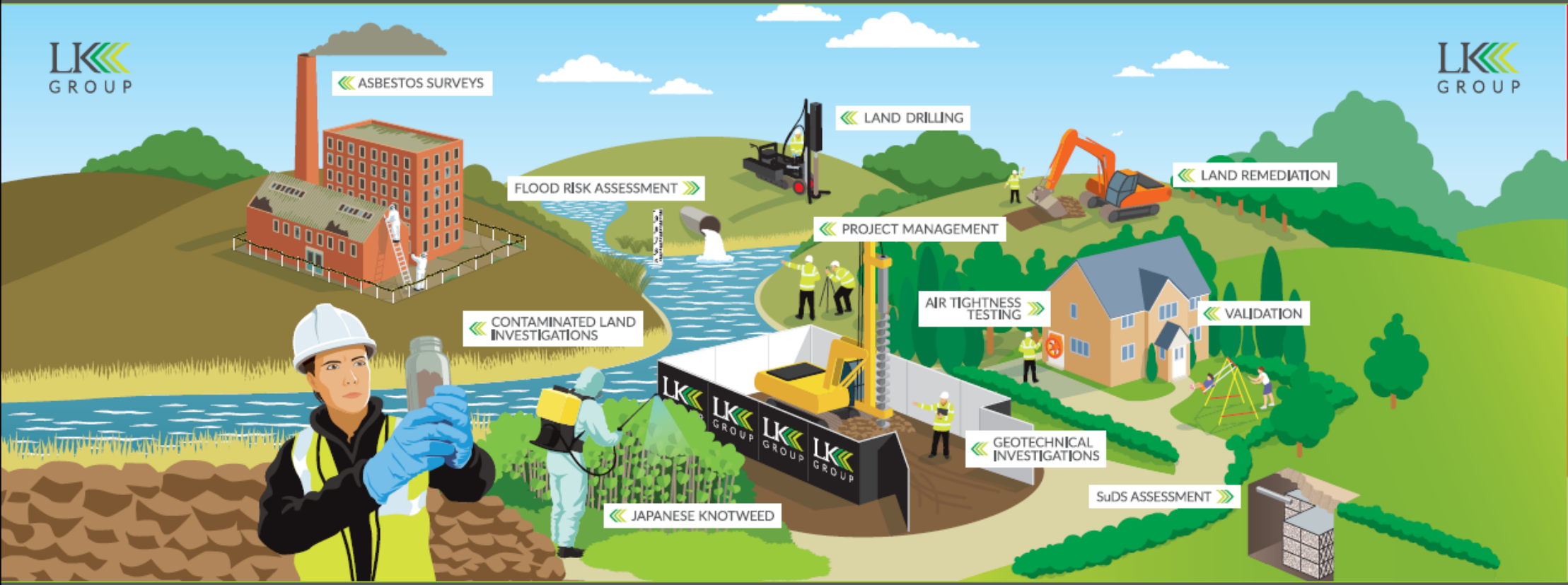
FINAL
FACTUAL GROUND
INVESTIGATION REPORT

Job Number: LKC 22 1225
Date: 20th July 2022
Client: Threadneedle Curtis Ltd

INCREASING LAND VALUE

LK GROUP

INCREASING LAND VALUE



LK GROUP

LK Consult Document Verification			
Site Address	Building 401, Avro Way/Pinfold Lane, Manchester, M90 5XR		
Report Title	Final Factual Ground Investigation Report		
Job Number	LKC 22 1225	**Document Ref.**	CL-602-LKC 22 1225-02
Date Issued	20th July 2022	**Report Version**	R0
Prepared By	Rachel Peart	**Reviewed By**	Colin Crompton

Revision Record			
Revision No.	**Date**	**Nature of Revision**	**Approved By**
1	10/08/2022	Added Appendix G for Core Photographs. Added SPT Hammer Certificates to App. A. Updated summary of Geotech lab testing.	RP

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This report is issued on the condition that LKC will not be held liable for any loss arising from ground conditions between sampling points (i.e. boreholes/trial pits/hand augers/surface samples) which have not been shown by the sampling points or related testing carried out during the investigation, nor for any loss arising from conditions below the maximum depth of the investigation. Opinions on such conditions, where given, are for general guidance only.

This report is prepared solely for the benefit of Threadneedle Curtis Ltd. It may not be relied upon by, or submitted to a third party for their reliance for the purposes of valuation, mortgage, insurance and regulatory approval, until all invoices have been settled in full.

Those using this information in subsequent assessments or evaluations do so at their own risk.

EXECUTIVE SUMMARY

Site Details

Site Location:	The site is located to the west of the junction between Avro Way and Pinfold Lane. Centred at approximate National Grid Reference 380910E 384825N.
Site Area:	2.16Ha.
Current Land Use:	The site currently comprises the demolition site of Building 401.
Proposed Development:	Planning Application No. 131892/FO/2021: erection of a terrace of three Class B8 warehouse units with associated parking, access and landscaping, following demolition of existing building.
Purpose of Report:	Factual Contamination and Geotechnical information.

Ground Investigation Work Undertaken

Date of Investigation:	24th May to 7th June 2022.
Intrusive Investigation Work Undertaken:	7no. cable percussive boreholes (BH101-BH106, DS101). 4no. follow on rotary core boreholes (BH101, BH102, BH104 and BH106).
Monitoring Wells:	Installed in BH101-BH106.
Contamination Testing – Soils	16no. samples tested for metals / metalloids, pH, sulphate suite, speciated PAHs, TPHCWG, phenols, cyanide suite, FOC and asbestos screen (Suite S-1) 14no. samples tested for PCBs, SVOCs, VOCs. 6no. samples tested for Inert WAC. 6no. samples tested for leachable metals / metalloids, pH, sulphate suite, speciated PAHs, TPHCWG, phenols, ammoniacal nitrogen cyanide suite, chloride, electrical conductivity and nitrate. 6no. samples tested for leachable PCBs, SVOCs, VOCs.
Contamination Testing – Groundwater	6no samples tested for metals / metalloids, pH, sulphate suite, speciated PAHs, TPHCWG, phenols, ammoniacal nitrogen cyanide suite, chloride, electrical conductivity, nitrate, PCBs, SVOCs and VOCs.
Monitoring:	6no. gas monitoring visits over 6 weeks months.
Insitu Testing	SPTs, hand shear vanes, lightweight deflectometer, PID headspace.
Laboratory Geotechnical Testing:	18no. samples tested for BRE Suite D. 10no. samples tested for Density and Moisture Content. 19no samples tested Atterberg Limits. 6no. samples tested for Particle Size Distribution. 7no. samples tested for One-Dimensional Consolidation. 11no. samples tested for Quick Undrained Triaxial. 13no. samples tested for Uniaxial Compressive Strength. 17no. samples tested for Point Load (axial and diametral).
Other Work:	Falling Head Tests.

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FIGURES

Figure 1: Site Location and Boundary Plan
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APPENDICES

Appendix A: Profile Logs with SPT Hammer Efficiency Certificates
Appendix B: Certificates of Analysis – Soil and Leaching Tests
Appendix C: Certificate of Analysis – Groundwater
Appendix D: Gas Monitoring Results
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Appendix F: Falling Head Tests
Appendix G: Rock Core Photographs

1 Introduction

1.1 Background

LK Consult Ltd (LKC) has been commissioned by R&M Developments Ltd on behalf of Threadneedle Curtis Ltd to carry out a Ground Investigation for Building 401, Manchester Airport.

The investigation was undertaken to provide information to assess the geotechnical, geo-environmental, geological and hydrological ground conditions in order to inform design of the proposed redevelopment of the site (planning application no. 131892/FO/2021).

LKC are aware of the following work which has previously been undertaken:

- Phase 1 Tier 1 Geo-Environmental and Geotechnical Assessment, undertaken by AECOM Ltd (Ref: 60663052-ACM-402-XX-RP-G-00001, Revision 100, dated 24th February 2022).

This report details the investigation work undertaken to date using the recommended scope of works provided by AECOM Ltd (specification document 60663052-ACM-401-XX-SP-G-00002, dated 8th March 2022). The scope of work comprised:

- 7no. hand dug inspection pits to 1.2 metres below ground level (mbgl).
- 1no. dynamic sampling borehole to 5.00mbgl.
- 6no. cable percussive boreholes with follow on rotary coring.
- On site testing to include SPTs, UT100/U100s, hand shear vanes and lightweight deflectometer tests.
- Insitu permeability testing within cable percussive boreholes.
- Collection of soil and rock samples for contamination and geotechnical testing purposes.
- Photo Ionisation Detector testing.
- Installation of 50mm internal diameter gas/water monitoring wells.
- Groundwater monitoring and sampling following completion of fieldworks.
- Gas monitoring of well installations following completion of fieldworks.
- Geotechnical and chemical laboratory testing.
- Factual report with AGS data.

Given the prevailing ground conditions encountered during the fieldworks AECOM Ltd as Investigation Supervisor issued a variation that follow on rotary cores would be undertaken in 4no. locations only, but the termination depth would be deeper than assumed in the specification document. The termination depths upon coring were ultimately between 14.5 and 25.0mbgl.

It should be noted that LKC assume that all previous work has been submitted to and approved by the regulators.

1.2 Site Details

A summary of the site details is presented in Table 1-1. Figure 1 indicates the site location and boundary. Figure 2 indicates the proposed development.

Site Location	The site is located to the west of the junction between Avro Way and Pinfold Lane. Centred at approximate National Grid Reference 380910E 384825N.
Approximate Area	2.16Ha.
Topography	66-69 metres Above Ordnance Datum (AOD). Site slopes very gradually from north east down to the south west.
Current Site Use	At the time of the fieldworks building B401 was undergoing demolition. Areas of hardstanding were present to the northwest and southeast elevations with a soft landscaped verge and a backfilled service trench to the north east elevation. The area of hardstanding to the south west of the building was a former bus depot operated by Manchester Airport with associated vehicle wash and above ground storage tanks and pumps for refuelling buses. An electrical substation is located on the western side of the building and a HV cable is known to run under the building from Pinfold Lane.
Planning Ref.	131892/FO/2021.
Proposed Development	Erection of a terrace of three Class B8 warehouse units with associated parking, access and landscaping, following demolition of existing building.

Table 1-1: Summary of site details.

2 Ground Investigation

2.1 Site Investigation Design and Methodology

In order to assess the ground conditions at the site and to investigate the potential pollutant linkages identified in the preliminary contamination conceptual model an intrusive investigation was undertaken.

The investigation was carried out on 24th May 2022 to 7th June 2022 and comprised the following:

- 6no. cable percussive boreholes drilled to 4.50 to 10.25 metres below ground level (mbgl) (ref. BH101 to BH106).
- 6no. follow on rotary cored boreholes through the cable percussive boreholes, drilled to 14.50 to 25.00mbgl (ref. BH101, BH102, BH104 and BH106).
- 1no. cable percussive borehole drilled to 5.20mbgl (ref. DS101).
- Hand excavated inspection pits to 1.20mbgl with shear vane tests undertaken at 0.25m intervals to 0.75mbgl and CBR tests undertaken using a Lightweight Deflectometer at 0.3m intervals between depths of 0.30mbgl and 0.90mbgl. It was agreed with AECOM Ltd that a lightweight deflectometer test would not be carried out at 1.20mbgl in each location.

A hand dug inspection pit and in situ testing was not possible within BH101 due to concrete present between 0.30 to 1.00mbgl. This was noted as the former loading bay or dock. The concrete was broken out by R&M Developments Ltd and then backfilled with granular material to facilitate drilling.

Shear vane and lightweight deflectometer tests were not carried out in BH101 due to the presence of concrete to 1.0mbgl. It was agreed with AECOM Ltd that this testing would be carried out in the nearby DS101.

Cable percussion boreholes were carried out to allow contamination and geotechnical sample collection in addition to an assessment of the deeper ground conditions for geotechnical purposes. Follow on rotary coring was then undertaken from the base of the cable percussive boreholes in BH101, BH102, BH104 and BH106. This was a variation specified by AECOM Ltd as a result of the prevailing ground conditions.

All site investigation locations are shown in Figure 3.

The intrusive locations were initially specified by AECOM Ltd with any variations from the specified locations agreed with AECOM Ltd prior to drilling. Locations and elevations of the intrusive positions were captured on site by R&M Developments Ltd.

All profile logs are provided in Appendix A and are in line with BS14688-1[1] and BS5930[2].

2.2 Well Installations

In total, 6no. of the boreholes (BH101 to BH106) were installed with monitoring wells for gas and groundwater monitoring, groundwater sampling. The well construction was agreed with the Investigation Supervisor prior to installation.

[1] British Standards (2002) Geotechnical investigation and testing – Identification and Classification of Soil. Part 1: Identification and description. BS EN ISO 14688-1:2002.
[2] British Standard (2015). "Code of Practice for Ground Investigations". BS5930:2015.

Monitoring wells were installed in accordance with BS10175 and CIRIA C665[3] and generally comprised variable lengths plain pipe over slotted pipe surrounded by pea gravel and sealed at the top with bentonite and concrete.

Well installation details are provided in Profile Logs in Appendix A.

2.3 Sampling Protocol

2.3.1 Soil Sampling (Contamination)

Standard sampling protocol and preservation of samples was undertaken as described in the EA guidance on site investigation[4].

Soil was collected for onsite testing. A plastic zip bag was half filled with soil allowing a suitably sized headspace. The bag was sealed and stored for at least 20 minutes before being tested for total volatile organic compounds (TVOCs) using a PhoCheck photoionisation detector (PID). Results of the PID readings are presented on the profile logs (Appendix A). The on-site monitoring was carried out in line CIRIA C665[5] to aid in screening samples for volatile analysis.

Soil samples of approximately 500g were recovered in amber jars, amber vials for volatile analysis and plastic tubs. All the samples were labelled and stored in cool boxes prior to being collected by courier at the end of the day for delivery to the Eurofins Chemtest laboratory in Newmarket for chemical testing. If collection was not possible the same day then samples were stored in the sample storage fridge at the LK Group offices below 4˚C. Samples were tracked using appropriate Chain of Custody forms provided by Chemtest.

Many of the contamination tests are UKAS or MCERTS accredited and further details are given in the Certificate of Analysis presented in Appendix B. Table 2-1 shows the soil testing undertaken.

Suites and Contaminants	No. Samples	Location and Depth	
Suite S-1 (Main Soils) Metals / metalloids, pH, sulphate suite, speciated PAHs, TPHCWG, phenols, cyanide suite, FOC and asbestos screen.	16	BH101 2.10-2.20m BH102 0.15-0.30m BH102 0.30-0.75m BH102 1.70-1.80m BH103 0.14-0.40m BH103 1.50-1.60m BH104 0.10-0.30m BH104 1.30-1.40m	BH105 0.20-0.40m BH105 1.50-1.60m BH106 0.10-0.40m BH106 1.40-1.50m DS101 0.00-0.30m DS101 0.30-0.44m DS101 0.44-0.60m DS101 1.65-1.75m
Suite S-2 (Additional Soils) PCBs, SVOCs, VOCs.	14	BH101 2.10-2.20m BH102 0.15-0.30m BH102 0.30-0.75m BH102 1.70-1.80m BH103 0.14-0.40m BH104 0.10-0.30m BH104 1.30-1.40m	BH105 0.20-0.40m BH105 1.50-1.60m BH106 0.10-0.40m DS101 0.00-0.30m DS101 0.30-0.44m DS101 0.44-0.60m DS101 1.65-1.75m

Table 2-1. Summary of soil sample testing undertaken.

[3] CIRIA (2007). "Assessing Risks Posed by Hazardous Ground Gases to Buildings." CIRIA C665.
[4] EA (2000). "Technical Aspects of Site Investigation. Volumes 1 & 2 Text Supplements Research and Development Technical Report." P5-065/Tr.
[5] CIRIA (2007). "Assessing Risks Posed by Hazardous Ground Gases to Buildings." CIRIA C665.

Suites and Contaminants	No. Samples	Location and Depth	
Inert WAC Suite	6	BH101 2.10-2.20m BH102 1.70-1.80m DS101 0.00-0.30m	BH104 0.10-0.30m BH105 0.20-0.40m BH106 1.40-1.50m

Table 2-1. Summary of soil sample testing undertaken.
Notes:
If asbestos present during screen identification and quantification will be undertaken.
Metal/metalloids=arsenic, barium, beryllium, boron, cadmium, chromium, (total and hexavalent), copper, lead, mercury, nickel, selenium, vanadium, zinc; TPHCWG=carbon banded and aromatic/aliphatic split petroleum hydrocarbons; PAH=polycyclic aromatic hydrocarbons, sulphate suite=sulphide, water soluble sulphate, elemental sulphur, VOC=Volatile organic Compounds, SVOC= Semi Volatile Organic Compounds, PCB=polychlorinated biphenyls, FOC=Fraction Organic Carbon.

Leaching tests were also undertaken on selected soil samples, the results of which are displayed with the soil samples in the Certificate of Analysis presented in Appendix B. Table 2-2 shows the leaching testing undertaken.

It should be noted that the leaching test is an aggressive test and may not give results that are truly representative; particularly for organic contaminants.

Suites & Contaminants	No. of Samples	Location & Depth
Suite L-1 (Soil Leachate) Metals / metalloids, pH, sulphate suite, speciated PAHs, TPHCWG, phenols, ammoniacal nitrogen cyanide suite, chloride, electrical conductivity and nitrate. **Suite L-2 (Leachate Additional Suite)** PCBs, SVOCs, VOCs.	6	BH101 2.10-2.20m BH102 0.30-0.75m BH104 1.30-1.40m BH105 0.20-0.40m DS101 0.00-0.30m DS101 0.30-0.44m

Table 2-2: Summary of leaching testing undertaken.
Notes:
Metal/metalloids=arsenic, barium, beryllium, boron, cadmium, chromium, (total and hexavalent), copper, lead, mercury, nickel, selenium, vanadium, zinc; TPHCWG=carbon banded and aromatic/aliphatic split petroleum hydrocarbons; PAH=polycyclic aromatic hydrocarbons, sulphate suite=sulphide, water soluble sulphate, elemental sulphur, VOC=Volatile organic Compounds, SVOC= Semi Volatile Organic Compounds, PCB=polychlorinated biphenyls.

2.3.2 Water Sampling

To establish the condition of groundwater LKC undertook 6no. groundwater samples.

The groundwater samples were collected a minimum of 1 week after drilling had finished and following well development. Sample collection was undertaken using a low flow sampling pump using thin-walled tubing to encourage laminar flow and minimise the potential loss of volatiles during sampling. The borehole was purged of all standing water and the sample collected from the recharged water. The sample was collected in glass and plastic bottles and a glass vial. A water meter was used to test the pH, temperature and conductivity before sampling until equilibrium conditions were met, as per BS10175[6] guidelines.

All water samples were placed in glass bottles, plastic bottles and septum topped vials and stored in ice packed cool boxes. The samples were sent to Eurofins Chemtest for analysis. The sampling suite is presented in Table 2-3.

Sampling was carried out in accordance with BS5930[7] and BS5667-11[8].

[6] British Standard (2017). "Investigation of Potentially Contaminated Sites – Code of Practice." BS10175:2017.
[7] British Standard (2015). "Code of Practice for Ground Investigations". BS5930:2015.
[8] British Standard (2009). "Water Quality – Sampling. Part 11: Guidance on Sampling of Groundwaters". BS ISO 5667-11:2009.

Many of the tests are UKAS or MCERTS accredited and further details are given in the Certificate of Analysis presented in Appendix C. Table 2-3 shows the groundwater testing undertaken.

Suites and Contaminants	No. Samples	Location
Suite W-1 (Waters) Metals / metalloids, pH, sulphate suite, speciated PAHs, TPHCWG, phenols, ammoniacal nitrogen cyanide suite, chloride, electrical conductivity and nitrate. **Suite W-2 (Additional Waters)** PCBs, SVOCs, VOCs.	6	BH101 BH102 BH103 BH104 BH105 BH106

Table 2-3. Summary of groundwater sampling tests undertaken.

Notes:
Metal/metalloids=arsenic, barium, beryllium, boron, cadmium, chromium, (total and hexavalent), copper, lead, mercury, nickel, selenium, vanadium, zinc; TPHCWG=carbon banded and aromatic/aliphatic split petroleum hydrocarbons; PAH=polycyclic aromatic hydrocarbons, sulphate suite=sulphide, water soluble sulphate, elemental sulphur, VOC=Volatile organic Compounds, SVOC= Semi Volatile Organic Compounds, PCB=polychlorinated biphenyls.

2.4 Gas Monitoring

All the installed boreholes have been monitored for gas and groundwater levels on 6no. occasions over 6no. weeks.

Monitoring was undertaken using a Geotechnical Instruments GA5000 in accordance with the monitoring protocol outlined in CIRIA C665[9] (flow rate measured first). The monitoring aimed to be undertaken over a range of weather conditions (including low and falling barometric pressure and heavy rain) to demonstrate worst-case conditions.

As per the recommended scope of works provided by AECOM Ltd, gas flow was recorded for 3 minutes and gas concentrations were recorded for 10 minutes.

The gas monitoring results (including PID results), are reproduced in full in Appendix D.

2.5 Geotechnical Testing

2.5.1 In-situ Onsite Geotechnical Testing

In-situ geotechnical tests were performed in the hand dug starter pits and boreholes to further characterise the sub-soil conditions. The following tests were undertaken:

- Shear Vane tests (giving undrained shear strength) were performed in the hand dug inspection pits at 0.25m intervals (to a maximum depth of 0.75mbgl) within cohesive strata.
- Lightweight Deflectometer tests were performed in the hand dug inspection pits at depths of 0.3mbgl, 0.6mbgl and 0.9mbgl.
- Standard Penetration Tests (SPTs) were performed in the cable percussion and rotary core boreholes at approximately 1m intervals, generally within the natural strata.

The SPT and Shear Vane readings are provided within the profile logs (Appendix A).

The lightweight deflectometer was a Zorn ZFG 3.0 with a 300mm diameter plate. The test results (presented as equivalent CBR %) are summarised in Table 3-4.

[9] CIRIA (2007). "Assessing Risks Posed by Hazardous Ground Gases to Buildings." CIRIA C665.

2.5.2 *Laboratory Geotechnical Testing*

Soil samples taken during the investigation were collected in tubs, bulk bags and sealed UT100/U100 tubes and sent to Professional Soil Laboratories for geotechnical testing.

Many of the tests are UKAS accredited and further details will be given in the laboratory report. Table 2-4 shows the geotechnical testing scheduled.

Testing Suites	No. Samples	Location	
BRE Suite D pH and water-soluble sulphate also included in contamination testing Suite S-1	18	BH101 1.50m BH101 4.50-5.50m BH101 8.50-10.00m BH101 19.00-20.50m BH102 2.00-2.45m BH102 8.00-9.50m BH103 0.75m BH103 2.00-2.45m BH103 4.00-4.45m	BH104 11.50-13.00m BH104 17.00-18.50m BH105 2.00-2.45m BH105 4.00-4.45m BH105 6.00-6.45m BH106 0.5m BH106 6.00-6.45m BH106 8.50-10.00m BH106 13.00-14.50m
Density Test and Moisture Content	10	BH101 2.00-2.45m BH102 1.20-1.65m BH102 3.00-3.45m BH103 1.20-1.65m BH103 3.00-3.45m	BH104 7.00-7.25m BH105 1.00-1.45m BH105 3.00-3.45m BH106 1.20-1.65m BH106 3.00-3.45m
Atterberg Limits (plasticity testing) and Moisture Content	19	BH101 1.50m BH101 3.00-3.45m BH101 4.00-4.45m BH101 4.50-4.95m BH102 2.00-2.45m BH102 4.00-4.45m BH103 1.20-1.65m BH103 3.00-3.45m BH103 4.00-4.45m BH103 5.00-5.45m	BH104 1.20-1.65m BH104 4.50m BH104 7.00-7.25m BH105 2.00-2.45m BH105 6.00-6.45m BH106 2.00-2.45m BH106 5.00-5.45m BH106 6.00-6.45m BH106 7.00-7.45m
Particle Size Distribution (PSD)	6	BH101 1.50m BH103 2.00-2.45m BH103 4.00-4.45m	BH105 2.00-2.45m BH105 4.00-4.45m BH106 2.00-2.45m
One-Dimensional Consolidation Test	7	BH102 1.20-1.65m BH102 3.00-3.45m BH103 1.20-1.65m BH103 3.00-3.45m	BH105 1.00-1.45m BH105 3.00-3.45m BH106 1.20-1.65m
Quick Undrained Triaxial	11	BH101 2.00-2.45m BH102 1.20-1.65m BH102 3.00-3.45m BH103 1.20-1.65m BH103 3.00-3.45m BH104 2.20-2.65m	BH104 4.00-4.45m BH105 1.00-1.45m BH105 3.00-3.45m BH106 1.20-1.65m BH106 3.00-3.45m

Table 2-4: Summary of geotechnical testing undertaken.

Testing Suites	No. Samples	Location	
Uniaxial Compressive Strength and Moisture Content	13	BH101 4.50-5.50m BH101 5.50-7.00m BH101 8.50-10.00m BH101 19.00-20.50m BH102 8.00-9.50m BH102 9.50-11.00m BH102 14.00-15.50m	BH104 10.00-11.50m BH104 17.00-18.50m BH106 8.50-10.00m BH106 10.00-11.50m BH106 11.50-13.00m BH106 13.00-14.50m
Point Load -Axial and Diametral and Moisture Content	17	BH101 4.50-5.50m BH101 5.50-7.00m BH101 8.50-10.00m BH101 19.00-20.50m BH102 8.00-9.50m BH102 9.50-11.00m BH102 14.00-15.50m BH102 20.00-21.30m BH104 10.00-11.50m	BH104 14.00-15.00m BH104 17.00-18.50m BH104 18.50-20.00m BH104 23.00-24.50m BH106 8.50-10.00m BH106 10.00-11.50m BH106 11.50-13.00m BH106 13.00-14.50m

Table 2-4(continued): Summary of geotechnical testing undertaken.

2.6 Falling Head Tests

LKC undertook falling head tests to assess the permeability of the ground. The tests were carried out in general accordance with guidance given in BS5930[10] and BS 22282[11].

The tests were carried out in within the cable percussive boreholes during drilling work.

Groundwater levels were measured prior to undertaking the tests. Water was added to the well to a known depth and falling water levels were measured over time.

The results are presented in Appendix F.

[10] British Standard (2015). "Code of Practice for Ground Investigations". BS5930:2015.
[11] British Standards (2012). 'Geotechnical investigation and testing – Geohydraulic testing. Part 2: Water permeability tests in a borehole using open systems'. BS EN ISO 22282-2:2012

3 Ground Conditions

3.1 Geology – Generalised Sequence

The ground conditions beneath the site comprised made ground underlain by natural slightly gravelly silty CLAY and further underlain by MUDSTONE bedrock. A summary section of the logs is provided in Plate 3-1, with additional comments below. Photographs of the rock core are provided in Appendix G.

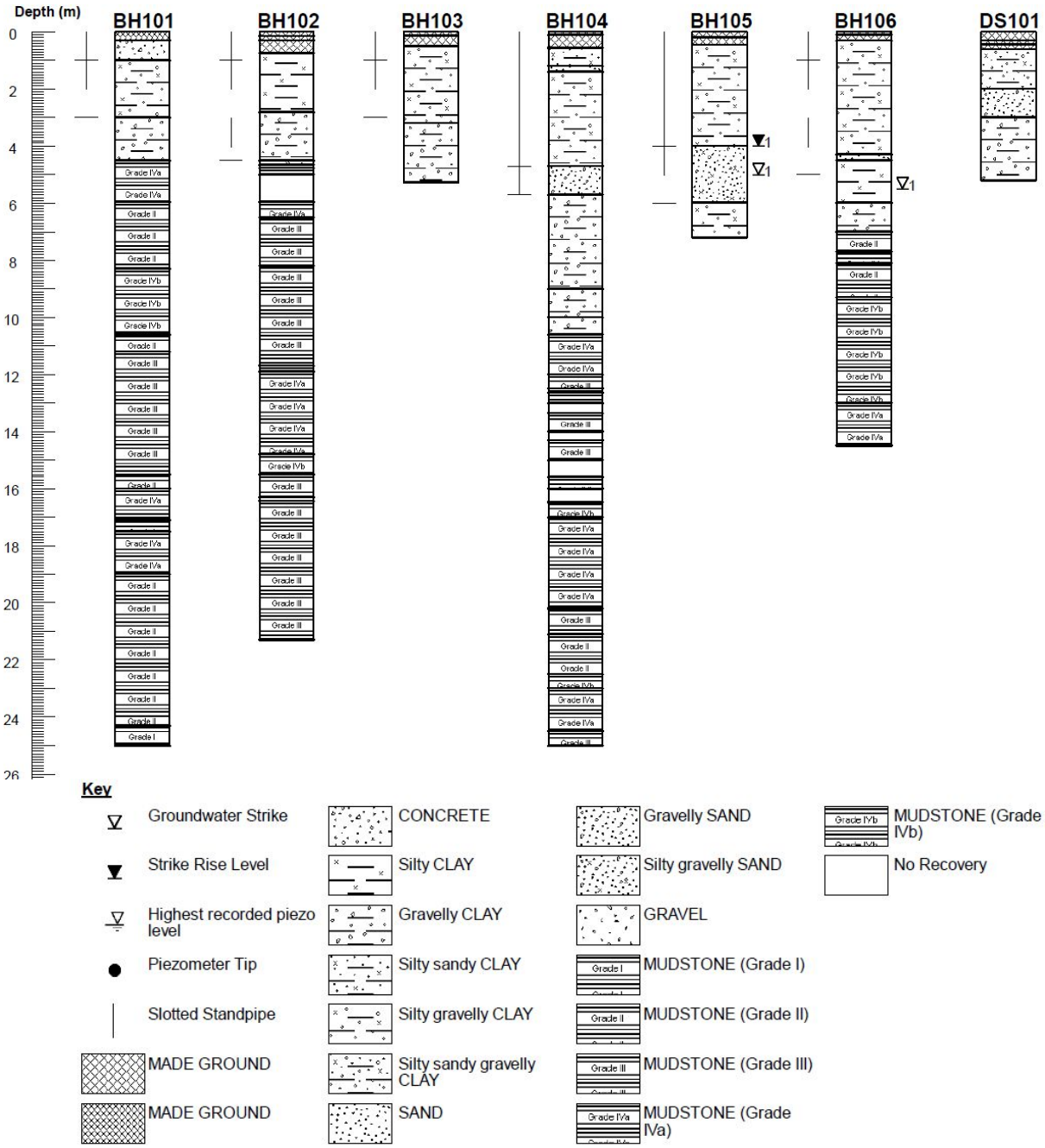


Plate 3-1: Summary of ground conditions.

Additional information on ground conditions:

Made Ground

Made ground was recorded in all boreholes to depths of 0.30 to 0.75mbgl and consists of tarmacadam over sandy gravel sub base material. The exceptions to this were in BH101 where tarmacadam and sub-base was recorded to 0.30mbgl underlain by concrete to 1.00mbgl and DS101 where gravelly sandy silt with brick, coal and ash was recorded to 0.30mbgl underlain by grey becoming orange sandy gravel sub-base to 0.6mbgl.

Natural Strata

Natural strata comprised horizons of firm to very stiff clay, interbedded in some locations with horizons of medium dense to dense, variably gravelly sand.

Weathered mudstone bedrock recovered as friable gravelly clay was encountered at the base all the boreholes locations from 2.80-9.00mbgl.

Mudstone bedrock was encountered in BH101, BH102 and BH106 to depths of >14.5->25mbgl. Bedrock in BH104 comprised of mudstone with bands recovered as clay or no recovery. The extent of weathering varied between destructured (Grade IVa) and Unweathered (Grade I).

3.2 Groundwater

3.2.1 Groundwater Levels

Groundwater strikes were recorded during the investigation in the boreholes. In addition, groundwater monitoring within the borehole wells has been undertaken on 6no. occasions. An oil-water interface probe (approximately 1cm detection limit) was used to detect the presence of free phase hydrocarbons within each borehole.

Results are summarised in Table 3-1.

BH/TP	Water Strike Depths (mbgl)	Well Response Zone (mbgl)	No. of Monitoring Visits	Monitoring Depths (mbgl)			Sample Taken?	Evidence of Contam?
				Min	Max	Base		
BH101	NR	1.00-3.00 (C)	6	1.43	1.70	3.01-3.08	Yes	No
BH102	NR	1.00-4.50 (C)	6	1.44	1.64	4.30-4.46	Yes	No
BH103	NR	1.00-3.00 (C)	6	2.31	2.49	3.03-3.08	Yes	No
BH104	NR	4.70-5.70 (S)	6	3.44	3.80	5.55-5.70	Yes	No
BH105	5.00	4.00-6.00 (S)	5	3.35	3.50	6.67-6.76	Yes	No
BH106	5.50	1.00-5.00 (C/S)	6	3.06	3.21	4.93-4.99	Yes	No
DS101	NR	Not installed					No	No

Table 3-1: Summary of water strike depths within boreholes.
Response Zones:
S=Sand; C=Clay
Notes: NR= None recorded.

3.2.2 Permeability Tests

The results of the falling head tests are presented in Appendix F and summarised in Table 3-2.

BS5930[12] indicates that if 'Ho' is taken as the groundwater 'Head' above baseline conditions following the addition of water at the start of the permeability test and 'H' is the measured groundwater 'Head' above baseline conditions at any given time during the test then the time taken to reach a head ratio (H/Ho) of 0.37 is used to calculate the permeability of the soils.

Where slow progress was observed and H/Ho of 0.37 was not reached, the permeability has not been calculated.

Due to slow draining, only one test was carried out in each borehole.

BH	Response Zone (mbgl) and Strata	Test No.	Initial water level (mbgl)	Basic Time Lag (where H/Ho=0.37)	Permeability (k) m/sec
BH101	2.00-3.00 (C)	1	Dry	N/A (0.37 not reached)	N/A
BH102	3.00-4.00 (WM)	1	Dry	N/A (0.37 not reached)	N/A
BH103	1.00-2.05 (C)	1	Dry	N/A (0.37 not reached)	N/A
BH104	1.05-2.05 (S/C)	1	Dry	N/A (0.37 not reached)	N/A
BH105	2.25-3.29 (C)	1	Dry	N/A (0.37 not reached)	N/A
BH106	2.60-3.85 (C)	1	Dry	N/A (0.37 not reached)	N/A

Table 3-2: Summary of falling head tests and permeability.
Notes
C=Clay; S=SAND; WM=weathered mudstone.

All 6no. falling head tests failed as they did not reach the H/Ho value.

3.3 In-Situ Geotechnical Testing

3.3.1 Standard Penetration Tests

In-situ standard penetration tests (SPTs) were undertaken, predominantly in the natural ground. The results are summarised in Table 3-3 and provided within the profile logs in Appendix A.

[12] BSI (1999). "Code of Practice for Site Investigations".

Approximate Depth (mbgl)	SPT 'N' Values			
	BH101	BH102	BH103	BH104
1-2	-	-	-	16
2-3	-	22	18	-
3-4	50	-	-	22
4-5	50/75mm 50/225mm	50/35mm 50/45mm	50/145mm	50/190mm
5-6	-	-	50/105mm	50/275mm
6-7	-	50/150mm	-	-
7-8	50/160mm	-	-	50/105mm
8-9	-	50/45mm	-	50/115mm
9-10	-	-	-	50/95mm
10-11	50/40mm	-	-	50/95mm
11-12	-	50/115mm	-	-
13-14	50/40mm	-	-	34
15-16		50/15mm		50/25mm
16-17	50/35mm	-	-	-
17-18	-	-	-	50/125mm
18-19	-	50/45mm	-	-
19-20	50/30mm	-	-	-
20-21	-	-	-	50/25mm
22-23	50/35mm	-	-	-
23-24	-	-	-	50/152mm
25-26	50/20mm	-	-	50/45mm
GW Level	-	-	-	-

Table 3-3: Summary of SPT (N) values.
Notes:
Groundwater level based on strikes during investigation.

Approximate Depth (mbgl)	SPT 'N' Values		
	BH105	BH106	DS101
2-3	15	16	23
3-4	-	-	50/290mm
4-5	39	40	50/25mm
5-6	26	37	50/30mm
6-7	50	49	-
7-8	50/225mm	50/75mm	-
GW Level	5.00m	5.50m	-

Table 3-3 (continued): Summary of SPT (N) values.
Notes:
Groundwater level based on strikes during investigation.

3.3.2 Lightweight Deflectometer Tests

Equivalent CBR values have been obtained from a Lightweight Deflectometer at 0.30m intervals within the hand dug inspection pits. Equivalent CBR results are presented in Table 3-4.

DS101		BH102		BH103	
Depth (m)	CBR (%)	Depth (m)	CBR (%)	Depth (m)	CBR (%)
0.30 (MG)	8	0.30 (MG)	33	0.30 (MG)	26
0.60 (C)	10	0.60 (MG)	23	0.60 (C)	3
0.90 (C)	6	0.90 (C)	11	0.90 (C)	5

Table 3-4: Summary of Equivalent CBR (%) values.
Notes: MG = Made Ground; C=Clay.

BH104		BH105		BH106	
Depth (m)	CBR (%)	Depth (m)	CBR (%)	Depth (m)	CBR (%)
0.30 (MG)	21	0.30 (MG)	11	0.30 (C)	6
0.60 (C)	9	0.60 (C)	4	0.60 (C)	15
0.90 (C)	4	0.90 (C)	7	0.90 (C)	4

Table 3-4 (continued): Summary of Equivalent CBR (%) values.
Notes
MG = Made Ground; C=Clay.

Equivalent CBR readings in the made ground varied between 8 and 33%. The made ground recorded in DS101 was a gravelly sandy silt unlike the other locations which were sandy gravels (sub-base). This is likely to have influenced the lower CBR values in DS101.

3.3.3 Shear Vanes

Hand shear vane readings, recording undrained shear strength (s_u), were taken within the clay strata at prescribed intervals. The results are summarised in Table 3-5 and provided within the profile logs in Appendix A.

Approximate Depth (mbgl)	Average Undrained Shear Strength (kPa)					
	DS101	BH102	BH103	BH104	BH105	BH106
0.25	-	-	-		-	-
0.50	-	-	P=87.33 R=20.33	P=73.00 R=13.00	P=61.67 R=15.67	P=38.00 R=28.00
0.75	P=83 R=11.67	-	P=53.67 R=9.67	P=96.00 R=38.00	P=72.67 R=15.33	P=48.00 R=6.00
0.80	-	P=78.00 R=24.00	-	-	-	-
GW Level	Dry	Dry	Dry	Dry	Dry	Dry

Table 3-5: Summary of average hand shear vane readings.
Notes:
Groundwater level based on strikes during investigation.
Shear vane readings can be influenced by coarse material including silt.

3.4 Geotechnical Laboratory Testing

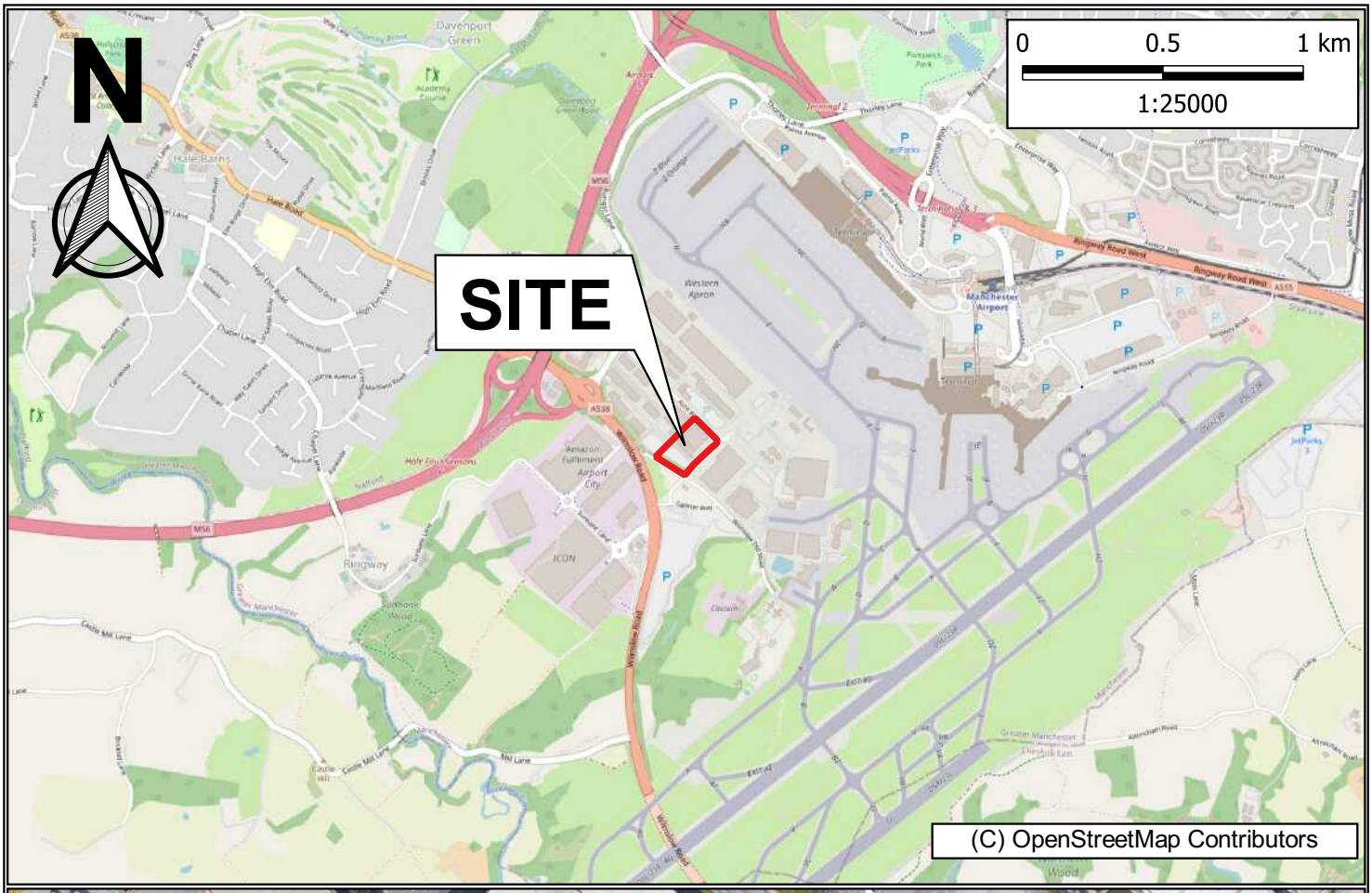
Geotechnical laboratory testing results are provided in Appendix E.

It should be noted that insufficient sample material suitable for UCS testing was available in several proposed testing depths in BH106. Consequently, PSL undertook Plate Load tests. The laboratory amendment notice provided by PSL is contained within Appendix E

3.4.1 Sulphate and pH

Water soluble sulphate and pH tests were carried out on soil ,rock and groundwater samples. Results from the soil contamination are presented in Appendix B (soils) and Appendix C (groundwater). Results from the BRE Suite D tests on rock cores are provided in Appendix E.

Figures



Client: Threadneedle Curtis Ltd				Title: Site Location & Boundary Plan	LK CONSULT
Site: Building 401, Manchester Airport				Scale (see scale bar): 1:25,000 & 1:2,000 @ A4	Figure: 1	Revision:
Job No.: LKC 22 1225	Drawn By: HF	Checked By: CC	Drawn: May 2022		

Extract from: RPS Group
Drawing Ref: Proposed Block Plan, No.020598-RPS-SI-XX-DR-A-0110, Rev:P02 (30/09/2021)

KEY

Site Boundary

Proposed 2.4m high black weldmesh paladin fence

Existing building footprint

SCHEDULE OF ACCOMMODATION

Unit 1a (GIA)	m²	sq ft
Warehouse	: 2,945	31,700
Grd Floor Rec.+ FE	: 79	850
1st Floor Office	: 336	3,617
Total	**: 3,360**	**36,167**
Level Access	: 5	
HGV Parking	: 5 (inc.5 Loading)	
Car Parking	: 32 (inc 2 Accessible)	
Haunch Height	: 10m	

Unit 1b (GIA)	m²	sq ft
Warehouse	: 1,732	18,643
Grd Floor Rec.	: 60	646
1st Floor Office	: 203	2,185
Total	**: 1,995**	**21,474**
Level Access	: 2	
HGV Parking	: 2 (inc. 2 Loading)	
Car Parking	: 18 (inc 1 Accessible)	
Haunch Height	: 10m	

Unit 1c (GIA)	m²	sq ft
Warehouse	: 2,163	23,283
Grd Floor Rec.+ FE	: 77	829
1st Floor Office	: 250	2,691
Total	**: 2,490**	**26,803**
Level Access	: 3	
HGV Parking	: 3 (inc.3 Loading)	
Car Parking	: 22 (inc 1 Accessible)	
Haunch Height	: 10m	

TOTAL GIA	**: 7,845**	**84,444**

Indicative Site Area : 2.162Ha (5.34 acres)
Indicative Site Density : 36.28% GIA

Sampling Locations and features annotated by LK Consult Ltd are approximate and are based upon observed measurements unless otherwise stated. Do not scale from this drawing and work from marked dimensions only. All dimensions and features should be confirmed on site by the Contractor. Where this drawing includes information provided to LK Consult Ltd by others, LK Consult Ltd gives no warranty, representation or assurance as to the accuracy of such information.

LK CONSULT LIMITED

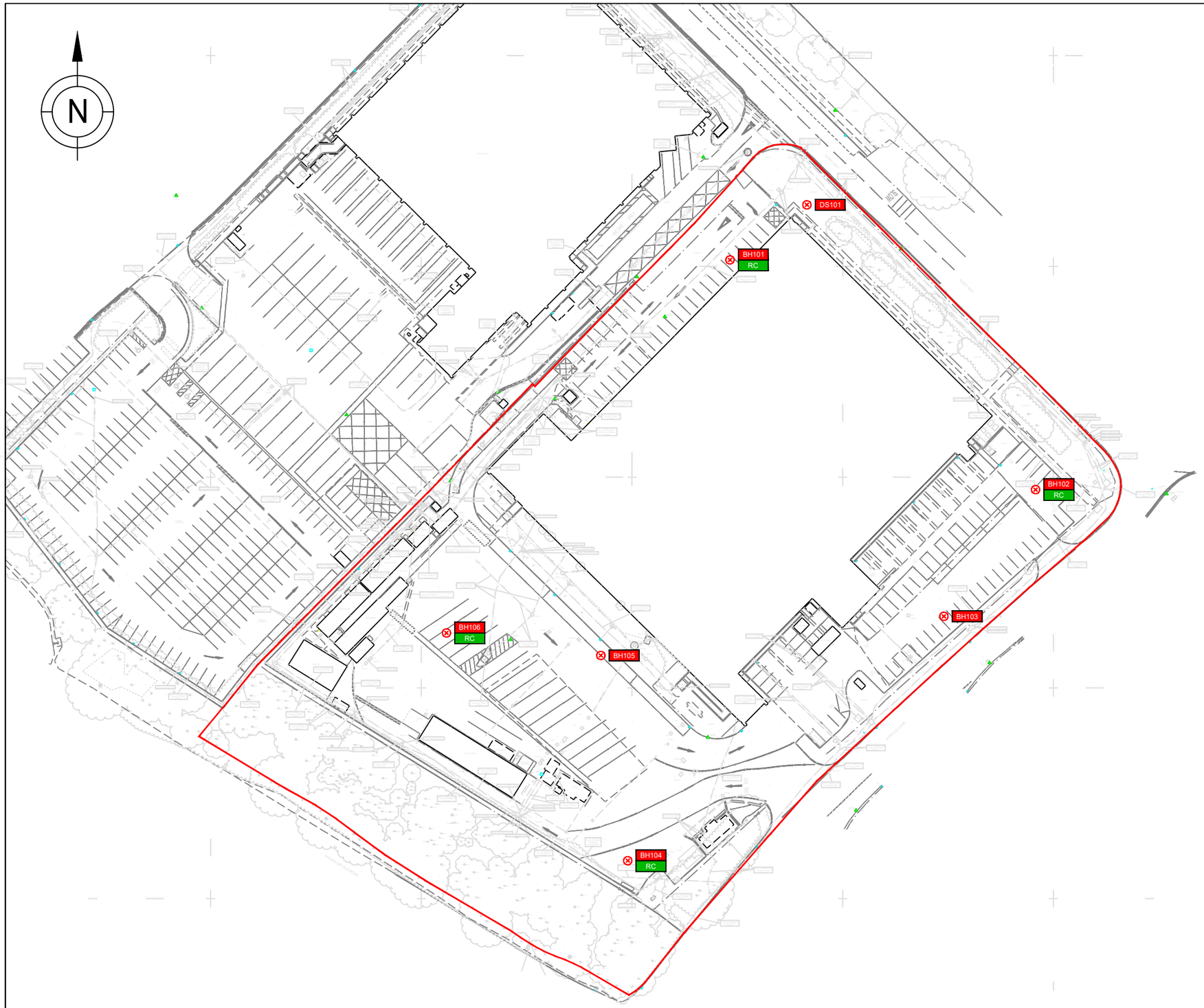
Client: Threadneedle Curtis Ltd

Site: Building 401, Manchester Airport

Title: Proposed Development Plan

Job No.:	Scale (See Scale Bar):	Figure:	Revision:
LKC 22 1225	1:1000 @ A3	2	

Drawn By:	Checked By:	Drawn:
AC	RP	Jun 2022



Extract from: Survey Operations
Drawing Ref: Utility Survey, No.22A231 (March 2022)

0 50
SCALE (Metres)

KEY

- Site Boundary
- Cable Percussive Borehole (CP/DS)
- RC — Rotary Core (RC)

Sampling Locations and features annotated by LK Consult Ltd are approximate and are based upon observed measurements unless otherwise stated. Do not scale from this drawing and work from marked dimensions only. All dimensions and features should be confirmed on site by the Contractor. Where this drawing includes information provided to LK Consult Ltd by others, LK Consult Ltd gives no warranty, representation or assurance as to the accuracy of such information.

LK CONSULT LIMITED

Client: Threadneedle Curtis Ltd

Site: Building 401, Manchester Airport

Title: As Built Borehole Location Plan

Job No.:	Scale (See Scale Bar):	Figure:	Revision:
LKC 22 1225	1:1000 @ A3	3	

Drawn By:	Checked By:	Drawn:
AC	RP	Jun 2022

Appendix A

Profile Logs

LK CONSULT LTD

Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS
Tel: 0161 763 7200 web: www.thelkgroup.com

Site B401 Manchester Airport			**Borehole Number** BH101
Machine : Dando 2000 / Teredo DC2.8 **Method :** Cable Percussion with follow on rotary core	**Casing Diameter** 152mm to 4.50m 127mm to 25.00m	**Ground Level (mOD)** 67.35	**Client** Threadneedle Curtis Ltd	**Job Number** LKC 22 1225
	Location (dGPS) 380923.3 E 384901.5 N	**Dates** 25/05/2022-31/05/2022	**Project Contractor** LK Consult	**Sheet** 1/3

Depth (m)	Sample / Tests	TCR	SCR	RQD	If	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
									67.05	(0.30) 0.30	MADE GROUND: Tarmacadam underlain by sandy gravel sub base.			
											MADE GROUND: Concrete (former loading dock).			
									66.35	(0.70) 1.00	Firm to stiff consistency brown with grey mottling slightly gravelly silty CLAY. Gravel is fine to medium subangular to subrounded of various lithologies.			
1.50	B													
2.00-2.45 2.10-2.20	UT TXL = 116kPa ES 0.0ppm							100% recov. 16 blows		(2.00)				
3.00-3.45 3.00-3.45 3.00-3.45	SPT N=50 B D							4,5/8,12,12,18	64.35	3.00	Reddish brown friable gravelly CLAY / very weak weathered MUDSTONE. Gravel is fine to coarse subangular to angular of mudstone.			
4.00-4.45 4.00-4.23 4.00-4.45 4.50-4.95	D SPT 50/75 B							13,12/50 14,11/12,15,23 B SPT 50/225		(1.50)				
4.50								Fractures very closely spaced 40 to 60degrees stepped rough open clean from 4.50m to 5.50mbgl.	62.85	4.50	Very weak structureless red MUDSTONE with medium spaced undulating bands of gypsum (<5mm thick). Destructured (Grade IVa).	Grade IVa		
4.50-4.88 4.50-4.95		89	89	12	Av:80 Min:50 Max:120			D		(1.45)				
5.50								Fractures medium spaced 10degrees planar rough open clean.	61.40	5.95	Weak to medium strong structureless grey MUDSTONE BRECCIA with very closely spaced undulating bands of gypsum (<5mm thick) angled at between 45 and 60degrees. Partially weathered (Grade II).	Grade II		
7.00-7.15 7.00		98	98	96	Av:340 Min:60 Max:360			13,12/50 SPT 25*/85 50/60		(2.35)	Red bands by 7.00mbgl.			
		100	100	97	Av:290 Min:40 Max:370				59.05	8.30	Weak structureless red MUDSTONE with medium spaced subvertical bands of gypsum (<5mm thick). Increasingly clayey with depth. Destructured (Grade IVb).	Grade IVb		
8.50														
		100	100	100	Av:290 Min:120 Max:320					(2.30)				
10.00														

Remarks
No groundwater strikes recorded.
Tarmacadam broken out by excavator.
Hand digging to 0.3mbgl.
Concrete broken out by excavator to 1.00mbgl.
Cable percussion to 4.5mbgl.
Follow on rotary coring from 4.5mbgl to 25.00mbgl. Complete at 25mbgl as per instruction by Site Investigtion Supervisor.
Falling Head Test carried out at 2.00-3.00mbgl.

Scale (approx)	Logged By
1:50	CC/PW

Figure No. LKC 22 1225.BH101

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** B401 Manchester Airport	**Borehole Number** **BH101**
Machine : Dando 2000 / Teredo DC2.8 **Flush :** Water **Core Dia :** 90 mm **Method :** Cable Percussion with follow on rotary core	**Casing Diameter** 152mm to 4.50m 127mm to 25.00m **Location** (dGPS) 380923.3 E 384901.5 N	**Ground Level (mOD)** 67.35 **Dates** 25/05/2022-31/05/2022	**Client** Threadneedle Curtis Ltd **Project Contractor** LK Consult	**Job Number** LKC 22 1225 **Sheet** 2/3

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I_f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
10.00-10.12					SPT 25*/80 21,4/50 50/40						
	100	100	94	Av:150 Min:90 Max:550		56.75	10.60	Weak to medium strong structureless red and grey MUDSTONE BRECCIA with very closely spaced undulating bands of gypsum (<5mm thick) angled at between 60 and 70degrees. Partially weathered (Grade II).			
						56.15	(0.60) 11.20				
11.50								Weak structureless red and grey MUDSTONE BRECCIA with rare bands of gypsum (<5mm thick). Distinctly weathered (Grade III).			
	100	100	90	Av:160 Min:50 Max:230							
13.00-13.12					25/50 SPT 25*/75 50/40						
13.00							(4.30)				
	95	95	90	Av:120 Min:30 Max:390							
14.50											
	89	89	88	Av:240 Min:20 Max:500		51.85	15.50	Weak thickly laminated red MUDSTONE. Bedding 10degrees. Partially weathered (Grade II).			
16.00-16.11					25/50 SPT 25*/75 50/35		(0.50)				
16.00						51.35	16.00	Very weak structureless red MUDSTONE. Destructured (Grade IVa).			
	100	100	96	Av:120 Min:40 Max:210			(1.10)				
						50.25	17.10	Weak to medium strong thickly laminated to very thinly bedded red MUDSTONE and SILTSTONE. Bedding 10 to 20degrees. Unweathered (Grade I).			
17.50						49.85	(0.40) 17.50				
	100	95	80	Av:180 Min:NI Max:340				Very weak structureless red MUDSTONE BRECCIA. Destructured (Grade IVa).			
19.00-19.06					25/50 SPT 25*/30 50/30		(1.50)				
19.00						48.35	19.00	Weak to medium strong thickly laminated to very thinly bedded red MUDSTONE and SILTSTONE. Bedding 10 to 20degrees. Partially weathered (Grade II). Grey bands and patches of distorted/slumped bedding roughly 10 to 20degrees present from 19.45mbgl. Band of gypsum (<10mm thick) undulating			
	93	93	90	Av:290 Min:40 Max:320							

Remarks
No groundwater strikes recorded.
Tarmacadam broken out by excavator.
Hand digging to 0.3mbgl.
Concrete broken out by excavator to 1.00mbgl.
Cable percussion to 4.5mbgl.
Follow on rotary coring from 4.5mbgl to 25.00mbgl. Complete at 25mbgl as per instruction by Site Investigtion Supervisor.
Falling Head Test carried out at 2.00-3.00mbgl.

Scale (approx)	**Logged By**
1:50	CC/PW

Figure No.
LKC 22 1225.BH101

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LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** B401 Manchester Airport	**Borehole Number** **BH101**	
Machine : Dando 2000 / Teredo DC2.8 **Flush :** Water **Core Dia :** 90 mm **Method :** Cable Percussion with follow on rotary core	**Casing Diameter** 152mm to 4.50m 127mm to 25.00m	**Ground Level (mOD)** 67.35	**Client** Threadneedle Curtis Ltd	**Job Number** LKC 22 1225
	Location (dGPS) 380923.3 E 384901.5 N	**Dates** 25/05/2022-31/05/2022	**Project Contractor** LK Consult	**Sheet** 3/3

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I_f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
								subvertical from 19.50m to 20.10mbgl.			
20.50	100	100	96	Av:180 Min:50 Max:420	25/50 50/35 SPT 25*/40 Fractures close to medium spaced rough planar open clean bedding parallel (10degrees). Possibly drilling induced.		(5.30)				
22.00											
22.00-22.08	96	96	89	Av:200 Min:10 Max:350							
23.50	99	99	87	Av:160 Min:50 Max:320		43.05	24.30	Medium strong structureless red MUDSTONE with rare gypsum undulating subvertical (<2mm thick). Unweathered (Grade I).			
							(0.70)				
25.00						42.35	25.00	Complete at 25.00m			

Sample / Tests	Casing Depth (m)	Water Depth (m)	
25.00-25.04 SPT 25*/15 50/20			25/50

Remarks
No groundwater strikes recorded.
Tarmacadam broken out by excavator.
Hand digging to 0.3mbgl.
Concrete broken out by excavator to 1.00mbgl.
Cable percussion to 4.5mbgl.
Follow on rotary coring from 4.5mbgl to 25.00mbgl. Complete at 25mbgl as per instruction by Site Investigtion Supervisor.
Falling Head Test carried out at 2.00-3.00mbgl.

Scale (approx)	Logged By
1:50	CC/PW

Figure No.
LKC 22 1225.BH101

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LK CONSULT LTD

Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS
Tel: 0161 763 7200 web: www.thelkgroup.com

Site B401 Manchester Airport			**Borehole Number** BH102
Machine : Dando 2000 / Teredo DC2.8 **Method :** Cable Percussion with follow on Rotary Core	**Casing Diameter** 152mm to 4.50m 127mm to 21.30m	**Ground Level (mOD)** 68.04	**Client** Threadneedle Curtis Ltd	**Job Number** LKC 22 1225
	Location (dGPS) 380995.8 E 384847 N	**Dates** 27/05/2022-07/06/2022	**Project Contractor** LK Consult	**Sheet** 1/3

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.15-0.30	ES 0.3ppm				67.89	(0.15) 0.15	MADE GROUND: Tarmacadam and sub base.			
0.30-0.75	ES 0.2ppm				67.74	(0.15) 0.30	MADE GROUND: Brown gravelly SAND with rare clinker gravel. Sand is fine to coarse. Gravel is fine to coarse subangular to angular of various lithologies.			
0.80	SV P 78kPa			78, 80, 76/Av. 78.00		(0.45)				
0.80	SV R 24kPa			26, 24, 22/Av. 24.00	67.29	0.75	MADE GROUND: Orangish brown cobbley sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse subangular to angular of sandstone and limestone. Possible 6F5 type sub base material.			
1.20-1.65	UT TXL = 199kPa			95% recov. 36 blows			Firm to stiff consistency medium to high strength brownish grey silty CLAY.			
1.70-1.80	ES 0.0ppm					(2.05)				
2.00-2.45	SPT N=22			3,4/6,5,5,6						
2.00-2.45	B									
2.00-2.45	D									
					65.24	2.80	Reddish brown friable gravelly CLAY / very weak weathered MUDSTONE. Gravel is fine to coarse subangular to angular of mudstone.			
3.00-3.45	UT TXL = 50kPa			95% recov. 40 blows						
						(1.70)				
4.50-4.95				D						
4.00-4.45	D									
4.00-4.19	SPT 50/35			7,18/50						
4.00-4.45	B			25/50						
4.50-4.95	**TCR** / **SCR** / **RQD** / **If**			B						
4.50-4.60				SPT 25*/55	63.54	4.50				
4.50	100 / 70 / 24 / Av:60 Min:NI Max:120			50/45	63.39	(0.15) 4.65	Reddish grey coarse rounded GRAVEL of mudstone, sandstone and basalt.	Grade IVb		
					63.27	4.77				
						(0.23)	Weak structureless red and grey MUDSTONE BRECCIA. Distinctly weathered (Grade III).			
5.00				Fractures closely spaced 20degrees stepped rough open clean. Possibly drilling induced.	63.04	5.00	Extremely weak structureless red and grey MUDSTONE. Recovered as clay. Destructured (Grade IVb).			
	63 / 35 / 0 / Av:60 Min:NI Max:90					(0.96)	POOR RECOVERY. Possibly gravel band.			
					62.08	5.96	Extremely weak very thinly laminated red MUDSTONE. Bedding 10degrees. Very soft and clayey in patches but bedding still visible. Distinctly weathered (Grade IVa).	Grade IVa		
				25/40,10		(0.54)		Grade IVa		
6.50-6.73				SPT 25*/75	61.54	6.50	Gypsum band (<30mm) undulating at 15degrees at 6.47mbgl.	Grade IVa		
6.50				50/150				Grade III		
	98 / 98 / 93 / Av:160 Min:60 Max:300						Extremely weak very thinly laminated red MUDSTONE with medium spaced undulating bands of gypsum (<5mm). Bedding 10degrees. Distinctly weathered (Grade III).	Grade III		
						(1.70)		Grade III		
				25/50				Grade III		
8.00-8.12				SPT 25*/75				Grade III		
8.00				50/45				Grade III		
				Fractures very closely spaced 10degrees planar rough open occasional fine gravel infill.	59.84	8.20	Weak very thinly laminated red MUDSTONE. Bedding 10degrees. Distinctly weathered (Grade III).	Grade III		
	86 / 62 / 28 / Av:20 Min:NI Max:150							Grade III		
								Grade III		
								Grade III		
								Grade III		
								Grade III		
								Grade III		
								Grade III		
								Grade III		
9.50				Fractures medium spaced subvertical stepped rough open clean.				Grade III		

Remarks
No groundwater strikes recorded.
Tarmacadam broken out by excavator.
Hand digging to 1.2mbgl.
Cable percussion to 4.5mbgl.
Follow on rotary coring from 4.5mbgl to 21.3mbgl.
Falling Head Test carried out between 3.4mbgl.
Borehole terminated at 21.3mbgl due to pump failure on rotary rig. Agreed by Site Investigtion Supervisor.
Chiselling from 3.70m to 4.50m for 1 hour. Water added from 4.00m to 4.50m.

Scale (approx)	Logged By
1:50	CC/PW

Figure No. LKC 22 1225.BH102

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** B401 Manchester Airport	**Borehole Number** **BH102**
Machine : Dando 2000 / Teredo DC2.8 **Flush :** Water **Core Dia :** 90 mm **Method :** Cable Percussion with follow on Rotary Core	**Casing Diameter** 152mm to 4.50m 127mm to 21.30m **Location** (dGPS) 380995.8 E 384847 N	**Ground Level (mOD)** 68.04 **Dates** 27/05/2022-07/06/2022	**Client** Threadneedle Curtis Ltd **Project Contractor** LK Consult	**Job Number** LKC 22 1225 **Sheet** 2/3

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I_f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
							(3.50)				
	100	96	85	Av:260 Min:NI Max:400	Fractures closely to very closely spaced 10degrees to horizontal planar rough open clean.						
11.00-11.19					25/30,20 SPT 25*/75 50/115						
11.00	96	91	60	Av:150 Min:NI Max:150		56.34	11.70 (0.20)	Extremely weak structureless red and grey MUDSTONE. Recovered as clay. Destructured (Grade IVb).			
						56.14	11.90	Extremely weak thinly laminated red MUDSTONE. Recovered as gravelly clay. Destructured (Grade IVa).			
12.50	100	97	80	Av:120 Min:40 Max:370			(2.90)				
14.00	83	52	17	Av:NI Min:NI Max:140		53.24	14.80	Extremely weak structureless red and grey MUDSTONE. Recovered as clay. Destructured (Grade IVb).			
					25/50 50/15 SPT 25*/75		(0.70)				
15.50					Fractures medium spaced 10degrees planar rough open clean. Possibly drilling induced.	52.54	15.50	Weak structureless red MUDSTONE BRECCIA. Distinctly weathered (Grade III).			
15.50-15.59	77	67	56	Av:120 Min:NI Max:330			(0.80)				
						51.74	16.30 (0.14)	Weak very thinly laminated grey MUDSTONE. Bedding 10degrees. Partially weathered (Grade II).			
17.00						51.60	16.44	Weak structureless red and grey MUDSTONE BRECCIA. Distinctly weathered (Grade III).			
	96	94	80	Av:180 Min:NI Max:460							
18.50-18.62					25/50 SPT 25*/75 50/45						
18.50	99	99	84	Av:120 Min:50 Max:250			(4.86)				
20.00								Gypsum band (<10mm) planar horizontal at 19.55mbgl. Gypsum band (<10mm) undulating at			

Remarks
No groundwater strikes recorded.
Tarmacadam broken out by excavator.
Hand digging to 1.2mbgl.
Cable percussion to 4.5mbgl.
Follow on rotary coring from 4.5mbgl to 21.3mbgl.
Falling Head Test carried out between 3.4mbgl.
Borehole terminated at 21.3mbgl due to pump failure on rotary rig. Agreed by Site Investigtion Supervisor.

Scale (approx)	**Logged By**
1:50	CC/PW

Figure No.
LKC 22 1225.BH102

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LK GROUP

LK CONSULT LTD
Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS
Tel: 0161 763 7200 web: www.thelkgroup.com

Site
B401 Manchester Airport

Borehole Number
BH102

Machine : Dando 2000 / Teredo DC2.8
Flush : Water
Core Dia : 90 mm
Method : Cable Percussion with follow on Rotary Core

Casing Diameter
152mm to 4.50m
127mm to 21.30m

Ground Level (mOD)
68.04

Client
Threadneedle Curtis Ltd

Job Number
LKC 22 1225

Location (dGPS)
380995.8 E 384847 N

Dates
27/05/2022-07/06/2022

Project Contractor
LK Consult

Sheet
3/3

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I_f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
	100	98	42	Av:60 Min:NI Max:220				60degrees at 19.85m to 19.95mbgl.	Grade III		
21.30						46.74	21.30	Terminated at 21.30m			

Remarks
No groundwater strikes recorded.
Tarmacadam broken out by excavator.
Hand digging to 1.2mbgl.
Cable percussion to 4.5mbgl.
Follow on rotary coring from 4.5mbgl to 21.3mbgl.
Falling Head Test carried out between 3.4mbgl.
Borehole terminated at 21.3mbgl due to pump failure on rotary rig. Agreed by Site Investigtion Supervisor.

Scale (approx)
1:50

Logged By
CC/PW

Figure No.
LKC 22 1225.BH102

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LK CONSULT LTD

Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS
Tel: 0161 763 7200 web: www.thelkgroup.com

Site B401 Manchester Airport			**Borehole Number** BH103
Machine : Dando 2000 **Method :** Cable Percussion	**Casing Diameter** 152mm to 5.00m	**Ground Level (mOD)** 68.21	**Client** Threadneedle Curtis Ltd	**Job Number** LKC 22 1225
	Location (dGPS) 380974 E 384847 N	**Dates** 30/05/2022	**Project Contractor** LK Consult	**Sheet** 1/1

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
					68.07	(0.14) 0.14	MADE GROUND: Tarmacadam.			
0.14-0.40	ES 0.1ppm					(0.36)	MADE GROUND: Orangish brown cobbley sandy GRAVEL with frequent tarmacadam fragments. Sand is fine to coarse. Gravel is fine to coarse subangular to angular of sandstone and limestone. Tarmacadam fragments fallen in from breaking out surface above.			
0.50	D			92, 101, 69/Av.	67.71	0.50				
0.50	SV P 87.33kPa			87.33						
0.50	SV R 20.33kPa			11, 27, 23/Av. 20.33						
0.75	SV P 53.67kPa			56, 53, 52/Av. 53.67						
0.75	D									
0.75	SV R 9.67kPa			11, 9, 9/Av. 9.67						
1.20-1.65	UT TXL = 225kPa			100% recov. 32 blows						
1.50-1.60	ES 0.1ppm						Firm to very stiff consistency medium to high strength brown with grey mottling slightly gravelly silty CLAY. Gravel is fine to medium subangular to subrounded of various lithologies.			
						(2.70)				
2.00-2.45	SPT N=18			2,3/3,4,6,5						
2.00-2.45	B									
2.00-2.45	D									
3.00-3.45	UT TXL = 126 kPa			100% recov. 32 blows	65.01	3.20	Reddish brown friable gravelly CLAY / very weak weathered MUDSTONE. Gravel is fine to coarse subangular to angular of mudstone.			
4.00-4.30	SPT 50/145			11,14/20,30						
4.00-4.45	B					(2.06)				
4.00-4.45	D									
5.00-5.26	SPT 50/105			14,11/22,28						
5.00-5.26	B									
5.00-5.26	D				62.95	5.26	Terminated at 5.26m			

Remarks
Falling Head Test carried out between 1.00-2.00mbgl.
No groundwater strikes recorded.
Tarmacadam broken out by excavator.
Hand digging to 1.2mbgl.
Cable percussion to 5.26mbgl. Complete at 5.26mbgl as per instruction by Site Investigtion Supervisor.
Chiselling from 4.00m to 5.26m for 1 hour.

Scale (approx)	Logged By
1:50	RP

Figure No. LKC 22 1225.BH103

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LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** B401 Manchester Airport	**Borehole Number** **BH104**	
Machine : Dando 2000 / Teredo DC2.8 **Method :** Cable Percussion with follow on Rotary Core	**Casing Diameter** 152mm to 10.25m 127mm to 18.00m	**Ground Level (mOD)** 67.58	**Client** Threadneedle Curtis Ltd	**Job Number** LKC 22 1225
	Location (dGPS) 380899 E 384759 N	**Dates** 25/05/2022-01/06/2022	**Project Contractor** LK Consult	**Sheet** 1/3

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
					67.48	0.10	MADE GROUND: Tarmacadam.			
0.10-0.30	D					(0.45)	MADE GROUND: Brownish orange sandy GRAVEL with occasional tarmacadam fragments. Sand is fine to coarse. Gravel is fine to coarse subangular to angular of sandstone. Membrane noted at base.			
0.10-0.30	ES 0.3ppm									
0.20	D									
0.50	SV P 73kPa			70, 75, 74/Av. 73.00	67.03	0.55				
0.50	D									
0.50	SV R 13kPa			8, 16, 15/Av. 13.00		(0.65)	Firm to stiff consistency medium to high strength orangish brown slightly sandy silty CLAY with thin bands of fine grey sand. Sand is fine to medium.			
0.75	D			105, 93, 90/Av. 96.00						
0.75	SV P 96kPa									
0.75	SV R 38kPa			40, 39, 35/Av. 38.00	66.38	1.20				
0.80	D				66.18	(0.20) 1.40	Loose brown SAND. Sand is fine to coarse.			
1.20-1.65	SPT N=16			2,2/2,4,5,5			Stiff consistency high to very high strength brown slightly gravelly silty CLAY. Gravel is fine subrounded to rounded of various lithologies.			
1.20-1.65	D									
1.30-1.40	ES 0.2ppm									
1.70-2.00	B									
2.20-2.65	UT TXL = 106kPa			90% recov. 15 blows						
2.70	D					(3.30)				
3.10-3.55	SPT N=22			4,4/5,5,6,6						
3.10-3.55	D									
4.00-4.45	U TXL = 56kPa			95% recov. 26 blows						
4.50	D NR				62.88	4.70	Very dense brown slightly gravelly SAND. Sand is fine to coarse. Gravel is fine to medium subangular to subrounded of various lithologies.			
4.70-5.04	SPT 50/190			4,11/14,21,15						
4.70-5.10	D					(1.00)				
5.70-6.13	SPT 50/275			5,6/12,14,14,10	61.88	5.70	Very stiff consistency brown slightly gravelly CLAY. Gravel is fine to medium subangular to subrounded of various lithologies.			
5.70-6.10	D									
6.10-6.40	B									
6.80-7.00	U									
7.00-7.26	SPT 50/105			6,18/21,29						
7.00-7.25	D					(3.30)				
8.00-8.27	SPT 50/115			10,15/29,21						
8.00-8.30	D									
9.00-9.25	SPT 50/95			9,14/32,18	58.58	9.00	Very stiff consistency reddish brown gravelly CLAY. Gravel is fine to coarse subangular to subrounded of mudstone. Possibly weathered mudstone.			
9.00-9.25	D					(1.00)				
10.00										

Remarks
Falling Head Test carried out between 1.00-2.00mbgl.
No groundwater strikes recorded.
Tarmacadam broken out by excavator.
Hand digging to 1.2mbgl.
Cable percussion to 10.25mbgl.
Follow on rotary coring from 10.25 to 25.00mbgl. Complete at 25mbgl as per instruction by Site Investigtion Supervisor.
Chiselling from 4.70m to 10.00m for 2.5 hours.

Scale (approx)	Logged By
1:50	RP/PW

Figure No.
LKC 22 1225.BH104

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LK CONSULT LTD

Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS
Tel: 0161 763 7200 web: www.thelkgroup.com

Site: B401 Manchester Airport

Borehole Number: BH104

Machine : Dando 2000 / Teredo DC2.8
Flush : Water
Core Dia : 90 mm
Method : Cable Percussion with follow on Rotary Core

Casing Diameter: 152mm to 10.25m, 127mm to 18.00m

Ground Level (mOD): 67.58

Client: Threadneedle Curtis Ltd

Job Number: LKC 22 1225

Location (dGPS): 380899 E 384759 N

Dates: 25/05/2022-01/06/2022

Project Contractor: LK Consult

Sheet: 2/3

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I_f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
10.00-10.25 D					SPT 50/95 7,18,38,12	57.58	10.00 (0.60)	Stiff red CLAY with bands of rounded gravel of sandstone, siltstone and granite.			
10.00-10.25	88	73	51	Av:370 Min:NI Max:370		56.98	10.60 (1.40)	Very weak red and grey structureless MUDSTONE with medium spaced undulating bands of gypsum (<10mm thick) angled at between 10 and 20degrees, possibly relict bedding. Destructured (Grade IVa).	Grade IVa		
11.50	96	96	78	Av:320 Min:25 Max:600		55.58	12.00 (0.50)	Weak grey structureless very crystalline MUDSTONE BRECCIA with very closely spaced mass of gypsum growths. Partially weathered (Grade III).	Grade III		
13.00-13.45					6,4/7,9,9,9 SPT N=34	55.08	12.50 (0.15)				
13.00	66	56	44	Av:35 Min:NI Max:390		54.93	12.65 (0.35)	Extremely weak grey destructured MUDSTONE. Recovered as clay. Residual. (Grade IVb).	Grade IVb		
						54.58	13.00 (0.35)	Extremely weak red MUDSTONE with medium spaced undulating bands of gypsum (<10mm thick) angled at between 10 and 20degrees, possibly relict bedding. Residual. (Grade IVb).	Grade III		
14.00	69	36	29	Av:70 Min:NI Max:440		54.23	13.35 (0.65)	NO RECOVERY.	Grade III		
15.25-15.35					25/28,22 SPT 25*/75 50/25	53.58	14.00 (0.30)	Very weak thinly laminated red and grey MUDSTONE and SILTSTONE with very closely spaced undulating bands of gypsum. Bedding around 10degrees. Partially weathered (Grade III).	Grade III		
15.00	41	41	41	Av:410 Min:410 Max:410		53.28	14.30 (0.70)	NO RECOVERY.	Grade III		
						52.58	15.00 (0.59)	Weak grey structureless very crystalline MUDSTONE BRECCIA with very closely spaced mass of gypsum growths. Partially weathered (Grade III).	Grade III		
16.00	56	52	52	Av:160 Min:NI Max:360	25/28,22 50/125 SPT(C) 25*/75	51.99	15.59 (0.41)	NO RECOVERY.			
						51.58	16.00 (0.48)	Extremely weak structureless red MUDSTONE. Recovered as clay. Residual. (Grade IVb).	Grade IVb		
17.00					Fractures medium spaced 10degrees planar rough open clean. Possibly drilling induced.	51.10	16.48 (0.52)	NO RECOVERY.			
17.00-17.20	98	98	98	Av:360 Min:130 Max:400		50.58	17.00 (3.20)	Extremely weak structureless red MUDSTONE. Recovered as clay. Residual. (Grade IVb).	Grade IVb		
18.50	98	98	59	Av:160 Min:40 Max:180	Fractures closely to very closely spaced 10degrees planar rough open clean.			Extremely weak red structureless MUDSTONE with medium spaced 10degrees planar bands of gypsum (<5mm). Possible relict bedding. Destructured (Grade IVa).	Grade IVa		
20.00											

Remarks
Falling Head Test carried out between 1.00-2.00mbgl.
No groundwater strikes recorded.
Tarmacadam broken out by excavator.
Hand digging to 1.2mbgl.
Cable percussion to 10.25mbgl.
Follow on rotary coring from 10.25 to 25.00mbgl. Complete at 25mbgl as per instruction by Site Investigtion Supervisor.

Scale (approx): 1:50

Logged By: RP/PW

Figure No.: LKC 22 1225.BH104

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LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com		**Site** B401 Manchester Airport	**Borehole Number** **BH104**
Machine : Dando 2000 / Teredo DC2.8 **Flush :** Water **Core Dia :** 90 mm **Method :** Cable Percussion with follow on Rotary Core	**Casing Diameter** 152mm to 10.25m 127mm to 18.00m	**Ground Level (mOD)** 67.58	**Client** Threadneedle Curtis Ltd	**Job Number** LKC 22 1225
	Location (dGPS) 380899 E 384759 N	**Dates** 25/05/2022-01/06/2022	**Project Contractor** LK Consult	**Sheet** 3/3

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I_f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
20.00-20.10					SPT(C) 25*/75 25/50 50/25	47.38	20.20				
	98	92	62	Av:210 Min:NI Max:240			(0.90)	Very weak thinly laminated red MUDSTONE. Bedding 10degrees. Distinctly weathered (Grade III).	Grade IVa Grade III Grade III Grade III Grade III		
21.50						46.48	21.10				
	96	52	13	Av:40 Min:NI Max:200			(1.40)	Very weak to weak thinly laminated grey MUDSTONE with closely spaced bedding parallel planar bands of gypsum (<5mm). Partially weathered (GRADEII).	Grade II Grade II Grade II Grade II Grade II Grade II Grade II		
23.00-23.20					25/36,14 SPT(C) 25*/75 50/125	45.08	22.50				
23.00							(0.50)	Extremely weak structureless grey MUDSTONE. Recovered as clay. Residual. (Grade IVb).	Grade IVb Grade IVb		
	100	96	82	Av:250 Min:NI Max:310		44.58	23.00				
								Extremely weak structureless red MUDSTONE. Residual. (Grade IVa).	Grade IVa Grade IVa Grade IVa Grade IVa Grade IVa Grade IVa Grade IVa		
24.50							(1.50)				
	84	30	30	Av:NI Min:NI Max:150		43.08	24.50				
25.00							(0.50)	Very weak structureless grey MUDSTONE BRECCIA. Distinctly weathered (Grade III).	Grade III Grade III		
	Sample / Tests		**Casing Depth (m)**	**Water Depth (m)**		42.58	25.00				
25.00-25.12	SPT 25*/75 50/45				25/50			Complete at 25.00m			

Remarks
Falling Head Test carried out between 1.00-2.00mbgl.
No groundwater strikes recorded.
Tarmacadam broken out by excavator.
Hand digging to 1.2mbgl.
Cable percussion to 10.25mbgl.
Follow on rotary coring from 10.25 to 25.00mbgl. Complete at 25mbgl as per instruction by Site Investigtion Supervisor.

Scale (approx)	**Logged By**
1:50	RP/PW

Figure No.
LKC 22 1225.BH104

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LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** B401 Manchester Airport	**Borehole Number** **BH105**
Machine : Dando 2000 **Method :** Cable Percussion	**Casing Diameter** 152mm cased to 7.00m	**Ground Level (mOD)** 67.23	**Client** Threadneedle Curtis Ltd	**Job Number** LKC 22 1225
	Location (dGPS) 380892.6 E 384807.7 N	**Dates** 25/05/2022-01/06/2022	**Project Contractor** LK Consult	**Sheet** 1/1

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
					67.03	(0.20) 0.20	MADE GROUND: Tarmacadam.			
0.20-0.40	ES 0.2ppm				66.77	(0.26) 0.46	MADE GROUND: Orangish brown gravelly SAND with occasional tarmacadam. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded of sandstone. Tarmacadam fragments fallen in from breaking out surface above. Membrane at base.			
0.50	SV P 61.67kPa			66, 67, 52/Av. 61.67			Firm to very stiff consistency high strength slightly gravelly silty CLAY. Gravel is fine subangular to rounded of mixed lithologies.			
0.50	D									
0.50	SV R 15.67kPa			24, 15, 8/Av. 15.67						
0.70	B									
0.75	SV P 72.67kPa			78, 62, 78/Av. 72.67						
0.75	SV R 15.33kPa			18, 10, 18/Av. 15.33						
0.75	D									
1.00-1.45	UT TXL = 58kPa			100% recov. 16 blows						
1.50-1.60	ES 0.3ppm									
2.00-2.45	SPT N=15			2,3/3,3,4,5						
2.00-2.45	B					(3.54)				
2.00-2.45	D									
3.00-3.45	UT TXL = 125kPa			100% recov. 21 blows						
					63.23	4.00	Dense brown slightly gravelly silty SAND with discrete bands of stiff consistency slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is fine to coarse subangular to rounded of mixed lithologies.		▼1	
4.00-4.45	SPT N=39			4,5/6,8,10,15						
4.00-4.45	B									
4.00-4.45	D									
5.00-5.45	B			Water strike(1) at 5.00m, rose to 4.00m in 20 mins.		(2.00)			▽1	
5.00-5.45	D									
5.00-5.45	SPT N=26			2,4/5,5,8,8						
					61.23	6.00	Stiff to very stiff consistency high strength brown gravelly silty CLAY possible extremely weak weathered MUDSTONE. Gravel is fine to coarse subangular to angular of mudstone.			
6.00-6.45	SPT N=50			6,7/10,10,17,13						
6.00-6.45	B									
6.00-6.45	D									
						(1.38)				
7.00-7.38	SPT 50/225			9,11/12,14,24						
7.00-7.38	B									
7.00-7.38	D									
					59.85	7.38	Complete at 7.38m			

Remarks
Falling Head Test carried out between 2.00-3.00mbgl.
Tarmacadam broken out by excavator.
Hand digging to 1.2mbgl.
Cable percussion to 7.38mbgl. Complete at 7.38mbgl as per instruction by Site Investigtion Supervisor.
Chiselling from 6.20m to 7.00m for 1 hour. Water added from 6.00m to 7.00m.

Scale (approx)	Logged By
1:50	RP

Figure No.
LKC 22 1225.BH105

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LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** B401 Manchester Airport	**Borehole Number** **BH106**
Machine : Dando 2000 / Teredo DC2.8 **Method :** Cable Percussion with follow on Rotary Core	**Casing Diameter** 152mm to 7.00m 127mm to 8.50m	**Ground Level (mOD)** 66.93	**Client** Threadneedle Curtis Ltd	**Job Number** LKC 22 1225
	Location (dGPS) 380856 E 384813 N	**Dates** 24/05/2022	**Project Contractor** LK Consult	**Sheet** 1/2

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
					66.83	0.10				
0.10-0.30	ES 1.3ppm					(0.20)	MADE GROUND: Tarmacadam.			
					66.63	0.30				
0.50	SV P 38kPa			32, 40, 42/Av. 38.00			MADE GROUND: Light grey sandy GRAVEL (sub base) Sand is fine to coarse. Gravel is fine to coarse subangular to angular of limestone. Underlain by membrane.			
0.50	B									
0.50	SV R 28kPa			25, 30, 29/Av. 28.00						
0.50	D						Firm to stiff consistency low to high strength orangish brown to brown slightly gravelly silty CLAY. Gravel is fine to medium subangular to subrounded of various lithologies.			
0.75	SV P 48kPa			45, 48, 51/Av. 48.00						
0.75	SV R 6kPa			4, 7, 7/Av. 6.00						
1.20-1.65	UT TXL = 101kPa			95% recov. 17 blows						
1.40-1.50	ES 0.4ppm									
2.00-2.45	SPT N=16			2,3/2,5,5,4						
2.00-2.45	B					(4.00)				
2.00-2.45	D									
3.00-3.45	UT TXL = 88kPa			100% recov. 19 blows						
4.00-4.45	SPT N=40			5,5/6,12,11,11						
4.00-4.45	B									
4.00-4.45	D				62.63	4.30				
						(0.20)	Orangish brown fine to medium SAND. Sand is fine to coarse.			
					62.43	4.50				
							Stiff to very stiff consistency very high strength reddish brown silty CLAY.			
5.00-5.45	SPT N=37			6,8/6,9,11,11						
5.00-5.45	B					(1.50)				
5.00-5.45	D								▽1	
				Water strike(1) at 5.50m.						
6.00-6.45	SPT N=49			3,6/8,9,16,16	60.93	6.00				
6.00-6.45	B						Stiff to very stiff consistency very high strength gravelly CLAY becoming very weak weathered MUDSTONE. Gravel is fine to coarse subangular to subrounded of mudstone.			
6.00-6.45	D					(1.00)				
				25/50						
7.00-7.45	**TCR** / **SCR** / **RQD** / **If**			50/75 B SPT 25*/75	59.93	7.00				
7.00				Fractures closely to medium spaced horizontal planar rough open clean.			Weak red and grey structureless MUDSTONE BRECCIA with very closely spaced undulating bands of gypsum (<5mm thick) angled at between 10 and 20degrees, possibly relict bedding. Partially weathered (Grade II to III).	Grade II		
7.00-7.15				D		(0.70)		Grade II		
7.00-7.45								Grade II		
	100	97	82	Av:120 Min:NI Max:420	59.23	7.70	Extremely weak red MUDSTONE with very closely spaced undulating bands of gypsum. Recovered as clay with bands of gypsum. Destructured (Grade IVa).	Grade IVa		
						(0.40)		Grade IVa		
					58.83	8.10		Grade II		
8.50				Fractures closely to medium spaced 60degrees undulating rough open clean from 8.50m to 8.90mbgl.			Weak red and grey structureless MUDSTONE BRECCIA with very closely spaced undulating bands of gypsum (<5mm thick) angled at between 10 and 20degrees, possibly relict bedding. Partially weathered (Grade II to III).	Grade II		
						(1.20)		Grade II		
								Grade II		
	100	80	69	Av:260 Min:NI Max:260	57.63	9.30		Grade II		
							Extremely weak red MUDSTONE with undulating subvertical band of gypsum (<10mm thick). Recovered as clay with gypsum. Residual. (Grade IVb).	Grade IVb		
10.00								Grade IVb		
								Grade IVb		

Remarks
Follow on rotary coring from 7.2mbgl to 14.5mbgl. Complete at 14.5mbgl as per instruction by Site Investigtion Supervisor.
Falling Head Test undertaken between 3.00-4.00mbgl.
Tarmacadam broken out by excavator.
Hand digging to 1.2mbgl.
Cable percussion to 7.2mbgl.
Chiselling from 6.00m to 7.20m for 1 hour. Water added from 6.00m to 7.00m.

Scale (approx)	Logged By
1:50	RP/PW

Figure No.
LKC 22 1225.BH106

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LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** B401 Manchester Airport	**Borehole Number** **BH106**
Machine : Dando 2000 / Teredo DC2.8 **Flush :** Water **Core Dia :** 90 mm **Method :** Cable Percussion with follow on Rotary Core	**Casing Diameter** 152mm to 7.00m 127mm to 8.50m **Location** (dGPS) 380856 E 384813 N	**Ground Level (mOD)** 66.93 **Dates** 24/05/2022	**Client** Threadneedle Curtis Ltd **Project Contractor** LK Consult	**Job Number** LKC 22 1225 **Sheet** 2/2

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I_f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
	98	98	98	Av:520 Min:330 Max:620			(3.70)		Grade IVb		
11.50	99	96	76	Av:60 Min:NI Max:640							
13.00	97	84	75	Av:110 Min:NI Max:280		53.93	13.00 (1.50)	Extremely weak red MUDSTONE with very closely spaced undulating bands of gypsum. Recovered as clay with bands of gypsum. Destructured (Grade IVa).	Grade IVa		
14.50						52.43	14.50	Complete at 14.50m			

Remarks
Follow on rotary coring from 7.2mbgl to 14.5mbgl. Complete at 14.5mbgl as per instruction by Site Investigtion Supervisor.
Falling Head Test undertaken between 3.00-4.00mbgl.
Tarmacadam broken out by excavator.
Hand digging to 1.2mbgl.
Cable percussion to 7.2mbgl.

Scale (approx)	Logged By
1:50	RP/PW

Figure No.
LKC 22 1225.BH106

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** B401 Manchester Airport	**Borehole Number** **DS101**
Machine : Dando 2000 **Method :**	**Casing Diameter** 152mm to 3.00m **Ground Level (mOD)** 64.40	**Client** Threadneedle Curtis Ltd	**Job Number** LKC 22 1225
	Location (dGPS) 380941.5 E 384914.6 N **Dates** 30/05/2022-31/05/2022	**Project Contractor** LK Consult	**Sheet** 1/1

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.00-0.30	ES 0.5ppm					(0.30)	MADE GROUND: Dark brown gravelly sandy SILT with occasional brick, coal and ash. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded of various lithologies.			
0.30-0.44	ES 0.3ppm				64.10	0.30				
0.44-0.60	ES 0.2ppm				63.96	(0.14)				
0.75	SV P 83kPa			84, 81, 84/Av. 83.00	63.80	0.44 (0.16) 0.60	MADE GROUND: Greyish brown sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse subangular to angular of limestone. MOT type material.			
0.75	D									
0.75	SV R 11.67kPa			14, 12, 9/Av. 11.67						
1.20-1.65	UT					(1.40)	MADE GROUND: Orangish brown sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse subangular to angular of sandstone. MOT type material.			
1.60-2.00	B									
1.65-1.75	ES 0.1ppm									
1.70	D									
2.00-2.45	SPT N=23			4,4/8,5,5,5	62.40	2.00	Firm becoming stiff consistency high strength brown with orange and grey mottling slightly gravelly sandy silty CLAY with thin lenses of sand. Sand is fine to coarse. Gravel is fine to medium subangular to rounded of various lithologies.			
2.00-2.45	D									
2.00-2.50	B									
						(1.00)	Medium dense orangish brown slightly gravelly SAND with thin bands of slightly gravelly clay. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded of various lithologies.			
3.00-3.44	SPT 50/290			6,9/11,12,15,12	61.40	3.00				
3.00-3.45	D									
3.00-3.50	B						Stiff to very stiff consistency very high strength reddish brown slightly gravelly CLAY. Gravel is fine to medium subangular to subrounded of mudstone. Possibly becoming extremely weak weathered MUDSTONE from 4.1mbgl.			
4.00-4.15	SPT 25*/125 50/25			11,14/50		(2.11)				
4.00-4.20	D									
4.00-4.30	B									
5.00-5.11	SPT 25*/75 50/30			25/50	59.29	5.11				
5.00-5.10	B						Complete at 5.11m			
5.00-5.10	D									

Remarks
No groundwater strikes recorded.
Ground levelled off with excavator and reduced by 0.25m prior to cable rig setting up.
Hand digging to 1.2mbgl.
Cable percussion to 5.1mbgl. Complete at 5.1mbgl as per instruction by Site Investigtion Supervisor.
Chiselling from 4.00m to 5.20m for 1 hour.

Scale (approx)	**Logged By**
1:50	RP

Figure No.
LKC 22 1225.DS101

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SPT Hammer Efficiency Certificate (relates to BH102, BH104 and BH106)

SPT Hammer Energy Test Report

In accordance with BSEN ISO 22476-3:2005

ARCHWAY ENGINEERING (UK) LTD
AINLEYS INDUSTRIAL ESTATE
ELLAND
WEST YORKSHIRE
HX5 9JP

SPT Hammer Ref:	AR3344
Test Date:	28/04/2022
Report Date:	28/04/2022
File Name:	AR3344.spt
Test Operator:	CM

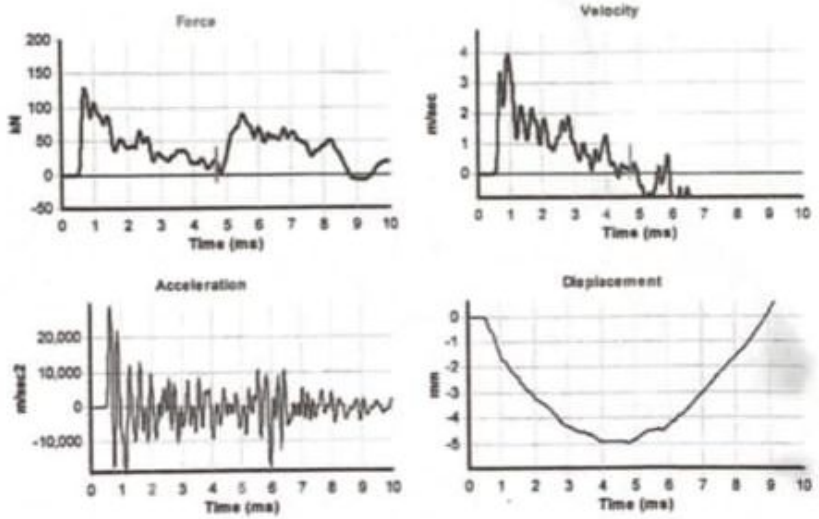
Instrumented Rod Data

Diameter d_r (mm):	54
Wall Thickness t_r (mm):	6.0
Assumed Modulus E_a (GPa):	208
Accelerometer No.1:	7080
Accelerometer No.2:	11609

SPT Hammer Information

Hammer Mass m (kg):	63.5
Falling Height h (mm):	760
SPT String Length L (m):	10.0

Comments / Location
DI DRILLING



Calculations

Area of Rod A (mm2):	905
Theoretical Energy E_{theor} (J):	473
Measured Energy E_{meas} (J):	355
Energy Ratio E_r (%):	**75**

Signed: C.McCLUSKEY
Title: FITTER

The recommended calibration interval is 12 months

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SPT Hammer Efficiency Certificate (relates to BH101, BH103, BH105, DS101)

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

ARCHWAY ENGINEERING (UK) LTD
AINLEYS INDUSTRIAL ESTATE
ELLAND
WEST YORKSHIRE
HX5 9JP

SPT Hammer Ref:	AR659
Test Date:	21/12/2021
Report Date:	21/12/2021
File Name:	AR659.spt
Test Operator:	JL

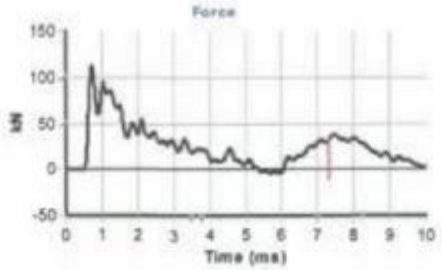
Instrumented Rod Data

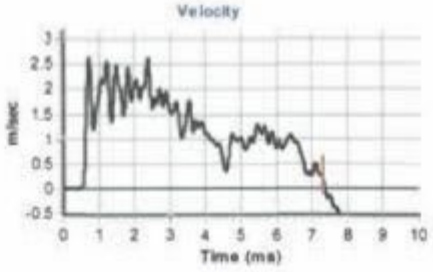
Diameter d_r (mm):	54
Wall Thickness t_r (mm):	6.3
Assumed Modulus E_a (GPa):	208
Accelerometer No.1:	7080
Accelerometer No.2:	11609

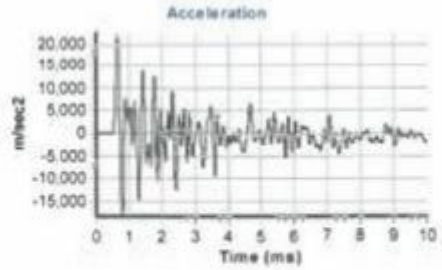
SPT Hammer Information

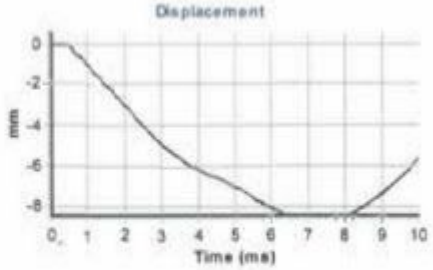
Hammer Mass m (kg):	63.5
Falling Height h (mm):	760
SPT String Length L (m):	10.0

Comments / Location
VC DRILLING - 73802









Calculations

Area of Rod A (mm2):	944
Theoretical Energy E_{theor} (J):	473
Measured Energy E_{meas} (J):	288
Energy Ratio E_r (%):	**61**

The recommended calibration interval is 12 months

Signed: J.LOCK
Title: FITTER

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Appendix B

Certificates of Analysis -

Soil and Leaching Tests

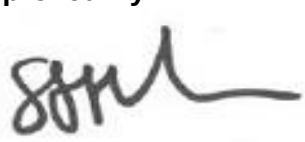
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	22-20268-1
Initial Date of Issue:	09-Jun-2022
Client	LK Consult
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS
Contact(s):	Colin Crompton Contaminated Land
Project	LKC 22 1225 B401 Manchester Airport

Quotation No.:	Q22-27796	**Date Received:**	31-May-2022
Order No.:	740327	**Date Instructed:**	01-Jun-2022
No. of Samples:	4		
Turnaround (Wkdays):	5	**Results Due:**	09-Jun-2022
Date Approved:	09-Jun-2022		

Approved By:



Details:	Stuart Henderson, Technical Manager

Results - Leachate

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult				**Chemtest Job No.:**		22-20268
Quotation No.: Q22-27796				**Chemtest Sample ID.:**		1439128
				Client Sample ID.:		BH104
				Sample Type:		SOIL
				Top Depth (m):		1.30
				Bottom Depth (m):		1.40
				Date Sampled:		25-May-2022
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**	
pH	U	1010	2:1		N/A	8.2
Electrical Conductivity	U	1020	2:1	µS/cm	1.0	140
Chloride	U	1220	2:1	mg/l	1.0	7.9
Ammoniacal Nitrogen	U	1220	2:1	mg/l	0.050	0.093
Nitrate	U	1220	2:1	mg/l	0.50	1.8
Sulphur	N	1220	2:1	mg/l	1.0	6.3
Sulphate	U	1220	2:1	mg/l	1.0	19
Cyanide (Total)	U	1300	2:1	mg/l	0.050	< 0.050
Cyanide (Free)	U	1300	2:1	mg/l	0.050	< 0.050
Sulphide	U	1325	2:1	mg/l	0.050	< 0.050
Arsenic (Dissolved)	U	1455	2:1	µg/l	0.20	2.5
Boron (Dissolved)	U	1455	2:1	µg/l	10.0	21
Barium (Dissolved)	U	1455	2:1	µg/l	5.00	140
Beryllium (Dissolved)	U	1455	2:1	µg/l	1.00	140
Cadmium (Dissolved)	U	1455	2:1	µg/l	0.11	130
Chromium (Dissolved)	U	1455	2:1	µg/l	0.50	170
Copper (Dissolved)	U	1455	2:1	µg/l	0.50	140
Mercury (Dissolved)	U	1455	2:1	µg/l	0.05	< 0.05
Nickel (Dissolved)	U	1455	2:1	µg/l	0.50	160
Lead (Dissolved)	U	1455	2:1	µg/l	0.50	81
Selenium (Dissolved)	U	1455	2:1	µg/l	0.50	130
Zinc (Dissolved)	U	1455	2:1	µg/l	2.5	230
Chromium (Hexavalent)	U	1490	2:1	µg/l	20	< 20
Low-Level Chromium (Hexavalent)	N	1495	2:1	µg/l	0.10	< 0.10
Aliphatic TPH >C5-C6	N	1675	2:1	µg/l	0.010	< 0.010
Aliphatic TPH >C6-C8	N	1675	2:1	µg/l	0.010	< 0.010
Aliphatic TPH >C8-C10	N	1675	2:1	µg/l	0.10	< 0.10
Aliphatic TPH >C10-C12	N	1675	2:1	µg/l	0.10	< 0.10
Aliphatic TPH >C12-C16	N	1675	2:1	µg/l	0.10	< 0.10
Aliphatic TPH >C16-C21	N	1675	2:1	µg/l	0.10	< 0.10
Aliphatic TPH >C21-C35	N	1675	2:1	µg/l	0.10	< 0.10
Aliphatic TPH >C35-C44	N	1675	2:1	µg/l	0.10	< 0.10
Total Aliphatic Hydrocarbons	N	1675	2:1	µg/l	1.0	< 1.0
Aromatic TPH >C5-C7	N	1675	2:1	µg/l	0.010	< 0.010
Aromatic TPH >C7-C8	N	1675	2:1	µg/l	0.010	< 0.010
Aromatic TPH >C8-C10	N	1675	2:1	µg/l	0.10	< 0.10
Aromatic TPH >C10-C12	N	1675	2:1	µg/l	0.10	< 0.10
Aromatic TPH >C12-C16	N	1675	2:1	µg/l	0.10	< 0.10
Aromatic TPH >C16-C21	N	1675	2:1	µg/l	0.10	< 0.10

Results - Leachate

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult				**Chemtest Job No.:**		22-20268
Quotation No.: Q22-27796				**Chemtest Sample ID.:**		1439128
				Client Sample ID.:		BH104
				Sample Type:		SOIL
				Top Depth (m):		1.30
				Bottom Depth (m):		1.40
				Date Sampled:		25-May-2022
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**	
Aromatic TPH >C21-C35	N	1675	2:1	µg/l	0.10	< 0.10
Aromatic TPH >C35-C44	N	1675	2:1	µg/l	0.10	< 0.10
Total Aromatic Hydrocarbons	N	1675	2:1	µg/l	1.0	< 1.0
Total Petroleum Hydrocarbons	N	1675	2:1	µg/l	2.0	< 2.0
Dichlorodifluoromethane	N	1760	2:1	µg/l	0.10	< 0.10
Chloromethane	N	1760	2:1	µg/l	0.10	< 0.10
Vinyl Chloride	N	1760	2:1	µg/l	0.10	< 0.10
Bromomethane	N	1760	2:1	µg/l	2.0	< 2.0
Chloroethane	N	1760	2:1	µg/l	0.20	< 0.20
Trichlorofluoromethane	N	1760	2:1	µg/l	0.10	< 0.10
1,1-Dichloroethene	N	1760	2:1	µg/l	0.10	< 0.10
Trans 1,2-Dichloroethene	N	1760	2:1	µg/l	0.10	< 0.10
1,1-Dichloroethane	N	1760	2:1	µg/l	0.10	< 0.10
cis 1,2-Dichloroethene	N	1760	2:1	µg/l	0.10	< 0.10
Bromochloromethane	N	1760	2:1	µg/l	0.50	< 0.50
Trichloromethane	N	1760	2:1	µg/l	0.10	< 0.10
1,1,1-Trichloroethane	N	1760	2:1	µg/l	0.10	< 0.10
Tetrachloromethane	N	1760	2:1	µg/l	0.10	< 0.10
1,1-Dichloropropene	N	1760	2:1	µg/l	0.10	< 0.10
Benzene	N	1760	2:1	µg/l	0.10	< 0.10
1,2-Dichloroethane	N	1760	2:1	µg/l	0.20	< 0.20
Trichloroethene	N	1760	2:1	µg/l	0.10	< 0.10
1,2-Dichloropropane	N	1760	2:1	µg/l	0.10	< 0.10
Dibromomethane	N	1760	2:1	µg/l	0.10	< 0.10
Bromodichloromethane	N	1760	2:1	µg/l	0.50	< 0.50
cis-1,3-Dichloropropene	N	1760	2:1	µg/l	1.0	< 1.0
Toluene	N	1760	2:1	µg/l	0.10	< 0.10
Trans-1,3-Dichloropropene	N	1760	2:1	µg/l	1.0	< 1.0
1,1,2-Trichloroethane	N	1760	2:1	µg/l	1.0	< 1.0
Tetrachloroethene	N	1760	2:1	µg/l	0.10	< 0.10
1,3-Dichloropropane	N	1760	2:1	µg/l	0.20	< 0.20
Dibromochloromethane	N	1760	2:1	µg/l	1.0	< 1.0
1,2-Dibromoethane	N	1760	2:1	µg/l	0.50	< 0.50
Chlorobenzene	N	1760	2:1	µg/l	0.10	< 0.10
1,1,1,2-Tetrachloroethane	N	1760	2:1	µg/l	0.20	< 0.20
Ethylbenzene	N	1760	2:1	µg/l	0.10	< 0.10
m & p-Xylene	N	1760	2:1	µg/l	0.10	< 0.10
o-Xylene	N	1760	2:1	µg/l	0.10	< 0.10
Styrene	N	1760	2:1	µg/l	0.10	< 0.10

Results - Leachate

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult				**Chemtest Job No.:**		22-20268
Quotation No.: Q22-27796				**Chemtest Sample ID.:**		1439128
				Client Sample ID.:		BH104
				Sample Type:		SOIL
				Top Depth (m):		1.30
				Bottom Depth (m):		1.40
				Date Sampled:		25-May-2022
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**	
Tribromomethane	N	1760	2:1	µg/l	1.0	< 1.0
Isopropylbenzene	N	1760	2:1	µg/l	0.10	< 0.10
Bromobenzene	N	1760	2:1	µg/l	0.10	< 0.10
1,2,3-Trichloropropane	N	1760	2:1	µg/l	5.0	< 5.0
N-Propylbenzene	N	1760	2:1	µg/l	0.10	< 0.10
2-Chlorotoluene	N	1760	2:1	µg/l	0.10	< 0.10
1,3,5-Trimethylbenzene	N	1760	2:1	µg/l	0.10	< 0.10
4-Chlorotoluene	N	1760	2:1	µg/l	0.10	< 0.10
Tert-Butylbenzene	N	1760	2:1	µg/l	0.10	< 0.10
1,2,4-Trimethylbenzene	N	1760	2:1	µg/l	0.10	< 0.10
Sec-Butylbenzene	N	1760	2:1	µg/l	0.10	< 0.10
1,3-Dichlorobenzene	N	1760	2:1	µg/l	0.10	< 0.10
4-Isopropyltoluene	N	1760	2:1	µg/l	0.10	< 0.10
1,4-Dichlorobenzene	N	1760	2:1	µg/l	0.10	< 0.10
N-Butylbenzene	N	1760	2:1	µg/l	0.10	< 0.10
1,2-Dichlorobenzene	N	1760	2:1	µg/l	0.10	< 0.10
1,2-Dibromo-3-Chloropropane	N	1760	2:1	µg/l	5.0	< 5.0
1,2,4-Trichlorobenzene	N	1760	2:1	µg/l	0.10	< 0.10
Hexachlorobutadiene	N	1760	2:1	µg/l	0.10	< 0.10
1,2,3-Trichlorobenzene	N	1760	2:1	µg/l	0.20	< 0.20
Methyl Tert-Butyl Ether	N	1760	2:1	µg/l	0.10	< 0.10
N-Nitrosodimethylamine	N	1790	2:1	µg/l	0.050	< 0.050
Phenol	N	1790	2:1	µg/l	0.050	< 0.050
2-Chlorophenol	N	1790	2:1	µg/l	0.050	< 0.050
Bis-(2-Chloroethyl)Ether	N	1790	2:1	µg/l	0.050	< 0.050
1,3-Dichlorobenzene	N	1790	2:1	µg/l	0.050	< 0.050
1,4-Dichlorobenzene	N	1790	2:1	µg/l	0.050	< 0.050
1,2-Dichlorobenzene	N	1790	2:1	µg/l	0.050	< 0.050
2-Methylphenol (o-Cresol)	N	1790	2:1	µg/l	0.050	< 0.050
Bis(2-Chloroisopropyl)Ether	N	1790	2:1	µg/l	0.050	< 0.050
Hexachloroethane	N	1790	2:1	µg/l	0.050	< 0.050
N-Nitrosodi-n-propylamine	N	1790	2:1	µg/l	0.050	< 0.050
4-Methylphenol	N	1790	2:1	µg/l	0.050	< 0.050
Nitrobenzene	N	1790	2:1	µg/l	0.050	< 0.050
Isophorone	N	1790	2:1	µg/l	0.050	< 0.050
2-Nitrophenol	N	1790	2:1	µg/l	0.050	< 0.050
2,4-Dimethylphenol	N	1790	2:1	µg/l	0.050	< 0.050
Bis(2-Chloroethoxy)Methane	N	1790	2:1	µg/l	0.050	< 0.050
2,4-Dichlorophenol	N	1790	2:1	µg/l	0.050	< 0.050

Results - Leachate

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult				**Chemtest Job No.:**		22-20268
Quotation No.: Q22-27796				**Chemtest Sample ID.:**		1439128
				Client Sample ID.:		BH104
				Sample Type:		SOIL
				Top Depth (m):		1.30
				Bottom Depth (m):		1.40
				Date Sampled:		25-May-2022
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**	
1,2,4-Trichlorobenzene	N	1790	2:1	µg/l	0.050	< 0.050
Naphthalene	N	1790	2:1	µg/l	0.050	< 0.050
4-Chloroaniline	N	1790	2:1	µg/l	0.050	< 0.050
Hexachlorobutadiene	N	1790	2:1	µg/l	0.050	< 0.050
4-Chloro-3-Methylphenol	N	1790	2:1	µg/l	0.050	< 0.050
2-Methylnaphthalene	N	1790	2:1	µg/l	0.050	< 0.050
Hexachlorocyclopentadiene	N	1790	2:1	µg/l	0.050	< 0.050
2,4,6-Trichlorophenol	N	1790	2:1	µg/l	0.050	< 0.050
2,4,5-Trichlorophenol	N	1790	2:1	µg/l	0.050	< 0.050
2-Chloronaphthalene	N	1790	2:1	µg/l	0.050	< 0.050
2-Nitroaniline	N	1790	2:1	µg/l	0.050	< 0.050
Acenaphthylene	N	1790	2:1	µg/l	0.050	< 0.050
Dimethylphthalate	N	1790	2:1	µg/l	0.050	< 0.050
2,6-Dinitrotoluene	N	1790	2:1	µg/l	0.050	< 0.050
Acenaphthene	N	1790	2:1	µg/l	0.050	< 0.050
3-Nitroaniline	N	1790	2:1	µg/l	0.050	< 0.050
Dibenzofuran	N	1790	2:1	µg/l	0.050	< 0.050
4-Chlorophenylphenylether	N	1790	2:1	µg/l	0.050	< 0.050
2,4-Dinitrotoluene	N	1790	2:1	µg/l	0.050	< 0.050
Fluorene	N	1790	2:1	µg/l	0.050	< 0.050
Diethyl Phthalate	N	1790	2:1	µg/l	0.050	< 0.050
4-Nitroaniline	N	1790	2:1	µg/l	0.050	< 0.050
2-Methyl-4,6-Dinitrophenol	N	1790	2:1	µg/l	0.050	< 0.050
Azobenzene	N	1790	2:1	µg/l	0.050	< 0.050
4-Bromophenylphenyl Ether	N	1790	2:1	µg/l	0.050	< 0.050
Hexachlorobenzene	N	1790	2:1	µg/l	0.050	< 0.050
Pentachlorophenol	N	1790	2:1	µg/l	0.050	< 0.050
Phenanthrene	N	1790	2:1	µg/l	0.050	< 0.050
Anthracene	N	1790	2:1	µg/l	0.050	< 0.050
Carbazole	N	1790	2:1	µg/l	0.050	< 0.050
Di-N-Butyl Phthalate	N	1790	2:1	µg/l	0.050	< 0.050
Fluoranthene	N	1790	2:1	µg/l	0.050	< 0.050
Pyrene	N	1790	2:1	µg/l	0.050	< 0.050
Butylbenzyl Phthalate	N	1790	2:1	µg/l	0.050	< 0.050
Benzo[a]anthracene	N	1790	2:1	µg/l	0.050	< 0.050
Chrysene	N	1790	2:1	µg/l	0.050	< 0.050
Bis(2-Ethylhexyl)Phthalate	N	1790	2:1	µg/l	0.050	< 0.050
Di-N-Octyl Phthalate	N	1790	2:1	µg/l	0.050	< 0.050
Benzo[b]fluoranthene	N	1790	2:1	µg/l	0.050	< 0.050

Results - Leachate

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult				**Chemtest Job No.:**		22-20268
Quotation No.: Q22-27796				**Chemtest Sample ID.:**		1439128
				Client Sample ID.:		BH104
				Sample Type:		SOIL
				Top Depth (m):		1.30
				Bottom Depth (m):		1.40
				Date Sampled:		25-May-2022
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**	
Benzo[k]fluoranthene	N	1790	2:1	µg/l	0.050	< 0.050
Benzo[a]pyrene	N	1790	2:1	µg/l	0.050	< 0.050
Indeno(1,2,3-c,d)Pyrene	N	1790	2:1	µg/l	0.050	< 0.050
Dibenz(a,h)Anthracene	N	1790	2:1	µg/l	0.050	< 0.050
Benzo[g,h,i]perylene	N	1790	2:1	µg/l	0.050	< 0.050
4-Nitrophenol	N	1790	2:1	µg/l	0.050	< 0.050
Naphthalene	N	1800	2:1	µg/l	0.010	< 0.010
Acenaphthylene	N	1800	2:1	µg/l	0.010	< 0.010
Acenaphthene	N	1800	2:1	µg/l	0.010	< 0.010
Fluorene	N	1800	2:1	µg/l	0.010	< 0.010
Phenanthrene	N	1800	2:1	µg/l	0.010	< 0.010
Anthracene	N	1800	2:1	µg/l	0.010	< 0.010
Fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010
Pyrene	N	1800	2:1	µg/l	0.010	< 0.010
Benzo[a]anthracene	N	1800	2:1	µg/l	0.010	< 0.010
Chrysene	N	1800	2:1	µg/l	0.010	< 0.010
Benzo[b]fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010
Benzo[k]fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010
Benzo[a]pyrene	N	1800	2:1	µg/l	0.010	< 0.010
Indeno(1,2,3-c,d)Pyrene	N	1800	2:1	µg/l	0.010	< 0.010
Dibenz(a,h)Anthracene	N	1800	2:1	µg/l	0.010	< 0.010
Benzo[g,h,i]perylene	N	1800	2:1	µg/l	0.010	< 0.010
Total Of 16 PAH's	N	1800	2:1	µg/l	0.20	< 0.20
PCB 28	N	1815	2:1	µg/l	0.010	< 0.010
PCB 52	N	1815	2:1	µg/l	0.010	< 0.010
PCB 90+101	N	1815	2:1	µg/l	0.010	< 0.010
PCB 118	N	1815	2:1	µg/l	0.010	< 0.010
PCB 153	N	1815	2:1	µg/l	0.010	< 0.010
PCB 138	N	1815	2:1	µg/l	0.010	< 0.010
PCB 180	N	1815	2:1	µg/l	0.010	< 0.010
Total PCBs (7 congeners)	N	1815	2:1	µg/l	0.010	< 0.010
Total Phenols	U	1920	2:1	mg/l	0.030	< 0.030

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult		**Chemtest Job No.:**			22-20268	22-20268	22-20268	22-20268
Quotation No.: Q22-27796		**Chemtest Sample ID.:**			1439127	1439128	1439129	1439130
		Client Sample ID.:			BH104	BH104	BH106	BH106
		Sample Type:			SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			0.10	1.30	0.10	1.40
		Bottom Depth (m):			0.30	1.40	0.40	1.50
		Date Sampled:			25-May-2022	25-May-2022	25-May-2022	25-May-2022
		Asbestos Lab:			DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
ACM Type	U	2192		N/A	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	11	35	14	21
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones	Stones	Stones
Soil Texture	N	2040		N/A	Sand	Sand	Sand	Clay
pH	U	2010		4.0	8.8	8.3	8.7	8.2
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	< 0.40	< 0.40	< 0.40	< 0.40
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	0.018	0.023	0.039	0.054
Sulphur (Elemental)	U	2180	mg/kg	1.0	< 1.0	< 1.0	2.7	3.7
Cyanide (Free)	U	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cyanide (Total)	U	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	25	25	5.7	31
Arsenic	U	2455	mg/kg	0.5	1.1	9.6	1.6	8.8
Barium	U	2455	mg/kg	0	18	45	80	130
Beryllium	U	2455	mg/kg	0.5	< 0.5	0.9	< 0.5	1.6
Cadmium	U	2455	mg/kg	0.10	0.13	0.10	0.35	0.13
Chromium	U	2455	mg/kg	0.5	3.1	16	4.5	33
Copper	U	2455	mg/kg	0.50	2.0	12	2.7	21
Mercury	U	2455	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel	U	2455	mg/kg	0.50	4.0	13	5.8	43
Lead	U	2455	mg/kg	0.50	7.6	6.6	16	11
Selenium	U	2455	mg/kg	0.25	0.40	0.76	0.35	1.2
Zinc	U	2455	mg/kg	0.50	16	18	23	49
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Fraction of Organic Carbon	U	2625		0.0010	0.0034	0.0035	0.045	0.0042
Aliphatic TPH >C5-C6	N	2680	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Aliphatic TPH >C6-C8	N	2680	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Aliphatic TPH >C8-C10	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C10-C12	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C12-C16	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C16-C21	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C21-C35	N	2680	mg/kg	0.10	82	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C35-C44	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aliphatic Hydrocarbons	N	2680	mg/kg	1.0	82	< 1.0	< 1.0	< 1.0
Aromatic TPH >C5-C7	N	2680	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Aromatic TPH >C7-C8	N	2680	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-20268	22-20268	22-20268	22-20268
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1439127	1439128	1439129	1439130
			Client Sample ID.:		BH104	BH104	BH106	BH106
			Sample Type:		SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.10	1.30	0.10	1.40
			Bottom Depth (m):		0.30	1.40	0.40	1.50
			Date Sampled:		25-May-2022	25-May-2022	25-May-2022	25-May-2022
			Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
Aromatic TPH >C8-C10	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C10-C12	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C12-C16	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C16-C21	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C21-C35	N	2680	mg/kg	0.10	320	< 0.10	< 0.10	< 0.10
Aromatic TPH >C35-C44	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aromatic Hydrocarbons	N	2680	mg/kg	1.0	320	< 1.0	< 1.0	< 1.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	2.0	400	< 2.0	< 2.0	< 2.0
Dichlorodifluoromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Chloromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Vinyl Chloride	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Bromomethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Chloroethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Trichlorofluoromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
1,1-Dichloroethene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Trans 1,2-Dichloroethene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
1,1-Dichloroethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
cis 1,2-Dichloroethene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Bromochloromethane	N	2760	µg/kg	0.50	< 0.50	< 0.50	< 0.50	
Trichloromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
1,1,1-Trichloroethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Tetrachloromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
1,1-Dichloropropene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Benzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
1,2-Dichloroethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Trichloroethene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
1,2-Dichloropropane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Dibromomethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Bromodichloromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
cis-1,3-Dichloropropene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Toluene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Trans-1,3-Dichloropropene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
1,1,2-Trichloroethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Tetrachloroethene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
1,3-Dichloropropane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Dibromochloromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
1,2-Dibromoethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Chlorobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-20268	22-20268	22-20268	22-20268
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1439127	1439128	1439129	1439130
			Client Sample ID.:		BH104	BH104	BH106	BH106
			Sample Type:		SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.10	1.30	0.10	1.40
			Bottom Depth (m):		0.30	1.40	0.40	1.50
			Date Sampled:		25-May-2022	25-May-2022	25-May-2022	25-May-2022
			Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
1,1,1,2-Tetrachloroethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Ethylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
m & p-Xylene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
o-Xylene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Styrene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Tribromomethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Isopropylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Bromobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
1,2,3-Trichloropropane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
N-Propylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
2-Chlorotoluene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
1,3,5-Trimethylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
4-Chlorotoluene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Tert-Butylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
1,2,4-Trimethylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Sec-Butylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
1,3-Dichlorobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
4-Isopropyltoluene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
1,4-Dichlorobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
N-Butylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
1,2-Dichlorobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
1,2-Dibromo-3-Chloropropane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
1,2,4-Trichlorobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Hexachlorobutadiene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
1,2,3-Trichlorobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Methyl Tert-Butyl Ether	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
N-Nitrosodimethylamine	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Phenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
2-Chlorophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Bis-(2-Chloroethyl)Ether	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
1,3-Dichlorobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
1,4-Dichlorobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
1,2-Dichlorobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
2-Methylphenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Bis(2-Chloroisopropyl)Ether	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Hexachloroethane	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
N-Nitrosodi-n-propylamine	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
4-Methylphenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult		**Chemtest Job No.:**			22-20268	22-20268	22-20268	22-20268
Quotation No.: Q22-27796		**Chemtest Sample ID.:**			1439127	1439128	1439129	1439130
			Client Sample ID.:		BH104	BH104	BH106	BH106
			Sample Type:		SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.10	1.30	0.10	1.40
			Bottom Depth (m):		0.30	1.40	0.40	1.50
			Date Sampled:		25-May-2022	25-May-2022	25-May-2022	25-May-2022
			Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
Nitrobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Isophorone	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
2-Nitrophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
2,4-Dimethylphenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Bis(2-Chloroethoxy)Methane	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
2,4-Dichlorophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
1,2,4-Trichlorobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Naphthalene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
4-Chloroaniline	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Hexachlorobutadiene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
4-Chloro-3-Methylphenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
2-Methylnaphthalene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Hexachlorocyclopentadiene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
2,4,6-Trichlorophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
2,4,5-Trichlorophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
2-Chloronaphthalene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
2-Nitroaniline	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Acenaphthylene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Dimethylphthalate	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
2,6-Dinitrotoluene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Acenaphthene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
3-Nitroaniline	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Dibenzofuran	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
4-Chlorophenylphenylether	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
2,4-Dinitrotoluene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Fluorene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Diethyl Phthalate	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
4-Nitroaniline	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
2-Methyl-4,6-Dinitrophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Azobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
4-Bromophenylphenyl Ether	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Hexachlorobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Pentachlorophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Phenanthrene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Anthracene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Carbazole	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Di-N-Butyl Phthalate	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Fluoranthene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-20268	22-20268	22-20268	22-20268
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1439127	1439128	1439129	1439130
			Client Sample ID.:		BH104	BH104	BH106	BH106
			Sample Type:		SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.10	1.30	0.10	1.40
			Bottom Depth (m):		0.30	1.40	0.40	1.50
			Date Sampled:		25-May-2022	25-May-2022	25-May-2022	25-May-2022
			Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
Pyrene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Butylbenzyl Phthalate	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Benzo[a]anthracene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Chrysene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Bis(2-Ethylhexyl)Phthalate	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Di-N-Octyl Phthalate	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Benzo[b]fluoranthene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Benzo[k]fluoranthene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Benzo[a]pyrene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Indeno(1,2,3-c,d)Pyrene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Dibenz(a,h)Anthracene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Benzo[g,h,i]perylene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
4-Nitrophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Naphthalene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Acenaphthylene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Acenaphthene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluorene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Phenanthrene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Anthracene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluoranthene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Pyrene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[a]anthracene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Chrysene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[b]fluoranthene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[k]fluoranthene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[a]pyrene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Indeno(1,2,3-c,d)Pyrene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[g,h,i]perylene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Of 16 PAH's	N	2800	mg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
PCB 28	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	
PCB 52	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	
PCB 90+101	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	
PCB 118	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	
PCB 153	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	
PCB 138	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	
PCB 180	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	
Total PCBs (7 Congeners)	U	2815	mg/kg	0.10	< 0.10	< 0.10	< 0.10	

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-20268	22-20268	22-20268	22-20268
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1439127	1439128	1439129	1439130
			Client Sample ID.:		BH104	BH104	BH106	BH106
			Sample Type:		SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.10	1.30	0.10	1.40
			Bottom Depth (m):		0.30	1.40	0.40	1.50
			Date Sampled:		25-May-2022	25-May-2022	25-May-2022	25-May-2022
			Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
Total Phenols	U	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - 2 Stage WAC

Project: LKC 22 1225 B401 Manchester Airport

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-20268								
Chemtest Sample ID:	1439128								
Sample Ref:									
Sample ID:	BH104								
Sample Location:									
Top Depth(m):	1.30								
Bottom Depth(m):	1.40								
Sampling Date:	25-May-2022								
Determinand	**SOP**	**Accred.**	**Units**				**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon							3	5	6
Loss on Ignition							--	--	10
Total BTEX							6	--	--
Total PCBs (7 congeners)							1	--	--
TPH Total WAC (Mineral Oil)							500	--	--
Total (of 17) PAHs							100	--	--
pH							--	>6	--
Acid Neutralisation Capacity							--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic							0.5	2	25
Barium							20	100	300
Cadmium							0.04	1	5
Chromium							0.5	10	70
Copper							2	50	100
Mercury							0.01	0.2	2
Molybdenum							0.5	10	30
Nickel							0.4	10	40
Lead							0.5	10	50
Antimony							0.06	0.7	5
Selenium							0.1	0.5	7
Zinc							4	50	200
Chloride							800	15000	25000
Fluoride							10	150	500
Sulphate							1000	20000	50000
Total Dissolved Solids							4000	60000	100000
Phenol Index							1	-	-
Dissolved Organic Carbon							500	800	1000

Solid Information	
Dry mass of test portion/kg	
Moisture (%)	

Leachate Test Information	
Leachant volume 1st extract/l	
Leachant volume 2nd extract/l	
Eluant recovered from 1st extract/l	

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1300	Cyanides & Thiocyanate in Waters	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Continuous Flow Analysis.
1325	Sulphide in Waters	Sulphides	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using N,N–dimethyl-pphenylenediamine.
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1490	Hexavalent Chromium in Waters	Chromium [VI]	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
1495	Low Level Hexavalent Chromium in Waters	Chromium [VI]	Colorimetric determination of hexavalent chromium expressed as Cr (VI) µg/l in water, using Ion Chromatography and UV-visible spectrophotometry.
1675	TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG)	Aliphatics: >C5–C6, >C6–C8, >C8– C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Pentane extraction / GCxGC FID detection
1760	Volatile Organic Compounds (VOCs) in Waters by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics. (cf. USEPA Method 8260)	Automated headspace gas chromatographic (GC) analysis of water samples with mass spectrometric (MS) detection of volatile organic compounds.
1790	Semi-Volatile Organic Compounds (SVOCs) in Waters by GC-MS	Semi-volatile organic compounds	Solvent extraction / GCMS detection
1800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-MS	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Pentane extraction / GCMS detection
1815	Polychlorinated Biphenyls (PCB) ICES7 Congeners in Waters by GC-MS	ICES7 PCB congeners	Solvent extraction / GCMS detection
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2180	Sulphur (Elemental) in Soils by HPLC	Sulphur	Dichloromethane extraction / HPLC with UV detection
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry

Test Methods

SOP	Title	Parameters included	Method summary
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N–dimethyl-p-phenylenediamine.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2790	Semi-Volatile Organic Compounds (SVOCs) in Soils by GC-MS	Semi-volatile organic compounds(cf. USEPA Method 8270)	Acetone/Hexane extraction / GC-MS
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge
650	Characterisation of Waste (Leaching WAC)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

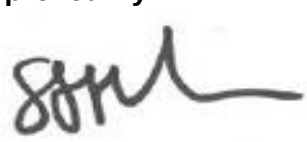
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	22-20272-1
Initial Date of Issue:	09-Jun-2022
Client	LK Consult
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS
Contact(s):	Colin Crompton Contaminated Land
Project	LKC 22 1225 B401 Manchester Airport

Quotation No.:	Q22-27796	**Date Received:**	31-May-2022
Order No.:	740328	**Date Instructed:**	01-Jun-2022
No. of Samples:	2		
Turnaround (Wkdays):	5	**Results Due:**	09-Jun-2022
Date Approved:	09-Jun-2022		

Approved By:



Details:	Stuart Henderson, Technical Manager

Results - Leachate

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult				**Chemtest Job No.:**		22-20272
Quotation No.: Q22-27796				**Chemtest Sample ID.:**		1439139
				Client Sample ID.:		BH105
				Sample Type:		SOIL
				Top Depth (m):		0.20
				Bottom Depth (m):		0.40
				Date Sampled:		26-May-2022
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**	
pH	U	1010	2:1		N/A	8.0
Electrical Conductivity	U	1020	2:1	µS/cm	1.0	290
Chloride	U	1220	2:1	mg/l	1.0	53
Ammoniacal Nitrogen	U	1220	2:1	mg/l	0.050	0.12
Nitrate	U	1220	2:1	mg/l	0.50	2.1
Sulphur	N	1220	2:1	mg/l	1.0	3.3
Sulphate	U	1220	2:1	mg/l	1.0	10
Cyanide (Total)	U	1300	2:1	mg/l	0.050	< 0.050
Cyanide (Free)	U	1300	2:1	mg/l	0.050	< 0.050
Sulphide	U	1325	2:1	mg/l	0.050	< 0.050
Arsenic (Dissolved)	U	1455	2:1	µg/l	0.20	0.43
Boron (Dissolved)	U	1455	2:1	µg/l	10.0	17
Barium (Dissolved)	U	1455	2:1	µg/l	5.00	14
Beryllium (Dissolved)	U	1455	2:1	µg/l	1.00	< 1.0
Cadmium (Dissolved)	U	1455	2:1	µg/l	0.11	0.38
Chromium (Dissolved)	U	1455	2:1	µg/l	0.50	2.8
Copper (Dissolved)	U	1455	2:1	µg/l	0.50	1.5
Mercury (Dissolved)	U	1455	2:1	µg/l	0.05	< 0.05
Nickel (Dissolved)	U	1455	2:1	µg/l	0.50	2.1
Lead (Dissolved)	U	1455	2:1	µg/l	0.50	< 0.50
Selenium (Dissolved)	U	1455	2:1	µg/l	0.50	1.0
Zinc (Dissolved)	U	1455	2:1	µg/l	2.5	< 2.5
Chromium (Hexavalent)	U	1490	2:1	µg/l	20	< 20
Low-Level Chromium (Hexavalent)	N	1495	2:1	µg/l	0.10	0.15
Aliphatic TPH >C5-C6	N	1675	2:1	µg/l	0.010	< 0.010
Aliphatic TPH >C6-C8	N	1675	2:1	µg/l	0.010	< 0.010
Aliphatic TPH >C8-C10	N	1675	2:1	µg/l	0.10	< 0.10
Aliphatic TPH >C10-C12	N	1675	2:1	µg/l	0.10	< 0.10
Aliphatic TPH >C12-C16	N	1675	2:1	µg/l	0.10	< 0.10
Aliphatic TPH >C16-C21	N	1675	2:1	µg/l	0.10	< 0.10
Aliphatic TPH >C21-C35	N	1675	2:1	µg/l	0.10	< 0.10
Aliphatic TPH >C35-C44	N	1675	2:1	µg/l	0.10	< 0.10
Total Aliphatic Hydrocarbons	N	1675	2:1	µg/l	1.0	< 1.0
Aromatic TPH >C5-C7	N	1675	2:1	µg/l	0.010	< 0.010
Aromatic TPH >C7-C8	N	1675	2:1	µg/l	0.010	< 0.010
Aromatic TPH >C8-C10	N	1675	2:1	µg/l	0.10	< 0.10
Aromatic TPH >C10-C12	N	1675	2:1	µg/l	0.10	< 0.10
Aromatic TPH >C12-C16	N	1675	2:1	µg/l	0.10	< 0.10
Aromatic TPH >C16-C21	N	1675	2:1	µg/l	0.10	< 0.10

Results - Leachate

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult				**Chemtest Job No.:**		22-20272
Quotation No.: Q22-27796				**Chemtest Sample ID.:**		1439139
				Client Sample ID.:		BH105
				Sample Type:		SOIL
				Top Depth (m):		0.20
				Bottom Depth (m):		0.40
				Date Sampled:		26-May-2022
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**	
Aromatic TPH >C21-C35	N	1675	2:1	µg/l	0.10	< 0.10
Aromatic TPH >C35-C44	N	1675	2:1	µg/l	0.10	< 0.10
Total Aromatic Hydrocarbons	N	1675	2:1	µg/l	1.0	< 1.0
Total Petroleum Hydrocarbons	N	1675	2:1	µg/l	2.0	< 2.0
Dichlorodifluoromethane	N	1760	2:1	µg/l	0.10	< 0.10
Chloromethane	N	1760	2:1	µg/l	0.10	< 0.10
Vinyl Chloride	N	1760	2:1	µg/l	0.10	< 0.10
Bromomethane	N	1760	2:1	µg/l	2.0	< 2.0
Chloroethane	N	1760	2:1	µg/l	0.20	< 0.20
Trichlorofluoromethane	N	1760	2:1	µg/l	0.10	< 0.10
1,1-Dichloroethene	N	1760	2:1	µg/l	0.10	< 0.10
Trans 1,2-Dichloroethene	N	1760	2:1	µg/l	0.10	< 0.10
1,1-Dichloroethane	N	1760	2:1	µg/l	0.10	< 0.10
cis 1,2-Dichloroethene	N	1760	2:1	µg/l	0.10	< 0.10
Bromochloromethane	N	1760	2:1	µg/l	0.50	< 0.50
Trichloromethane	N	1760	2:1	µg/l	0.10	< 0.10
1,1,1-Trichloroethane	N	1760	2:1	µg/l	0.10	< 0.10
Tetrachloromethane	N	1760	2:1	µg/l	0.10	< 0.10
1,1-Dichloropropene	N	1760	2:1	µg/l	0.10	< 0.10
Benzene	N	1760	2:1	µg/l	0.10	< 0.10
1,2-Dichloroethane	N	1760	2:1	µg/l	0.20	< 0.20
Trichloroethene	N	1760	2:1	µg/l	0.10	< 0.10
1,2-Dichloropropane	N	1760	2:1	µg/l	0.10	< 0.10
Dibromomethane	N	1760	2:1	µg/l	0.10	< 0.10
Bromodichloromethane	N	1760	2:1	µg/l	0.50	< 0.50
cis-1,3-Dichloropropene	N	1760	2:1	µg/l	1.0	< 1.0
Toluene	N	1760	2:1	µg/l	0.10	< 0.10
Trans-1,3-Dichloropropene	N	1760	2:1	µg/l	1.0	< 1.0
1,1,2-Trichloroethane	N	1760	2:1	µg/l	1.0	< 1.0
Tetrachloroethene	N	1760	2:1	µg/l	0.10	< 0.10
1,3-Dichloropropane	N	1760	2:1	µg/l	0.20	< 0.20
Dibromochloromethane	N	1760	2:1	µg/l	1.0	< 1.0
1,2-Dibromoethane	N	1760	2:1	µg/l	0.50	< 0.50
Chlorobenzene	N	1760	2:1	µg/l	0.10	< 0.10
1,1,1,2-Tetrachloroethane	N	1760	2:1	µg/l	0.20	< 0.20
Ethylbenzene	N	1760	2:1	µg/l	0.10	< 0.10
m & p-Xylene	N	1760	2:1	µg/l	0.10	< 0.10
o-Xylene	N	1760	2:1	µg/l	0.10	< 0.10
Styrene	N	1760	2:1	µg/l	0.10	< 0.10

Results - Leachate

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult				**Chemtest Job No.:**		22-20272
Quotation No.: Q22-27796				**Chemtest Sample ID.:**		1439139
				Client Sample ID.:		BH105
				Sample Type:		SOIL
				Top Depth (m):		0.20
				Bottom Depth (m):		0.40
				Date Sampled:		26-May-2022
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**	
Tribromomethane	N	1760	2:1	µg/l	1.0	< 1.0
Isopropylbenzene	N	1760	2:1	µg/l	0.10	< 0.10
Bromobenzene	N	1760	2:1	µg/l	0.10	< 0.10
1,2,3-Trichloropropane	N	1760	2:1	µg/l	5.0	< 5.0
N-Propylbenzene	N	1760	2:1	µg/l	0.10	< 0.10
2-Chlorotoluene	N	1760	2:1	µg/l	0.10	< 0.10
1,3,5-Trimethylbenzene	N	1760	2:1	µg/l	0.10	< 0.10
4-Chlorotoluene	N	1760	2:1	µg/l	0.10	< 0.10
Tert-Butylbenzene	N	1760	2:1	µg/l	0.10	< 0.10
1,2,4-Trimethylbenzene	N	1760	2:1	µg/l	0.10	< 0.10
Sec-Butylbenzene	N	1760	2:1	µg/l	0.10	< 0.10
1,3-Dichlorobenzene	N	1760	2:1	µg/l	0.10	< 0.10
4-Isopropyltoluene	N	1760	2:1	µg/l	0.10	< 0.10
1,4-Dichlorobenzene	N	1760	2:1	µg/l	0.10	< 0.10
N-Butylbenzene	N	1760	2:1	µg/l	0.10	< 0.10
1,2-Dichlorobenzene	N	1760	2:1	µg/l	0.10	< 0.10
1,2-Dibromo-3-Chloropropane	N	1760	2:1	µg/l	5.0	< 5.0
1,2,4-Trichlorobenzene	N	1760	2:1	µg/l	0.10	< 0.10
Hexachlorobutadiene	N	1760	2:1	µg/l	0.10	< 0.10
1,2,3-Trichlorobenzene	N	1760	2:1	µg/l	0.20	< 0.20
Methyl Tert-Butyl Ether	N	1760	2:1	µg/l	0.10	< 0.10
N-Nitrosodimethylamine	N	1790	2:1	µg/l	0.050	< 0.050
Phenol	N	1790	2:1	µg/l	0.050	< 0.050
2-Chlorophenol	N	1790	2:1	µg/l	0.050	< 0.050
Bis-(2-Chloroethyl)Ether	N	1790	2:1	µg/l	0.050	< 0.050
1,3-Dichlorobenzene	N	1790	2:1	µg/l	0.050	< 0.050
1,4-Dichlorobenzene	N	1790	2:1	µg/l	0.050	< 0.050
1,2-Dichlorobenzene	N	1790	2:1	µg/l	0.050	< 0.050
2-Methylphenol (o-Cresol)	N	1790	2:1	µg/l	0.050	< 0.050
Bis(2-Chloroisopropyl)Ether	N	1790	2:1	µg/l	0.050	< 0.050
Hexachloroethane	N	1790	2:1	µg/l	0.050	< 0.050
N-Nitrosodi-n-propylamine	N	1790	2:1	µg/l	0.050	< 0.050
4-Methylphenol	N	1790	2:1	µg/l	0.050	< 0.050
Nitrobenzene	N	1790	2:1	µg/l	0.050	< 0.050
Isophorone	N	1790	2:1	µg/l	0.050	< 0.050
2-Nitrophenol	N	1790	2:1	µg/l	0.050	< 0.050
2,4-Dimethylphenol	N	1790	2:1	µg/l	0.050	< 0.050
Bis(2-Chloroethoxy)Methane	N	1790	2:1	µg/l	0.050	< 0.050
2,4-Dichlorophenol	N	1790	2:1	µg/l	0.050	< 0.050

Results - Leachate

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult				**Chemtest Job No.:**		22-20272
Quotation No.: Q22-27796				**Chemtest Sample ID.:**		1439139
				Client Sample ID.:		BH105
				Sample Type:		SOIL
				Top Depth (m):		0.20
				Bottom Depth (m):		0.40
				Date Sampled:		26-May-2022
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**	
1,2,4-Trichlorobenzene	N	1790	2:1	µg/l	0.050	< 0.050
Naphthalene	N	1790	2:1	µg/l	0.050	< 0.050
4-Chloroaniline	N	1790	2:1	µg/l	0.050	< 0.050
Hexachlorobutadiene	N	1790	2:1	µg/l	0.050	< 0.050
4-Chloro-3-Methylphenol	N	1790	2:1	µg/l	0.050	< 0.050
2-Methylnaphthalene	N	1790	2:1	µg/l	0.050	< 0.050
Hexachlorocyclopentadiene	N	1790	2:1	µg/l	0.050	< 0.050
2,4,6-Trichlorophenol	N	1790	2:1	µg/l	0.050	< 0.050
2,4,5-Trichlorophenol	N	1790	2:1	µg/l	0.050	< 0.050
2-Chloronaphthalene	N	1790	2:1	µg/l	0.050	< 0.050
2-Nitroaniline	N	1790	2:1	µg/l	0.050	< 0.050
Acenaphthylene	N	1790	2:1	µg/l	0.050	< 0.050
Dimethylphthalate	N	1790	2:1	µg/l	0.050	< 0.050
2,6-Dinitrotoluene	N	1790	2:1	µg/l	0.050	< 0.050
Acenaphthene	N	1790	2:1	µg/l	0.050	< 0.050
3-Nitroaniline	N	1790	2:1	µg/l	0.050	< 0.050
Dibenzofuran	N	1790	2:1	µg/l	0.050	< 0.050
4-Chlorophenylphenylether	N	1790	2:1	µg/l	0.050	< 0.050
2,4-Dinitrotoluene	N	1790	2:1	µg/l	0.050	< 0.050
Fluorene	N	1790	2:1	µg/l	0.050	< 0.050
Diethyl Phthalate	N	1790	2:1	µg/l	0.050	< 0.050
4-Nitroaniline	N	1790	2:1	µg/l	0.050	< 0.050
2-Methyl-4,6-Dinitrophenol	N	1790	2:1	µg/l	0.050	< 0.050
Azobenzene	N	1790	2:1	µg/l	0.050	< 0.050
4-Bromophenylphenyl Ether	N	1790	2:1	µg/l	0.050	< 0.050
Hexachlorobenzene	N	1790	2:1	µg/l	0.050	< 0.050
Pentachlorophenol	N	1790	2:1	µg/l	0.050	< 0.050
Phenanthrene	N	1790	2:1	µg/l	0.050	< 0.050
Anthracene	N	1790	2:1	µg/l	0.050	< 0.050
Carbazole	N	1790	2:1	µg/l	0.050	< 0.050
Di-N-Butyl Phthalate	N	1790	2:1	µg/l	0.050	< 0.050
Fluoranthene	N	1790	2:1	µg/l	0.050	< 0.050
Pyrene	N	1790	2:1	µg/l	0.050	< 0.050
Butylbenzyl Phthalate	N	1790	2:1	µg/l	0.050	< 0.050
Benzo[a]anthracene	N	1790	2:1	µg/l	0.050	< 0.050
Chrysene	N	1790	2:1	µg/l	0.050	< 0.050
Bis(2-Ethylhexyl)Phthalate	N	1790	2:1	µg/l	0.050	< 0.050
Di-N-Octyl Phthalate	N	1790	2:1	µg/l	0.050	< 0.050
Benzo[b]fluoranthene	N	1790	2:1	µg/l	0.050	< 0.050

Results - Leachate

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult				**Chemtest Job No.:**		22-20272
Quotation No.: Q22-27796				**Chemtest Sample ID.:**		1439139
				Client Sample ID.:		BH105
				Sample Type:		SOIL
				Top Depth (m):		0.20
				Bottom Depth (m):		0.40
				Date Sampled:		26-May-2022
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**	
Benzo[k]fluoranthene	N	1790	2:1	µg/l	0.050	< 0.050
Benzo[a]pyrene	N	1790	2:1	µg/l	0.050	< 0.050
Indeno(1,2,3-c,d)Pyrene	N	1790	2:1	µg/l	0.050	< 0.050
Dibenz(a,h)Anthracene	N	1790	2:1	µg/l	0.050	< 0.050
Benzo[g,h,i]perylene	N	1790	2:1	µg/l	0.050	< 0.050
4-Nitrophenol	N	1790	2:1	µg/l	0.050	< 0.050
Naphthalene	N	1800	2:1	µg/l	0.010	< 0.010
Acenaphthylene	N	1800	2:1	µg/l	0.010	< 0.010
Acenaphthene	N	1800	2:1	µg/l	0.010	< 0.010
Fluorene	N	1800	2:1	µg/l	0.010	< 0.010
Phenanthrene	N	1800	2:1	µg/l	0.010	< 0.010
Anthracene	N	1800	2:1	µg/l	0.010	< 0.010
Fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010
Pyrene	N	1800	2:1	µg/l	0.010	< 0.010
Benzo[a]anthracene	N	1800	2:1	µg/l	0.010	< 0.010
Chrysene	N	1800	2:1	µg/l	0.010	< 0.010
Benzo[b]fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010
Benzo[k]fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010
Benzo[a]pyrene	N	1800	2:1	µg/l	0.010	< 0.010
Indeno(1,2,3-c,d)Pyrene	N	1800	2:1	µg/l	0.010	< 0.010
Dibenz(a,h)Anthracene	N	1800	2:1	µg/l	0.010	< 0.010
Benzo[g,h,i]perylene	N	1800	2:1	µg/l	0.010	< 0.010
Total Of 16 PAH's	N	1800	2:1	µg/l	0.20	< 0.20
PCB 28	N	1815	2:1	µg/l	0.010	< 0.010
PCB 52	N	1815	2:1	µg/l	0.010	< 0.010
PCB 90+101	N	1815	2:1	µg/l	0.010	< 0.010
PCB 118	N	1815	2:1	µg/l	0.010	< 0.010
PCB 153	N	1815	2:1	µg/l	0.010	< 0.010
PCB 138	N	1815	2:1	µg/l	0.010	< 0.010
PCB 180	N	1815	2:1	µg/l	0.010	< 0.010
Total PCBs (7 congeners)	N	1815	2:1	µg/l	0.010	< 0.010
Total Phenols	U	1920	2:1	mg/l	0.030	< 0.030

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-20272	22-20272
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1439139	1439140
			Client Sample ID.:		BH105	BH105
			Sample Type:		SOIL	SOIL
			Top Depth (m):		0.20	1.50
			Bottom Depth (m):		0.40	1.60
			Date Sampled:		26-May-2022	26-May-2022
			Asbestos Lab:		DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
ACM Type	U	2192		N/A	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	10	17
Soil Colour	N	2040		N/A	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones
Soil Texture	N	2040		N/A	Sand	Clay
pH	U	2010		4.0	9.1	7.8
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	< 0.40	< 0.40
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	0.059	0.72
Sulphur (Elemental)	U	2180	mg/kg	1.0	2.0	2.3
Cyanide (Free)	U	2300	mg/kg	0.50	< 0.50	< 0.50
Cyanide (Total)	U	2300	mg/kg	0.50	< 0.50	< 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	1.9	1.4
Arsenic	U	2455	mg/kg	0.5	1.2	7.5
Barium	U	2455	mg/kg	0	26	78
Beryllium	U	2455	mg/kg	0.5	< 0.5	1.0
Cadmium	U	2455	mg/kg	0.10	0.34	< 0.10
Chromium	U	2455	mg/kg	0.5	4.0	21
Copper	U	2455	mg/kg	0.50	2.5	16
Mercury	U	2455	mg/kg	0.05	< 0.05	< 0.05
Nickel	U	2455	mg/kg	0.50	6.0	25
Lead	U	2455	mg/kg	0.50	6.0	9.1
Selenium	U	2455	mg/kg	0.25	0.37	0.83
Zinc	U	2455	mg/kg	0.50	14	35
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50
Fraction of Organic Carbon	U	2625		0.0010	0.011	0.0049
Aliphatic TPH >C5-C6	N	2680	mg/kg	0.010	< 0.010	< 0.010
Aliphatic TPH >C6-C8	N	2680	mg/kg	0.010	< 0.010	< 0.010
Aliphatic TPH >C8-C10	N	2680	mg/kg	0.10	< 0.10	< 0.10
Aliphatic TPH >C10-C12	N	2680	mg/kg	0.10	< 0.10	< 0.10
Aliphatic TPH >C12-C16	N	2680	mg/kg	0.10	< 0.10	< 0.10
Aliphatic TPH >C16-C21	N	2680	mg/kg	0.10	< 0.10	< 0.10
Aliphatic TPH >C21-C35	N	2680	mg/kg	0.10	< 0.10	< 0.10
Aliphatic TPH >C35-C44	N	2680	mg/kg	0.10	< 0.10	< 0.10
Total Aliphatic Hydrocarbons	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C5-C7	N	2680	mg/kg	0.010	< 0.010	< 0.010
Aromatic TPH >C7-C8	N	2680	mg/kg	0.010	< 0.010	< 0.010

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-20272	22-20272
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1439139	1439140
			Client Sample ID.:		BH105	BH105
			Sample Type:		SOIL	SOIL
			Top Depth (m):		0.20	1.50
			Bottom Depth (m):		0.40	1.60
			Date Sampled:		26-May-2022	26-May-2022
			Asbestos Lab:		DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
Aromatic TPH >C8-C10	N	2680	mg/kg	0.10	< 0.10	< 0.10
Aromatic TPH >C10-C12	N	2680	mg/kg	0.10	< 0.10	< 0.10
Aromatic TPH >C12-C16	N	2680	mg/kg	0.10	< 0.10	< 0.10
Aromatic TPH >C16-C21	N	2680	mg/kg	0.10	< 0.10	< 0.10
Aromatic TPH >C21-C35	N	2680	mg/kg	0.10	< 0.10	38
Aromatic TPH >C35-C44	N	2680	mg/kg	0.10	< 0.10	< 0.10
Total Aromatic Hydrocarbons	N	2680	mg/kg	1.0	< 1.0	38
Total Petroleum Hydrocarbons	N	2680	mg/kg	2.0	< 2.0	38
Dichlorodifluoromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20
Chloromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20
Vinyl Chloride	N	2760	µg/kg	0.20	< 0.20	< 0.20
Bromomethane	N	2760	µg/kg	0.20	< 0.20	< 0.20
Chloroethane	N	2760	µg/kg	0.20	< 0.20	< 0.20
Trichlorofluoromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20
1,1-Dichloroethene	N	2760	µg/kg	0.20	< 0.20	< 0.20
Trans 1,2-Dichloroethene	N	2760	µg/kg	0.20	< 0.20	< 0.20
1,1-Dichloroethane	N	2760	µg/kg	0.20	< 0.20	< 0.20
cis 1,2-Dichloroethene	N	2760	µg/kg	0.20	< 0.20	< 0.20
Bromochloromethane	N	2760	µg/kg	0.50	< 0.50	< 0.50
Trichloromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20
1,1,1-Trichloroethane	N	2760	µg/kg	0.20	< 0.20	< 0.20
Tetrachloromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20
1,1-Dichloropropene	N	2760	µg/kg	0.20	< 0.20	< 0.20
Benzene	N	2760	µg/kg	0.20	< 0.20	< 0.20
1,2-Dichloroethane	N	2760	µg/kg	0.20	< 0.20	< 0.20
Trichloroethene	N	2760	µg/kg	0.20	< 0.20	< 0.20
1,2-Dichloropropane	N	2760	µg/kg	0.20	< 0.20	< 0.20
Dibromomethane	N	2760	µg/kg	0.20	< 0.20	< 0.20
Bromodichloromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20
cis-1,3-Dichloropropene	N	2760	µg/kg	0.20	< 0.20	< 0.20
Toluene	N	2760	µg/kg	0.20	< 0.20	< 0.20
Trans-1,3-Dichloropropene	N	2760	µg/kg	0.20	< 0.20	< 0.20
1,1,2-Trichloroethane	N	2760	µg/kg	0.20	< 0.20	< 0.20
Tetrachloroethene	N	2760	µg/kg	0.20	< 0.20	< 0.20
1,3-Dichloropropane	N	2760	µg/kg	0.20	< 0.20	< 0.20
Dibromochloromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20
1,2-Dibromoethane	N	2760	µg/kg	0.20	< 0.20	< 0.20
Chlorobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-20272	22-20272
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1439139	1439140
			Client Sample ID.:		BH105	BH105
			Sample Type:		SOIL	SOIL
			Top Depth (m):		0.20	1.50
			Bottom Depth (m):		0.40	1.60
			Date Sampled:		26-May-2022	26-May-2022
			Asbestos Lab:		DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
1,1,1,2-Tetrachloroethane	N	2760	µg/kg	0.20	< 0.20	< 0.20
Ethylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20
m & p-Xylene	N	2760	µg/kg	0.20	< 0.20	< 0.20
o-Xylene	N	2760	µg/kg	0.20	< 0.20	< 0.20
Styrene	N	2760	µg/kg	0.20	< 0.20	< 0.20
Tribromomethane	N	2760	µg/kg	0.20	< 0.20	< 0.20
Isopropylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20
Bromobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20
1,2,3-Trichloropropane	N	2760	µg/kg	0.20	< 0.20	< 0.20
N-Propylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20
2-Chlorotoluene	N	2760	µg/kg	0.20	< 0.20	< 0.20
1,3,5-Trimethylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20
4-Chlorotoluene	N	2760	µg/kg	0.20	< 0.20	< 0.20
Tert-Butylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20
1,2,4-Trimethylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20
Sec-Butylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20
1,3-Dichlorobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20
4-Isopropyltoluene	N	2760	µg/kg	0.20	< 0.20	< 0.20
1,4-Dichlorobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20
N-Butylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20
1,2-Dichlorobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20
1,2-Dibromo-3-Chloropropane	N	2760	µg/kg	0.20	< 0.20	< 0.20
1,2,4-Trichlorobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20
Hexachlorobutadiene	N	2760	µg/kg	0.20	< 0.20	< 0.20
1,2,3-Trichlorobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20
Methyl Tert-Butyl Ether	N	2760	µg/kg	0.20	< 0.20	< 0.20
N-Nitrosodimethylamine	N	2790	mg/kg	0.050	< 0.050	< 0.050
Phenol	N	2790	mg/kg	0.050	< 0.050	< 0.050
2-Chlorophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050
Bis-(2-Chloroethyl)Ether	N	2790	mg/kg	0.050	< 0.050	< 0.050
1,3-Dichlorobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050
1,4-Dichlorobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050
1,2-Dichlorobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050
2-Methylphenol	N	2790	mg/kg	0.050	< 0.050	< 0.050
Bis(2-Chloroisopropyl)Ether	N	2790	mg/kg	0.050	< 0.050	< 0.050
Hexachloroethane	N	2790	mg/kg	0.050	< 0.050	< 0.050
N-Nitrosodi-n-propylamine	N	2790	mg/kg	0.050	< 0.050	< 0.050
4-Methylphenol	N	2790	mg/kg	0.050	< 0.050	< 0.050

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-20272	22-20272
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1439139	1439140
			Client Sample ID.:		BH105	BH105
			Sample Type:		SOIL	SOIL
			Top Depth (m):		0.20	1.50
			Bottom Depth (m):		0.40	1.60
			Date Sampled:		26-May-2022	26-May-2022
			Asbestos Lab:		DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
Nitrobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050
Isophorone	N	2790	mg/kg	0.050	< 0.050	< 0.050
2-Nitrophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050
2,4-Dimethylphenol	N	2790	mg/kg	0.050	< 0.050	< 0.050
Bis(2-Chloroethoxy)Methane	N	2790	mg/kg	0.050	< 0.050	< 0.050
2,4-Dichlorophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050
1,2,4-Trichlorobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050
Naphthalene	N	2790	mg/kg	0.050	< 0.050	< 0.050
4-Chloroaniline	N	2790	mg/kg	0.050	< 0.050	< 0.050
Hexachlorobutadiene	N	2790	mg/kg	0.050	< 0.050	< 0.050
4-Chloro-3-Methylphenol	N	2790	mg/kg	0.050	< 0.050	< 0.050
2-Methylnaphthalene	N	2790	mg/kg	0.050	< 0.050	< 0.050
Hexachlorocyclopentadiene	N	2790	mg/kg	0.050	< 0.050	< 0.050
2,4,6-Trichlorophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050
2,4,5-Trichlorophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050
2-Chloronaphthalene	N	2790	mg/kg	0.050	< 0.050	< 0.050
2-Nitroaniline	N	2790	mg/kg	0.050	< 0.050	< 0.050
Acenaphthylene	N	2790	mg/kg	0.050	< 0.050	< 0.050
Dimethylphthalate	N	2790	mg/kg	0.050	< 0.050	< 0.050
2,6-Dinitrotoluene	N	2790	mg/kg	0.050	< 0.050	< 0.050
Acenaphthene	N	2790	mg/kg	0.050	< 0.050	< 0.050
3-Nitroaniline	N	2790	mg/kg	0.050	< 0.050	< 0.050
Dibenzofuran	N	2790	mg/kg	0.050	< 0.050	< 0.050
4-Chlorophenylphenylether	N	2790	mg/kg	0.050	< 0.050	< 0.050
2,4-Dinitrotoluene	N	2790	mg/kg	0.050	< 0.050	< 0.050
Fluorene	N	2790	mg/kg	0.050	< 0.050	< 0.050
Diethyl Phthalate	N	2790	mg/kg	0.050	< 0.050	< 0.050
4-Nitroaniline	N	2790	mg/kg	0.050	< 0.050	< 0.050
2-Methyl-4,6-Dinitrophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050
Azobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050
4-Bromophenylphenyl Ether	N	2790	mg/kg	0.050	< 0.050	< 0.050
Hexachlorobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050
Pentachlorophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050
Phenanthrene	N	2790	mg/kg	0.050	< 0.050	< 0.050
Anthracene	N	2790	mg/kg	0.050	< 0.050	< 0.050
Carbazole	N	2790	mg/kg	0.050	< 0.050	< 0.050
Di-N-Butyl Phthalate	N	2790	mg/kg	0.050	< 0.050	< 0.050
Fluoranthene	N	2790	mg/kg	0.050	< 0.050	< 0.050

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-20272	22-20272
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1439139	1439140
			Client Sample ID.:		BH105	BH105
			Sample Type:		SOIL	SOIL
			Top Depth (m):		0.20	1.50
			Bottom Depth (m):		0.40	1.60
			Date Sampled:		26-May-2022	26-May-2022
			Asbestos Lab:		DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
Pyrene	N	2790	mg/kg	0.050	< 0.050	< 0.050
Butylbenzyl Phthalate	N	2790	mg/kg	0.050	< 0.050	< 0.050
Benzo[a]anthracene	N	2790	mg/kg	0.050	< 0.050	< 0.050
Chrysene	N	2790	mg/kg	0.050	< 0.050	< 0.050
Bis(2-Ethylhexyl)Phthalate	N	2790	mg/kg	0.050	< 0.050	< 0.050
Di-N-Octyl Phthalate	N	2790	mg/kg	0.050	< 0.050	< 0.050
Benzo[b]fluoranthene	N	2790	mg/kg	0.050	< 0.050	< 0.050
Benzo[k]fluoranthene	N	2790	mg/kg	0.050	< 0.050	< 0.050
Benzo[a]pyrene	N	2790	mg/kg	0.050	< 0.050	< 0.050
Indeno(1,2,3-c,d)Pyrene	N	2790	mg/kg	0.050	< 0.050	< 0.050
Dibenz(a,h)Anthracene	N	2790	mg/kg	0.050	< 0.050	< 0.050
Benzo[g,h,i]perylene	N	2790	mg/kg	0.050	< 0.050	< 0.050
4-Nitrophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050
Naphthalene	N	2800	mg/kg	0.010	< 0.010	< 0.010
Acenaphthylene	N	2800	mg/kg	0.010	< 0.010	< 0.010
Acenaphthene	N	2800	mg/kg	0.010	< 0.010	< 0.010
Fluorene	N	2800	mg/kg	0.010	< 0.010	< 0.010
Phenanthrene	N	2800	mg/kg	0.010	< 0.010	< 0.010
Anthracene	N	2800	mg/kg	0.010	< 0.010	< 0.010
Fluoranthene	N	2800	mg/kg	0.010	0.10	< 0.010
Pyrene	N	2800	mg/kg	0.010	0.14	< 0.010
Benzo[a]anthracene	N	2800	mg/kg	0.010	< 0.010	< 0.010
Chrysene	N	2800	mg/kg	0.010	< 0.010	< 0.010
Benzo[b]fluoranthene	N	2800	mg/kg	0.010	< 0.010	< 0.010
Benzo[k]fluoranthene	N	2800	mg/kg	0.010	< 0.010	< 0.010
Benzo[a]pyrene	N	2800	mg/kg	0.010	< 0.010	< 0.010
Indeno(1,2,3-c,d)Pyrene	N	2800	mg/kg	0.010	< 0.010	< 0.010
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.010	< 0.010	< 0.010
Benzo[g,h,i]perylene	N	2800	mg/kg	0.010	< 0.010	< 0.010
Total Of 16 PAH's	N	2800	mg/kg	0.20	0.24	< 0.20
PCB 28	U	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 52	U	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 90+101	U	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 118	U	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 153	U	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 138	U	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 180	U	2815	mg/kg	0.010	< 0.010	< 0.010
Total PCBs (7 Congeners)	U	2815	mg/kg	0.10	< 0.10	< 0.10

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-20272	22-20272
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1439139	1439140
			Client Sample ID.:		BH105	BH105
			Sample Type:		SOIL	SOIL
			Top Depth (m):		0.20	1.50
			Bottom Depth (m):		0.40	1.60
			Date Sampled:		26-May-2022	26-May-2022
			Asbestos Lab:		DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
Total Phenols	U	2920	mg/kg	0.10	< 0.10	< 0.10

Results - 2 Stage WAC

Project: LKC 22 1225 B401 Manchester Airport

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-20272								
Chemtest Sample ID:	1439139								
Sample Ref:									
Sample ID:	BH105						**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Sample Location:									
Top Depth(m):	0.20								
Bottom Depth(m):	0.40								
Sampling Date:	26-May-2022								
Determinand	**SOP**	**Accred.**	**Units**						
Total Organic Carbon							3	5	6
Loss on Ignition							--	--	10
Total BTEX							6	--	--
Total PCBs (7 congeners)							1	--	--
TPH Total WAC (Mineral Oil)							500	--	--
Total (of 17) PAHs							100	--	--
pH							--	>6	--
Acid Neutralisation Capacity							--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic							0.5	2	25
Barium							20	100	300
Cadmium							0.04	1	5
Chromium							0.5	10	70
Copper							2	50	100
Mercury							0.01	0.2	2
Molybdenum							0.5	10	30
Nickel							0.4	10	40
Lead							0.5	10	50
Antimony							0.06	0.7	5
Selenium							0.1	0.5	7
Zinc							4	50	200
Chloride							800	15000	25000
Fluoride							10	150	500
Sulphate							1000	20000	50000
Total Dissolved Solids							4000	60000	100000
Phenol Index							1	-	-
Dissolved Organic Carbon							500	800	1000

Solid Information	
Dry mass of test portion/kg	
Moisture (%)	

Leachate Test Information	
Leachant volume 1st extract/l	
Leachant volume 2nd extract/l	
Eluant recovered from 1st extract/l	

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1300	Cyanides & Thiocyanate in Waters	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Continuous Flow Analysis.
1325	Sulphide in Waters	Sulphides	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using N,N–dimethyl-pphenylenediamine.
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1490	Hexavalent Chromium in Waters	Chromium [VI]	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
1495	Low Level Hexavalent Chromium in Waters	Chromium [VI]	Colorimetric determination of hexavalent chromium expressed as Cr (VI) µg/l in water, using Ion Chromatography and UV-visible spectrophotometry.
1675	TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG)	Aliphatics: >C5–C6, >C6–C8, >C8– C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Pentane extraction / GCxGC FID detection
1760	Volatile Organic Compounds (VOCs) in Waters by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics. (cf. USEPA Method 8260)	Automated headspace gas chromatographic (GC) analysis of water samples with mass spectrometric (MS) detection of volatile organic compounds.
1790	Semi-Volatile Organic Compounds (SVOCs) in Waters by GC-MS	Semi-volatile organic compounds	Solvent extraction / GCMS detection
1800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-MS	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Pentane extraction / GCMS detection
1815	Polychlorinated Biphenyls (PCB) ICES7 Congeners in Waters by GC-MS	ICES7 PCB congeners	Solvent extraction / GCMS detection
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2180	Sulphur (Elemental) in Soils by HPLC	Sulphur	Dichloromethane extraction / HPLC with UV detection
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry

Test Methods

SOP	Title	Parameters included	Method summary
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N–dimethyl-p-phenylenediamine.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2790	Semi-Volatile Organic Compounds (SVOCs) in Soils by GC-MS	Semi-volatile organic compounds(cf. USEPA Method 8270)	Acetone/Hexane extraction / GC-MS
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge
650	Characterisation of Waste (Leaching WAC)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

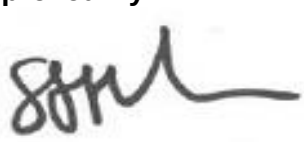
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	22-20490-1
Initial Date of Issue:	10-Jun-2022
Client	LK Consult
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS
Contact(s):	Colin Crompton Contaminated Land
Project	LKC 22 1225 B401 Manchester Airport

Quotation No.:	Q22-27796	**Date Received:**	01-Jun-2022
Order No.:	740328	**Date Instructed:**	01-Jun-2022
No. of Samples:	1		
Turnaround (Wkdays):	7	**Results Due:**	13-Jun-2022
Date Approved:	10-Jun-2022		

Approved By:



Details:	Stuart Henderson, Technical Manager

Results - 2 Stage WAC

Project: LKC 22 1225 B401 Manchester Airport

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-20490								
Chemtest Sample ID:	1440333								
Sample Ref:									
Sample ID:	BH105								
Sample Location:									
Top Depth(m):	0.20								
Bottom Depth(m):	0.40								
Sampling Date:	26-May-2022						**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Determinand	**SOP**	**Accred.**	**Units**						
Total Organic Carbon	2625	M	%			< 0.20	3	5	6
Loss On Ignition	2610	M	%			1.2	--	--	10
Total BTEX	2760	M	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg			< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg			130	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			< 2.0	100	--	--
pH	2010	M				9.0	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.024	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1455	U	0.0013	0.0015	0.0025	0.015	0.5	2	25
Barium	1455	U	0.016	0.007	0.031	0.077	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	0.0026	0.0028	0.0051	0.028	0.5	10	70
Copper	1455	U	0.0017	0.0023	0.0034	0.0017	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.0041	0.0012	0.0082	0.015	0.5	10	30
Nickel	1455	U	0.0022	0.0020	0.0044	0.020	0.4	10	40
Lead	1455	U	< 0.0005	0.0006	< 0.0005	0.0058	0.5	10	50
Antimony	1455	U	0.0008	< 0.0005	0.0017	0.0008	0.06	0.7	5
Selenium	1455	U	0.0007	0.0007	0.0014	0.0070	0.1	0.5	7
Zinc	1455	U	< 0.003	< 0.003	< 0.003	< 0.003	4	50	200
Chloride	1220	U	45	6.5	90	100	800	15000	25000
Fluoride	1220	U	0.41	0.14	< 1.0	1.7	10	150	500
Sulphate	1220	U	13	2.3	26	34	1000	20000	50000
Total Dissolved Solids	1020	N	180	65	360	770	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	4.0	3.3	< 50	< 50	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	6.5

Leachate Test Information	
Leachant volume 1st extract/l	0.338
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.172

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Test Methods

SOP	Title	Parameters included	Method summary
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2015	Acid Neutralisation Capacity	Acid Reserve	Titration
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge
650	Characterisation of Waste (Leaching WAC)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

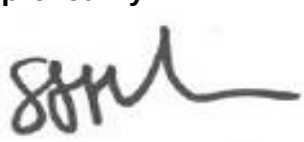
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	22-20520-1
Initial Date of Issue:	10-Jun-2022
Client	LK Consult
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS
Contact(s):	Colin Crompton Contaminated Land
Project	LKC 22 1225 B401 Manchester Airport

Quotation No.:	Q22-27796	**Date Received:**	01-Jun-2022
Order No.:	740327	**Date Instructed:**	01-Jun-2022
No. of Samples:	2		
Turnaround (Wkdays):	7	**Results Due:**	13-Jun-2022
Date Approved:	10-Jun-2022		

Approved By:



Details:	Stuart Henderson, Technical Manager

Results - 2 Stage WAC

Project: LKC 22 1225 B401 Manchester Airport

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-20520								
Chemtest Sample ID:	1440471								
Sample Ref:									
Sample ID:	BH104								
Sample Location:									
Top Depth(m):	0.10								
Bottom Depth(m):	0.30								
Sampling Date:	25-May-2022								
Determinand	**SOP**	**Accred.**	**Units**				**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%			< 0.20	3	5	6
Loss On Ignition	2610	M	%			1.3	--	--	10
Total BTEX	2760	M	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg			< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg			65	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			< 2.0	100	--	--
pH	2010	M				9.0	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.016	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1455	U	0.0002	0.0004	0.0005	0.0035	0.5	2	25
Barium	1455	U	0.012	< 0.005	0.024	0.017	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	0.0023	0.0023	0.0046	0.023	0.5	10	70
Copper	1455	U	0.0009	0.0008	0.0018	0.0012	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.0024	0.0009	0.0047	0.011	0.5	10	30
Nickel	1455	U	0.0014	0.0015	0.0029	0.015	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.5	10	50
Antimony	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.06	0.7	5
Selenium	1455	U	0.0005	< 0.0005	0.0010	0.0007	0.1	0.5	7
Zinc	1455	U	< 0.003	< 0.003	< 0.003	< 0.003	4	50	200
Chloride	1220	U	13	1.4	26	30	800	15000	25000
Fluoride	1220	U	0.29	0.12	< 1.0	1.4	10	150	500
Sulphate	1220	U	5.1	< 1.0	10	< 10	1000	20000	50000
Total Dissolved Solids	1020	N	98	46	200	530	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	< 2.5	< 2.5	< 50	< 50	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	6.1

Leachate Test Information	
Leachant volume 1st extract/l	0.339
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.240

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - 2 Stage WAC

Project: LKC 22 1225 B401 Manchester Airport

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-20520								
Chemtest Sample ID:	1440472								
Sample Ref:									
Sample ID:	BH106						**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Sample Location:									
Top Depth(m):	1.40								
Bottom Depth(m):	1.50								
Sampling Date:	25-May-2022								
Determinand	**SOP**	**Accred.**	**Units**						
Total Organic Carbon	2625	M	%			0.62	3	5	6
Loss On Ignition	2610	M	%			6.6	--	--	10
Total BTEX	2760	M	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg			< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg			< 10	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			< 2.0	100	--	--
pH	2010	M				8.2	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.041	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1455	U	0.0003	0.0002	0.0005	0.0023	0.5	2	25
Barium	1455	U	0.013	< 0.005	0.026	0.0085	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	0.0023	0.0026	0.0045	0.025	0.5	10	70
Copper	1455	U	0.0006	< 0.0005	0.0011	< 0.0005	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.0004	0.0005	0.0009	0.0048	0.5	10	30
Nickel	1455	U	0.0019	0.0019	0.0037	0.019	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.5	10	50
Antimony	1455	U	0.0005	0.0022	0.0011	0.021	0.06	0.7	5
Selenium	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.1	0.5	7
Zinc	1455	U	< 0.003	< 0.003	< 0.003	< 0.003	4	50	200
Chloride	1220	U	10	< 1.0	19	< 10	800	15000	25000
Fluoride	1220	U	0.62	0.15	1.2	1.8	10	150	500
Sulphate	1220	U	25	< 1.0	48	16	1000	20000	50000
Total Dissolved Solids	1020	N	98	20	190	240	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	4.6	< 2.5	< 50	< 50	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	23

Leachate Test Information	
Leachant volume 1st extract/l	0.298
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.112

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Test Methods

SOP	Title	Parameters included	Method summary
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2015	Acid Neutralisation Capacity	Acid Reserve	Titration
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge
650	Characterisation of Waste (Leaching WAC)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
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I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

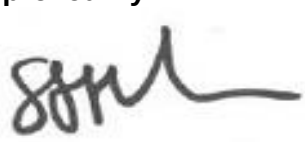
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	22-20636-1
Initial Date of Issue:	10-Jun-2022
Client	LK Consult
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS
Contact(s):	Colin Crompton Contaminated Land
Project	LKC 22 1225 B401 Manchester Airport

Quotation No.:	Q22-27796	**Date Received:**	06-Jun-2022
Order No.:	740327	**Date Instructed:**	06-Jun-2022
No. of Samples:	4		
Turnaround (Wkdays):	5	**Results Due:**	10-Jun-2022
Date Approved:	10-Jun-2022		

Approved By:



Details: Stuart Henderson, Technical Manager

Results - Leachate

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult				**Chemtest Job No.:**		22-20636	22-20636
Quotation No.: Q22-27796				**Chemtest Sample ID.:**		1440953	1440955
				Client Sample ID.:		BH101	BH102
				Sample Type:		SOIL	SOIL
				Top Depth (m):		2.10	0.30
				Bottom Depth (m):		2.20	0.75
				Date Sampled:		27-May-2022	27-May-2022
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**		
pH	U	1010	2:1		N/A	7.5	10.3
Electrical Conductivity	U	1020	2:1	µS/cm	1.0	1600	430
Chloride	U	1220	2:1	mg/l	1.0	1.7	1.5
Ammoniacal Nitrogen	U	1220	2:1	mg/l	0.050	0.12	0.72
Nitrate	U	1220	2:1	mg/l	0.50	< 0.50	< 0.50
Sulphur	N	1220	2:1	mg/l	1.0	330	12
Sulphate	U	1220	2:1	mg/l	1.0	990	37
Cyanide (Total)	U	1300	2:1	mg/l	0.050	< 0.050	< 0.050
Cyanide (Free)	U	1300	2:1	mg/l	0.050	< 0.050	< 0.050
Sulphide	U	1325	2:1	mg/l	0.050	< 0.050	< 0.050
Arsenic (Dissolved)	U	1455	2:1	µg/l	0.20	2.4	0.64
Boron (Dissolved)	U	1455	2:1	µg/l	10.0	41	16
Barium (Dissolved)	U	1455	2:1	µg/l	5.00	44	66
Beryllium (Dissolved)	U	1455	2:1	µg/l	1.00	< 1.0	< 1.0
Cadmium (Dissolved)	U	1455	2:1	µg/l	0.11	< 0.11	< 0.11
Chromium (Dissolved)	U	1455	2:1	µg/l	0.50	2.1	4.9
Copper (Dissolved)	U	1455	2:1	µg/l	0.50	1.2	2.4
Mercury (Dissolved)	U	1455	2:1	µg/l	0.05	< 0.05	< 0.05
Nickel (Dissolved)	U	1455	2:1	µg/l	0.50	1.6	2.2
Lead (Dissolved)	U	1455	2:1	µg/l	0.50	< 0.50	< 0.50
Selenium (Dissolved)	U	1455	2:1	µg/l	0.50	0.87	1.3
Zinc (Dissolved)	U	1455	2:1	µg/l	2.5	5.5	< 2.5
Chromium (Hexavalent)	U	1490	2:1	µg/l	20	< 20	< 20
Low-Level Chromium (Hexavalent)	N	1495	2:1	µg/l	0.10	< 0.10	1.2
Aliphatic TPH >C5-C6	N	1675	2:1	µg/l	0.010	< 0.010	< 0.010
Aliphatic TPH >C6-C8	N	1675	2:1	µg/l	0.010	< 0.010	< 0.010
Aliphatic TPH >C8-C10	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C10-C12	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C12-C16	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C16-C21	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C21-C35	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C35-C44	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Total Aliphatic Hydrocarbons	N	1675	2:1	µg/l	1.0	< 1.0	< 1.0
Aromatic TPH >C5-C7	N	1675	2:1	µg/l	0.010	< 0.010	< 0.010
Aromatic TPH >C7-C8	N	1675	2:1	µg/l	0.010	< 0.010	< 0.010
Aromatic TPH >C8-C10	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C10-C12	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C12-C16	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C16-C21	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10

Results - Leachate

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult				**Chemtest Job No.:**		22-20636	22-20636
Quotation No.: Q22-27796				**Chemtest Sample ID.:**		1440953	1440955
				Client Sample ID.:		BH101	BH102
				Sample Type:		SOIL	SOIL
				Top Depth (m):		2.10	0.30
				Bottom Depth (m):		2.20	0.75
				Date Sampled:		27-May-2022	27-May-2022
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**		
Aromatic TPH >C21-C35	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C35-C44	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Total Aromatic Hydrocarbons	N	1675	2:1	µg/l	1.0	< 1.0	< 1.0
Total Petroleum Hydrocarbons	N	1675	2:1	µg/l	2.0	< 2.0	< 2.0
Dichlorodifluoromethane	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Chloromethane	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Vinyl Chloride	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Bromomethane	N	1760	2:1	µg/l	2.0	< 2.0	< 2.0
Chloroethane	N	1760	2:1	µg/l	0.20	< 0.20	< 0.20
Trichlorofluoromethane	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,1-Dichloroethene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Trans 1,2-Dichloroethene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,1-Dichloroethane	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
cis 1,2-Dichloroethene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Bromochloromethane	N	1760	2:1	µg/l	0.50	< 0.50	< 0.50
Trichloromethane	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,1,1-Trichloroethane	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Tetrachloromethane	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,1-Dichloropropene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Benzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,2-Dichloroethane	N	1760	2:1	µg/l	0.20	< 0.20	< 0.20
Trichloroethene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,2-Dichloropropane	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Dibromomethane	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Bromodichloromethane	N	1760	2:1	µg/l	0.50	< 0.50	< 0.50
cis-1,3-Dichloropropene	N	1760	2:1	µg/l	1.0	< 1.0	< 1.0
Toluene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Trans-1,3-Dichloropropene	N	1760	2:1	µg/l	1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	N	1760	2:1	µg/l	1.0	< 1.0	< 1.0
Tetrachloroethene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,3-Dichloropropane	N	1760	2:1	µg/l	0.20	< 0.20	< 0.20
Dibromochloromethane	N	1760	2:1	µg/l	1.0	< 1.0	< 1.0
1,2-Dibromoethane	N	1760	2:1	µg/l	0.50	< 0.50	< 0.50
Chlorobenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,1,1,2-Tetrachloroethane	N	1760	2:1	µg/l	0.20	< 0.20	< 0.20
Ethylbenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
m & p-Xylene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
o-Xylene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Styrene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10

Results - Leachate

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult				**Chemtest Job No.:**		22-20636	22-20636
Quotation No.: Q22-27796				**Chemtest Sample ID.:**		1440953	1440955
				Client Sample ID.:		BH101	BH102
				Sample Type:		SOIL	SOIL
				Top Depth (m):		2.10	0.30
				Bottom Depth (m):		2.20	0.75
				Date Sampled:		27-May-2022	27-May-2022
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**		
Tribromomethane	N	1760	2:1	µg/l	1.0	< 1.0	< 1.0
Isopropylbenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Bromobenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,2,3-Trichloropropane	N	1760	2:1	µg/l	5.0	< 5.0	< 5.0
N-Propylbenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
2-Chlorotoluene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,3,5-Trimethylbenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
4-Chlorotoluene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Tert-Butylbenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,2,4-Trimethylbenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Sec-Butylbenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,3-Dichlorobenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
4-Isopropyltoluene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,4-Dichlorobenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
N-Butylbenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,2-Dichlorobenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,2-Dibromo-3-Chloropropane	N	1760	2:1	µg/l	5.0	< 5.0	< 5.0
1,2,4-Trichlorobenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Hexachlorobutadiene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,2,3-Trichlorobenzene	N	1760	2:1	µg/l	0.20	< 0.20	< 0.20
Methyl Tert-Butyl Ether	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
N-Nitrosodimethylamine	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Phenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2-Chlorophenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Bis-(2-Chloroethyl)Ether	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
1,3-Dichlorobenzene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
1,4-Dichlorobenzene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
1,2-Dichlorobenzene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2-Methylphenol (o-Cresol)	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Bis(2-Chloroisopropyl)Ether	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Hexachloroethane	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
N-Nitrosodi-n-propylamine	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
4-Methylphenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Nitrobenzene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Isophorone	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2-Nitrophenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2,4-Dimethylphenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Bis(2-Chloroethoxy)Methane	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2,4-Dichlorophenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050

Results - Leachate

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult				**Chemtest Job No.:**		22-20636	22-20636
Quotation No.: Q22-27796				**Chemtest Sample ID.:**		1440953	1440955
				Client Sample ID.:		BH101	BH102
				Sample Type:		SOIL	SOIL
				Top Depth (m):		2.10	0.30
				Bottom Depth (m):		2.20	0.75
				Date Sampled:		27-May-2022	27-May-2022
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**		
1,2,4-Trichlorobenzene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Naphthalene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
4-Chloroaniline	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Hexachlorobutadiene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
4-Chloro-3-Methylphenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2-Methylnaphthalene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Hexachlorocyclopentadiene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2,4,6-Trichlorophenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2,4,5-Trichlorophenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2-Chloronaphthalene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2-Nitroaniline	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Acenaphthylene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Dimethylphthalate	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2,6-Dinitrotoluene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Acenaphthene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
3-Nitroaniline	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Dibenzofuran	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
4-Chlorophenylphenylether	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2,4-Dinitrotoluene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Fluorene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Diethyl Phthalate	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
4-Nitroaniline	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2-Methyl-4,6-Dinitrophenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Azobenzene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
4-Bromophenylphenyl Ether	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Hexachlorobenzene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Pentachlorophenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Phenanthrene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Anthracene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Carbazole	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Di-N-Butyl Phthalate	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Fluoranthene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Pyrene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Butylbenzyl Phthalate	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Benzo[a]anthracene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Chrysene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Bis(2-Ethylhexyl)Phthalate	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Di-N-Octyl Phthalate	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Benzo[b]fluoranthene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050

Results - Leachate

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult				**Chemtest Job No.:**		22-20636	22-20636
Quotation No.: Q22-27796				**Chemtest Sample ID.:**		1440953	1440955
				Client Sample ID.:		BH101	BH102
				Sample Type:		SOIL	SOIL
				Top Depth (m):		2.10	0.30
				Bottom Depth (m):		2.20	0.75
				Date Sampled:		27-May-2022	27-May-2022
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**		
Benzo[k]fluoranthene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Benzo[a]pyrene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Indeno(1,2,3-c,d)Pyrene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Dibenz(a,h)Anthracene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Benzo[g,h,i]perylene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
4-Nitrophenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Naphthalene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Acenaphthylene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Acenaphthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Fluorene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Phenanthrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Anthracene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Pyrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Benzo[a]anthracene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Chrysene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Benzo[b]fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Benzo[k]fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Benzo[a]pyrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Indeno(1,2,3-c,d)Pyrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Dibenz(a,h)Anthracene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Benzo[g,h,i]perylene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Total Of 16 PAH's	N	1800	2:1	µg/l	0.20	< 0.20	< 0.20
PCB 28	N	1815	2:1	µg/l	0.010	< 0.010	< 0.010
PCB 52	N	1815	2:1	µg/l	0.010	< 0.010	< 0.010
PCB 90+101	N	1815	2:1	µg/l	0.010	< 0.010	< 0.010
PCB 118	N	1815	2:1	µg/l	0.010	< 0.010	< 0.010
PCB 153	N	1815	2:1	µg/l	0.010	< 0.010	< 0.010
PCB 138	N	1815	2:1	µg/l	0.010	< 0.010	< 0.010
PCB 180	N	1815	2:1	µg/l	0.010	< 0.010	< 0.010
Total PCBs (7 congeners)	N	1815	2:1	µg/l	0.010	< 0.010	< 0.010
Total Phenols	U	1920	2:1	mg/l	0.030	< 0.030	< 0.030

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult		**Chemtest Job No.:**			22-20636	22-20636	22-20636	22-20636
Quotation No.: Q22-27796		**Chemtest Sample ID.:**			1440953	1440954	1440955	1440956
		Client Sample ID.:			BH101	BH102	BH102	BH102
		Sample Type:			SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			2.10	0.15	0.30	1.70
		Bottom Depth (m):			2.20	0.30	0.75	1.80
		Date Sampled:			27-May-2022	27-May-2022	27-May-2022	27-May-2022
		Asbestos Lab:			COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
ACM Type	U	2192		N/A	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	14	5.6	4.4	12
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones	Stones	Stones
Soil Texture	N	2040		N/A	Clay	Sand	Sand	Clay
pH	M	2010		4.0	9.4	11.8	11.0	8.8
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	1.9	< 0.40	< 0.40	1.1
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	0.28	0.39	0.17	0.85
Sulphur (Elemental)	M	2180	mg/kg	1.0	2.8	1.3	< 1.0	< 1.0
Cyanide (Free)	M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cyanide (Total)	M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	20	3.7	1.4	1.6
Arsenic	M	2455	mg/kg	0.5	2.1	1.7	1.5	3.8
Barium	M	2455	mg/kg	0	64	78	120	33
Beryllium	U	2455	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5
Cadmium	M	2455	mg/kg	0.10	0.14	0.17	0.11	< 0.10
Chromium	M	2455	mg/kg	0.5	8.9	6.7	4.7	13
Copper	M	2455	mg/kg	0.50	15	5.2	3.0	9.2
Mercury	M	2455	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel	M	2455	mg/kg	0.50	9.3	6.6	7.6	13
Lead	M	2455	mg/kg	0.50	16	9.1	4.7	4.0
Selenium	M	2455	mg/kg	0.25	0.25	< 0.25	< 0.25	0.33
Zinc	M	2455	mg/kg	0.50	20	16	9.4	24
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Fraction of Organic Carbon	M	2625		0.0010	0.012	0.012	0.0034	0.0029
Aliphatic TPH >C5-C6	N	2680	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Aliphatic TPH >C6-C8	N	2680	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Aliphatic TPH >C8-C10	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C10-C12	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C12-C16	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C16-C21	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C21-C35	N	2680	mg/kg	0.10	< 0.10	20	< 0.10	< 0.10
Aliphatic TPH >C35-C44	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aliphatic Hydrocarbons	N	2680	mg/kg	1.0	< 1.0	20	< 1.0	< 1.0
Aromatic TPH >C5-C7	N	2680	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Aromatic TPH >C7-C8	N	2680	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult		**Chemtest Job No.:**			22-20636	22-20636	22-20636	22-20636
Quotation No.: Q22-27796		**Chemtest Sample ID.:**			1440953	1440954	1440955	1440956
		Client Sample ID.:			BH101	BH102	BH102	BH102
		Sample Type:			SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			2.10	0.15	0.30	1.70
		Bottom Depth (m):			2.20	0.30	0.75	1.80
		Date Sampled:			27-May-2022	27-May-2022	27-May-2022	27-May-2022
		Asbestos Lab:			COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
Aromatic TPH >C8-C10	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C10-C12	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C12-C16	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C16-C21	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C21-C35	N	2680	mg/kg	0.10	< 0.10	1000	< 0.10	< 0.10
Aromatic TPH >C35-C44	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aromatic Hydrocarbons	N	2680	mg/kg	1.0	< 1.0	1000	< 1.0	< 1.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	2.0	< 2.0	1100	< 2.0	< 2.0
Dichlorodifluoromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Chloromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Vinyl Chloride	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Bromomethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Chloroethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Trichlorofluoromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,1-Dichloroethene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Trans 1,2-Dichloroethene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,1-Dichloroethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
cis 1,2-Dichloroethene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Bromochloromethane	N	2760	µg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Trichloromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,1,1-Trichloroethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Tetrachloromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,1-Dichloropropene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Benzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,2-Dichloroethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Trichloroethene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,2-Dichloropropane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Dibromomethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Bromodichloromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
cis-1,3-Dichloropropene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Toluene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Trans-1,3-Dichloropropene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,1,2-Trichloroethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Tetrachloroethene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,3-Dichloropropane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Dibromochloromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,2-Dibromoethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Chlorobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-20636	22-20636	22-20636	22-20636
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1440953	1440954	1440955	1440956
			Client Sample ID.:		BH101	BH102	BH102	BH102
			Sample Type:		SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		2.10	0.15	0.30	1.70
			Bottom Depth (m):		2.20	0.30	0.75	1.80
			Date Sampled:		27-May-2022	27-May-2022	27-May-2022	27-May-2022
			Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
1,1,1,2-Tetrachloroethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Ethylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
m & p-Xylene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
o-Xylene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Styrene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Tribromomethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Isopropylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Bromobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,2,3-Trichloropropane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
N-Propylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
2-Chlorotoluene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,3,5-Trimethylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
4-Chlorotoluene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Tert-Butylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,2,4-Trimethylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Sec-Butylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,3-Dichlorobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
4-Isopropyltoluene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,4-Dichlorobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
N-Butylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,2-Dichlorobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,2-Dibromo-3-Chloropropane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,2,4-Trichlorobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Hexachlorobutadiene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,2,3-Trichlorobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Methyl Tert-Butyl Ether	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
N-Nitrosodimethylamine	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Phenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Chlorophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Bis-(2-Chloroethyl)Ether	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,3-Dichlorobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,4-Dichlorobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,2-Dichlorobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Methylphenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Bis(2-Chloroisopropyl)Ether	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hexachloroethane	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
N-Nitrosodi-n-propylamine	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Methylphenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-20636	22-20636	22-20636	22-20636
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1440953	1440954	1440955	1440956
			Client Sample ID.:		BH101	BH102	BH102	BH102
			Sample Type:		SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		2.10	0.15	0.30	1.70
			Bottom Depth (m):		2.20	0.30	0.75	1.80
			Date Sampled:		27-May-2022	27-May-2022	27-May-2022	27-May-2022
			Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
Nitrobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Isophorone	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Nitrophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4-Dimethylphenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Bis(2-Chloroethoxy)Methane	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4-Dichlorophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,2,4-Trichlorobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Naphthalene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Chloroaniline	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hexachlorobutadiene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Chloro-3-Methylphenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Methylnaphthalene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hexachlorocyclopentadiene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4,6-Trichlorophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4,5-Trichlorophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Chloronaphthalene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Nitroaniline	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Acenaphthylene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Dimethylphthalate	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,6-Dinitrotoluene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Acenaphthene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
3-Nitroaniline	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Dibenzofuran	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Chlorophenylphenylether	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4-Dinitrotoluene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Fluorene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Diethyl Phthalate	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Nitroaniline	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Methyl-4,6-Dinitrophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Azobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Bromophenylphenyl Ether	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hexachlorobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Pentachlorophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Phenanthrene	N	2790	mg/kg	0.050	< 0.050	0.14	< 0.050	< 0.050
Anthracene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Carbazole	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Di-N-Butyl Phthalate	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Fluoranthene	N	2790	mg/kg	0.050	< 0.050	0.35	< 0.050	< 0.050

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-20636	22-20636	22-20636	22-20636
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1440953	1440954	1440955	1440956
			Client Sample ID.:		BH101	BH102	BH102	BH102
			Sample Type:		SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		2.10	0.15	0.30	1.70
			Bottom Depth (m):		2.20	0.30	0.75	1.80
			Date Sampled:		27-May-2022	27-May-2022	27-May-2022	27-May-2022
			Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
Pyrene	N	2790	mg/kg	0.050	< 0.050	0.32	< 0.050	< 0.050
Butylbenzyl Phthalate	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo[a]anthracene	N	2790	mg/kg	0.050	< 0.050	0.20	< 0.050	< 0.050
Chrysene	N	2790	mg/kg	0.050	< 0.050	0.25	< 0.050	< 0.050
Bis(2-Ethylhexyl)Phthalate	N	2790	mg/kg	0.050	< 0.050	0.29	< 0.050	< 0.050
Di-N-Octyl Phthalate	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo[b]fluoranthene	N	2790	mg/kg	0.050	< 0.050	0.32	< 0.050	< 0.050
Benzo[k]fluoranthene	N	2790	mg/kg	0.050	< 0.050	0.12	< 0.050	< 0.050
Benzo[a]pyrene	N	2790	mg/kg	0.050	< 0.050	0.22	< 0.050	< 0.050
Indeno(1,2,3-c,d)Pyrene	N	2790	mg/kg	0.050	< 0.050	0.14	< 0.050	< 0.050
Dibenz(a,h)Anthracene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo[g,h,i]perylene	N	2790	mg/kg	0.050	< 0.050	0.16	< 0.050	< 0.050
4-Nitrophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Naphthalene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Acenaphthylene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Acenaphthene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluorene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Phenanthrene	N	2800	mg/kg	0.010	< 0.010	0.17	< 0.010	< 0.010
Anthracene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluoranthene	N	2800	mg/kg	0.010	< 0.010	0.13	< 0.010	< 0.010
Pyrene	N	2800	mg/kg	0.010	< 0.010	0.13	< 0.010	< 0.010
Benzo[a]anthracene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Chrysene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[b]fluoranthene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[k]fluoranthene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[a]pyrene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Indeno(1,2,3-c,d)Pyrene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[g,h,i]perylene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Of 16 PAH's	N	2800	mg/kg	0.20	< 0.20	0.43	< 0.20	< 0.20
PCB 28	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 52	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 90+101	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 118	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 153	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 138	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 180	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total PCBs (7 Congeners)	U	2815	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-20636	22-20636	22-20636	22-20636
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1440953	1440954	1440955	1440956
			Client Sample ID.:		BH101	BH102	BH102	BH102
			Sample Type:		SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		2.10	0.15	0.30	1.70
			Bottom Depth (m):		2.20	0.30	0.75	1.80
			Date Sampled:		27-May-2022	27-May-2022	27-May-2022	27-May-2022
			Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
Total Phenols	M	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - 2 Stage WAC

Project: LKC 22 1225 B401 Manchester Airport

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-20636								
Chemtest Sample ID:	1440953								
Sample Ref:									
Sample ID:	BH101								
Sample Location:									
Top Depth(m):	2.10								
Bottom Depth(m):	2.20								
Sampling Date:	27-May-2022								
Determinand	**SOP**	**Accred.**	**Units**				**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon							3	5	6
Loss on Ignition							--	--	10
Total BTEX							6	--	--
Total PCBs (7 congeners)							1	--	--
TPH Total WAC (Mineral Oil)							500	--	--
Total (of 17) PAHs							100	--	--
pH							--	>6	--
Acid Neutralisation Capacity							--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic							0.5	2	25
Barium							20	100	300
Cadmium							0.04	1	5
Chromium							0.5	10	70
Copper							2	50	100
Mercury							0.01	0.2	2
Molybdenum							0.5	10	30
Nickel							0.4	10	40
Lead							0.5	10	50
Antimony							0.06	0.7	5
Selenium							0.1	0.5	7
Zinc							4	50	200
Chloride							800	15000	25000
Fluoride							10	150	500
Sulphate							1000	20000	50000
Total Dissolved Solids							4000	60000	100000
Phenol Index							1	-	-
Dissolved Organic Carbon							500	800	1000

Solid Information	
Dry mass of test portion/kg	
Moisture (%)	

Leachate Test Information	
Leachant volume 1st extract/l	
Leachant volume 2nd extract/l	
Eluant recovered from 1st extract/l	

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - 2 Stage WAC

Project: LKC 22 1225 B401 Manchester Airport

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-20636								
Chemtest Sample ID:	1440955								
Sample Ref:									
Sample ID:	BH102								
Sample Location:									
Top Depth(m):	0.30								
Bottom Depth(m):	0.75								
Sampling Date:	27-May-2022								
Determinand	**SOP**	**Accred.**	**Units**				**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon							3	5	6
Loss on Ignition							--	--	10
Total BTEX							6	--	--
Total PCBs (7 congeners)							1	--	--
TPH Total WAC (Mineral Oil)							500	--	--
Total (of 17) PAHs							100	--	--
pH							--	>6	--
Acid Neutralisation Capacity							--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic							0.5	2	25
Barium							20	100	300
Cadmium							0.04	1	5
Chromium							0.5	10	70
Copper							2	50	100
Mercury							0.01	0.2	2
Molybdenum							0.5	10	30
Nickel							0.4	10	40
Lead							0.5	10	50
Antimony							0.06	0.7	5
Selenium							0.1	0.5	7
Zinc							4	50	200
Chloride							800	15000	25000
Fluoride							10	150	500
Sulphate							1000	20000	50000
Total Dissolved Solids							4000	60000	100000
Phenol Index							1	-	-
Dissolved Organic Carbon							500	800	1000

Solid Information	
Dry mass of test portion/kg	
Moisture (%)	

Leachate Test Information	
Leachant volume 1st extract/l	
Leachant volume 2nd extract/l	
Eluant recovered from 1st extract/l	

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1300	Cyanides & Thiocyanate in Waters	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Continuous Flow Analysis.
1325	Sulphide in Waters	Sulphides	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using N,N–dimethyl-pphenylenediamine.
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1490	Hexavalent Chromium in Waters	Chromium [VI]	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
1495	Low Level Hexavalent Chromium in Waters	Chromium [VI]	Colorimetric determination of hexavalent chromium expressed as Cr (VI) µg/l in water, using Ion Chromatography and UV-visible spectrophotometry.
1675	TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG)	Aliphatics: >C5–C6, >C6–C8, >C8– C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Pentane extraction / GCxGC FID detection
1760	Volatile Organic Compounds (VOCs) in Waters by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics. (cf. USEPA Method 8260)	Automated headspace gas chromatographic (GC) analysis of water samples with mass spectrometric (MS) detection of volatile organic compounds.
1790	Semi-Volatile Organic Compounds (SVOCs) in Waters by GC-MS	Semi-volatile organic compounds	Solvent extraction / GCMS detection
1800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-MS	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Pentane extraction / GCMS detection
1815	Polychlorinated Biphenyls (PCB) ICES7 Congeners in Waters by GC-MS	ICES7 PCB congeners	Solvent extraction / GCMS detection
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2180	Sulphur (Elemental) in Soils by HPLC	Sulphur	Dichloromethane extraction / HPLC with UV detection
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry

Test Methods

SOP	Title	Parameters included	Method summary
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N–dimethyl-p-phenylenediamine.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2790	Semi-Volatile Organic Compounds (SVOCs) in Soils by GC-MS	Semi-volatile organic compounds(cf. USEPA Method 8270)	Acetone/Hexane extraction / GC-MS
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge
650	Characterisation of Waste (Leaching WAC)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

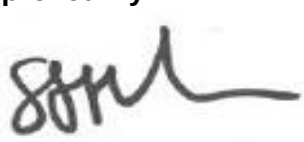
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	22-20639-1
Initial Date of Issue:	14-Jun-2022
Client	LK Consult
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS
Contact(s):	Colin Crompton Contaminated Land
Project	LKC 22 1225 B401 Manchester Airport

Quotation No.:	Q22-27796	**Date Received:**	06-Jun-2022
Order No.:	740327	**Date Instructed:**	06-Jun-2022
No. of Samples:	2		
Turnaround (Wkdays):	7	**Results Due:**	14-Jun-2022
Date Approved:	14-Jun-2022		

Approved By:



Details: Stuart Henderson, Technical Manager

Results - 2 Stage WAC

Project: LKC 22 1225 B401 Manchester Airport

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-20639								
Chemtest Sample ID:	1440962								
Sample Ref:									
Sample ID:	BH101								
Sample Location:									
Top Depth(m):	2.10								
Bottom Depth(m):	2.20								
Sampling Date:	27-May-2022								
Determinand	**SOP**	**Accred.**	**Units**				**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%			0.82	3	5	6
Loss On Ignition	2610	M	%			0.81	--	--	10
Total BTEX	2760	M	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg			< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg			< 10	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			< 2.0	100	--	--
pH	2010	M				8.4	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.014	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1455	U	0.0009	0.0009	0.0018	0.0091	0.5	2	25
Barium	1455	U	0.048	0.030	0.094	0.32	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.5	10	70
Copper	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.0058	0.0020	0.011	0.024	0.5	10	30
Nickel	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.5	10	50
Antimony	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.06	0.7	5
Selenium	1455	U	0.0005	< 0.0005	0.0010	0.0006	0.1	0.5	7
Zinc	1455	U	0.005	< 0.003	0.010	0.005	4	50	200
Chloride	1220	U	2.7	< 1.0	< 10	< 10	800	15000	25000
Fluoride	1220	U	0.48	0.25	< 1.0	2.7	10	150	500
Sulphate	1220	U	500	69	980	1100	1000	20000	50000
Total Dissolved Solids	1020	N	660	170	1300	2200	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	< 2.5	< 2.5	< 50	< 50	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	16

Leachate Test Information	
Leachant volume 1st extract/l	0.318
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.183

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - 2 Stage WAC

Project: LKC 22 1225 B401 Manchester Airport

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-20639								
Chemtest Sample ID:	1440963								
Sample Ref:									
Sample ID:	BH102						**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Sample Location:									
Top Depth(m):	1.70								
Bottom Depth(m):	1.80								
Sampling Date:	27-May-2022								
Determinand	**SOP**	**Accred.**	**Units**						
Total Organic Carbon	2625	M	%			0.33	3	5	6
Loss On Ignition	2610	M	%			8.4	--	--	10
Total BTEX	2760	M	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg			< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg			< 10	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			< 2.0	100	--	--
pH	2010	M				8.6	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.025	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1455	U	0.0003	0.0002	0.0005	0.0022	0.5	2	25
Barium	1455	U	0.023	0.019	0.047	0.20	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.5	10	70
Copper	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.0030	0.0015	0.0059	0.017	0.5	10	30
Nickel	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.5	10	50
Antimony	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.06	0.7	5
Selenium	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.1	0.5	7
Zinc	1455	U	0.005	< 0.003	0.009	0.005	4	50	200
Chloride	1220	U	1.9	< 1.0	< 10	< 10	800	15000	25000
Fluoride	1220	U	0.40	0.21	< 1.0	2.3	10	150	500
Sulphate	1220	U	500	61	980	1100	1000	20000	50000
Total Dissolved Solids	1020	N	560	160	1100	2000	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	< 2.5	< 2.5	< 50	< 50	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	13

Leachate Test Information	
Leachant volume 1st extract/l	0.324
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.182

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Test Methods

SOP	Title	Parameters included	Method summary
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2015	Acid Neutralisation Capacity	Acid Reserve	Titration
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge
650	Characterisation of Waste (Leaching WAC)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

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Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

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A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

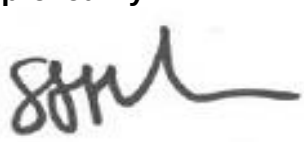
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	22-20643-1
Initial Date of Issue:	14-Jun-2022
Client	LK Consult
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS
Contact(s):	Colin Crompton Contaminated Land
Project	LKC 22 1225 B401 Manchester Airport

Quotation No.:	Q22-27796	**Date Received:**	06-Jun-2022
Order No.:	740327	**Date Instructed:**	08-Jun-2022
No. of Samples:	1		
Turnaround (Wkdays):	5	**Results Due:**	14-Jun-2022
Date Approved:	14-Jun-2022		

Approved By:



Details:	Stuart Henderson, Technical Manager

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-20643
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1440969
			Client Sample ID.:		DS101
			Sample Type:		SOIL
			Top Depth (m):		1.65
			Bottom Depth (m):		1.75
			Date Sampled:		31-May-2022
			Asbestos Lab:		DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
ACM Type	U	2192		N/A	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected
Moisture	N	2030	%	0.020	12
Soil Colour	N	2040		N/A	Brown
Other Material	N	2040		N/A	Stones
Soil Texture	N	2040		N/A	Clay
pH	U	2010		4.0	9.2
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	< 0.40
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	0.089
Sulphur (Elemental)	U	2180	mg/kg	1.0	4.6
Cyanide (Free)	U	2300	mg/kg	0.50	< 0.50
Cyanide (Total)	U	2300	mg/kg	0.50	< 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	5.7
Arsenic	U	2455	mg/kg	0.5	5.2
Barium	U	2455	mg/kg	0	160
Beryllium	U	2455	mg/kg	0.5	< 0.5
Cadmium	U	2455	mg/kg	0.10	2.1
Chromium	U	2455	mg/kg	0.5	7.0
Copper	U	2455	mg/kg	0.50	29
Mercury	U	2455	mg/kg	0.05	0.06
Nickel	U	2455	mg/kg	0.50	12
Lead	U	2455	mg/kg	0.50	280
Selenium	U	2455	mg/kg	0.25	0.29
Zinc	U	2455	mg/kg	0.50	440
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50
Fraction of Organic Carbon	U	2625		0.0010	0.0050
Aliphatic TPH >C5-C6	N	2680	mg/kg	0.010	< 0.010
Aliphatic TPH >C6-C8	N	2680	mg/kg	0.010	< 0.010
Aliphatic TPH >C8-C10	N	2680	mg/kg	0.10	< 0.10
Aliphatic TPH >C10-C12	N	2680	mg/kg	0.10	< 0.10
Aliphatic TPH >C12-C16	N	2680	mg/kg	0.10	< 0.10
Aliphatic TPH >C16-C21	N	2680	mg/kg	0.10	< 0.10
Aliphatic TPH >C21-C35	N	2680	mg/kg	0.10	< 0.10
Aliphatic TPH >C35-C44	N	2680	mg/kg	0.10	< 0.10
Total Aliphatic Hydrocarbons	N	2680	mg/kg	1.0	< 1.0
Aromatic TPH >C5-C7	N	2680	mg/kg	0.010	< 0.010
Aromatic TPH >C7-C8	N	2680	mg/kg	0.010	< 0.010

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

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			Top Depth (m):		1.65
			Bottom Depth (m):		1.75
			Date Sampled:		31-May-2022
			Asbestos Lab:		DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
Aromatic TPH >C8-C10	N	2680	mg/kg	0.10	< 0.10
Aromatic TPH >C10-C12	N	2680	mg/kg	0.10	< 0.10
Aromatic TPH >C12-C16	N	2680	mg/kg	0.10	< 0.10
Aromatic TPH >C16-C21	N	2680	mg/kg	0.10	< 0.10
Aromatic TPH >C21-C35	N	2680	mg/kg	0.10	< 0.10
Aromatic TPH >C35-C44	N	2680	mg/kg	0.10	< 0.10
Total Aromatic Hydrocarbons	N	2680	mg/kg	1.0	< 1.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	2.0	< 2.0
Dichlorodifluoromethane	N	2760	µg/kg	0.20	< 0.20
Chloromethane	N	2760	µg/kg	0.20	< 0.20
Vinyl Chloride	N	2760	µg/kg	0.20	< 0.20
Bromomethane	N	2760	µg/kg	0.20	< 0.20
Chloroethane	N	2760	µg/kg	0.20	< 0.20
Trichlorofluoromethane	N	2760	µg/kg	0.20	< 0.20
1,1-Dichloroethene	N	2760	µg/kg	0.20	< 0.20
Trans 1,2-Dichloroethene	N	2760	µg/kg	0.20	< 0.20
1,1-Dichloroethane	N	2760	µg/kg	0.20	< 0.20
cis 1,2-Dichloroethene	N	2760	µg/kg	0.20	< 0.20
Bromochloromethane	N	2760	µg/kg	0.50	< 0.50
Trichloromethane	N	2760	µg/kg	0.20	< 0.20
1,1,1-Trichloroethane	N	2760	µg/kg	0.20	< 0.20
Tetrachloromethane	N	2760	µg/kg	0.20	< 0.20
1,1-Dichloropropene	N	2760	µg/kg	0.20	< 0.20
Benzene	N	2760	µg/kg	0.20	< 0.20
1,2-Dichloroethane	N	2760	µg/kg	0.20	< 0.20
Trichloroethene	N	2760	µg/kg	0.20	< 0.20
1,2-Dichloropropane	N	2760	µg/kg	0.20	< 0.20
Dibromomethane	N	2760	µg/kg	0.20	< 0.20
Bromodichloromethane	N	2760	µg/kg	0.20	< 0.20
cis-1,3-Dichloropropene	N	2760	µg/kg	0.20	< 0.20
Toluene	N	2760	µg/kg	0.20	< 0.20
Trans-1,3-Dichloropropene	N	2760	µg/kg	0.20	< 0.20
1,1,2-Trichloroethane	N	2760	µg/kg	0.20	< 0.20
Tetrachloroethene	N	2760	µg/kg	0.20	< 0.20
1,3-Dichloropropane	N	2760	µg/kg	0.20	< 0.20
Dibromochloromethane	N	2760	µg/kg	0.20	< 0.20
1,2-Dibromoethane	N	2760	µg/kg	0.20	< 0.20
Chlorobenzene	N	2760	µg/kg	0.20	< 0.20

Results - Soil

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			Top Depth (m):		1.65
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			Date Sampled:		31-May-2022
			Asbestos Lab:		DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
1,1,1,2-Tetrachloroethane	N	2760	µg/kg	0.20	< 0.20
Ethylbenzene	N	2760	µg/kg	0.20	< 0.20
m & p-Xylene	N	2760	µg/kg	0.20	< 0.20
o-Xylene	N	2760	µg/kg	0.20	< 0.20
Styrene	N	2760	µg/kg	0.20	< 0.20
Tribromomethane	N	2760	µg/kg	0.20	< 0.20
Isopropylbenzene	N	2760	µg/kg	0.20	< 0.20
Bromobenzene	N	2760	µg/kg	0.20	< 0.20
1,2,3-Trichloropropane	N	2760	µg/kg	0.20	< 0.20
N-Propylbenzene	N	2760	µg/kg	0.20	< 0.20
2-Chlorotoluene	N	2760	µg/kg	0.20	< 0.20
1,3,5-Trimethylbenzene	N	2760	µg/kg	0.20	< 0.20
4-Chlorotoluene	N	2760	µg/kg	0.20	< 0.20
Tert-Butylbenzene	N	2760	µg/kg	0.20	< 0.20
1,2,4-Trimethylbenzene	N	2760	µg/kg	0.20	< 0.20
Sec-Butylbenzene	N	2760	µg/kg	0.20	< 0.20
1,3-Dichlorobenzene	N	2760	µg/kg	0.20	< 0.20
4-Isopropyltoluene	N	2760	µg/kg	0.20	< 0.20
1,4-Dichlorobenzene	N	2760	µg/kg	0.20	< 0.20
N-Butylbenzene	N	2760	µg/kg	0.20	< 0.20
1,2-Dichlorobenzene	N	2760	µg/kg	0.20	< 0.20
1,2-Dibromo-3-Chloropropane	N	2760	µg/kg	0.20	< 0.20
1,2,4-Trichlorobenzene	N	2760	µg/kg	0.20	< 0.20
Hexachlorobutadiene	N	2760	µg/kg	0.20	< 0.20
1,2,3-Trichlorobenzene	N	2760	µg/kg	0.20	< 0.20
Methyl Tert-Butyl Ether	N	2760	µg/kg	0.20	< 0.20
N-Nitrosodimethylamine	N	2790	mg/kg	0.050	< 0.050
Phenol	N	2790	mg/kg	0.050	< 0.050
2-Chlorophenol	N	2790	mg/kg	0.050	< 0.050
Bis-(2-Chloroethyl)Ether	N	2790	mg/kg	0.050	< 0.050
1,3-Dichlorobenzene	N	2790	mg/kg	0.050	< 0.050
1,4-Dichlorobenzene	N	2790	mg/kg	0.050	< 0.050
1,2-Dichlorobenzene	N	2790	mg/kg	0.050	< 0.050
2-Methylphenol	N	2790	mg/kg	0.050	< 0.050
Bis(2-Chloroisopropyl)Ether	N	2790	mg/kg	0.050	< 0.050
Hexachloroethane	N	2790	mg/kg	0.050	< 0.050
N-Nitrosodi-n-propylamine	N	2790	mg/kg	0.050	< 0.050
4-Methylphenol	N	2790	mg/kg	0.050	< 0.050

Results - Soil

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			Top Depth (m):		1.65
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			Date Sampled:		31-May-2022
			Asbestos Lab:		DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
Nitrobenzene	N	2790	mg/kg	0.050	< 0.050
Isophorone	N	2790	mg/kg	0.050	< 0.050
2-Nitrophenol	N	2790	mg/kg	0.050	< 0.050
2,4-Dimethylphenol	N	2790	mg/kg	0.050	< 0.050
Bis(2-Chloroethoxy)Methane	N	2790	mg/kg	0.050	< 0.050
2,4-Dichlorophenol	N	2790	mg/kg	0.050	< 0.050
1,2,4-Trichlorobenzene	N	2790	mg/kg	0.050	< 0.050
Naphthalene	N	2790	mg/kg	0.050	< 0.050
4-Chloroaniline	N	2790	mg/kg	0.050	< 0.050
Hexachlorobutadiene	N	2790	mg/kg	0.050	< 0.050
4-Chloro-3-Methylphenol	N	2790	mg/kg	0.050	< 0.050
2-Methylnaphthalene	N	2790	mg/kg	0.050	< 0.050
Hexachlorocyclopentadiene	N	2790	mg/kg	0.050	< 0.050
2,4,6-Trichlorophenol	N	2790	mg/kg	0.050	< 0.050
2,4,5-Trichlorophenol	N	2790	mg/kg	0.050	< 0.050
2-Chloronaphthalene	N	2790	mg/kg	0.050	< 0.050
2-Nitroaniline	N	2790	mg/kg	0.050	< 0.050
Acenaphthylene	N	2790	mg/kg	0.050	< 0.050
Dimethylphthalate	N	2790	mg/kg	0.050	< 0.050
2,6-Dinitrotoluene	N	2790	mg/kg	0.050	< 0.050
Acenaphthene	N	2790	mg/kg	0.050	< 0.050
3-Nitroaniline	N	2790	mg/kg	0.050	< 0.050
Dibenzofuran	N	2790	mg/kg	0.050	< 0.050
4-Chlorophenylphenylether	N	2790	mg/kg	0.050	< 0.050
2,4-Dinitrotoluene	N	2790	mg/kg	0.050	< 0.050
Fluorene	N	2790	mg/kg	0.050	< 0.050
Diethyl Phthalate	N	2790	mg/kg	0.050	< 0.050
4-Nitroaniline	N	2790	mg/kg	0.050	< 0.050
2-Methyl-4,6-Dinitrophenol	N	2790	mg/kg	0.050	< 0.050
Azobenzene	N	2790	mg/kg	0.050	< 0.050
4-Bromophenylphenyl Ether	N	2790	mg/kg	0.050	< 0.050
Hexachlorobenzene	N	2790	mg/kg	0.050	< 0.050
Pentachlorophenol	N	2790	mg/kg	0.050	< 0.050
Phenanthrene	N	2790	mg/kg	0.050	< 0.050
Anthracene	N	2790	mg/kg	0.050	< 0.050
Carbazole	N	2790	mg/kg	0.050	< 0.050
Di-N-Butyl Phthalate	N	2790	mg/kg	0.050	< 0.050
Fluoranthene	N	2790	mg/kg	0.050	< 0.050

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			Bottom Depth (m):		1.75
			Date Sampled:		31-May-2022
			Asbestos Lab:		DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
Pyrene	N	2790	mg/kg	0.050	< 0.050
Butylbenzyl Phthalate	N	2790	mg/kg	0.050	< 0.050
Benzo[a]anthracene	N	2790	mg/kg	0.050	< 0.050
Chrysene	N	2790	mg/kg	0.050	< 0.050
Bis(2-Ethylhexyl)Phthalate	N	2790	mg/kg	0.050	< 0.050
Di-N-Octyl Phthalate	N	2790	mg/kg	0.050	< 0.050
Benzo[b]fluoranthene	N	2790	mg/kg	0.050	< 0.050
Benzo[k]fluoranthene	N	2790	mg/kg	0.050	< 0.050
Benzo[a]pyrene	N	2790	mg/kg	0.050	< 0.050
Indeno(1,2,3-c,d)Pyrene	N	2790	mg/kg	0.050	< 0.050
Dibenz(a,h)Anthracene	N	2790	mg/kg	0.050	< 0.050
Benzo[g,h,i]perylene	N	2790	mg/kg	0.050	< 0.050
4-Nitrophenol	N	2790	mg/kg	0.050	< 0.050
Naphthalene	N	2800	mg/kg	0.010	< 0.010
Acenaphthylene	N	2800	mg/kg	0.010	< 0.010
Acenaphthene	N	2800	mg/kg	0.010	< 0.010
Fluorene	N	2800	mg/kg	0.010	< 0.010
Phenanthrene	N	2800	mg/kg	0.010	< 0.010
Anthracene	N	2800	mg/kg	0.010	< 0.010
Fluoranthene	N	2800	mg/kg	0.010	< 0.010
Pyrene	N	2800	mg/kg	0.010	< 0.010
Benzo[a]anthracene	N	2800	mg/kg	0.010	< 0.010
Chrysene	N	2800	mg/kg	0.010	< 0.010
Benzo[b]fluoranthene	N	2800	mg/kg	0.010	< 0.010
Benzo[k]fluoranthene	N	2800	mg/kg	0.010	< 0.010
Benzo[a]pyrene	N	2800	mg/kg	0.010	< 0.010
Indeno(1,2,3-c,d)Pyrene	N	2800	mg/kg	0.010	< 0.010
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.010	< 0.010
Benzo[g,h,i]perylene	N	2800	mg/kg	0.010	< 0.010
Total Of 16 PAH's	N	2800	mg/kg	0.20	< 0.20
PCB 28	U	2815	mg/kg	0.010	< 0.010
PCB 52	U	2815	mg/kg	0.010	< 0.010
PCB 90+101	U	2815	mg/kg	0.010	< 0.010
PCB 118	U	2815	mg/kg	0.010	< 0.010
PCB 153	U	2815	mg/kg	0.010	< 0.010
PCB 138	U	2815	mg/kg	0.010	< 0.010
PCB 180	U	2815	mg/kg	0.010	< 0.010
Total PCBs (7 Congeners)	U	2815	mg/kg	0.10	< 0.10

Results - Soil

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			Date Sampled:		31-May-2022
			Asbestos Lab:		DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
Total Phenols	U	2920	mg/kg	0.10	< 0.10

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2180	Sulphur (Elemental) in Soils by HPLC	Sulphur	Dichloromethane extraction / HPLC with UV detection
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N–dimethyl-p-phenylenediamine.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2790	Semi-Volatile Organic Compounds (SVOCs) in Soils by GC-MS	Semi-volatile organic compounds(cf. USEPA Method 8270)	Acetone/Hexane extraction / GC-MS
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

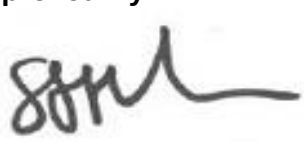
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	22-20671-1
Initial Date of Issue:	10-Jun-2022
Client	LK Consult
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS
Contact(s):	Colin Crompton Contaminated Land
Project	LKC 22 1225 B401 Manchester Airport

Quotation No.:	Q22-27796	**Date Received:**	06-Jun-2022
Order No.:	740327	**Date Instructed:**	06-Jun-2022
No. of Samples:	5		
Turnaround (Wkdays):	5	**Results Due:**	10-Jun-2022
Date Approved:	10-Jun-2022		

Approved By:



Details: Stuart Henderson, Technical Manager

Results - Leachate

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult				**Chemtest Job No.:**		22-20671	22-20671
Quotation No.: Q22-27796				**Chemtest Sample ID.:**		1441116	1441117
				Client Sample ID.:		DS101	DS101
				Sample Type:		SOIL	SOIL
				Top Depth (m):		0.00	0.30
				Bottom Depth (m):		0.30	0.44
				Date Sampled:		30-May-2022	30-May-2022
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**		
pH	U	1010	2:1		N/A	9.0	8.9
Electrical Conductivity	U	1020	2:1	µS/cm	1.0	210	150
Chloride	U	1220	2:1	mg/l	1.0	3.2	3.8
Ammoniacal Nitrogen	U	1220	2:1	mg/l	0.050	0.12	0.15
Nitrate	U	1220	2:1	mg/l	0.50	5.7	1.2
Sulphur	N	1220	2:1	mg/l	1.0	1.2	2.3
Sulphate	U	1220	2:1	mg/l	1.0	3.5	6.9
Cyanide (Total)	U	1300	2:1	mg/l	0.050	< 0.050	< 0.050
Cyanide (Free)	U	1300	2:1	mg/l	0.050	< 0.050	< 0.050
Sulphide	U	1325	2:1	mg/l	0.050	< 0.050	< 0.050
Arsenic (Dissolved)	U	1455	2:1	µg/l	0.20	1.4	13
Boron (Dissolved)	U	1455	2:1	µg/l	10.0	13	20
Barium (Dissolved)	U	1455	2:1	µg/l	5.00	74	43
Beryllium (Dissolved)	U	1455	2:1	µg/l	1.00	< 1.0	6.9
Cadmium (Dissolved)	U	1455	2:1	µg/l	0.11	< 0.11	6.6
Chromium (Dissolved)	U	1455	2:1	µg/l	0.50	5.6	14
Copper (Dissolved)	U	1455	2:1	µg/l	0.50	4.9	8.8
Mercury (Dissolved)	U	1455	2:1	µg/l	0.05	< 0.05	0.08
Nickel (Dissolved)	U	1455	2:1	µg/l	0.50	2.5	11
Lead (Dissolved)	U	1455	2:1	µg/l	0.50	2.0	9.9
Selenium (Dissolved)	U	1455	2:1	µg/l	0.50	< 0.50	6.8
Zinc (Dissolved)	U	1455	2:1	µg/l	2.5	< 2.5	28
Low-Level Chromium (Hexavalent)	N	1495	2:1	µg/l	0.10	1.3	0.51
Aliphatic TPH >C5-C6	N	1675	2:1	µg/l	0.010	< 0.010	< 0.010
Aliphatic TPH >C6-C8	N	1675	2:1	µg/l	0.010	< 0.010	< 0.010
Aliphatic TPH >C8-C10	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C10-C12	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C12-C16	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C16-C21	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C21-C35	N	1675	2:1	µg/l	0.10	480	360
Aliphatic TPH >C35-C44	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Total Aliphatic Hydrocarbons	N	1675	2:1	µg/l	1.0	480	360
Aromatic TPH >C5-C7	N	1675	2:1	µg/l	0.010	< 0.010	< 0.010
Aromatic TPH >C7-C8	N	1675	2:1	µg/l	0.010	< 0.010	< 0.010
Aromatic TPH >C8-C10	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C10-C12	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C12-C16	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C16-C21	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C21-C35	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10

Results - Leachate

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult				**Chemtest Job No.:**		22-20671	22-20671
Quotation No.: Q22-27796				**Chemtest Sample ID.:**		1441116	1441117
				Client Sample ID.:		DS101	DS101
				Sample Type:		SOIL	SOIL
				Top Depth (m):		0.00	0.30
				Bottom Depth (m):		0.30	0.44
				Date Sampled:		30-May-2022	30-May-2022
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**		
Aromatic TPH >C35-C44	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Total Aromatic Hydrocarbons	N	1675	2:1	µg/l	1.0	< 1.0	< 1.0
Total Petroleum Hydrocarbons	N	1675	2:1	µg/l	2.0	480	360
Dichlorodifluoromethane	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Chloromethane	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Vinyl Chloride	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Bromomethane	N	1760	2:1	µg/l	2.0	< 2.0	< 2.0
Chloroethane	N	1760	2:1	µg/l	0.20	< 0.20	< 0.20
Trichlorofluoromethane	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,1-Dichloroethene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Trans 1,2-Dichloroethene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,1-Dichloroethane	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
cis 1,2-Dichloroethene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Bromochloromethane	N	1760	2:1	µg/l	0.50	< 0.50	< 0.50
Trichloromethane	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,1,1-Trichloroethane	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Tetrachloromethane	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,1-Dichloropropene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Benzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,2-Dichloroethane	N	1760	2:1	µg/l	0.20	< 0.20	< 0.20
Trichloroethene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,2-Dichloropropane	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Dibromomethane	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Bromodichloromethane	N	1760	2:1	µg/l	0.50	< 0.50	< 0.50
cis-1,3-Dichloropropene	N	1760	2:1	µg/l	1.0	< 1.0	< 1.0
Toluene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Trans-1,3-Dichloropropene	N	1760	2:1	µg/l	1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	N	1760	2:1	µg/l	1.0	< 1.0	< 1.0
Tetrachloroethene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,3-Dichloropropane	N	1760	2:1	µg/l	0.20	< 0.20	< 0.20
Dibromochloromethane	N	1760	2:1	µg/l	1.0	< 1.0	< 1.0
1,2-Dibromoethane	N	1760	2:1	µg/l	0.50	< 0.50	< 0.50
Chlorobenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,1,1,2-Tetrachloroethane	N	1760	2:1	µg/l	0.20	< 0.20	< 0.20
Ethylbenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
m & p-Xylene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
o-Xylene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Styrene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Tribromomethane	N	1760	2:1	µg/l	1.0	< 1.0	< 1.0

Results - Leachate

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult				**Chemtest Job No.:**		22-20671	22-20671
Quotation No.: Q22-27796				**Chemtest Sample ID.:**		1441116	1441117
				Client Sample ID.:		DS101	DS101
				Sample Type:		SOIL	SOIL
				Top Depth (m):		0.00	0.30
				Bottom Depth (m):		0.30	0.44
				Date Sampled:		30-May-2022	30-May-2022
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**		
Isopropylbenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Bromobenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,2,3-Trichloropropane	N	1760	2:1	µg/l	5.0	< 5.0	< 5.0
N-Propylbenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
2-Chlorotoluene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,3,5-Trimethylbenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
4-Chlorotoluene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Tert-Butylbenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,2,4-Trimethylbenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Sec-Butylbenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,3-Dichlorobenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
4-Isopropyltoluene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,4-Dichlorobenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
N-Butylbenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,2-Dichlorobenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,2-Dibromo-3-Chloropropane	N	1760	2:1	µg/l	5.0	< 5.0	< 5.0
1,2,4-Trichlorobenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Hexachlorobutadiene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,2,3-Trichlorobenzene	N	1760	2:1	µg/l	0.20	< 0.20	< 0.20
Methyl Tert-Butyl Ether	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
N-Nitrosodimethylamine	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Phenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2-Chlorophenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Bis-(2-Chloroethyl)Ether	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
1,3-Dichlorobenzene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
1,4-Dichlorobenzene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
1,2-Dichlorobenzene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2-Methylphenol (o-Cresol)	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Bis(2-Chloroisopropyl)Ether	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Hexachloroethane	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
N-Nitrosodi-n-propylamine	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
4-Methylphenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Nitrobenzene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Isophorone	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2-Nitrophenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2,4-Dimethylphenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Bis(2-Chloroethoxy)Methane	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2,4-Dichlorophenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
1,2,4-Trichlorobenzene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050

Results - Leachate

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult				**Chemtest Job No.:**		22-20671	22-20671
Quotation No.: Q22-27796				**Chemtest Sample ID.:**		1441116	1441117
				Client Sample ID.:		DS101	DS101
				Sample Type:		SOIL	SOIL
				Top Depth (m):		0.00	0.30
				Bottom Depth (m):		0.30	0.44
				Date Sampled:		30-May-2022	30-May-2022
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**		
Naphthalene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
4-Chloroaniline	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Hexachlorobutadiene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
4-Chloro-3-Methylphenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2-Methylnaphthalene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Hexachlorocyclopentadiene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2,4,6-Trichlorophenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2,4,5-Trichlorophenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2-Chloronaphthalene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2-Nitroaniline	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Acenaphthylene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Dimethylphthalate	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2,6-Dinitrotoluene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Acenaphthene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
3-Nitroaniline	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Dibenzofuran	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
4-Chlorophenylphenylether	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2,4-Dinitrotoluene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Fluorene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Diethyl Phthalate	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
4-Nitroaniline	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2-Methyl-4,6-Dinitrophenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Azobenzene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
4-Bromophenylphenyl Ether	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Hexachlorobenzene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Pentachlorophenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Phenanthrene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Anthracene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Carbazole	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Di-N-Butyl Phthalate	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Fluoranthene	N	1790	2:1	µg/l	0.050	< 0.050	0.52
Pyrene	N	1790	2:1	µg/l	0.050	< 0.050	0.89
Butylbenzyl Phthalate	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Benzo[a]anthracene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Chrysene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Bis(2-Ethylhexyl)Phthalate	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Di-N-Octyl Phthalate	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Benzo[b]fluoranthene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Benzo[k]fluoranthene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050

Results - Leachate

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult				**Chemtest Job No.:**		22-20671	22-20671
Quotation No.: Q22-27796				**Chemtest Sample ID.:**		1441116	1441117
				Client Sample ID.:		DS101	DS101
				Sample Type:		SOIL	SOIL
				Top Depth (m):		0.00	0.30
				Bottom Depth (m):		0.30	0.44
				Date Sampled:		30-May-2022	30-May-2022
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**		
Benzo[a]pyrene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Indeno(1,2,3-c,d)Pyrene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Dibenz(a,h)Anthracene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Benzo[g,h,i]perylene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
4-Nitrophenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Naphthalene	N	1800	2:1	µg/l	0.010	0.56	0.51
Acenaphthylene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Acenaphthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Fluorene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Phenanthrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Anthracene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Pyrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Benzo[a]anthracene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Chrysene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Benzo[b]fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Benzo[k]fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Benzo[a]pyrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Indeno(1,2,3-c,d)Pyrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Dibenz(a,h)Anthracene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Benzo[g,h,i]perylene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Total Of 16 PAH's	N	1800	2:1	µg/l	0.20	0.56	0.51
PCB 28	N	1815	2:1	µg/l	0.010	< 0.010	< 0.010
PCB 52	N	1815	2:1	µg/l	0.010	< 0.010	< 0.010
PCB 90+101	N	1815	2:1	µg/l	0.010	< 0.010	< 0.010
PCB 118	N	1815	2:1	µg/l	0.010	< 0.010	< 0.010
PCB 153	N	1815	2:1	µg/l	0.010	< 0.010	< 0.010
PCB 138	N	1815	2:1	µg/l	0.010	< 0.010	< 0.010
PCB 180	N	1815	2:1	µg/l	0.010	< 0.010	< 0.010
Total PCBs (7 congeners)	N	1815	2:1	µg/l	0.010	< 0.010	< 0.010
Total Phenols	U	1920	2:1	mg/l	0.030	< 0.030	< 0.030

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult		**Chemtest Job No.:**			22-20671	22-20671	22-20671	22-20671	22-20671
Quotation No.: Q22-27796		**Chemtest Sample ID.:**			1441114	1441115	1441116	1441117	1441118
		Client Sample ID.:			BH103	BH103	DS101	DS101	DS101
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			0.14	1.50	0.00	0.30	0.44
		Bottom Depth (m):			0.40	1.60	0.30	0.44	0.60
		Date Sampled:			30-May-2022	30-May-2022	30-May-2022	30-May-2022	30-May-2022
		Asbestos Lab:			DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
ACM Type	U	2192		N/A	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	10	14	15	8.1	6.0
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones	None	Stones	Stones	Stones
Soil Texture	N	2040		N/A	Gravel	Clay	Loam	Clay	Gravel
pH	M	2010		4.0	11.2	8.9	9.0	9.2	9.5
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	0.58	< 0.40	0.41	< 0.40	< 0.40
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	0.70	0.092	0.045	0.029	0.029
Sulphur (Elemental)	M	2180	mg/kg	1.0	2.8	1.3	5.2	1.7	2.5
Cyanide (Free)	M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cyanide (Total)	M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	2.4	2.3	4.3	4.5	5.2
Arsenic	M	2455	mg/kg	0.5	1.6	5.6	13	5.5	2.0
Barium	M	2455	mg/kg	0	690	120	230	130	240
Beryllium	U	2455	mg/kg	0.5	< 0.5	0.6	0.7	< 0.5	< 0.5
Cadmium	M	2455	mg/kg	0.10	0.14	< 0.10	0.36	0.41	0.19
Chromium	M	2455	mg/kg	0.5	5.2	19	25	14	6.2
Copper	M	2455	mg/kg	0.50	4.2	13	59	21	3.9
Mercury	M	2455	mg/kg	0.05	< 0.05	< 0.05	0.29	0.13	0.05
Nickel	M	2455	mg/kg	0.50	7.6	22	52	21	6.0
Lead	M	2455	mg/kg	0.50	8.2	8.8	190	51	12
Selenium	M	2455	mg/kg	0.25	< 0.25	0.37	0.83	0.49	0.48
Zinc	M	2455	mg/kg	0.50	17	28	120	60	23
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Fraction of Organic Carbon	M	2625		0.0010	0.0094	0.0049	0.029	0.034	0.0048
Aliphatic TPH >C5-C6	N	2680	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Aliphatic TPH >C6-C8	N	2680	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Aliphatic TPH >C8-C10	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C10-C12	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C12-C16	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C16-C21	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C21-C35	N	2680	mg/kg	0.10	< 0.10	< 0.10	130	< 0.10	< 0.10
Aliphatic TPH >C35-C44	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aliphatic Hydrocarbons	N	2680	mg/kg	1.0	< 1.0	< 1.0	130	< 1.0	< 1.0
Aromatic TPH >C5-C7	N	2680	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Aromatic TPH >C7-C8	N	2680	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-20671	22-20671	22-20671	22-20671	22-20671
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1441114	1441115	1441116	1441117	1441118
			Client Sample ID.:		BH103	BH103	DS101	DS101	DS101
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.14	1.50	0.00	0.30	0.44
			Bottom Depth (m):		0.40	1.60	0.30	0.44	0.60
			Date Sampled:		30-May-2022	30-May-2022	30-May-2022	30-May-2022	30-May-2022
			Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
Aromatic TPH >C8-C10	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C10-C12	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C12-C16	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C16-C21	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C21-C35	N	2680	mg/kg	0.10	1800	< 0.10	350	< 0.10	< 0.10
Aromatic TPH >C35-C44	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aromatic Hydrocarbons	N	2680	mg/kg	1.0	1800	< 1.0	350	< 1.0	< 1.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	2.0	1800	< 2.0	480	< 2.0	< 2.0
Dichlorodifluoromethane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Chloromethane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Vinyl Chloride	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Bromomethane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Chloroethane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Trichlorofluoromethane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
1,1-Dichloroethene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Trans 1,2-Dichloroethene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
1,1-Dichloroethane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
cis 1,2-Dichloroethene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Bromochloromethane	N	2760	µg/kg	0.50	< 0.50		< 0.50	< 0.50	< 0.50
Trichloromethane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
1,1,1-Trichloroethane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Tetrachloromethane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
1,1-Dichloropropene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Benzene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
1,2-Dichloroethane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Trichloroethene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
1,2-Dichloropropane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Dibromomethane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Bromodichloromethane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
cis-1,3-Dichloropropene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Toluene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Trans-1,3-Dichloropropene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
1,1,2-Trichloroethane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Tetrachloroethene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
1,3-Dichloropropane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Dibromochloromethane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
1,2-Dibromoethane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Chlorobenzene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult		**Chemtest Job No.:**			22-20671	22-20671	22-20671	22-20671	22-20671
Quotation No.: Q22-27796		**Chemtest Sample ID.:**			1441114	1441115	1441116	1441117	1441118
		Client Sample ID.:			BH103	BH103	DS101	DS101	DS101
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			0.14	1.50	0.00	0.30	0.44
		Bottom Depth (m):			0.40	1.60	0.30	0.44	0.60
		Date Sampled:			30-May-2022	30-May-2022	30-May-2022	30-May-2022	30-May-2022
		Asbestos Lab:			DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
1,1,1,2-Tetrachloroethane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Ethylbenzene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
m & p-Xylene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
o-Xylene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Styrene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Tribromomethane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Isopropylbenzene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Bromobenzene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
1,2,3-Trichloropropane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
N-Propylbenzene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
2-Chlorotoluene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
1,3,5-Trimethylbenzene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
4-Chlorotoluene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Tert-Butylbenzene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
1,2,4-Trimethylbenzene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Sec-Butylbenzene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
1,3-Dichlorobenzene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
4-Isopropyltoluene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
1,4-Dichlorobenzene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
N-Butylbenzene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
1,2-Dichlorobenzene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
1,2-Dibromo-3-Chloropropane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
1,2,4-Trichlorobenzene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Hexachlorobutadiene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
1,2,3-Trichlorobenzene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Methyl Tert-Butyl Ether	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
N-Nitrosodimethylamine	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Phenol	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
2-Chlorophenol	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Bis-(2-Chloroethyl)Ether	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
1,3-Dichlorobenzene	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
1,4-Dichlorobenzene	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
1,2-Dichlorobenzene	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
2-Methylphenol	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Bis(2-Chloroisopropyl)Ether	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Hexachloroethane	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
N-Nitrosodi-n-propylamine	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
4-Methylphenol	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult		**Chemtest Job No.:**			22-20671	22-20671	22-20671	22-20671	22-20671
Quotation No.: Q22-27796		**Chemtest Sample ID.:**			1441114	1441115	1441116	1441117	1441118
		Client Sample ID.:			BH103	BH103	DS101	DS101	DS101
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			0.14	1.50	0.00	0.30	0.44
		Bottom Depth (m):			0.40	1.60	0.30	0.44	0.60
		Date Sampled:			30-May-2022	30-May-2022	30-May-2022	30-May-2022	30-May-2022
		Asbestos Lab:			DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
Nitrobenzene	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Isophorone	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
2-Nitrophenol	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
2,4-Dimethylphenol	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Bis(2-Chloroethoxy)Methane	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
2,4-Dichlorophenol	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
1,2,4-Trichlorobenzene	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Naphthalene	N	2790	mg/kg	0.050	< 0.050		0.17	< 0.050	< 0.050
4-Chloroaniline	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Hexachlorobutadiene	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
4-Chloro-3-Methylphenol	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
2-Methylnaphthalene	N	2790	mg/kg	0.050	0.078		0.18	< 0.050	< 0.050
Hexachlorocyclopentadiene	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
2,4,6-Trichlorophenol	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
2,4,5-Trichlorophenol	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
2-Chloronaphthalene	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
2-Nitroaniline	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Acenaphthylene	N	2790	mg/kg	0.050	< 0.050		0.095	< 0.050	< 0.050
Dimethylphthalate	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
2,6-Dinitrotoluene	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Acenaphthene	N	2790	mg/kg	0.050	< 0.050		0.20	< 0.050	< 0.050
3-Nitroaniline	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Dibenzofuran	N	2790	mg/kg	0.050	< 0.050		0.13	< 0.050	< 0.050
4-Chlorophenylphenylether	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
2,4-Dinitrotoluene	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Fluorene	N	2790	mg/kg	0.050	< 0.050		0.15	< 0.050	< 0.050
Diethyl Phthalate	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
4-Nitroaniline	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
2-Methyl-4,6-Dinitrophenol	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Azobenzene	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
4-Bromophenylphenyl Ether	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Hexachlorobenzene	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Pentachlorophenol	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Phenanthrene	N	2790	mg/kg	0.050	0.10		1.9	0.25	< 0.050
Anthracene	N	2790	mg/kg	0.050	< 0.050		0.50	0.076	< 0.050
Carbazole	N	2790	mg/kg	0.050	< 0.050		0.14	< 0.050	< 0.050
Di-N-Butyl Phthalate	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Fluoranthene	N	2790	mg/kg	0.050	0.067		4.0	0.64	< 0.050

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult		**Chemtest Job No.:**			22-20671	22-20671	22-20671	22-20671	22-20671
Quotation No.: Q22-27796		**Chemtest Sample ID.:**			1441114	1441115	1441116	1441117	1441118
		Client Sample ID.:			BH103	BH103	DS101	DS101	DS101
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			0.14	1.50	0.00	0.30	0.44
		Bottom Depth (m):			0.40	1.60	0.30	0.44	0.60
		Date Sampled:			30-May-2022	30-May-2022	30-May-2022	30-May-2022	30-May-2022
		Asbestos Lab:			DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
Pyrene	N	2790	mg/kg	0.050	0.089		3.6	0.59	< 0.050
Butylbenzyl Phthalate	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Benzo[a]anthracene	N	2790	mg/kg	0.050	< 0.050		2.1	0.39	< 0.050
Chrysene	N	2790	mg/kg	0.050	0.078		2.1	0.37	< 0.050
Bis(2-Ethylhexyl)Phthalate	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Di-N-Octyl Phthalate	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Benzo[b]fluoranthene	N	2790	mg/kg	0.050	0.067		2.9	0.56	< 0.050
Benzo[k]fluoranthene	N	2790	mg/kg	0.050	< 0.050		1.1	0.19	< 0.050
Benzo[a]pyrene	N	2790	mg/kg	0.050	< 0.050		2.2	0.40	< 0.050
Indeno(1,2,3-c,d)Pyrene	N	2790	mg/kg	0.050	< 0.050		1.3	0.27	< 0.050
Dibenz(a,h)Anthracene	N	2790	mg/kg	0.050	< 0.050		0.32	0.076	< 0.050
Benzo[g,h,i]perylene	N	2790	mg/kg	0.050	< 0.050		1.5	0.29	< 0.050
4-Nitrophenol	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Naphthalene	N	2800	mg/kg	0.010	< 0.010	< 0.010	0.58	0.44	< 0.010
Acenaphthylene	N	2800	mg/kg	0.010	< 0.010	< 0.010	0.23	0.089	< 0.010
Acenaphthene	N	2800	mg/kg	0.010	< 0.010	< 0.010	0.40	0.42	< 0.010
Fluorene	N	2800	mg/kg	0.010	< 0.010	< 0.010	0.34	0.24	< 0.010
Phenanthrene	N	2800	mg/kg	0.010	0.19	< 0.010	4.6	1.9	0.19
Anthracene	N	2800	mg/kg	0.010	< 0.010	< 0.010	0.97	0.40	0.10
Fluoranthene	N	2800	mg/kg	0.010	0.18	< 0.010	9.6	2.9	0.20
Pyrene	N	2800	mg/kg	0.010	0.19	< 0.010	9.3	2.6	0.17
Benzo[a]anthracene	N	2800	mg/kg	0.010	0.18	< 0.010	5.1	1.4	< 0.010
Chrysene	N	2800	mg/kg	0.010	0.12	< 0.010	5.3	1.2	< 0.010
Benzo[b]fluoranthene	N	2800	mg/kg	0.010	< 0.010	< 0.010	6.1	1.9	< 0.010
Benzo[k]fluoranthene	N	2800	mg/kg	0.010	< 0.010	< 0.010	2.1	0.53	< 0.010
Benzo[a]pyrene	N	2800	mg/kg	0.010	< 0.010	< 0.010	5.9	1.6	< 0.010
Indeno(1,2,3-c,d)Pyrene	N	2800	mg/kg	0.010	< 0.010	< 0.010	3.2	0.98	< 0.010
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.010	< 0.010	< 0.010	0.50	0.18	< 0.010
Benzo[g,h,i]perylene	N	2800	mg/kg	0.010	< 0.010	< 0.010	3.1	0.98	< 0.010
Total Of 16 PAH's	N	2800	mg/kg	0.20	0.86	< 0.20	57	18	0.66
PCB 28	U	2815	mg/kg	0.010	< 0.010		< 0.010	< 0.010	< 0.010
PCB 52	U	2815	mg/kg	0.010	< 0.010		< 0.010	< 0.010	< 0.010
PCB 90+101	U	2815	mg/kg	0.010	< 0.010		< 0.010	< 0.010	< 0.010
PCB 118	U	2815	mg/kg	0.010	< 0.010		< 0.010	< 0.010	< 0.010
PCB 153	U	2815	mg/kg	0.010	< 0.010		< 0.010	< 0.010	< 0.010
PCB 138	U	2815	mg/kg	0.010	< 0.010		< 0.010	< 0.010	< 0.010
PCB 180	U	2815	mg/kg	0.010	< 0.010		< 0.010	< 0.010	< 0.010
Total PCBs (7 Congeners)	U	2815	mg/kg	0.10	< 0.10		< 0.10	< 0.10	< 0.10

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-20671	22-20671	22-20671	22-20671	22-20671
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1441114	1441115	1441116	1441117	1441118
			Client Sample ID.:		BH103	BH103	DS101	DS101	DS101
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.14	1.50	0.00	0.30	0.44
			Bottom Depth (m):		0.40	1.60	0.30	0.44	0.60
			Date Sampled:		30-May-2022	30-May-2022	30-May-2022	30-May-2022	30-May-2022
			Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
Total Phenols	M	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - 2 Stage WAC

Project: LKC 22 1225 B401 Manchester Airport

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-20671								
Chemtest Sample ID:	1441116								
Sample Ref:									
Sample ID:	DS101								
Sample Location:									
Top Depth(m):	0.00								
Bottom Depth(m):	0.30								
Sampling Date:	30-May-2022								
Determinand	**SOP**	**Accred.**	**Units**				**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon							3	5	6
Loss on Ignition							--	--	10
Total BTEX							6	--	--
Total PCBs (7 congeners)							1	--	--
TPH Total WAC (Mineral Oil)							500	--	--
Total (of 17) PAHs							100	--	--
pH							--	>6	--
Acid Neutralisation Capacity							--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic							0.5	2	25
Barium							20	100	300
Cadmium							0.04	1	5
Chromium							0.5	10	70
Copper							2	50	100
Mercury							0.01	0.2	2
Molybdenum							0.5	10	30
Nickel							0.4	10	40
Lead							0.5	10	50
Antimony							0.06	0.7	5
Selenium							0.1	0.5	7
Zinc							4	50	200
Chloride							800	15000	25000
Fluoride							10	150	500
Sulphate							1000	20000	50000
Total Dissolved Solids							4000	60000	100000
Phenol Index							1	-	-
Dissolved Organic Carbon							500	800	1000

Solid Information	
Dry mass of test portion/kg	
Moisture (%)	

Leachate Test Information	
Leachant volume 1st extract/l	
Leachant volume 2nd extract/l	
Eluant recovered from 1st extract/l	

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - 2 Stage WAC

Project: LKC 22 1225 B401 Manchester Airport

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-20671								
Chemtest Sample ID:	1441117								
Sample Ref:									
Sample ID:	DS101								
Sample Location:									
Top Depth(m):	0.30								
Bottom Depth(m):	0.44								
Sampling Date:	30-May-2022								
Determinand	**SOP**	**Accred.**	**Units**				**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon							3	5	6
Loss on Ignition							--	--	10
Total BTEX							6	--	--
Total PCBs (7 congeners)							1	--	--
TPH Total WAC (Mineral Oil)							500	--	--
Total (of 17) PAHs							100	--	--
pH							--	>6	--
Acid Neutralisation Capacity							--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic							0.5	2	25
Barium							20	100	300
Cadmium							0.04	1	5
Chromium							0.5	10	70
Copper							2	50	100
Mercury							0.01	0.2	2
Molybdenum							0.5	10	30
Nickel							0.4	10	40
Lead							0.5	10	50
Antimony							0.06	0.7	5
Selenium							0.1	0.5	7
Zinc							4	50	200
Chloride							800	15000	25000
Fluoride							10	150	500
Sulphate							1000	20000	50000
Total Dissolved Solids							4000	60000	100000
Phenol Index							1	-	-
Dissolved Organic Carbon							500	800	1000

Solid Information	
Dry mass of test portion/kg	
Moisture (%)	

Leachate Test Information	
Leachant volume 1st extract/l	
Leachant volume 2nd extract/l	
Eluant recovered from 1st extract/l	

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1300	Cyanides & Thiocyanate in Waters	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Continuous Flow Analysis.
1325	Sulphide in Waters	Sulphides	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using N,N–dimethyl-pphenylenediamine.
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1490	Hexavalent Chromium in Waters	Chromium [VI]	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
1495	Low Level Hexavalent Chromium in Waters	Chromium [VI]	Colorimetric determination of hexavalent chromium expressed as Cr (VI) µg/l in water, using Ion Chromatography and UV-visible spectrophotometry.
1675	TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG)	Aliphatics: >C5–C6, >C6–C8, >C8– C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Pentane extraction / GCxGC FID detection
1760	Volatile Organic Compounds (VOCs) in Waters by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics. (cf. USEPA Method 8260)	Automated headspace gas chromatographic (GC) analysis of water samples with mass spectrometric (MS) detection of volatile organic compounds.
1790	Semi-Volatile Organic Compounds (SVOCs) in Waters by GC-MS	Semi-volatile organic compounds	Solvent extraction / GCMS detection
1800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-MS	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Pentane extraction / GCMS detection
1815	Polychlorinated Biphenyls (PCB) ICES7 Congeners in Waters by GC-MS	ICES7 PCB congeners	Solvent extraction / GCMS detection
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2180	Sulphur (Elemental) in Soils by HPLC	Sulphur	Dichloromethane extraction / HPLC with UV detection
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry

Test Methods

SOP	Title	Parameters included	Method summary
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N–dimethyl-p-phenylenediamine.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2790	Semi-Volatile Organic Compounds (SVOCs) in Soils by GC-MS	Semi-volatile organic compounds(cf. USEPA Method 8270)	Acetone/Hexane extraction / GC-MS
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge
650	Characterisation of Waste (Leaching WAC)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

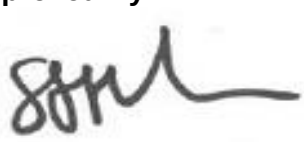
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	22-20674-1
Initial Date of Issue:	14-Jun-2022
Client	LK Consult
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS
Contact(s):	Colin Crompton Contaminated Land
Project	LKC 22 1225 B401 Manchester Airport

Quotation No.:	Q22-27796	**Date Received:**	06-Jun-2022
Order No.:	740327	**Date Instructed:**	06-Jun-2022
No. of Samples:	1		
Turnaround (Wkdays):	7	**Results Due:**	14-Jun-2022
Date Approved:	14-Jun-2022		

Approved By:



Details: Stuart Henderson, Technical Manager

Results - 2 Stage WAC

Project: LKC 22 1225 B401 Manchester Airport

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-20674								
Chemtest Sample ID:	1441133								
Sample Ref:									
Sample ID:	DS101								
Sample Location:									
Top Depth(m):	0.00								
Bottom Depth(m):	0.30								
Sampling Date:	30-May-2022								
Determinand	**SOP**	**Accred.**	**Units**				**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%			1.5	3	5	6
Loss On Ignition	2610	M	%			29	--	--	10
Total BTEX	2760	M	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg			< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg			58	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			18	100	--	--
pH	2010	M				8.7	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.015	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1455	U	0.0008	0.0021	0.0016	0.020	0.5	2	25
Barium	1455	U	0.077	0.054	0.15	0.55	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.5	10	70
Copper	1455	U	0.0033	0.0036	0.0066	0.0021	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.012	0.0064	0.025	0.068	0.5	10	30
Nickel	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.4	10	40
Lead	1455	U	< 0.0005	0.0030	< 0.0005	0.028	0.5	10	50
Antimony	1455	U	0.0022	0.0013	0.0043	0.014	0.06	0.7	5
Selenium	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.1	0.5	7
Zinc	1455	U	< 0.003	0.003	< 0.003	0.028	4	50	200
Chloride	1220	U	2.1	1.2	< 10	13	800	15000	25000
Fluoride	1220	U	1.3	0.86	2.6	8.9	10	150	500
Sulphate	1220	U	5.7	1.8	11	20	1000	20000	50000
Total Dissolved Solids	1020	N	140	91	270	940	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	5.8	10	< 50	98	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	14

Leachate Test Information	
Leachant volume 1st extract/l	0.321
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.111

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Test Methods

SOP	Title	Parameters included	Method summary
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2015	Acid Neutralisation Capacity	Acid Reserve	Titration
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge
650	Characterisation of Waste (Leaching WAC)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

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None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

Appendix C

Certificates of Analysis – Groundwater

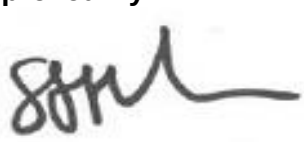
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	22-23896-1
Initial Date of Issue:	06-Jul-2022
Client	LK Consult
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS
Contact(s):	Colin Crompton Contaminated Land
Project	LKC 22 1225 B401 Manchester Airport

Quotation No.:	Q22-27796	**Date Received:**	27-Jun-2022
Order No.:	740400	**Date Instructed:**	30-Jun-2022
No. of Samples:	6		
Turnaround (Wkdays):	5	**Results Due:**	06-Jul-2022
Date Approved:	06-Jul-2022		

Approved By:



Details:	Stuart Henderson, Technical Manager

Results - Water

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-23896	22-23896	22-23896	22-23896	22-23896	22-23896
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1455758	1455759	1455760	1455761	1455762	1455763
			Client Sample ID.:		BH101	BH102	BH103	BH104	BH105	BH106
			Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER
			Date Sampled:		23-Jun-2022	23-Jun-2022	23-Jun-2022	23-Jun-2022	23-Jun-2022	23-Jun-2022
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
pH	U	1010		N/A	7.9	7.6	7.5	7.3	7.6	7.7
Electrical Conductivity	U	1020	µS/cm	1.0	320	460	700	320	610	390
Chloride	U	1220	mg/l	1.0	69	31	69	710	290	430
Ammoniacal Nitrogen	U	1220	mg/l	0.050	0.41	0.40	1.2	1.6	1.2	2.8
Nitrate	U	1220	mg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphur	N	1220	mg/l	1.0	83	320	280	300	100	430
Sulphate	U	1220	mg/l	1.0	250	970	840	890	300	1300
Cyanide (Total) Low-Level	N	1300	mg/l	0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Cyanide (Free) Low-Level	N	1300	mg/l	0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Sulphide	U	1325	mg/l	0.050	[B] < 0.050	[B] < 0.050	[B] < 0.050	[B] < 0.050	[B] < 0.050	[B] < 0.050
Calcium	U	1455	mg/l	2.00	150	410	280	460	180	420
Magnesium	U	1455	mg/l	0.20	32	57	5.6	41	62	76
Sodium	U	1455	mg/l	1.50	30	40	85	330	160	210
Total Potassium	N	1455	mg/l	0.50	5.0	6.9	8.5	11	3.6	4.0
Total Hardness as CaCO3	U	1270	mg/l	15	500	1300	720	1300	700	1400
Arsenic (Dissolved)	U	1455	µg/l	0.20	1.3	3.3	2.3	1.2	1.2	3.1
Boron (Dissolved)	U	1455	µg/l	10.0	140	93	13	88	72	150
Barium (Dissolved)	U	1455	µg/l	5.00	77	79	79	110	98	55
Beryllium (Dissolved)	U	1455	µg/l	1.00	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cadmium (Dissolved)	U	1455	µg/l	0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11
Chromium (Dissolved)	U	1455	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.62	< 0.50
Copper (Dissolved)	U	1455	µg/l	0.50	< 0.50	< 0.50	3.5	< 0.50	< 0.50	< 0.50
Mercury (Dissolved)	U	1455	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel (Dissolved)	U	1455	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	5.1
Lead (Dissolved)	U	1455	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Selenium (Dissolved)	U	1455	µg/l	0.50	< 0.50	0.67	2.9	< 0.50	1.5	0.69
Vanadium (Dissolved)	U	1455	µg/l	0.50	< 0.50	< 0.50	3.4	< 0.50	< 0.50	< 0.50
Zinc (Dissolved)	U	1455	µg/l	2.5	< 2.5	3.5	< 2.5	< 2.5	< 2.5	< 2.5
Low-Level Chromium (Hexavalent)	U	1495	µg/l	0.10	[B] 2.5	[B] < 0.10	[B] 0.78	[B] 0.35	[B] 3.7	[B] < 0.10
Aliphatic TPH >C5-C6	N	1675	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Aliphatic TPH >C6-C8	N	1675	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Aliphatic TPH >C8-C10	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C10-C12	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C12-C16	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C16-C21	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C21-C35	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C35-C44	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aliphatic Hydrocarbons	N	1675	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C5-C7	N	1675	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Aromatic TPH >C7-C8	N	1675	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Aromatic TPH >C8-C10	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - Water

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-23896	22-23896	22-23896	22-23896	22-23896	22-23896
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1455758	1455759	1455760	1455761	1455762	1455763
			Client Sample ID.:		BH101	BH102	BH103	BH104	BH105	BH106
			Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER
			Date Sampled:		23-Jun-2022	23-Jun-2022	23-Jun-2022	23-Jun-2022	23-Jun-2022	23-Jun-2022
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
Aromatic TPH >C10-C12	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C12-C16	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C16-C21	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C21-C35	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C35-C44	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aromatic Hydrocarbons	N	1675	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Petroleum Hydrocarbons	N	1675	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Dichlorodifluoromethane	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chloromethane	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Vinyl Chloride	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Bromomethane	N	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloroethane	N	1760	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Trichlorofluoromethane	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,1-Dichloroethene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dichloromethane	N	1760	µg/l	50	< 50	< 50	< 50	< 50	< 50	< 50
Trans 1,2-Dichloroethene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,1-Dichloroethane	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
cis 1,2-Dichloroethene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Bromochloromethane	N	1760	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Trichloromethane	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,1,1-Trichloroethane	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Tetrachloromethane	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,1-Dichloropropene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,2-Dichloroethane	N	1760	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Trichloroethene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,2-Dichloropropane	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibromomethane	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Bromodichloromethane	N	1760	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
cis-1,3-Dichloropropene	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Trans-1,3-Dichloropropene	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	N	1760	µg/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Tetrachloroethene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,3-Dichloropropane	N	1760	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Dibromochloromethane	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	N	1760	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Chlorobenzene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,1,1,2-Tetrachloroethane	N	1760	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Ethylbenzene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
m & p-Xylene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - Water

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-23896	22-23896	22-23896	22-23896	22-23896	22-23896
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1455758	1455759	1455760	1455761	1455762	1455763
			Client Sample ID.:		BH101	BH102	BH103	BH104	BH105	BH106
			Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER
			Date Sampled:		23-Jun-2022	23-Jun-2022	23-Jun-2022	23-Jun-2022	23-Jun-2022	23-Jun-2022
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
o-Xylene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Styrene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Tribromomethane	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Bromobenzene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,2,3-Trichloropropane	N	1760	µg/l	5	< 5	< 5	< 5	< 5	< 5	< 5
N-Propylbenzene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
2-Chlorotoluene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,3,5-Trimethylbenzene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
4-Chlorotoluene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Tert-Butylbenzene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,2,4-Trimethylbenzene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Sec-Butylbenzene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,3-Dichlorobenzene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
4-Isopropyltoluene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,4-Dichlorobenzene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
N-Butylbenzene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,2-Dichlorobenzene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,2-Dibromo-3-Chloropropane	N	1760	µg/l	5	< 5	< 5	< 5	< 5	< 5	< 5
1,2,4-Trichlorobenzene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Hexachlorobutadiene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,2,3-Trichlorobenzene	N	1760	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Methyl Tert-Butyl Ether	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
N-Nitrosodimethylamine	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Phenol	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Chlorophenol	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Bis-(2-Chloroethyl)Ether	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,3-Dichlorobenzene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,4-Dichlorobenzene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,2-Dichlorobenzene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Methylphenol (o-Cresol)	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Bis(2-Chloroisopropyl)Ether	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hexachloroethane	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
N-Nitrosodi-n-propylamine	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Methylphenol	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Nitrobenzene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Isophorone	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Nitrophenol	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4-Dimethylphenol	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Bis(2-Chloroethoxy)Methane	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4-Dichlorophenol	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050

Results - Water

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-23896	22-23896	22-23896	22-23896	22-23896	22-23896
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1455758	1455759	1455760	1455761	1455762	1455763
			Client Sample ID.:		BH101	BH102	BH103	BH104	BH105	BH106
			Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER
			Date Sampled:		23-Jun-2022	23-Jun-2022	23-Jun-2022	23-Jun-2022	23-Jun-2022	23-Jun-2022
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
1,2,4-Trichlorobenzene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Naphthalene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Chloroaniline	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hexachlorobutadiene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Chloro-3-Methylphenol	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Methylnaphthalene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hexachlorocyclopentadiene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4,6-Trichlorophenol	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4,5-Trichlorophenol	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Chloronaphthalene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Nitroaniline	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Acenaphthylene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Dimethylphthalate	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,6-Dinitrotoluene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Acenaphthene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
3-Nitroaniline	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Dibenzofuran	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Chlorophenylphenylether	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4-Dinitrotoluene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Fluorene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Diethyl Phthalate	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Nitroaniline	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Methyl-4,6-Dinitrophenol	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Azobenzene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Bromophenylphenyl Ether	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hexachlorobenzene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Pentachlorophenol	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Phenanthrene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Anthracene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Carbazole	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Di-N-Butyl Phthalate	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Fluoranthene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Pyrene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Butylbenzyl Phthalate	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo[a]anthracene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Chrysene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Bis(2-Ethylhexyl)Phthalate	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Di-N-Octyl Phthalate	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo[b]fluoranthene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo[k]fluoranthene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo[a]pyrene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050

Results - Water

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-23896	22-23896	22-23896	22-23896	22-23896	22-23896
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1455758	1455759	1455760	1455761	1455762	1455763
			Client Sample ID.:		BH101	BH102	BH103	BH104	BH105	BH106
			Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER
			Date Sampled:		23-Jun-2022	23-Jun-2022	23-Jun-2022	23-Jun-2022	23-Jun-2022	23-Jun-2022
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
Indeno(1,2,3-c,d)Pyrene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Dibenz(a,h)Anthracene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo[g,h,i]perylene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Nitrophenol	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Naphthalene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Acenaphthylene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Acenaphthene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluorene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Phenanthrene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Anthracene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluoranthene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Pyrene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[a]anthracene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Chrysene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[b]fluoranthene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[k]fluoranthene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[a]pyrene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Indeno(1,2,3-c,d)Pyrene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Dibenz(a,h)Anthracene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[g,h,i]perylene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Of 16 PAH's	N	1800	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
PCB 28	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 52	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 90+101	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 118	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 153	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 138	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 180	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total PCBs (7 congeners)	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Phenol	N	1900	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
2-Chlorophenol	N	1900	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
2-Methylphenol (o-Cresol)	N	1900	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
3-Methylphenol	N	1900	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
4-Methylphenol	N	1900	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
2-Nitrophenol	N	1900	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
2,4-Dimethylphenol	N	1900	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
2,4-Dichlorophenol	N	1900	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
2,6-Dichlorophenol	N	1900	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
4-Chloro-3-Methylphenol	N	1900	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
2,3,4-Trichlorophenol	N	1900	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
2,3,5-Trichlorophenol	N	1900	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20

Results - Water

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult					**Chemtest Job No.:**	22-23896	22-23896	22-23896	22-23896	22-23896
Quotation No.: Q22-27796					**Chemtest Sample ID.:**	1455758	1455759	1455760	1455761	1455762	1455763
					Client Sample ID.:	BH101	BH102	BH103	BH104	BH105	BH106
					Sample Type:	WATER	WATER	WATER	WATER	WATER	WATER
					Date Sampled:	23-Jun-2022	23-Jun-2022	23-Jun-2022	23-Jun-2022	23-Jun-2022	23-Jun-2022
Determinand	**Accred.**	**SOP**	**Units**	**LOD**							
2,3,6-Trichlorophenol	N	1900	µg/l	0.20		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
2,4,6-Trichlorophenol	N	1900	µg/l	0.20		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
2,4,5-Trichlorophenol	N	1900	µg/l	0.20		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
4-Nitrophenol	N	1900	µg/l	0.20		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
2,3,4,5-Tetrachlorophenol	N	1900	µg/l	0.20		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
2,3,4,6-Tetrachlorophenol	N	1900	µg/l	0.20		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
2,3,5,6-Tetrachlorophenol	N	1900	µg/l	0.20		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
3,4,5-Trichlorophenol	N	1900	µg/l	0.20		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
2-Methyl-4,6-Dinitrophenol	N	1900	µg/l	0.20		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Pentachlorophenol	N	1900	µg/l	0.20		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
2-Sec-Butyl-4,6-Dinitrophenol	N	1900	µg/l	0.20		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Total Phenols	N	1900	µg/l	5.00		< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request.The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1455758		BH101		23-Jun-2022	B	Coloured Winchester 1000ml
1455758		BH101		23-Jun-2022	B	EPA Vial 40ml
1455758		BH101		23-Jun-2022	B	Plastic Bottle 1000ml
1455759		BH102		23-Jun-2022	B	Coloured Winchester 1000ml
1455759		BH102		23-Jun-2022	B	EPA Vial 40ml
1455759		BH102		23-Jun-2022	B	Plastic Bottle 1000ml
1455760		BH103		23-Jun-2022	B	Coloured Winchester 1000ml
1455760		BH103		23-Jun-2022	B	EPA Vial 40ml
1455760		BH103		23-Jun-2022	B	Plastic Bottle 1000ml
1455761		BH104		23-Jun-2022	B	Coloured Winchester 1000ml
1455761		BH104		23-Jun-2022	B	EPA Vial 40ml
1455761		BH104		23-Jun-2022	B	Plastic Bottle 1000ml
1455762		BH105		23-Jun-2022	B	Coloured Winchester 1000ml
1455762		BH105		23-Jun-2022	B	EPA Vial 40ml
1455762		BH105		23-Jun-2022	B	Plastic Bottle 1000ml
1455763		BH106		23-Jun-2022	B	Coloured Winchester 1000ml
1455763		BH106		23-Jun-2022	B	EPA Vial 40ml
1455763		BH106		23-Jun-2022	B	Plastic Bottle 1000ml

Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1270	Total Hardness of Waters	Total hardness	Calculation applied to calcium and magnesium results, expressed as mg l-1 CaCO3 equivalent.
1300	Cyanides & Thiocyanate in Waters	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Continuous Flow Analysis.
1325	Sulphide in Waters	Sulphides	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using N,N–dimethyl-pphenylenediamine.
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1490	Hexavalent Chromium in Waters	Chromium [VI]	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
1495	Low Level Hexavalent Chromium in Waters	Chromium [VI]	Colorimetric determination of hexavalent chromium expressed as Cr (VI) µg/l in water, using Ion Chromatography and UV-visible spectrophotometry.
1675	TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG)	Aliphatics: >C5–C6, >C6–C8, >C8– C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Pentane extraction / GCxGC FID detection
1760	Volatile Organic Compounds (VOCs) in Waters by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics. (cf. USEPA Method 8260)	Automated headspace gas chromatographic (GC) analysis of water samples with mass spectrometric (MS) detection of volatile organic compounds.
1790	Semi-Volatile Organic Compounds (SVOCs) in Waters by GC-MS	Semi-volatile organic compounds	Solvent extraction / GCMS detection
1800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-MS	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Pentane extraction / GCMS detection
1815	Polychlorinated Biphenyls (PCB) ICES7 Congeners in Waters by GC-MS	ICES7 PCB congeners	Solvent extraction / GCMS detection
1900	Phenols in Waters by GC-MS	Approximately 24 substituted Phenols, including Chlorophenols	Solvent extraction / GCMS detection

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

Appendix D

Gas Monitoring Results

LK CONSULT LTD

GAS MONITORING RECORD

Site	Building 401, Manchester Airport
Job Number	LKC 22 1225
Date	16/06/2022
Engineer	RP
Visit	1 of 6

Equipment[1]		
Instrument	**Serial Number**	**Comments**
Gas Analyser GA5000	G502417	Serviced, calibrated, gas checked.
Geotech Oil-in-Water Interface Meter	81454-14	Operating normally.
Pho-Check Tiger	T-111324	Serviced, calibrated.

Atmospheric / Ground Conditions	
Atmospheric pressure trend onsite	Steady
Atmospheric pressure (prev 24hrs)	Steady
Weather Conditions	Dry, sunny, warm
Ground Conditions	Dry

Borehole ID	Date & Time	CH_4 (%v/v)	CO_2 (%v/v)	O_2 (%v/v)	Peak CH_4 (%v/v)	Peak CO_2 (%v/v)	Min O_2 (%v/v)	% LEL[2]	Peak CO (ppm)	Peak H_2S (ppm)	Balance (%)	Barometric Pressure (mb)	Relative Pressure (mb)	Internal Flow[3] (l/hr)	PID (ppm)	Standing water level (mbgl)	Installation base depth (mbgl)	Notes
BH101	16/06/2022 11:26	0.0	0.0	16.7	0.0	0.2	16.7	0	1	0	83.3	1011	2.99	0.0	3.2	1.66	3.07	
BH102	16/06/2022 11:47	0.0	0.0	12.6	0.0	0.0	12.6	0	1	0	87.4	1011	2.02	0.0	2.2	1.45	4.46	
BH103	16/06/2022 10:24	0.0	0.1	18.8	0.0	0.1	18.8	0	0	0	81.1	1011	3.06	0.0	1.2	2.48	3.05	
BH104	16/06/2022 00:00	UR - borehole damaged and bung not in top of standpipe														3.79	5.60	Repairs effected
BH105	16/06/2022 12:07	0.0	0.5	20.2	0.0	0.9	19.6	0	1	0	79.3	1011	3.95	0.0	2.0	UR	UR	Unable to GW monitor - borehole driven over and bung stuck
BH106	16/06/2022 11:04	0.0	2.2	11.8	0.6	6.2	1.8	0	1	0	86.0	1011	0.01	0.0	0.9	3.06	4.99	

ABBREVIATIONS	
ND	Not detected
NR	Not recorded
UR	Unable to record
OS	Off recordable scale
N/A	Not applicable
ppm	Parts per million
mb	Millibars
l/hr	Litres per hour
mbgl	Metres below ground level
LEL	Lower explosive limit in air

NOTES

All monitoring is carried out in line with LK Consult Ltd procedures, with reference to CIRIA C665.

[1]Equipment is serviced and checked as recommended by the manufacturer. Refer to calibration records and service certificates.

[2]CH4 is explosive between the range of 5-15%v/v. 100% lower explosive limit is equal to 5%v/v CH4.

[3]Flow readings are based on a 1 minute average value where flow is detected (equipment range of +/- 12 ltr/hr).

LK CONSULT LTD

GAS MONITORING RECORD

Site	Building 401, Manchester Airport
Job Number	LKC 22 1225
Date	23/06/2022
Engineer	RP
Visit	2 of 6

Equipment[1]		
Instrument	**Serial Number**	**Comments**
Gas Analyser GA5000	G502417	Serviced, calibrated, gas checked.
Geotech Oil-in-Water Interface Meter	81454-14	Operating normally.
Pho-Check Tiger	T-111324	Serviced, calibrated.

Atmospheric / Ground Conditions	
Atmospheric pressure trend onsite	Variable
Atmospheric pressure (prev 24hrs)	Falling
Weather Conditions	Dry, sunny, slight breeze
Ground Conditions	Dry

Borehole ID	Date & Time	CH_4 (%v/v)	CO_2 (%v/v)	O_2 (%v/v)	Peak CH_4 (%v/v)	Peak CO_2 (%v/v)	Min O_2 (%v/v)	% LEL[2]	Peak CO (ppm)	Peak H_2S (ppm)	Balance (%)	Barometric Pressure (mb)	Relative Pressure (mb)	Internal Flow[3] (l/hr)	PID (ppm)	Standing water level (mbgl)	Installation base depth (mbgl)	Notes
BH101	23/06/2022 11:12	0.0	0.0	16.1	0.2	0.7	15.9	0	5	0	83.9	1004	-1.96	0.0	3.4	1.70	3.08	Steady CO = 1ppm.
BH102	23/06/2022 09:26	0.0	0.1	17.3	0.0	0.2	17.3	0	2	0	82.6	1004	0.09	-0.1	3.0	1.44	4.30	Steady CO = 1ppm.
BH103	23/06/2022 09:47	0.0	0.2	18.9	0.0	0.2	18.8	0	3	0	80.9	1005	-12.13	0.0	1.6	2.35	3.08	Steady CO = 0ppm.
BH104	23/06/2022 10:08	0.0	0.1	20.2	0.0	0.1	19.7	0	4	0	79.7	1005	-11.92	0.0	1.6	3.80	5.70	Steady CO = 1ppm.
BH105	23/06/2022 10:31	0.0	0.4	20.3	0.0	0.9	19.9	0	6	0	79.3	1005	-12.16	0.0	3.3	3.37	6.76	Extracted bung and replaced with new bung. Steady CO = 1ppm.
BH106	23/06/2022 10:50	0.7	4.8	10.1	2.5	10.4	0.8	14	6	0	84.4	1004	-7.36	0.0	1.5	3.14	4.94	Steady CO = 1ppm.

ABBREVIATIONS	
ND	Not detected
NR	Not recorded
UR	Unable to record
OS	Off recordable scale
N/A	Not applicable
ppm	Parts per million
mb	Millibars
l/hr	Litres per hour
mbgl	Metres below ground level
LEL	Lower explosive limit in air

NOTES

All monitoring is carried out in line with LK Consult Ltd procedures, with reference to CIRIA C665.

[1]Equipment is serviced and checked as recommended by the manufacturer. Refer to calibration records and service certificates.

[2]CH4 is explosive between the range of 5-15%v/v. 100% lower explosive limit is equal to 5%v/v CH4.

[3]Flow readings are based on a 1 minute average value where flow is detected (equipment range of +/- 12 ltr/hr).

LK CONSULT LTD

GAS MONITORING RECORD

Site	Building 401, Manchester Airport
Job Number	LKC 22 1225
Date	30/06/2022
Engineer	RP
Visit	3 of 6

Equipment[1]		
Instrument	**Serial Number**	**Comments**
Gas Analyser GA5000	G502417	Serviced, calibrated, gas checked.
Geotech Oil-in-Water Interface Meter	81454-14	Operating normally.
Pho-Check Tiger	T-111324	Serviced, calibrated.

Atmospheric / Ground Conditions	
Atmospheric pressure trend onsite	Rising
Atmospheric pressure (prev 24hrs)	Falling then rising
Weather Conditions	Showery, breezy, partly cloudy
Ground Conditions	Damp

Borehole ID	Date & Time	CH_4 (%v/v)	CO_2 (%v/v)	O_2 (%v/v)	Peak CH_4 (%v/v)	Peak CO_2 (%v/v)	Min O_2 (%v/v)	% LEL[2]	Peak CO (ppm)	Peak H_2S (ppm)	Balance (%)	Barometric Pressure (mb)	Relative Pressure (mb)	Internal Flow[3] (l/hr)	PID (ppm)	Standing water level (mbgl)	Installation base depth (mbgl)	Notes
BH101	30/06/2022 10:34	0.0	0.0	16.6	0.0	0.1	16.6	0	1	0	83.4	1004	-5.00	0.0	2.5	1.70	3.05	Steady CO = 0ppm.
BH102	30/06/2022 09:03	0.0	0.1	18.0	0.0	0.2	18.0	0	3	0	81.9	1004	-0.16	0.0	1.8	1.57	4.36	Steady CO = 2ppm.
BH103	30/06/2022 09:20	0.0	0.1	19.4	0.0	0.2	19.4	0	2	0	80.5	1004	-0.05	-0.1	1.1	2.49	3.06	Steady CO = 0ppm.
BH104	30/06/2022 09:51	0.0	1.7	17.2	0.0	1.7	17.2	0	1	0	81.1	1004	-1.31	0.4	1.6	3.66	5.68	Flow initially 7.5, gradually falling to 1.8 after 3 mins, steady at 0.4 after 10 mins
BH105	30/06/2022 10:12	0.0	0.2	21.0	0.0	0.7	20.4	0	3	0	78.8	1004	-7.64	0.0	1.7	3.39	6.67	Steady CO = 0ppm.
BH106	30/06/2022 10:59	0.8	4.3	10.8	2.9	12.1	0.5	16	2	0	84.1	1005	-5.30	0.9	1.4	3.14	4.94	Peak flow = 1.2l/hr. Steady CO = 0ppm.

ABBREVIATIONS	
ND	Not detected
NR	Not recorded
UR	Unable to record
OS	Off recordable scale
N/A	Not applicable
ppm	Parts per million
mb	Millibars
l/hr	Litres per hour
mbgl	Metres below ground level
LEL	Lower explosive limit in air

NOTES

All monitoring is carried out in line with LK Consult Ltd procedures, with reference to CIRIA C665.

[1]Equipment is serviced and checked as recommended by the manufacturer. Refer to calibration records and service certificates.

[2]CH4 is explosive between the range of 5-15%v/v. 100% lower explosive limit is equal to 5%v/v CH4.

[3]Flow readings are based on a 1 minute average value where flow is detected (equipment range of +/- 12 ltr/hr).

LK CONSULT LTD

GAS MONITORING RECORD

Site	Building 401, Manchester Airport
Job Number	LKC 22 1225
Date	07/07/2022
Engineer	RP
Visit	4 of 6

Equipment[1]		
Instrument	**Serial Number**	**Comments**
Gas Analyser GA5000	G502417	Serviced, calibrated, gas checked.
Geotech Oil-in-Water Interface Meter	81454-14	Operating normally.
Pho-Check Tiger	T-111324	Serviced, calibrated.

Atmospheric / Ground Conditions	
Atmospheric pressure trend onsite	Rising
Atmospheric pressure (prev 24hrs)	Falling then rising
Weather Conditions	Overcast, breezy, dry
Ground Conditions	Dry

Borehole ID	**Date & Time**	**CH_4 (%v/v)**	**CO_2 (%v/v)**	**O_2 (%v/v)**	**Peak CH_4 (%v/v)**	**Peak CO_2 (%v/v)**	**Min O_2 (%v/v)**	**% LEL[2]**	**Peak CO (ppm)**	**Peak H_2S (ppm)**	**Balance (%)**	**Barometric Pressure (mb)**	**Relative Pressure (mb)**	**Internal Flow[3] (l/hr)**	**PID (ppm)**	**Standing water level (mbgl)**	**Installation base depth (mbgl)**	**Notes**
BH101	07/07/2022 10:45	0.0	0.0	17.8	0.0	0.3	17.4	0	1	0	82.2	1024	-6.20	0.0	3.0	1.43	3.03	Steady CO = 0ppm.
BH102	07/07/2022 08:57	0.0	0.1	19.3	0.0	0.2	18.8	0	1	0	80.6	1023	-4.18	0.0	1.6	1.55	4.36	
BH103	07/07/2022 09:15	0.0	0.1	18.4	0.0	0.2	18.4	0	0	0	81.5	1023	-5.31	0.0	0.8	2.39	3.06	
BH104	07/07/2022 09:36	0.0	3.9	12.8	0.0	3.9	12.8	0	2	0	83.3	1023	-8.90	-0.1	2.2	3.65	5.68	Steady CO = 1ppm.
BH105	07/07/2022 09:56	0.0	0.2	20.7	0.0	0.7	20.4	0	3	0	79.1	1024	-7.84	-0.1	2.1	3.50	6.73	Steady CO = 0ppm.
BH106	07/07/2022 10:22	0.4	1.5	17.2	2.4	3.8	4.1	8	1	0	80.9	1024	-6.76	-1.0	0.9	3.21	4.93	Flow initially -3.3, -1.7 after 3 mins, -1.3 after 5 mins, steady at -1.0 at 10 mins. Steady CO = 1ppm.

ABBREVIATIONS	
ND	Not detected
NR	Not recorded
UR	Unable to record
OS	Off recordable scale
N/A	Not applicable
ppm	Parts per million
mb	Millibars
l/hr	Litres per hour
mbgl	Metres below ground level
LEL	Lower explosive limit in air

NOTES

All monitoring is carried out in line with LK Consult Ltd procedures, with reference to CIRIA C665.

[1]Equipment is serviced and checked as recommended by the manufacturer. Refer to calibration records and service certificates.

[2]CH4 is explosive between the range of 5-15%v/v. 100% lower explosive limit is equal to 5%v/v CH4.

[3]Flow readings are based on a 1 minute average value where flow is detected (equipment range of +/- 12 ltr/hr).

LK CONSULT LTD

GAS MONITORING RECORD

Site	Building 401, Manchester Airport
Job Number	LKC 22 1225
Date	14/07/2022
Engineer	RP
Visit	5 of 6

Equipment[1]		
Instrument	**Serial Number**	**Comments**
Gas Analyser GA5000	G502417	Serviced, calibrated, gas checked.
Geotech Oil-in-Water Interface Meter	81454-14	Operating normally.
Pho-Check Tiger	T-111324	Serviced, calibrated.

Atmospheric / Ground Conditions	
Atmospheric pressure trend onsite	Rising
Atmospheric pressure (prev 24hrs)	Rising
Weather Conditions	Overcast, windy, dry
Ground Conditions	Dry

Borehole ID	Date & Time	CH_4 (%v/v)	CO_2 (%v/v)	O_2 (%v/v)	Peak CH_4 (%v/v)	Peak CO_2 (%v/v)	Min O_2 (%v/v)	% LEL[2]	Peak CO (ppm)	Peak H_2S (ppm)	Balance (%)	Barometric Pressure (mb)	Relative Pressure (mb)	Internal Flow[3] (l/hr)	PID (ppm)	Standing water level (mbgl)	Installation base depth (mbgl)	Notes
BH101	14/07/2022 13:21	0.0	0.0	17.1	0.0	0.1	17.1	0	2	0	82.9	1018	-6.76	0.0	4.2	1.44	3.01	Steady CO = 1ppm.
BH102	14/07/2022 11:54	0.0	0.1	18.9	0.0	0.3	18.5	0	2	0	81	1018	-5.23	0.0	1.5	1.60	4.35	Steady CO = 1ppm.
BH103	14/07/2022 12:13	0.0	0.2	18.6	0.0	0.2	18.5	0	2	0	81.2	1018	-6.65	0.0	1.3	2.34	3.06	Steady CO = 0ppm.
BH104	14/07/2022 12:38	0.0	4.7	11.8	0.0	4.7	11.8	0	4	0	83.5	1019	-5.84	-0.1	2.5	3.57	5.55	CO_2 steadily rising from 3mins, steady after 8mins. Steady CO = 2ppm.
BH105	14/07/2022 12:58	0.0	0.2	20.8	0.0	0.8	20.3	0	7	0	79	1019	-6.87	0.0	2.8	3.42	6.70	Well cover driven over. Bung pushed into standpipe, bung extracted and repaired. Steady CO = 0ppm.
BH106	14/07/2022 13:46	0.2	1.7	17.3	2.3	6.2	0.4	4	2	0	80.8	1019	-6.92	0.2	1.3	3.17	4.95	Flow +0.7l/hr after 3mins, 0.2l/hr after 5mins, steady at 0.2l/hr. Peak gas reading noted after 30sec, gradually reducing after 1min 30sec, steady after 4mins. Steady CO = 0ppm.

ABBREVIATIONS	
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N/A	Not applicable
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l/hr	Litres per hour
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NOTES

All monitoring is carried out in line with LK Consult Ltd procedures, with reference to CIRIA C665.

[1]Equipment is serviced and checked as recommended by the manufacturer. Refer to calibration records and service certificates.

[2]CH4 is explosive between the range of 5-15%v/v. 100% lower explosive limit is equal to 5%v/v CH4.

[3]Flow readings are based on a 1 minute average value where flow is detected (equipment range of +/- 12 ltr/hr).

LK CONSULT LTD

GAS MONITORING RECORD

Site	Building 401, Manchester Airport
Job Number	LKC 22 1225
Date	20/07/2022
Engineer	RP
Visit	6 of 6

Equipment[1]		
Instrument	**Serial Number**	**Comments**
Gas Analyser GA5000	G502417	Serviced, calibrated, gas checked.
Geotech Oil-in-Water Interface Meter	81454-14	Operating normally.
Pho-Check Tiger	T-106802	Serviced, calibrated.

Atmospheric / Ground Conditions	
Atmospheric pressure trend onsite	Rising
Atmospheric pressure (prev 24hrs)	Rising
Weather Conditions	Overcast, breezy, dry, mild
Ground Conditions	Dry

Borehole ID	Date & Time	CH_4 (%v/v)	CO_2 (%v/v)	O_2 (%v/v)	Peak CH_4 (%v/v)	Peak CO_2 (%v/v)	Min O_2 (%v/v)	% LEL[2]	Peak CO (ppm)	Peak H_2S (ppm)	Balance (%)	Barometric Pressure (mb)	Relative Pressure (mb)	Internal Flow[3] (l/hr)	PID (ppm)	Standing water level (mbgl)	Installation base depth (mbgl)	Notes
BH101	20/07/2022 10:27	0.0	0.0	17.1	0.0	0.7	17.1	0	2	0	82.9	1009	-6.78	0.0	2.0	1.61	3.02	Steady CO = 1ppm
BH102	20/07/2022 09:29	0.0	0.1	18.7	0.0	0.2	18.3	0	2	0	81.2	1008	-4.50	0.0	1.7	1.64	4.40	
BH103	20/07/2022 09:52	0.0	0.2	19.2	0.0	0.3	19.0	0	2	0	80.6	1009	-3.04	0.0	1.3	2.31	3.03	Steady CO = 0ppm
BH104	20/07/2022 10:08	0.0	5.9	9.1	0.0	5.9	8.8	0	4	0	85	1009	-4.32	0.0	1.8	3.44	5.66	Steady CO = 2ppm
BH105	20/07/2022 11:18	0.0	0.1	19.8	0.0	0.8	19.7	0	11	0	80.1	1010	-7.66	0.0	1.8	3.35	6.70	Steady CO = 1ppm
BH106	20/07/2022 10:59	0.3	2.2	15.8	2.5	4.8	0.4	6	2	0	81.7	1009	2.21	2.6	0.3	3.10	4.95	Steady CO = 0ppm, Steady flow = 0.8 l/hr after 8 minutes.

ABBREVIATIONS	
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UR	Unable to record
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N/A	Not applicable
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l/hr	Litres per hour
mbgl	Metres below ground level
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NOTES

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[1]Equipment is serviced and checked as recommended by the manufacturer. Refer to calibration records and service certificates.

[2]CH4 is explosive between the range of 5-15%v/v. 100% lower explosive limit is equal to 5%v/v CH4.

[3]Flow readings are based on a 1 minute average value where flow is detected (equipment range of +/- 12 ltr/hr).

Appendix E

Certificate of Analysis – Geotechnical

TEST AMENDMENT NOTICE

PSL
Professional Soils Laboratory

(Please tick boxes as appropriate)

From: Bradley Harmer

To: Rachel Peart

Date: 18 / 07 /2022

Laboratory Ref: 4389 + PSL 4391

Contract Number:

Location:

☑ BH ○ TP Sample Number 106

Depth (m): 8.50 - 10.0 / 10.0 - 11.50 4389 / 11.50 - 13.00 / 13.0 - 14.50

Sample Type: ○ U ○ B ☑ D ○ W ○ P ☑ C

Test/s: UCS

10.00 - 11.50 4391

17.00 - 18.50

The above sample cannot be tested for the following reasons:

- ☐ The Sample has not been received
- ☐ There is insufficient material for BS1377: 1990 testing
  - Maximum Grain Size (Minimum 10%): ○ Fine ○ Medium ○ Coarse
  - Sample Mass (kg): .....
  - Required Mass (kg): .....
- ☐ The Sample has been previously tested.
- ☐ The Sample has been misplaced in the Laboratory.
- ☑ The Sample is unsuitable for testing because: insufficient material suitable for UCS. PLT carried out.

Please advise action required:

- ☐ Perform original test on the following alternative Sample:
  - ○ BH ○ TP Sample Number: Depth (m):
  - Sample Type: ○ U ○ B ○ D ○ W ○ P ○ C
- ☐ Combine original Sample with the following sample:
  - ○ BH ○ TP Sample Number: Depth (m):
  - Sample Type: ○ U ○ B ○ D ○ W ○ P ○ C
- ☐ Perform the following alternative test/s on the original Sample
- ☐ Perform non-standard test on material available
- ☐ Take no further action.

Signed ..... Date .....
(Project Engineer)

LABORATORY REPORT

4043

Contract Number: PSL22/4388

Report Date: 20 July 2022

Client's Reference: LKC 22 1225

Client Name: LK Group
Eton Business Park
Eton Hill Road
Manchester
M26 2ZS

For the attention of: Rachel Peart

Contract Title: B401 Manchester Airport

Date Received: 29/6/2022
Date Commenced: 29/6/2022
Date Completed: 19/7/2022

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins (Director)
R Berriman (Quality Manager)
S Royle (Laboratory Manager)
L Knight (Senior Technician)
S Eyre (Senior Technician)
T Watkins (Senior Technician)

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SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
BH101		B	1.50		Brown slightly gravelly very sandy CLAY.
BH101		UT	2.00	2.45	Stiff brown slightly gravelly very sandy CLAY.
BH101		S	3.00	3.45	Brown sandy CLAY.
BH101		S	4.00	4.45	Reddish brown sandy CLAY.
BH101		S	4.50	4.95	Reddish brown sandy CLAY.

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m^3 Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
BH101		B	1.50		16			25	15	10	89	Low Plasticity CL
BH101		UT	2.00	2.45	16							
BH101		S	3.00	3.45	17			39	19	20	100	Intermediate Plasticity CI
BH101		S	4.00	4.45	13			38	19	19	100	Intermediate Plasticity CI
BH101		S	4.50	4.95	15			38	18	20	100	Intermediate Plasticity CI
BH101		-	4.50	5.50	4.8							
BH101		-	5.50	7.00	7.9							
BH101		-	8.50	10.00	7.2							

SYMBOLS : **NP : Non Plastic** *** : Liquid Limit and Plastic Limit Wet Sieved.**

UKAS TESTING 4043

PSL Professional Soils Laboratory

B401 Manchester Airport

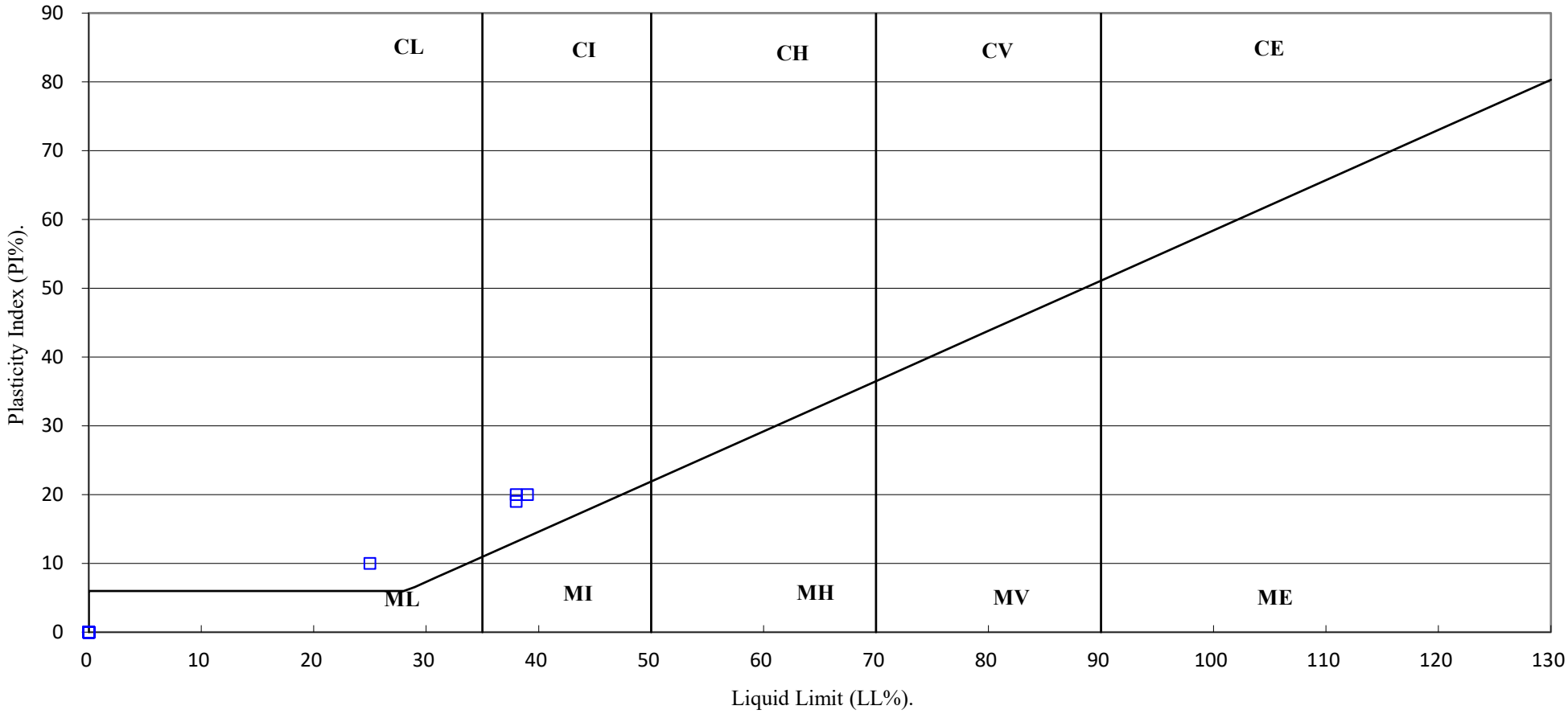
Contract No:

PSL22/4388

Client Ref:

LKC 22 1225

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



UKAS TESTING 4043	PSL Professional Soils Laboratory	B401 Manchester Airport	Contract No: PSL22/4388 Client Ref: LKC 22 1225

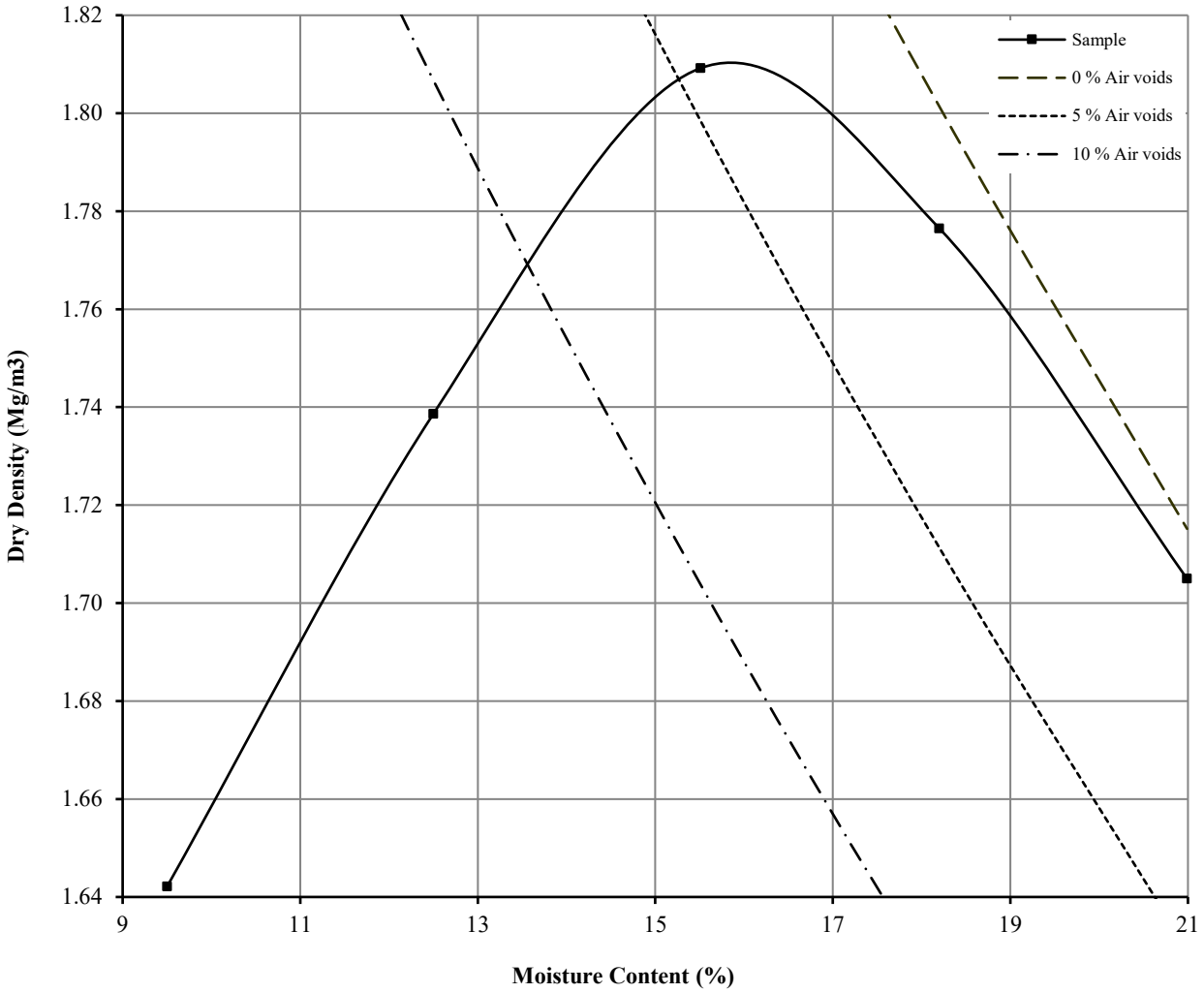
DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.3 : 1990

Hole Number: BH101 **Top Depth (m) :** 1.50

Sample Number: **Base Depth (m) :**

Sample Type: B



Initial Moisture Content:		16	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m3):	2.68	Assumed	Material Retained on 37.5 mm Test Sieve (%):		0
Maximum Dry Density (Mg/m3):		1.81	Material Retained on 20.0 mm Test Sieve (%):		0
Optimum Moisture Content (%):		16			
Remarks See summary of soil descriptions					

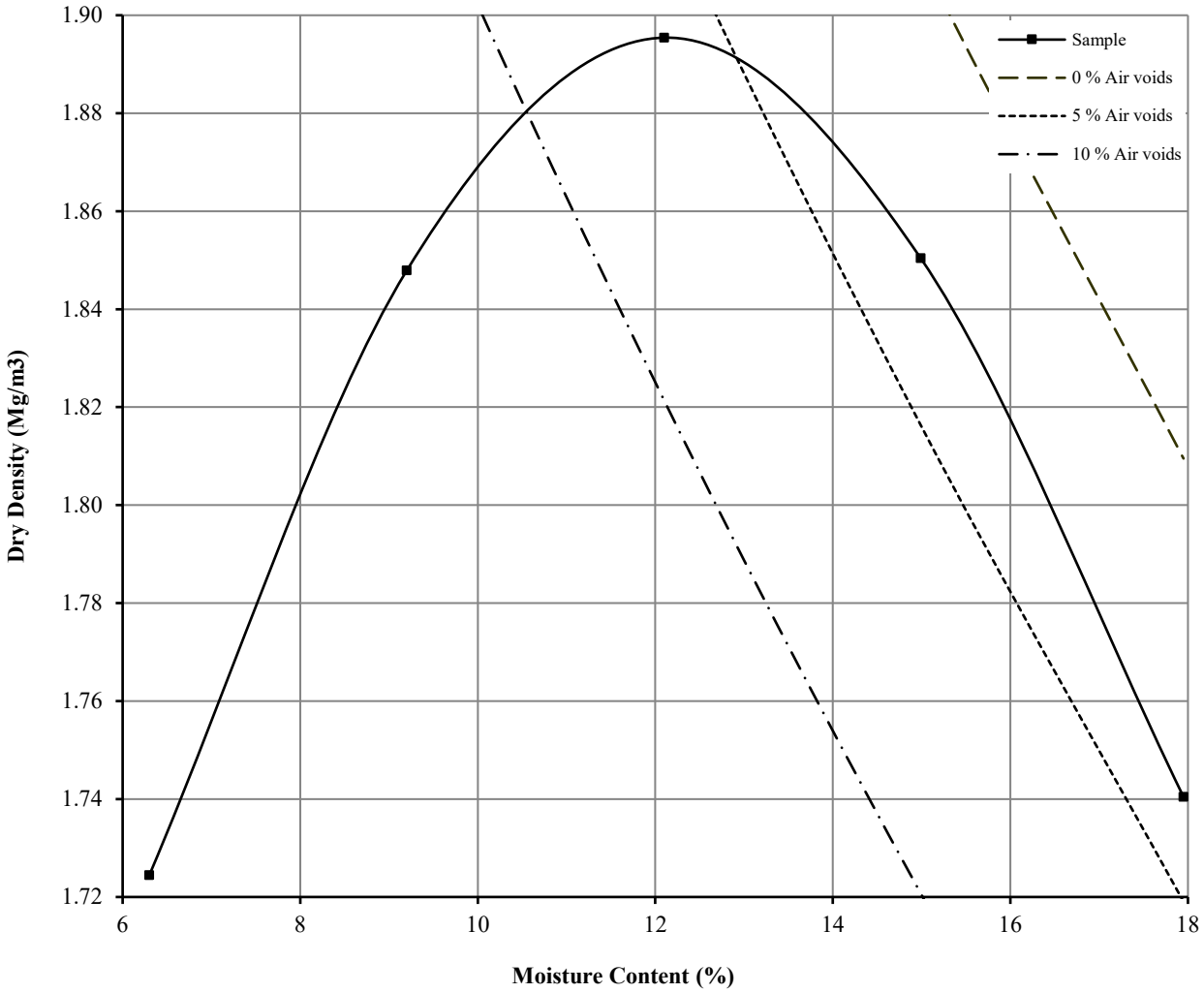
DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.5 : 1990

Hole Number: BH101 **Top Depth (m) :** 1.50

Sample Number: **Base Depth (m) :**

Sample Type: B



Initial Moisture Content:		16	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m3):	2.68	Assumed	Material Retained on 37.5 mm Test Sieve (%):		0
Maximum Dry Density (Mg/m3):		1.90	Material Retained on 20.0 mm Test Sieve (%):		0
Optimum Moisture Content (%):		12			
Remarks See summary of soil descriptions					

PARTICLE SIZE DISTRIBUTION TEST

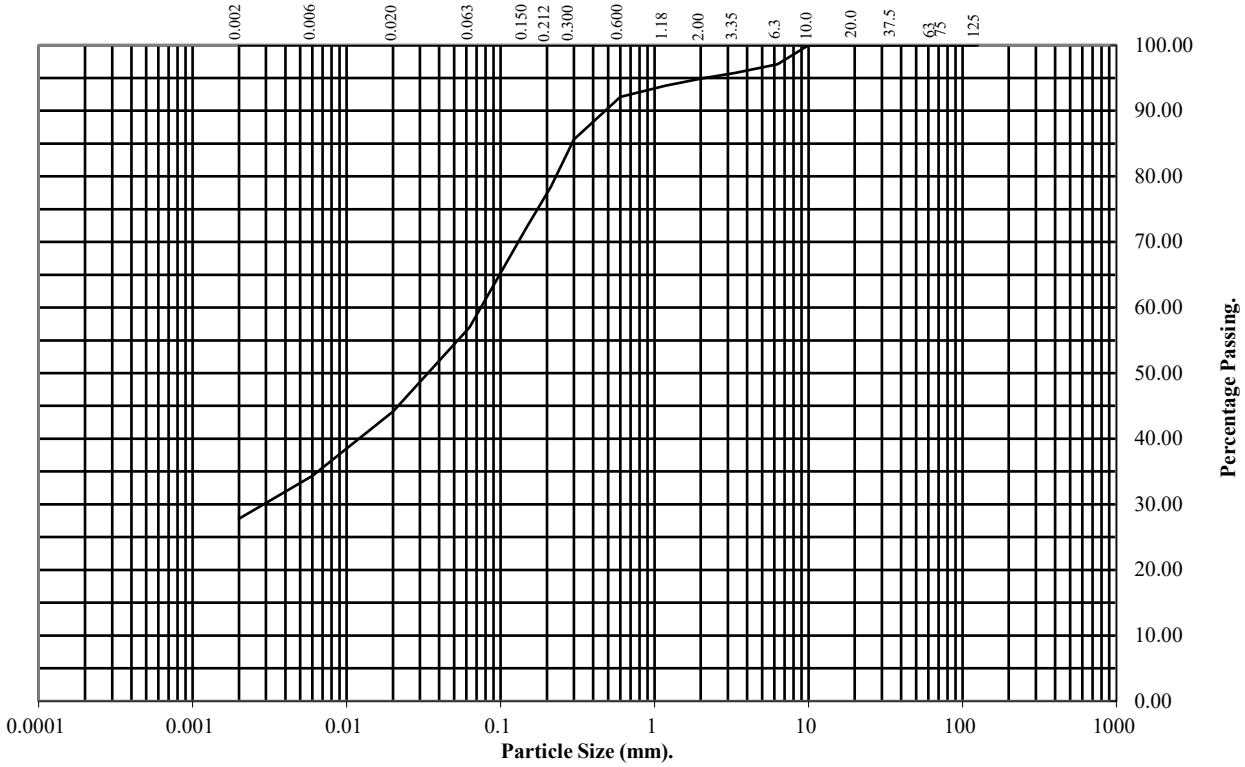
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **BH101** **Top Depth (m):** **1.50**

Sample Number: **Base Depth(m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	97
3.35	96
2	95
1.18	94
0.6	92
0.3	86
0.212	78
0.15	72
0.063	57

Particle Diameter	Percentage Passing
0.02	44
0.006	34
0.002	28

Soil Fraction	Total Percentage
Cobbles	0
Gravel	5
Sand	38
Silt	29
Clay	28

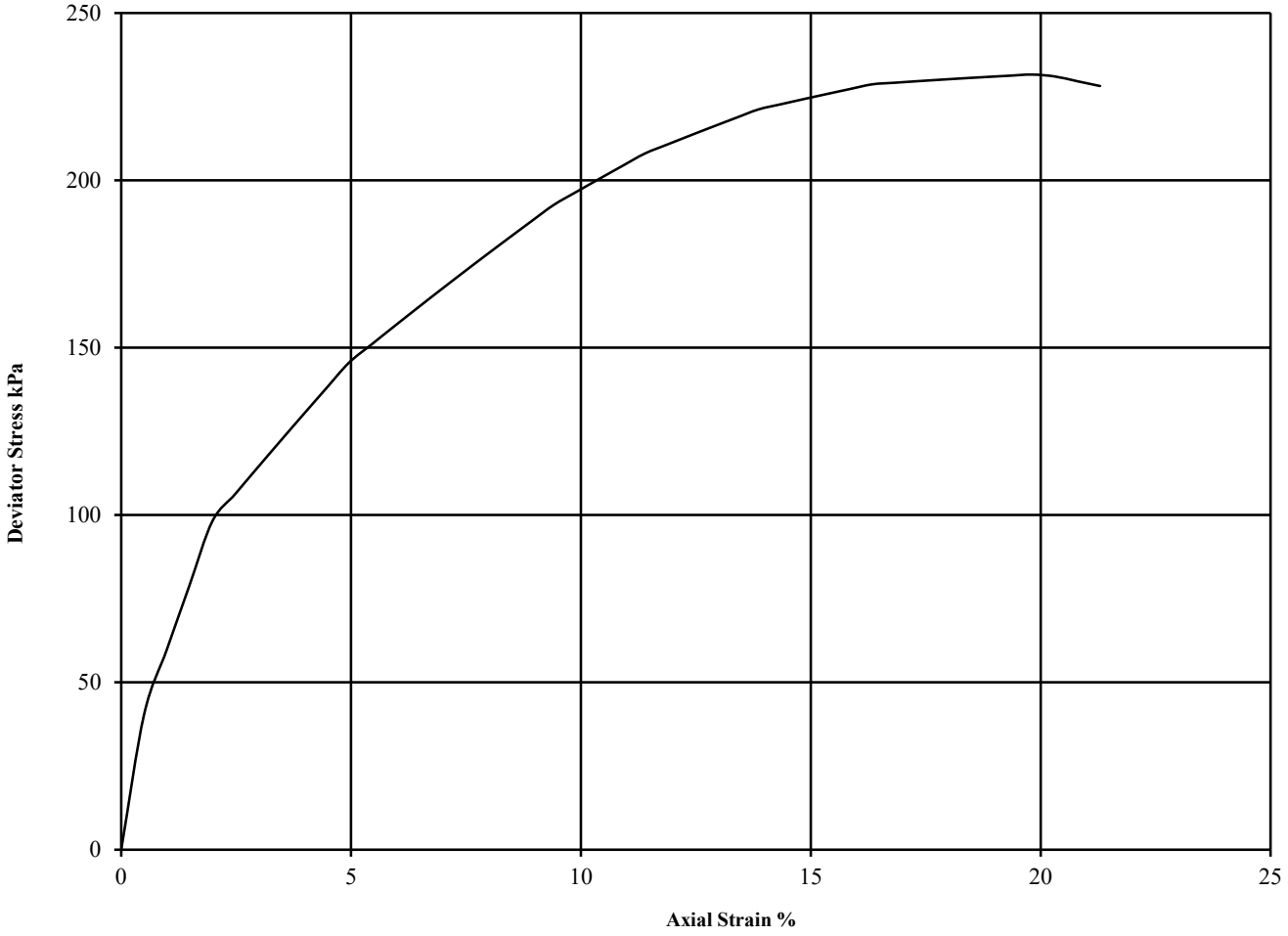
Remarks:
See Summary of Soil Descriptions

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

Hole Number:	**BH101**	**Top Depth (m):**	**2.00**
Sample Number:		**Base Depth (m):**	**2.45**
Sample Type	**UT**		



Diameter (mm):		102	Height (mm):		206	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa) θ_3	Corr. Max. Deviator Stress (kPa) $(\theta_1-\theta_3)_f$	Shear Strength Cu (kPa) $^1/_2(\theta_1-\theta_3)_f$	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.33
1	16	2.16	1.87	40	232	116	19.8	Plastic	See summary of soil descriptions

UKAS TESTING 4043	PSL Professional Soils Laboratory	**B401 Manchester Airport**	**Contract No:** PSL22/4388 **Client Ref:** LKC 22 1225

SUMMARY OF SOIL DENSITY RELATED TESTS

(BS1377 : PART 2 & 4 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content %	Bulk Density Mg/m^3	Dry Density Mg/m^3	Retained 20mm %	Retained 37.5mm %	Method of compaction kg	Maximum Dry Density Mg/m^3	Minimum Dry Density Mg/m^3	Remarks
BH101		UT	2.00	2.45	16	2.16	1.87						

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Type	Test Type	Orientation	Dimensions (mm)		Area	D_e^2	D_e	Failure Load (P)		I_s	Corr Fac	I_{s50}	Failure Type	Remarks
				Par / Perp	W	D	(mm2)		(mm)	(Mpa)	(kN)	(MPa)	F	(MPa)		
BH101	4.50		I	Perp	80	25	2000	2546.48	50.46	-	0.24	0.09	1.004	0.09	Valid	
BH101	4.50		I	Perp	38	25	950	1209.58	34.78	-	0.30	0.25	0.849	0.21	Valid	
BH101	4.50		I	Perp	42	26	1092	1390.38	37.29	-	0.21	0.15	0.876	0.13	Valid	
BH101	5.50		I	Perp	55	27	1485	1890.76	43.48	-	0.47	0.25	0.939	0.23	Valid	
BH101	5.50		I	Perp	37	30	1110	1413.30	37.59	-	0.50	0.35	0.880	0.31	Valid	
BH101	5.50		I	Perp	33	23	759	966.39	31.09	-	0.37	0.38	0.807	0.31	Valid	
BH101	8.50		I	Perp	50	25	1250	1591.55	39.89	-	0.30	0.19	0.903	0.17	Valid	
BH101	8.50		I	Perp	30	24	720	916.73	30.28	-	0.22	0.24	0.798	0.19	Valid	
BH101	8.50		I	Perp	40	30	1200	1527.89	39.09	-	0.33	0.22	0.895	0.19	Valid	
BH101	20.50		I	Perp	61	41	2501	3184.37	56.43	-	0.41	0.13	1.056	0.14	Valid	
BH101	20.50		I	Perp	55	46	2530	3221.30	56.76	-	0.37	0.11	1.059	0.12	Valid	
BH101	20.50		I	Perp	34	30	1020	1298.70	36.04	-	0.24	0.18	0.863	0.16	Valid	

Note All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

UKAS TESTING 4043

PSL Professional Soils Laboratory

B401 Manchester Airport

Contract No:

PSL22/4388

Client Ref:

LKC 22 1225

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation	Dimensions (mm)		D_e^2	D_e	Failure Load		I_s	Corr Fac	I_{s50}	Failure Type	Remarks
				Par / Perp	L	D		(mm)	(Mpa)	(kN)	(MPa)	F	(MPa)		

Note All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

UKAS TESTING 4043	PSL Professional Soils Laboratory	**B401 Manchester Airport**	**Contract No:**
			PSL22/4388
			Client Ref:
			LKC 22 1225

UKAS TESTING
2531

CHEMTECH environmental part of Cawood

ANALYTICAL TEST REPORT

Contract no: 111174

Contract name: B401 Manchester Airport

Client reference: PSL22/4388

Clients name: Professional Soils Laboratory

Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 06 July 2022

Analysis started: 06 July 2022

Analysis completed: 13 July 2022

Report issued: 13 July 2022

Key

U	UKAS accredited test
M	MCERTS & UKAS accredited test
$	Test carried out by an approved subcontractor
I/S	Insufficient sample to carry out test
N/S	Sample not suitable for testing

Approved by: M. Harris

Megan Harris

Senior Reporting Administrator

Chemtech Environmental Limited

SOILS

Lab number			111174-1	111174-2	111174-3	111174-4
Sample id			BH101	BH101	BH101	BH101
Depth (m)			1.50	4.50-5.50	8.50-10.00	20.50-22.00
Sample Type			B	RC	RC	RC
Date sampled			-	-	-	-
Test	**Method**	**Units**				
pH	CE004 [U]	units	8.2	8.2	8.2	8.3
Magnesium (2:1 water soluble)	CE061	mg/l Mg	47	58	85	96
Chloride (2:1 water soluble)	CE049 [U]	mg/l Cl	9.7	7.1	5.4	18
Nitrate (2:1 water soluble)	CE049 [U]	mg/l NO_3	<1	<1	<1	<1
Sulphate (2:1 water soluble)	CE061 [U]	mg/l SO_4	1761	1797	1944	2012
Sulphate (total)	CE062 [U]	mg/kg SO_4	10116	11370	113897	31478
Sulphur (total)	CE119	mg/kg S	3663	4290	49813	10955
Sulphur (total)	CE119	% w/w S	0.37	0.43	4.98	1.10

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO_3
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry	U	10	mg/l SO_4
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry	U	100	mg/kg SO_4
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key

N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
111174-1	BH101	1.50	Y	All (NSD)
111174-2	BH101	4.50-5.50	Y	All (NSD)
111174-3	BH101	8.50-10.00	Y	All (NSD)
111174-4	BH101	20.50-22.00	Y	All (NSD)

Chemtech Environmental Limited

ADDITIONAL INFORMATION

Notes

Opinions and interpretations expressed herein are outside the UKAS accreditation scope.

Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.

All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.

Methods, procedures and performance data are available on request.

Results reported herein relate only to the material supplied to the laboratory.

This report shall not be reproduced except in full, without prior written approval.

Samples will be disposed of 4 weeks from initial receipt unless otherwise instructed.

For soils and solids, all results are reported on a dry basis. Samples dried at no more than 30°C in a drying cabinet.

Analytical results are inclusive of stones, where applicable.

LABORATORY REPORT

4043

Contract Number: PSL22/4387

Report Date: 20 July 2022

Client's Reference: LKC 22 1225

Client Name: LK Group
Eton Business Park
Eton Hill Road
Manchester
M26 2ZS

For the attention of: Rachel Peart

Contract Title: B401 Manchester Airport

Date Received: 29/6/2022
Date Commenced: 29/6/2022
Date Completed: 20/07/2022

Notes: **Opinions and Interpretations are outside the UKAS Accreditation**

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins (Director)
R Berriman (Quality Manager)
S Royle (Laboratory Manager)

L Knight (Assistant Laboratory Manager)
S Eyre (Senior Technician)
M Fennell (Senior Technician)

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SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
BH102		UT	1.20	1.65	Very stiff brown slightly gravelly sandy CLAY.
BH102		B	2.00	2.45	Brown slightly gravelly very sandy CLAY.
BH102		S	2.00	2.45	Brown slightly gravelly very sandy CLAY.
BH102		UT	3.00	3.45	Firm brown gravelly very sandy CLAY.
BH102		S	4.00	4.45	Brown slightly gravelly very sandy CLAY.

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m^3 Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
BH102		UT	1.20	1.65	18							
BH102		S	2.00	2.45	11			26	12	14	96	Low Plasticity CL
BH102		UT	3.00	3.45	14							
BH102		S	4.00	4.45	23			47	23	24	97	Intermediate Plasticity CI
BH102		RC	8.00	9.50	2.4							
BH102		RC	9.50	11.00	7.4							
BH102		RC	14.00	15.50	8.0							
BH102		RC	20.00	21.30	8.8							

SYMBOLS : **NP : Non Plastic** *** : Liquid Limit and Plastic Limit Wet Sieved.**

UKAS TESTING 4043

PSL Professional Soils Laboratory

B401 Manchester Airport

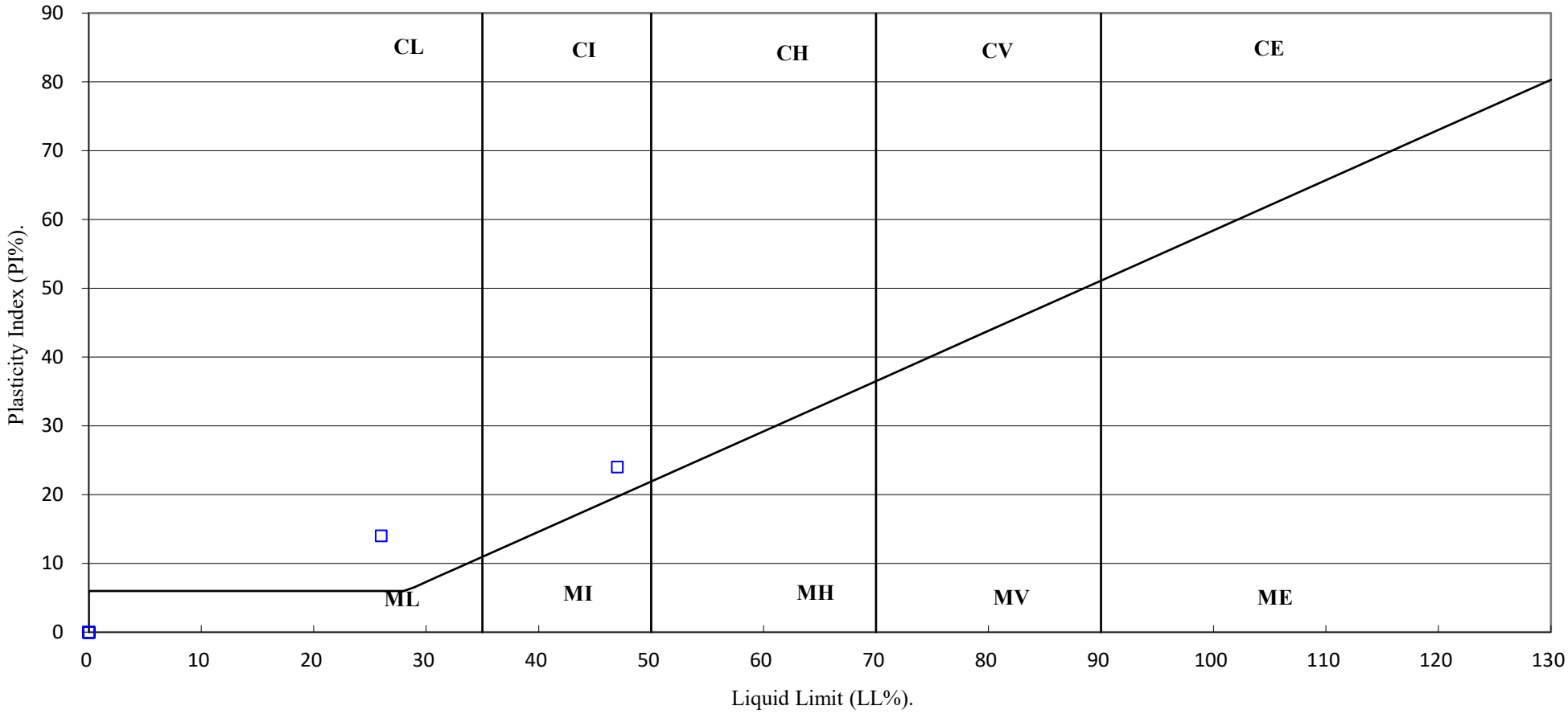
Contract No:

PSL22/4387

Client Ref:

LKC 22 1225

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



UKAS TESTING 4043	PSL Professional Soils Laboratory	B401 Manchester Airport	Contract No: PSL22/4387 Client Ref: LKC 22 1225

SUMMARY OF SOIL DENSITY RELATED TESTS

(BS1377 : PART 2 & 4 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content %	Bulk Density Mg/m^3	Dry Density Mg/m^3	Retained 20mm %	Retained 37.5mm %	Method of compaction kg	Maximum Dry Density Mg/m^3	Minimum Dry Density Mg/m^3	Remarks
BH102		UT	1.20	1.65	18.0	2.10	1.79						
BH102		UT	3.00	3.45	14	2.14	1.88						

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

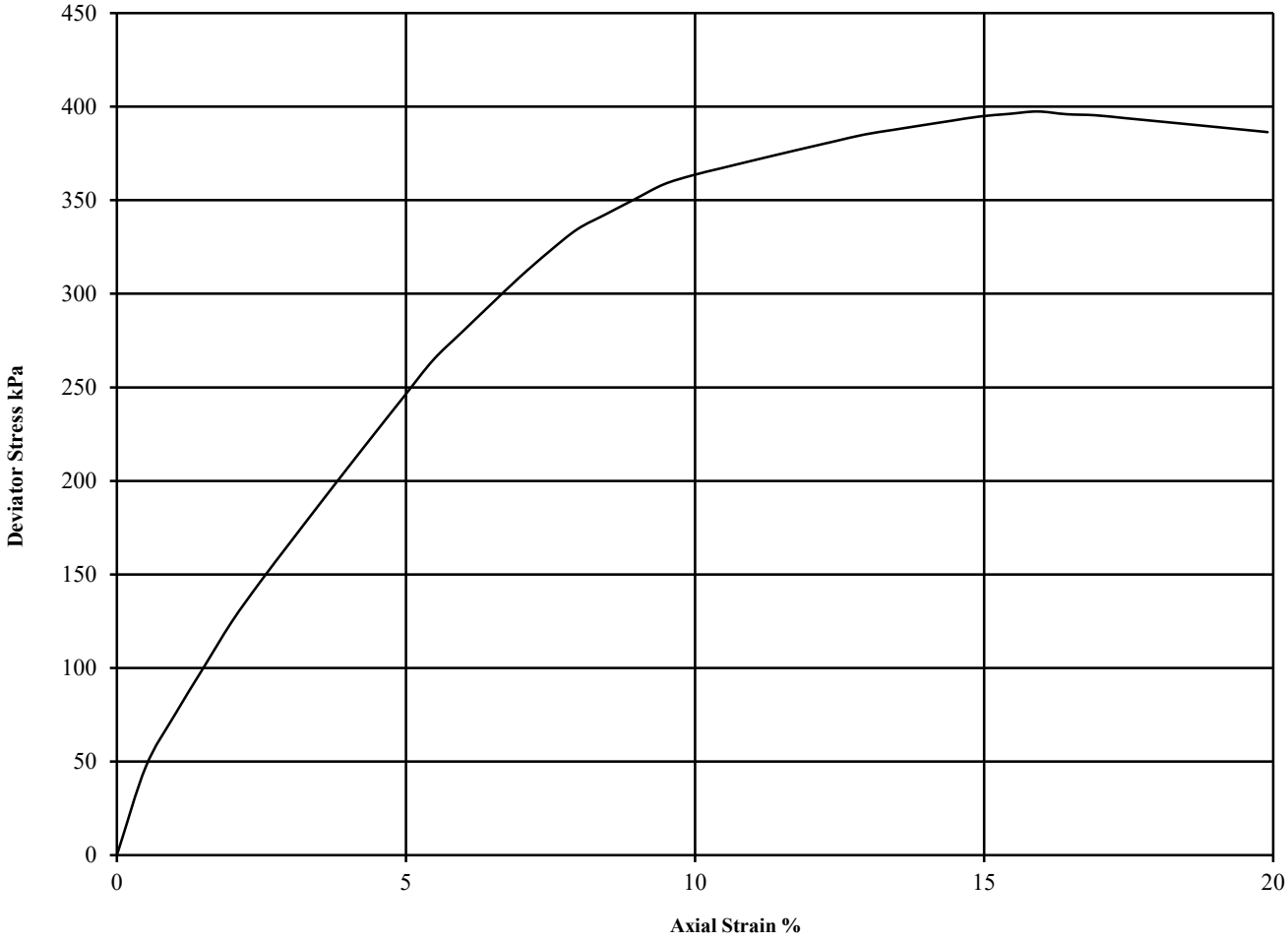
WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

Hole Number: **BH102** **Top Depth (m):** **1.20**

Sample Number: **Base Depth (m):** **1.65**

Sample Type **UT**



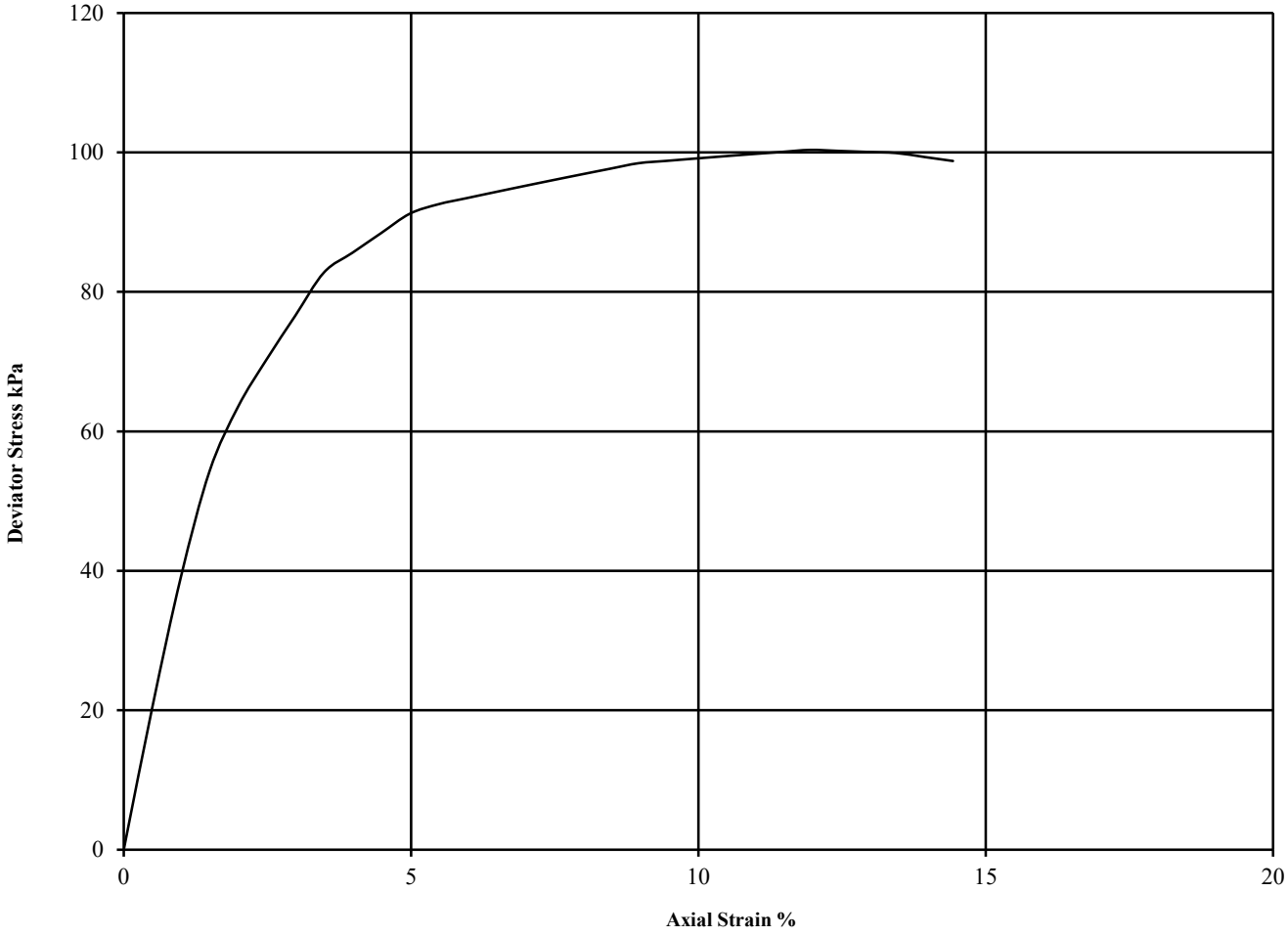
Diameter (mm):		103	Height (mm):		207	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density 3628	Cell Pressure (kPa) θ_3	Corr. Max. Deviator Stress (kPa) $(\theta_1-\theta_3)_f$	Shear Strength Cu (kPa) $^1/_2(\theta_1-\theta_3)_f$	Failure Strain (%)	Mode of Failure	Disturbed Sample Remoulded Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.34
1	18	2.10	1.79	20	397	199	15.9	Intermediate	See summary of soil descriptions

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

Hole Number:	**BH102**	**Top Depth (m):**	**3.00**
Sample Number:		**Base Depth (m):**	**3.45**
Sample Type	**UT**		



Diameter (mm):		103	Height (mm):		207	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa) θ_3	Corr. Max. Deviator Stress (kPa) $(\theta_1-\theta_3)_f$	Shear Strength Cu (kPa) $^1/_2(\theta_1-\theta_3)_f$	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.35
1	14	2.14	1.87	60	100	50	11.9	Plastic	See summary of soil descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

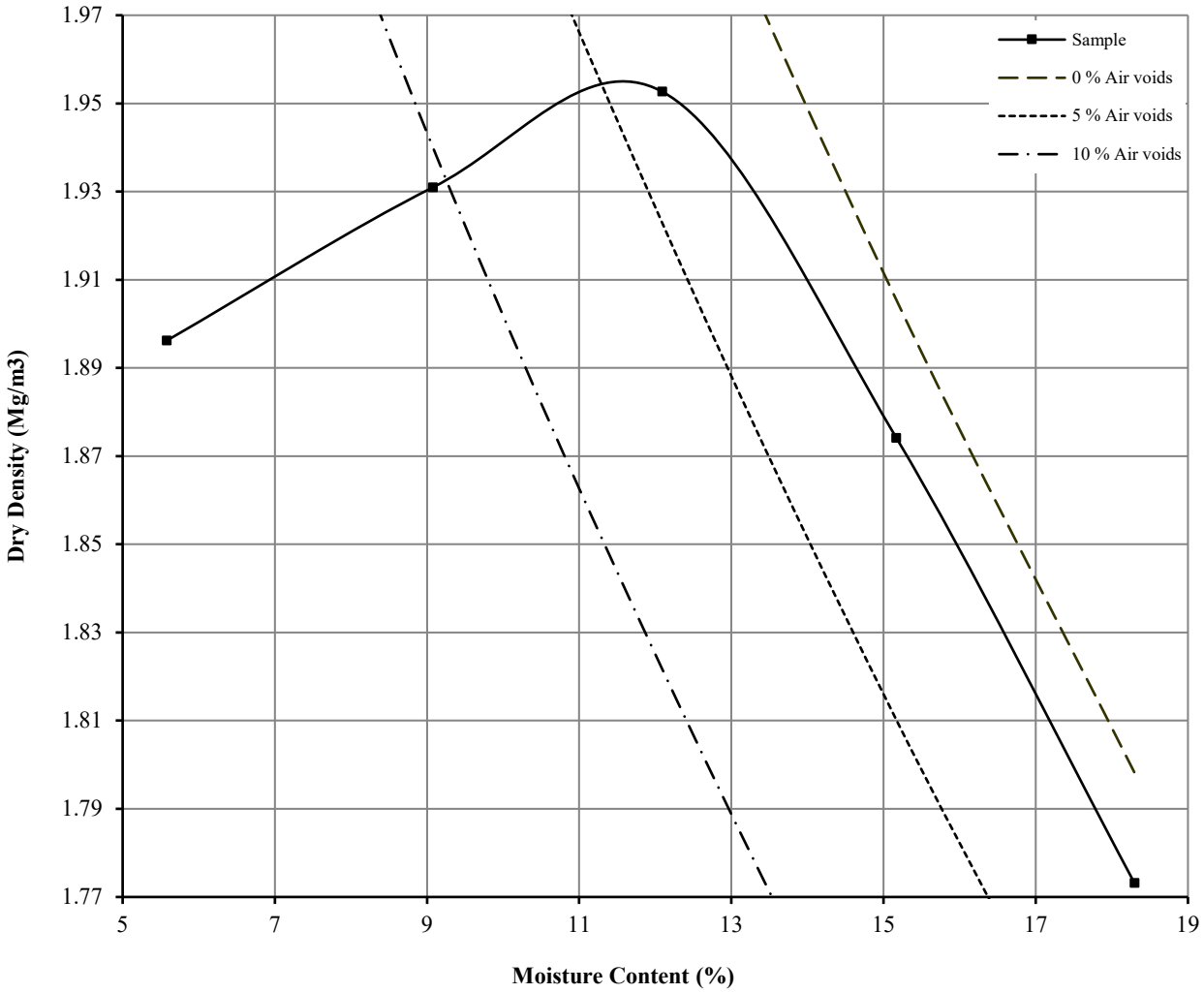
B401 Manchester Airport

Contract No:
PSL22/4387
Client Ref:
LKC 22 1225

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.3 : 1990

Hole Number:	**BH102**	**Top Depth (m) :**	**2.00**
Sample Number:		**Base Depth (m) :**	**2.45**
Sample Type:	**B**		

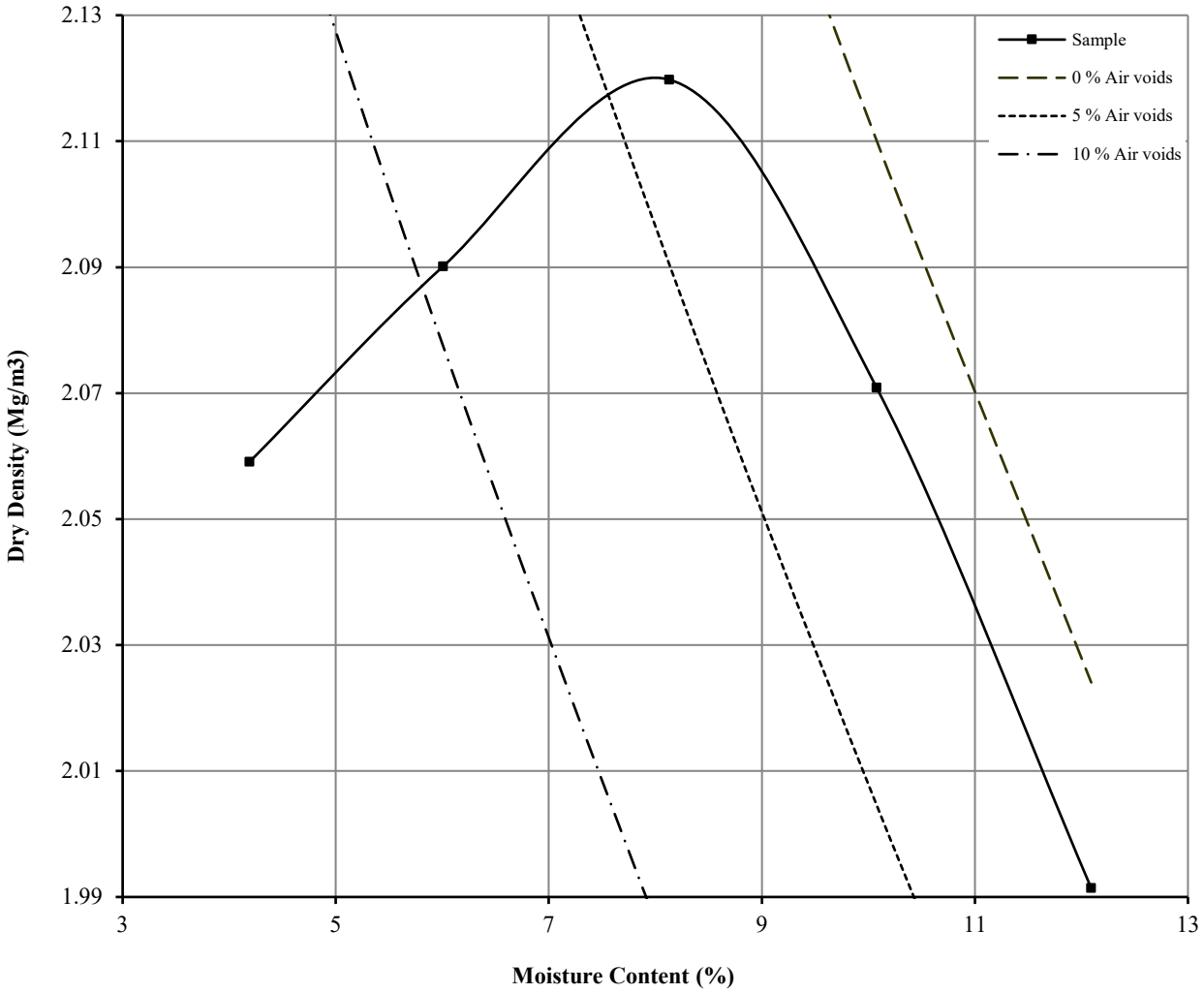


Initial Moisture Content:		12	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m3):	2.68	Assumed	Material Retained on 37.5 mm Test Sieve (%):		0
Maximum Dry Density (Mg/m3):		1.95	Material Retained on 20.0 mm Test Sieve (%):		0
Optimum Moisture Content (%):		12			
Remarks See summary of soil descriptions					

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.5 : 1990

Hole Number:	**BH102**	**Top Depth (m) :**	**2.00**
Sample Number:		**Base Depth (m) :**	**2.45**
Sample Type:	**B**		



Initial Moisture Content:		12	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m3):	2.68	Assumed	Material Retained on 37.5 mm Test Sieve (%):		0
Maximum Dry Density (Mg/m3):		2.12	Material Retained on 20.0 mm Test Sieve (%):		0
Optimum Moisture Content (%):		8			
Remarks See summary of soil descriptions					

ONE DIMENSIONAL CONSOLIDATION TEST

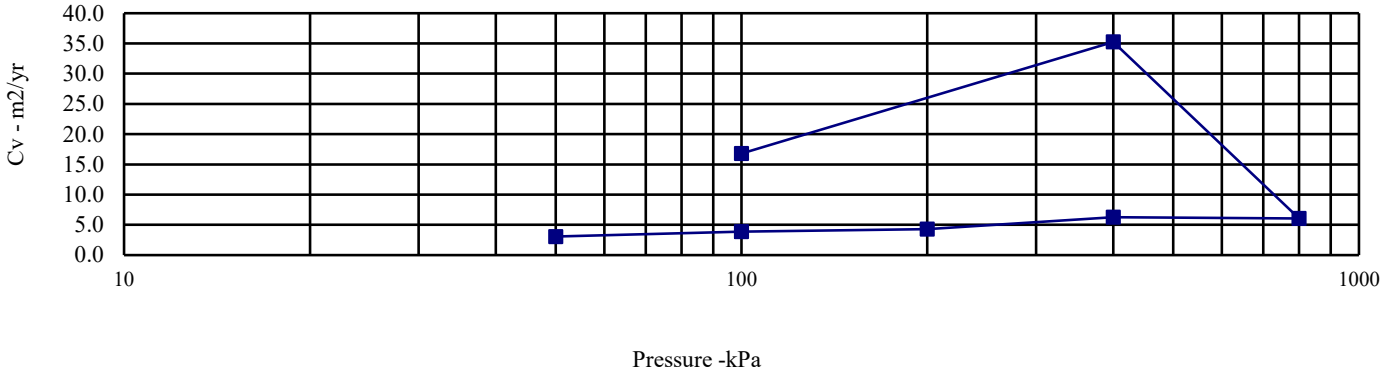
BS 1377: Part 5: 1990: Clause 3

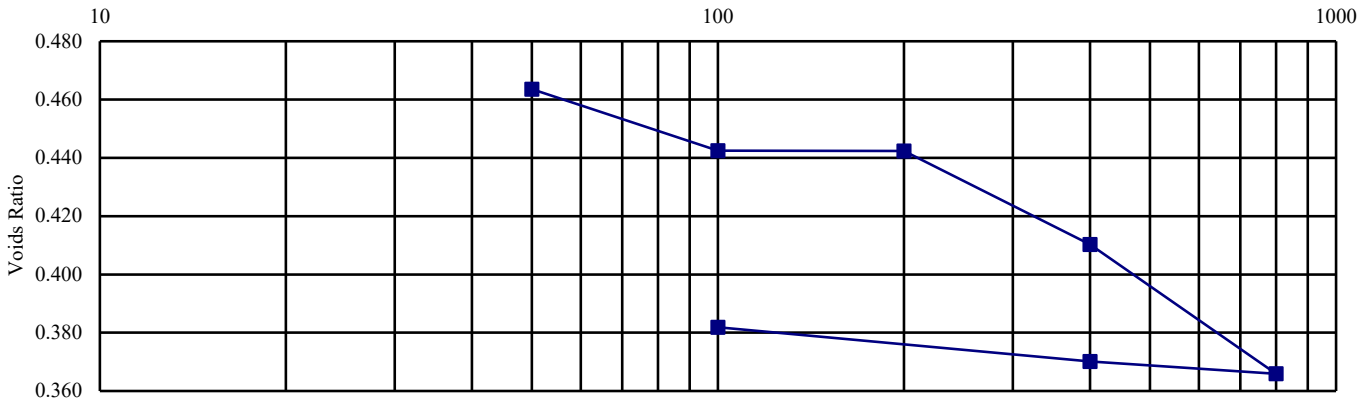
Hole Number: **BH102** **Top Depth (m):** **1.20**

Sample Number: **Base Depth (m) :** **1.65**

Sample Type: **UT**

Initial Conditions		Pressure Range kPa		Mv m2/MN	Cv m2/yr	Specimen location within tube:	Top
Moisture Content (%):	19						
Bulk Density (Mg/m3):	2.10	0	50	0.551	3.073	Method used to	
Dry Density (Mg/m3):	1.76	50	100	0.289	3.864	determine CV:	T90
Voids Ratio:	0.505	100	200	0.000	4.279	Nominal temperature	
Degree of saturation:	101.4	200	400	0.111	6.254	during test ' C:	20
Height (mm):	20.07	400	800	0.079	6.071	Remarks:	
Diameter (mm)	75.06	800	400	0.008	35.248	See summary of soil descriptions	
Particle Density (Mg/m3): Assumed	2.65	400	100	0.029	16.782		





UKAS TESTING 4043

PSL Professional Soils Laboratory

B401 Manchester Airport

Contract No: PSL22/4387

Client Ref:

ONE DIMENSIONAL CONSOLIDATION TEST

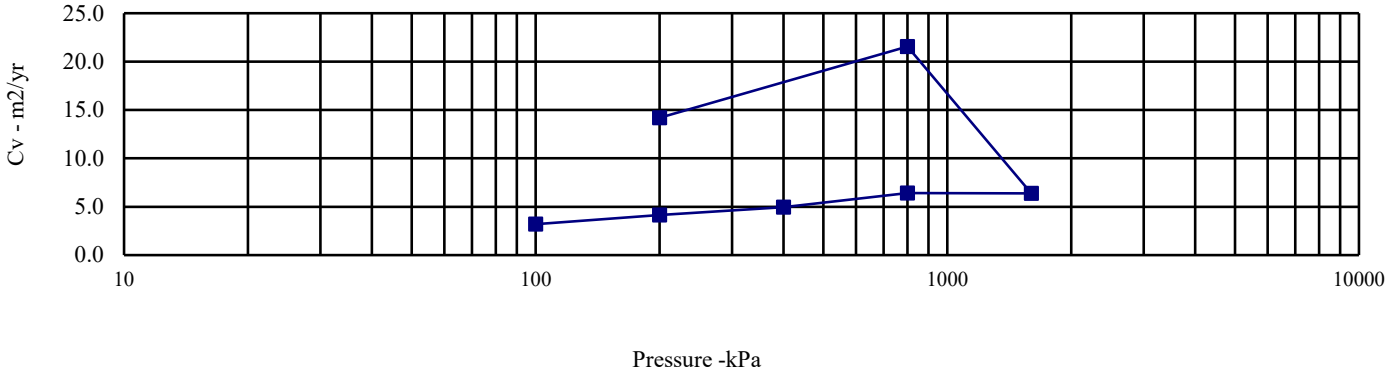
BS 1377: Part 5: 1990: Clause 3

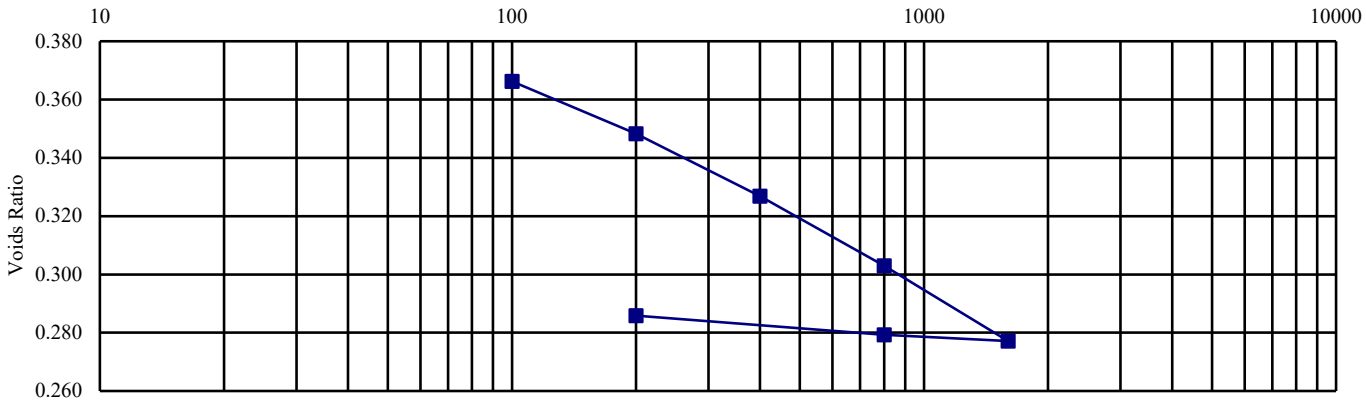
Hole Number: **BH102** **Top Depth (m):** **3.00**

Sample Number: **Base Depth (m) :** **3.45**

Sample Type: **UT**

Initial Conditions		Pressure Range kPa		Mv m2/MN	Cv m2/yr	Specimen location within tube:	Top
Moisture Content (%):	14						
Bulk Density (Mg/m3):	2.11	0	100	0.411	3.197	Method used to	
Dry Density (Mg/m3):	1.86	100	200	0.132	4.128	determine CV:	T90
Voids Ratio:	0.425	200	400	0.080	4.962	Nominal temperature	
Degree of saturation:	84.7	400	800	0.045	6.421	during test ' C:	20
Height (mm):	20.05	800	1600	0.025	6.376	Remarks:	
Diameter (mm)	75.06	1600	800	0.002	21.556	See summary of soil descriptions	
Particle Density (Mg/m3): Assumed	2.65	800	200	0.009	14.196		





UKAS TESTING 4043	PSL Professional Soils Laboratory	**B401 Manchester Airport**	**Contract No: PSL22/4387** **Client Ref: LKC 22 1225**

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation	Dimensions (mm)		Area	D_e^2	D_e	Failure Load (P)		I_s	Corr Fac	I_{s50}	Failure Type	Remarks
				Par / Perp	W	D	(mm2)		(mm)	(Mpa)	(kN)	(MPa)	F	(MPa)		
BH102	8.00		I	Perp	30	18	540	687.55	26.22	-	0.21	0.31	0.748	0.23	Valid	
BH102	8.00		I	Perp	24	20	480	611.15	24.72	-	0.24	0.39	0.728	0.29	Valid	
BH102	9.50		I	Perp	80	30	2400	3055.77	55.28	-	0.33	0.11	1.046	0.11	Valid	
BH102	9.50		I	Perp	60	24	1440	1833.46	42.82	-	0.40	0.22	0.933	0.20	Valid	
BH102	9.50		I	Perp	34	20	680	865.80	29.42	-	0.24	0.28	0.788	0.22	Valid	
BH102	14.00		I	Perp	80	34	2720	3463.21	58.85	-	0.33	0.10	1.076	0.10	Valid	
BH102	14.00		I	Perp	80	20	1600	2037.18	45.14	-	0.42	0.21	0.955	0.20	Valid	
BH102	14.00		I	Perp	46	21	966	1229.95	35.07	-	0.15	0.12	0.852	0.10	Valid	
BH102	20.00		I	Perp	80	20	1600	2037.18	45.14	-	0.43	0.21	0.955	0.20	Valid	
BH102	20.00		I	Perp	40	20	800	1018.59	31.92	-	0.32	0.31	0.817	0.26	Valid	
BH102	20.00		I	Perp	38	18	684	870.90	29.51	-	0.30	0.34	0.789	0.27	Valid	

Note All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

UKAS TESTING 4043

PSL Professional Soils Laboratory

B401 Manchester Airport

Contract No:

PSL22/4387

Client Ref:

LKC 22 1225

2531

ANALYTICAL TEST REPORT

Contract no: 111176

Contract name: B401 Manchester Airport

Client reference: PSL22/4387

Clients name: Professional Soils Laboratory

Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 06 July 2022

Analysis started: 06 July 2022

Analysis completed: 13 July 2022

Report issued: 13 July 2022

Key

U	UKAS accredited test
M	MCERTS & UKAS accredited test
$	Test carried out by an approved subcontractor
I/S	Insufficient sample to carry out test
N/S	Sample not suitable for testing

Approved by:

Megan Harris

Senior Reporting Administrator

Chemtech Environmental Limited

SOILS

Lab number			111176-1	111176-2
Sample id			BH102	BH102
Depth (m)			2.00-2.45	8.00-9.50
Sample Type			B	RC
Date sampled			-	-
Test	**Method**	**Units**		
pH	CE004 [U]	units	8.5	8.2
Magnesium (2:1 water soluble)	CE061	mg/l Mg	23	87
Chloride (2:1 water soluble)	CE049 [U]	mg/l Cl	12	18
Nitrate (2:1 water soluble)	CE049 [U]	mg/l NO_3	15	3.0
Sulphate (2:1 water soluble)	CE061 [U]	mg/l SO_4	296	1982
Sulphate (total)	CE062 [U]	mg/kg SO_4	1093	14496
Sulphur (total)	CE119	mg/kg S	552	5327
Sulphur (total)	CE119	% w/w S	0.06	0.53

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO_3
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry	U	10	mg/l SO_4
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry	U	100	mg/kg SO_4
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key

N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
111176-1	BH102	2.00-2.45	Y	All (NSD)
111176-2	BH102	8.00-9.50	Y	All (NSD)

Chemtech Environmental Limited

ADDITIONAL INFORMATION

Notes

Opinions and interpretations expressed herein are outside the UKAS accreditation scope.

Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.

All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.

Methods, procedures and performance data are available on request.

Results reported herein relate only to the material supplied to the laboratory.

This report shall not be reproduced except in full, without prior written approval.

Samples will be disposed of 4 weeks from initial receipt unless otherwise instructed.

For soils and solids, all results are reported on a dry basis. Samples dried at no more than 30°C in a drying cabinet.

Analytical results are inclusive of stones, where applicable.

LABORATORY REPORT

4043

Contract Number: PSL22/4390

Report Date: 19 July 2022

Client's Reference: LKC 22 1225

Client Name: LK Group
Eton Business Park
Eton Hill Road
Manchester
M26 2ZS

For the attention of: Rachel Peart

Contract Title: B401 Manchester Airport

Date Received: 29/6/2022
Date Commenced: 29/6/2022
Date Completed: 19/7/2022

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins (Director)
R Berriman (Quality Manager)
S Royle (Laboratory Manager)
L Knight (Senior Technician)
S Eyre (Senior Technician)
T Watkins (Senior Technician)

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SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
BH103		UT	1.20	1.65	Very stiff brown slightly gravelly very sandy CLAY.
BH103		B	2.00	2.45	Brown slightly gravelly sandy CLAY.
BH103		UT	3.00	3.45	Stiff brown gravelly sandy CLAY.
BH103		B	4.00	4.45	Brown gravelly sandy CLAY.
BH103		S	4.00	4.45	Brown gravelly sandy CLAY.
BH103		S	5.00	5.45	Brown gravelly sandy CLAY.

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m^3 Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
BH103		UT	1.20	1.65	13			25	14	11	90	Low Plasticity CL
BH103		UT	3.00	3.45	11			26	15	11	88	Low Plasticity CL
BH103		S	4.00	4.45	16			38	19	19	86	Intermediate Plasticity CI
BH103		S	5.00	5.45	16			36	18	18	89	Intermediate Plasticity CI

SYMBOLS : **NP : Non Plastic** *** : Liquid Limit and Plastic Limit Wet Sieved.**

UKAS TESTING 4043

PSL Professional Soils Laboratory

B401 Manchester Airport

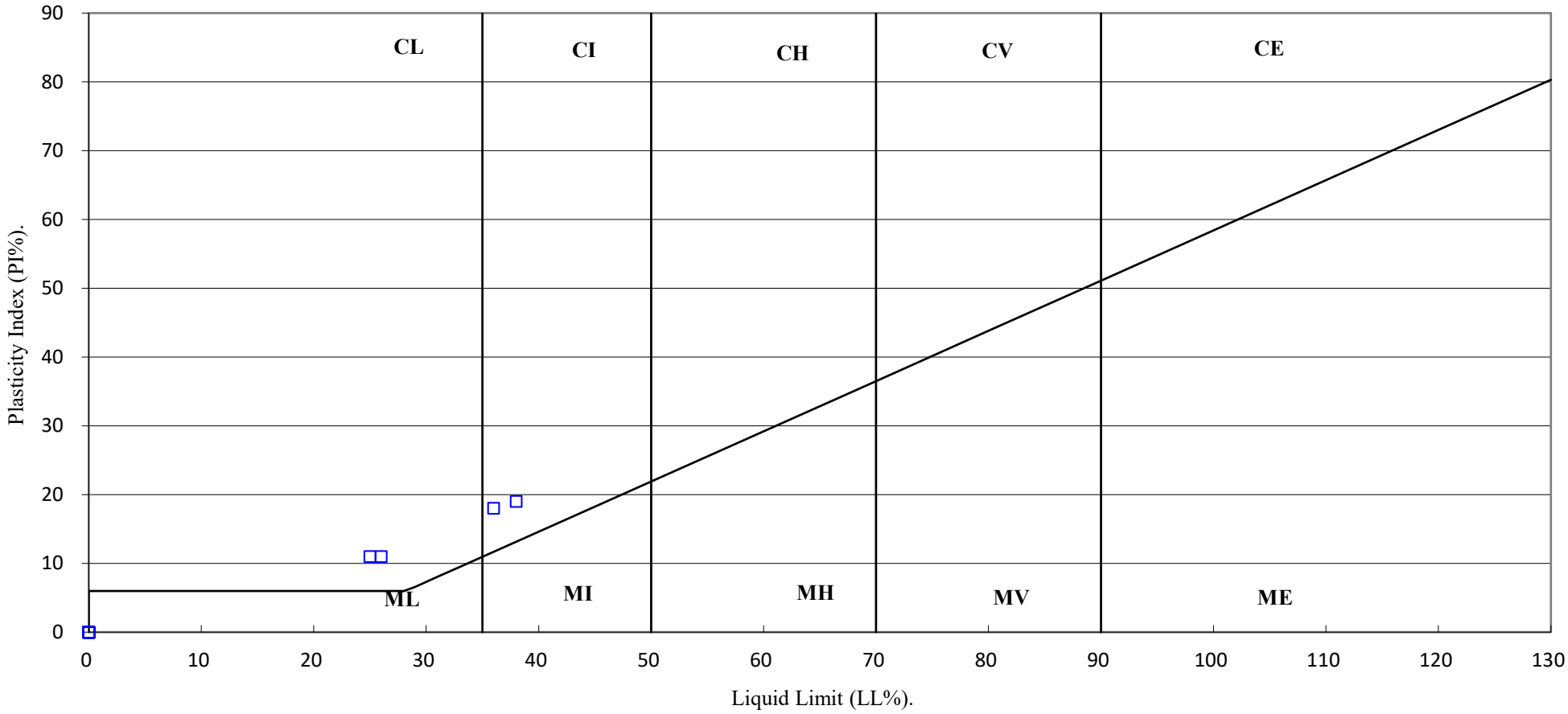
Contract No:

PSL22/4390

Client Ref:

LKC 22 1225

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



UKAS TESTING 4043	PSL Professional Soils Laboratory	B401 Manchester Airport	Contract No: PSL22/4390 Client Ref: LKC 22 1225

PARTICLE SIZE DISTRIBUTION TEST

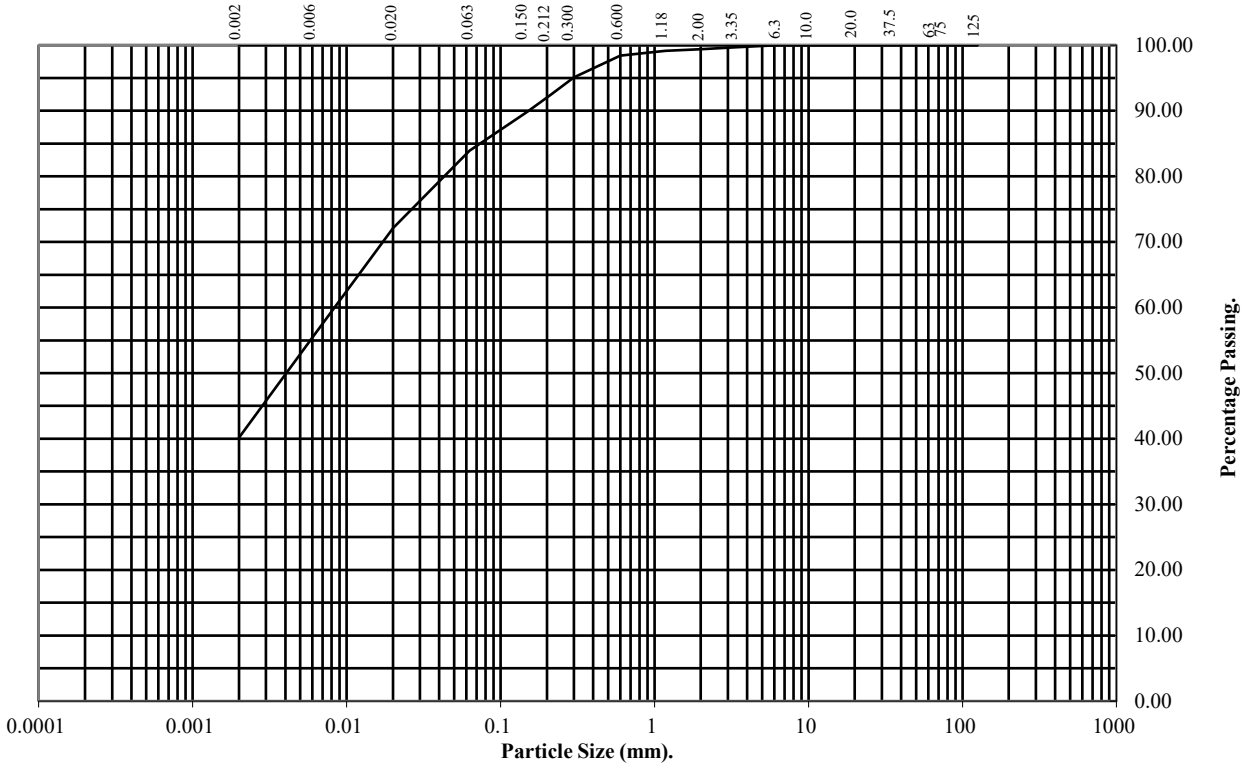
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **BH103** **Top Depth (m):** **2.00**

Sample Number: **Base Depth(m):** **2.45**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	100
2	99
1.18	99
0.6	98
0.3	95
0.212	92
0.15	90
0.063	84

Particle Diameter	Percentage Passing
0.02	72
0.006	55
0.002	40

Soil Fraction	Total Percentage
Cobbles	0
Gravel	1
Sand	15
Silt	44
Clay	40

Remarks:
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

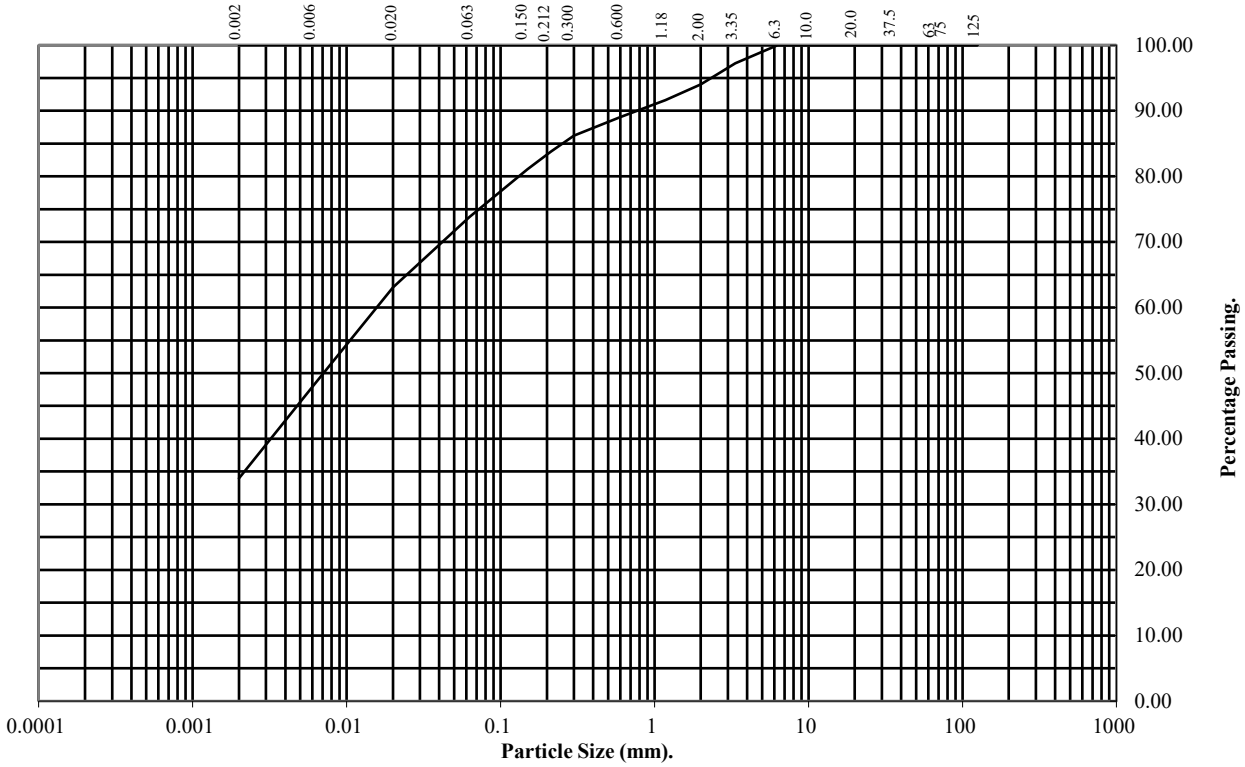
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: BH103 **Top Depth (m):** 4.00

Sample Number: **Base Depth(m):** 4.45

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	97
2	94
1.18	92
0.6	89
0.3	86
0.212	84
0.15	81
0.063	74

Particle Diameter	Percentage Passing
0.02	63
0.006	48
0.002	34

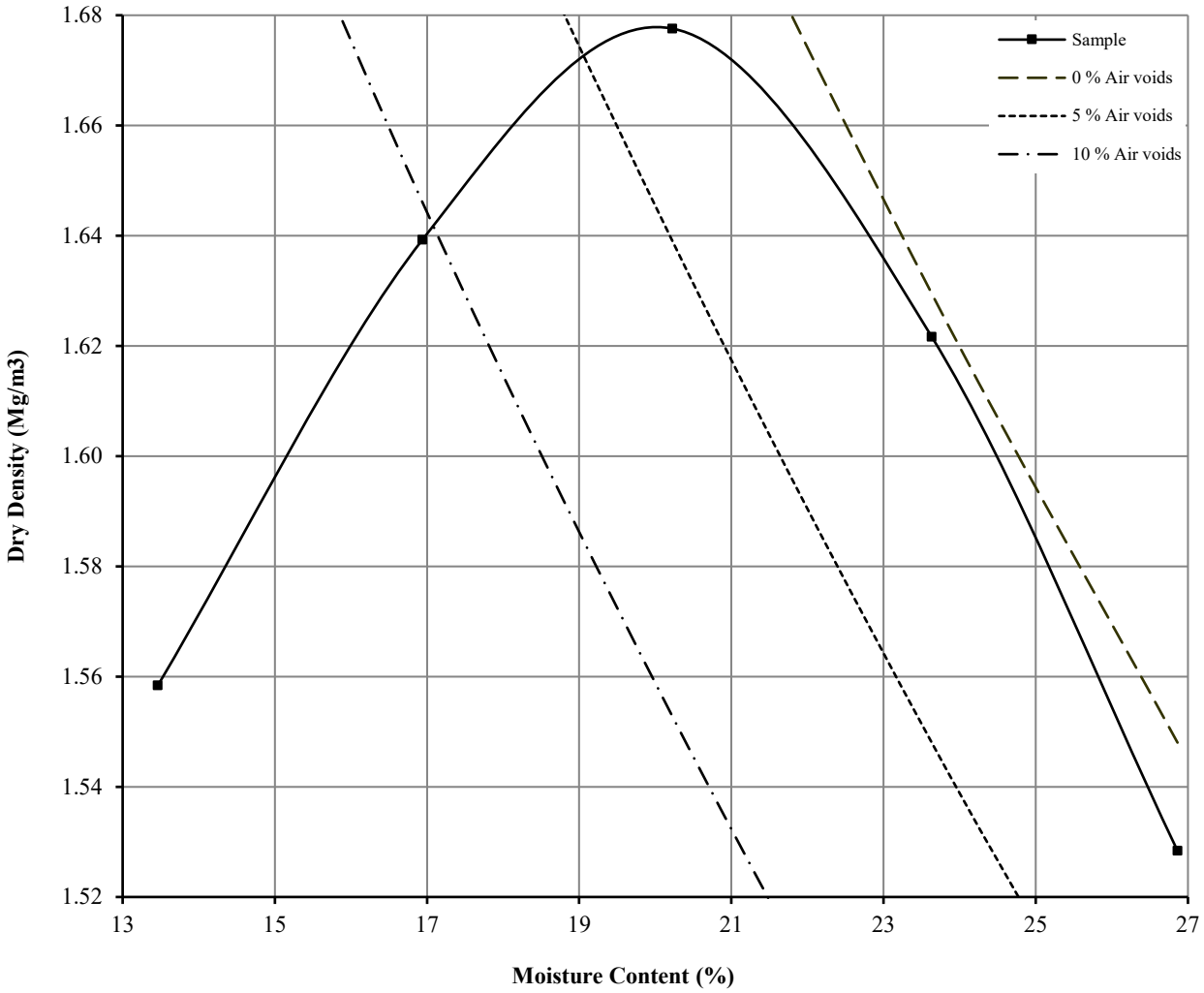
Soil Fraction	Total Percentage
Cobbles	0
Gravel	6
Sand	20
Silt	40
Clay	34

Remarks:
See Summary of Soil Descriptions

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.3 : 1990

Hole Number:	**BH103**	**Top Depth (m) :**	**2.00**
Sample Number:		**Base Depth (m) :**	**2.45**
Sample Type:	**B**		

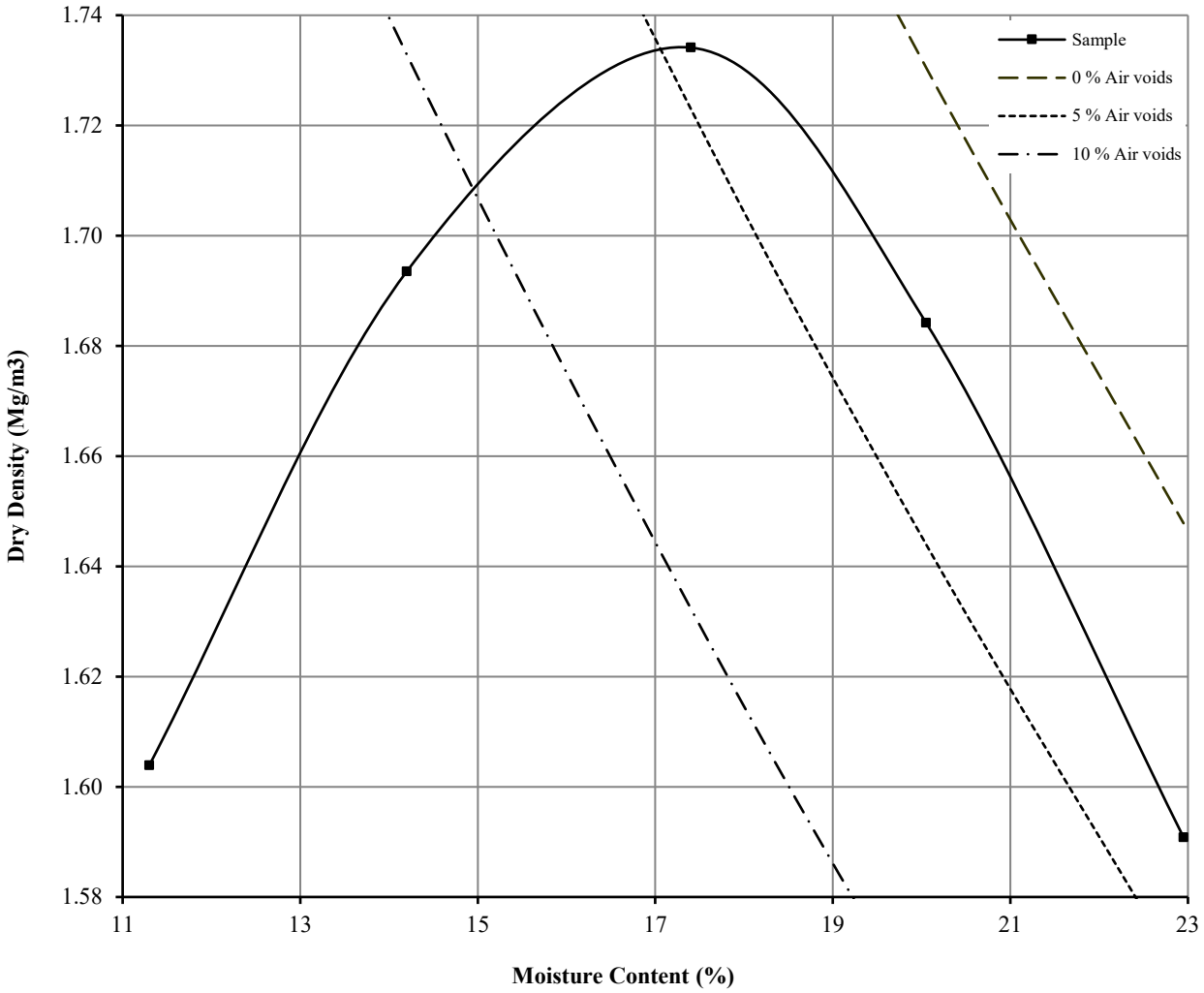


Initial Moisture Content:		24	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m3):	2.65	Assumed	Material Retained on 37.5 mm Test Sieve (%):		0
Maximum Dry Density (Mg/m3):		1.68	Material Retained on 20.0 mm Test Sieve (%):		0
Optimum Moisture Content (%):		20			
Remarks See summary of soil descriptions					

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.3 : 1990

Hole Number:	**BH103**	**Top Depth (m) :**	**2.00**
Sample Number:		**Base Depth (m) :**	**2.45**
Sample Type:	**B**		



Initial Moisture Content:		24	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m3):	2.65	Assumed	Material Retained on 37.5 mm Test Sieve (%):		0
Maximum Dry Density (Mg/m3):		1.73	Material Retained on 20.0 mm Test Sieve (%):		0
Optimum Moisture Content (%):		17			
Remarks See summary of soil descriptions					

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

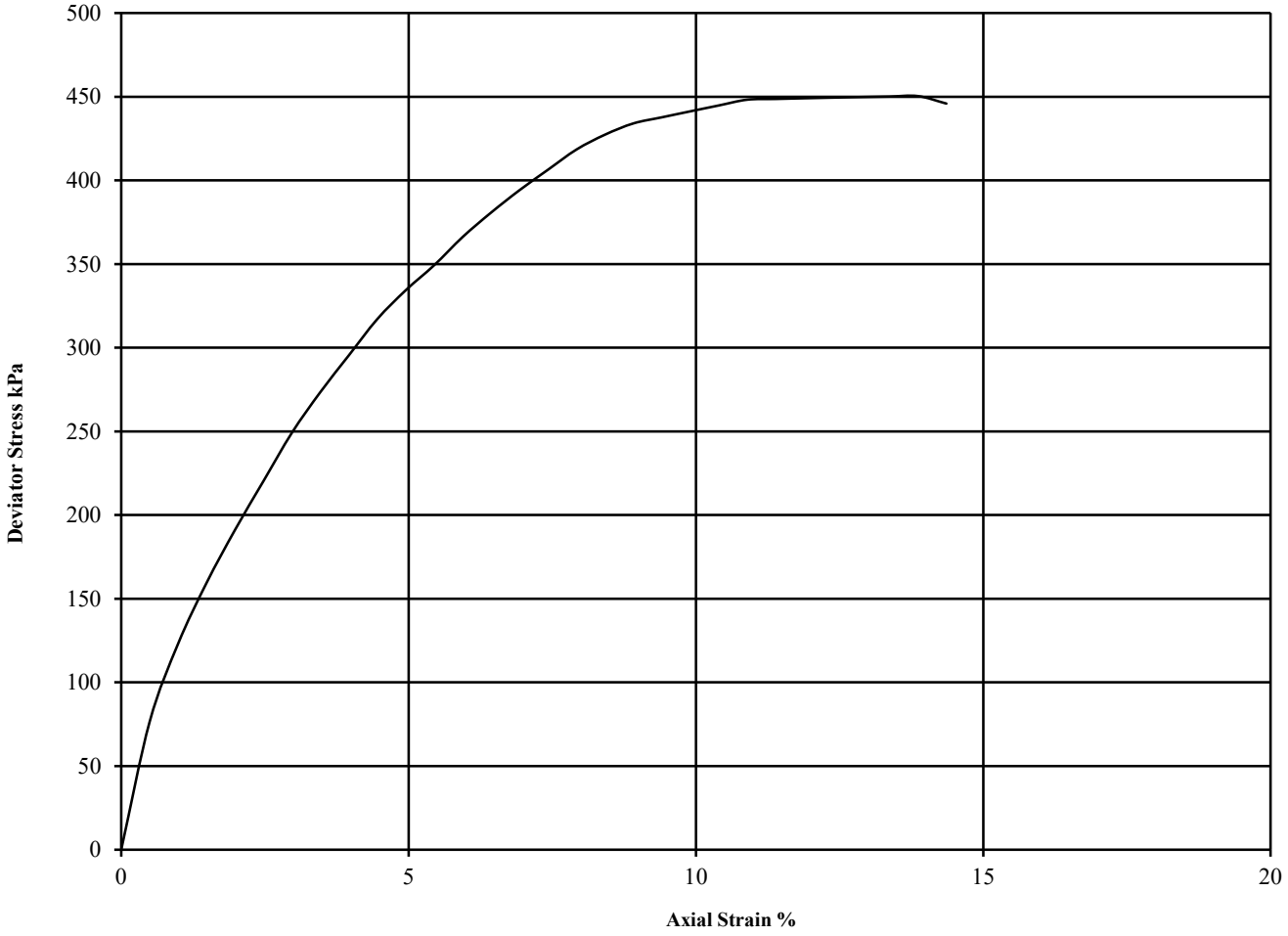
WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

Hole Number: **BH103** **Top Depth (m):** **1.20**

Sample Number: **Base Depth (m):** **1.65**

Sample Type **UT**



Diameter (mm):		102	Height (mm):		206	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa) θ_3	Corr. Max. Deviator Stress (kPa) $(\theta_1-\theta_3)_f$	Shear Strength Cu (kPa) $^1/_2(\theta_1-\theta_3)_f$	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.35
1	13	2.11	1.87	24	450	225	13.9	Brittle	See summary of soil descriptions

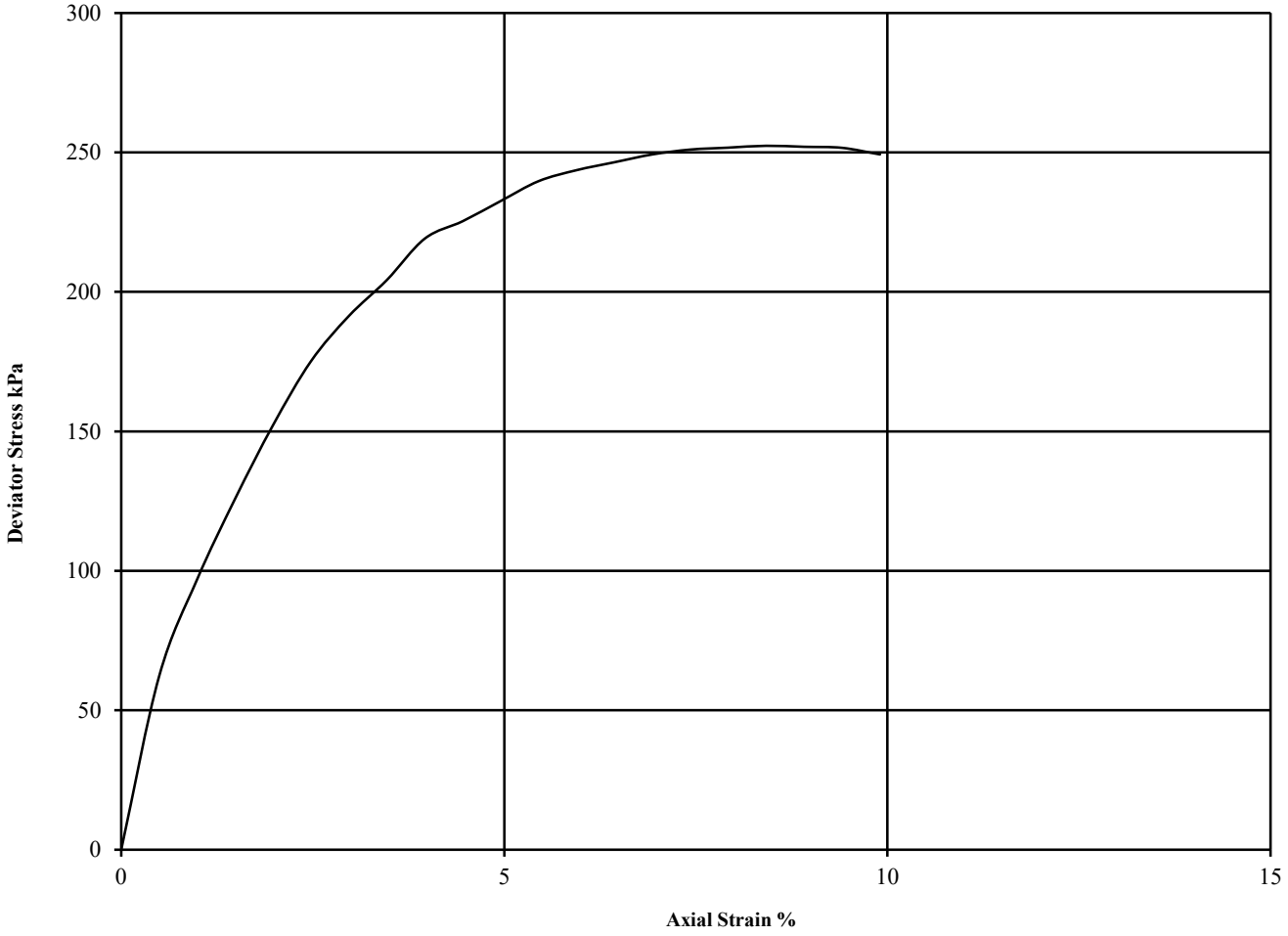
UKAS TESTING 4043	PSL Professional Soils Laboratory	**B401 Manchester Airport**	**Contract No:** PSL22/4390 **Client Ref:** LKC 22 1225

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

Hole Number:	**BH103**	**Top Depth (m):**	**3.00**
Sample Number:		**Base Depth (m):**	**3.45**
Sample Type	**UT**		



Diameter (mm):		102	Height (mm):		206	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa) θ_3	Corr. Max. Deviator Stress (kPa) $(\theta_1-\theta_3)_f$	Shear Strength Cu (kPa) $^1/_2(\theta_1-\theta_3)_f$	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.36
1	11	2.23	2.01	60	252	126	8.4	Brittle	See summary of soil descriptions

UKAS TESTING 4043	PSL Professional Soils Laboratory	**B401 Manchester Airport**	**Contract No:** PSL22/4390 **Client Ref:** LKC 22 1225

ONE DIMENSIONAL CONSOLIDATION TEST

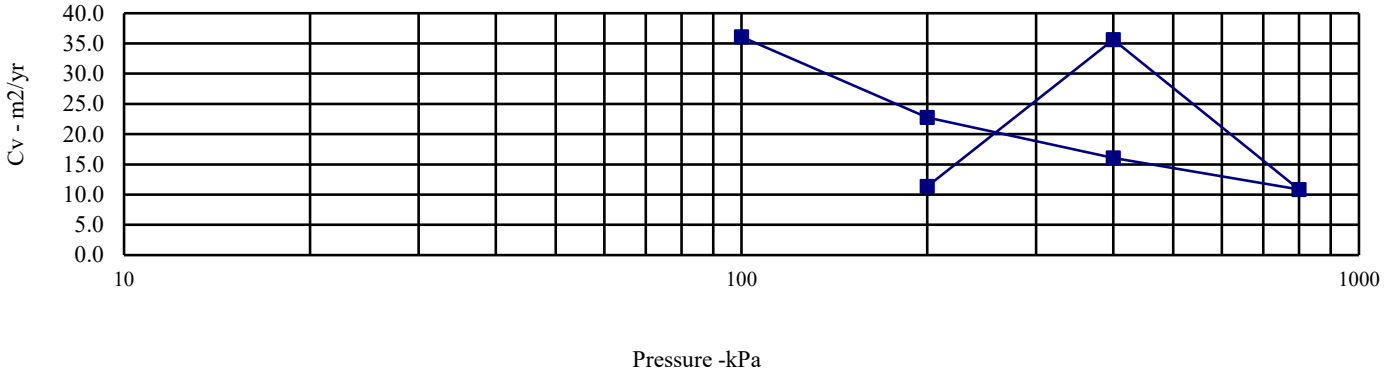
BS 1377: Part 5: 1990: Clause 3

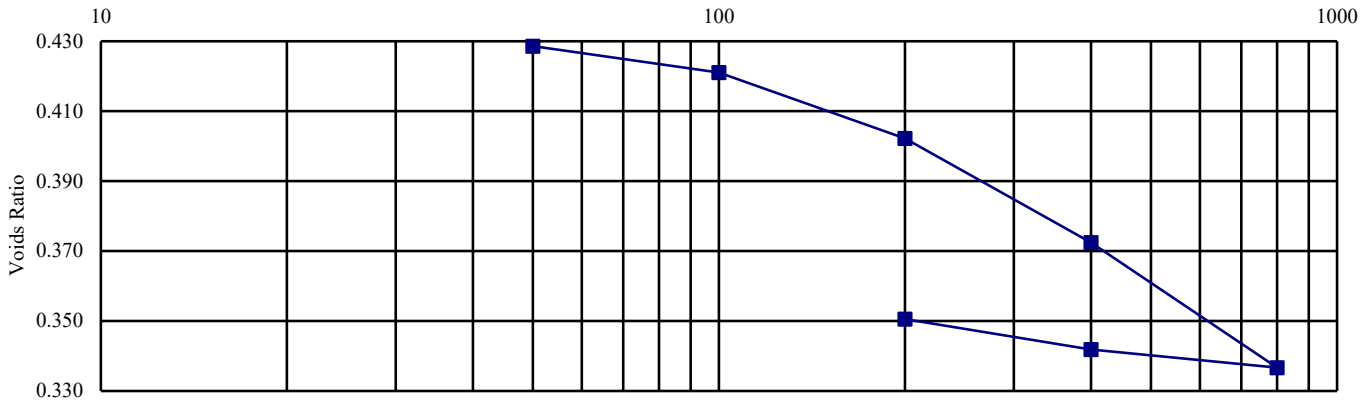
Hole Number: **BH103** **Top Depth (m):** **1.20**

Sample Number: **Base Depth (m) :** **1.65**

Sample Type: **UT**

Initial Conditions		Pressure Range kPa		Mv m2/MN	Cv m2/yr	Specimen location within tube:	Top
Moisture Content (%):	13						
Bulk Density (Mg/m3):	2.08	0	50	Swelling	Swelling	Method used to	
Dry Density (Mg/m3):	1.85	50	100	0.105	36.100	determine CV:	T90
Voids Ratio:	0.436	100	200	0.133	22.750	Nominal temperature	
Degree of saturation:	77.5	200	400	0.106	16.068	during test ' C:	20
Height (mm):	20.04	400	800	0.065	10.858	Remarks:	
Diameter (mm)	75.06	800	400	0.010	35.613	See summary of soil descriptions	
Particle Density (Mg/m3): Assumed	2.65	400	200	0.033	11.345		





UKAS TESTING 4043	PSL Professional Soils Laboratory	**B401 Manchester Airport**	**Contract No:** PSL22/4390 **Client Ref:** LKC 22 1225

ONE DIMENSIONAL CONSOLIDATION TEST

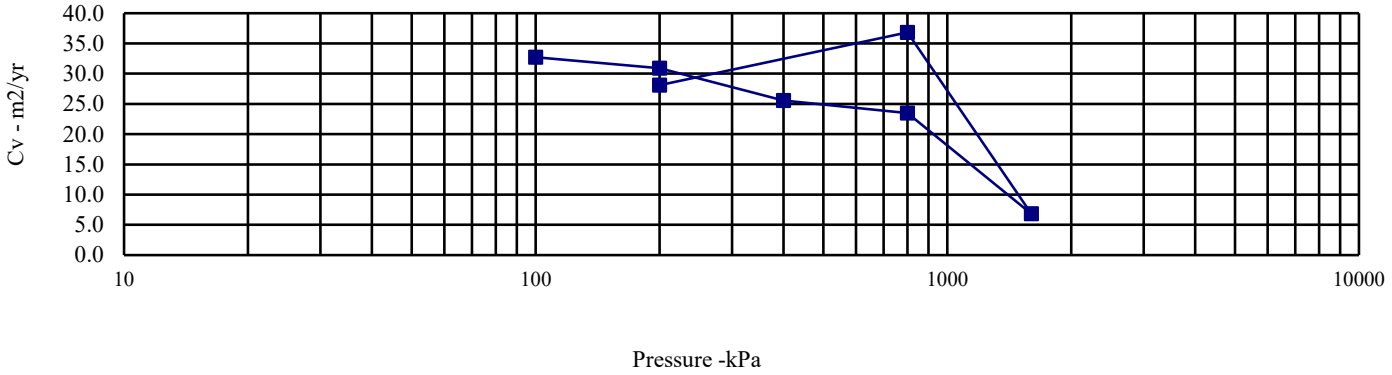
BS 1377: Part 5: 1990: Clause 3

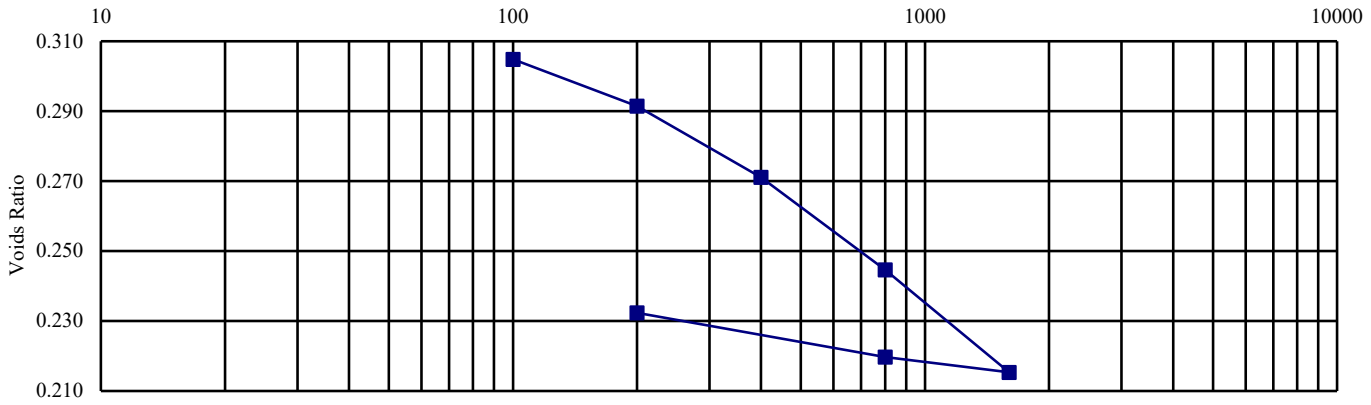
Hole Number: **BH103** **Top Depth (m):** **3.00**

Sample Number: **Base Depth (m) :** **3.45**

Sample Type: **UT**

Initial Conditions		Pressure Range kPa		Mv m2/MN	Cv m2/yr	Specimen location within tube:	Top
Moisture Content (%):	11						
Bulk Density (Mg/m3):	2.24	0	100	0.114	32.720	Method used to	
Dry Density (Mg/m3):	2.01	100	200	0.103	30.917	determine CV:	T90
Voids Ratio:	0.320	200	400	0.079	25.567	Nominal temperature	
Degree of saturation:	94.8	400	800	0.052	23.514	during test ' C:	20
Height (mm):	20.07	800	1600	0.029	6.834	Remarks:	
Diameter (mm)	75.06	1600	800	0.004	36.832	See summary of soil descriptions	
Particle Density (Mg/m3): Assumed	2.65	800	200	0.017	28.121		





UKAS TESTING 4043

PSL Professional Soils Laboratory

B401 Manchester Airport

Contract No: PSL22/4390

Client Ref: LKC 22 1225

UKAS TESTING
2531

CHEMTECH environmental part of Cawood

ANALYTICAL TEST REPORT

Contract no: 111190

Contract name: B401 Manchester Airport

Client reference: PSL22/4390

Clients name: Professional Soils Laboratory

Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 06 July 2022

Analysis started: 06 July 2022

Analysis completed: 13 July 2022

Report issued: 13 July 2022

Key

U	UKAS accredited test
M	MCERTS & UKAS accredited test
$	Test carried out by an approved subcontractor
I/S	Insufficient sample to carry out test
N/S	Sample not suitable for testing

Approved by:

Rachael Burton
Reporting Team Lead

Chemtech Environmental Limited

SOILS

Lab number			111190-1	111190-2	111190-3
Sample id			BH103	BH103	BH103
Depth (m)			0.75	2.00-2.45	4.00-4.45
Sample Type			D	B	B
Date sampled			-	-	-
Test	**Method**	**Units**			
pH	CE004 [U]	units	8.5	8.3	7.8
Magnesium (2:1 water soluble)	CE061	mg/l Mg	13	11	49
Chloride (2:1 water soluble)	CE049 [U]	mg/l Cl	8.2	7.5	7.4
Nitrate (2:1 water soluble)	CE049 [U]	mg/l NO_3	54	71	59
Sulphate (2:1 water soluble)	CE061 [U]	mg/l SO_4	96	167	1741
Sulphate (total)	CE062 [U]	mg/kg SO_4	418	405	95913
Sulphur (total)	CE119	mg/kg S	197	209	37076
Sulphur (total)	CE119	% w/w S	0.02	0.02	3.71

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO_3
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry	U	10	mg/l SO_4
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry	U	100	mg/kg SO_4
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key

N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
111190-1	BH103	0.75	Y	All (NSD)
111190-2	BH103	2.00-2.45	Y	All (NSD)
111190-3	BH103	4.00-4.45	Y	All (NSD)

Chemtech Environmental Limited

ADDITIONAL INFORMATION

Notes

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All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.

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Samples will be disposed of 4 weeks from initial receipt unless otherwise instructed.

For soils and solids, all results are reported on a dry basis. Samples dried at no more than 30°C in a drying cabinet.

Analytical results are inclusive of stones, where applicable.

LABORATORY REPORT

4043

Contract Number: PSL22/4391

Report Date: 20 July 2022

Client's Reference: LKC 22 1225

Client Name: LK Group
Eton Business Park
Eton Hill Road
Manchester
M26 2ZS

For the attention of: Rachel Peart

Contract Title: B401 Manchester Airport

Date Received: 29/6/2022
Date Commenced: 29/6/2022
Date Completed: 19/07/2022

Notes: **Opinions and Interpretations are outside the UKAS Accreditation**

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Checked and Approved Signatories:

A Watkins (Director)

R Berriman (Quality Manager)

S Royle (Laboratory Manager)

L Knight (Assistant Laboratory Manager)

S Eyre (Senior Technician)

M Fennell (Senior Technician)

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e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
BH104		S	1.20	1.65	Brown slightly gravelly sandy CLAY.
BH104		UT	2.20	2.65	Stiff brown slightly gravelly sandy CLAY.
BH104		U	4.00	4.45	Firm brown slightly gravelly very sandy CLAY.
BH104		D	4.50		Brown slightly gravelly very sandy CLAY.
BH104		S	7.00	7.25	Brown slightly gravelly very sandy CLAY.

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m^3 Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
BH104		S	1.20	1.65	18			44	22	22	99	Intermediate Plasticity CI
BH104		D	4.50		19			36	17	19	98	Intermediate Plasticity CI
BH104		S	7.00	7.25	9.1			27	14	13	93	Low Plasticity CL
BH104		RC	10.00	11.50	4.1							
BH104		RC	14.00	15.00	1.3							
BH104		RC	17.00	18.50	3.5							
BH104		RC	18.50	20.00	4.5							
BH104		RC	23.00	24.50	6.1							

SYMBOLS : **NP : Non Plastic** *** : Liquid Limit and Plastic Limit Wet Sieved.**

UKAS TESTING 4043

PSL Professional Soils Laboratory

B401 Manchester Airport

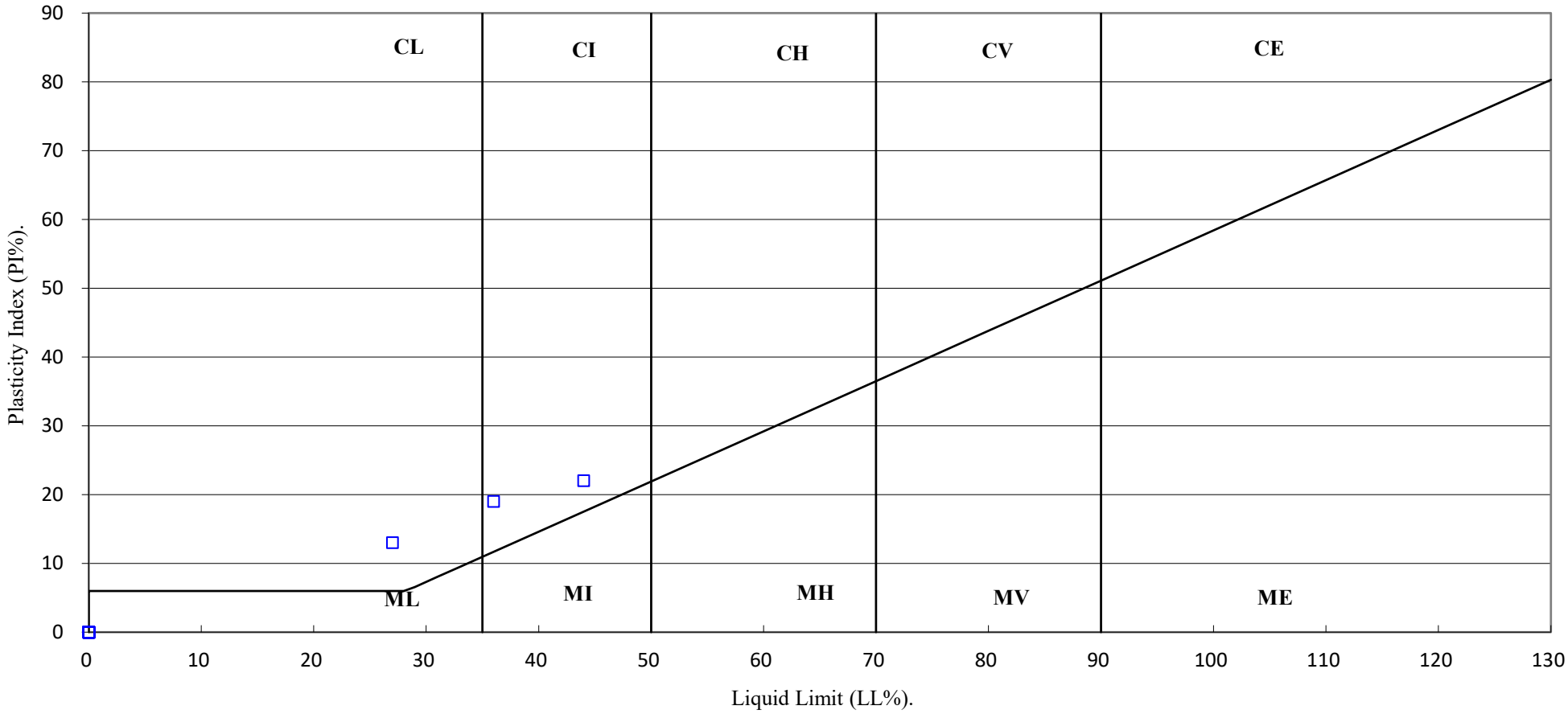
Contract No:

PSL22/4391

Client Ref:

LKC 22 1225

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



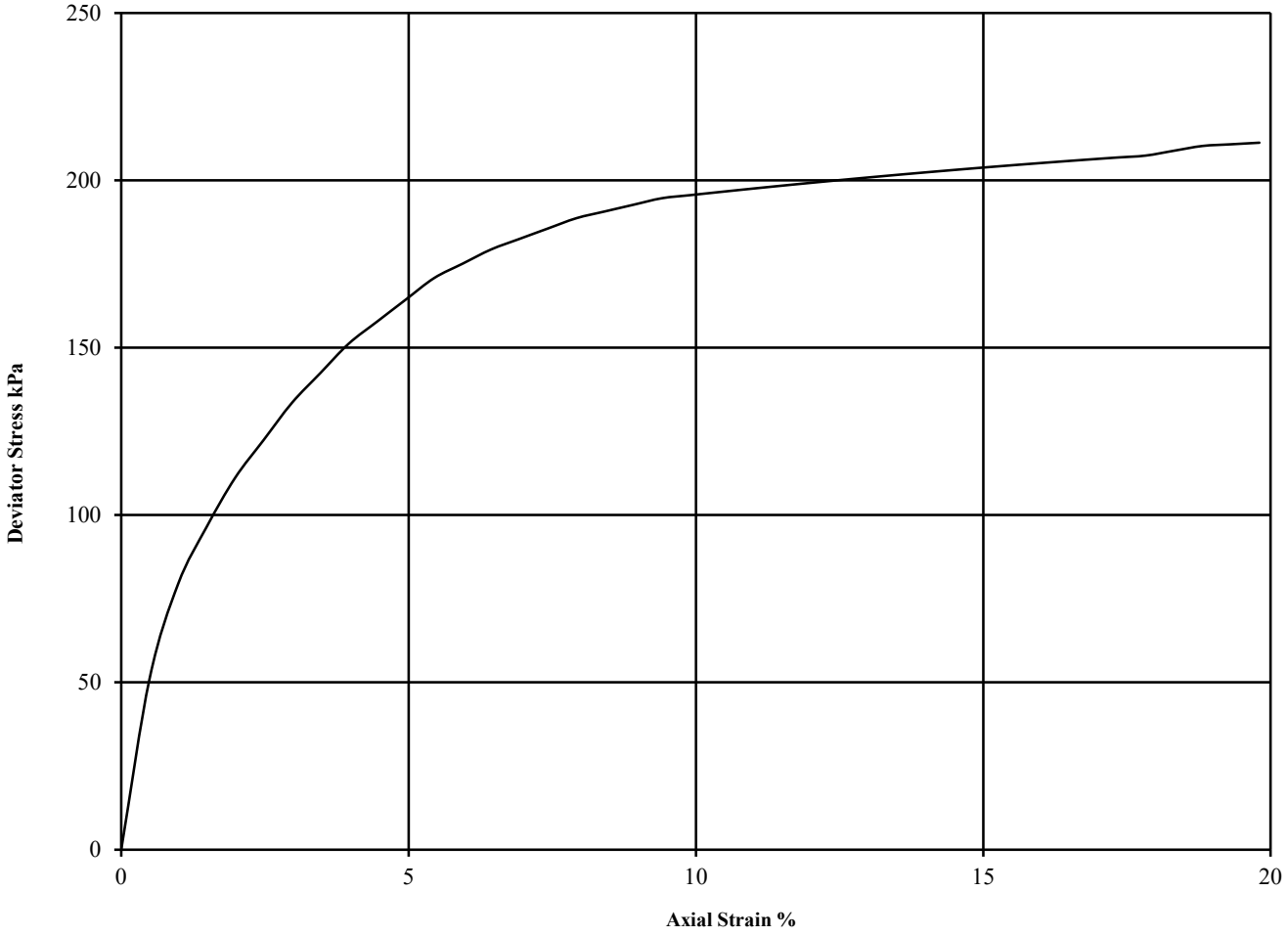
UKAS TESTING 4043	PSL Professional Soils Laboratory	B401 Manchester Airport	Contract No: PSL22/4391 Client Ref: LKC 22 1225

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

Hole Number:	**BH104**	**Top Depth (m):**	**2.20**
Sample Number:		**Base Depth (m):**	**2.65**
Sample Type	**UT**		



Diameter (mm):		102	Height (mm):		206	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa) θ_3	Corr. Max. Deviator Stress (kPa) $(\theta_1-\theta_3)_f$	Shear Strength Cu (kPa) $^1/_2(\theta_1-\theta_3)_f$	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.33
1	21	2.10	1.73	44	213	106	21.3	Intermediate	See summary of soil descriptions

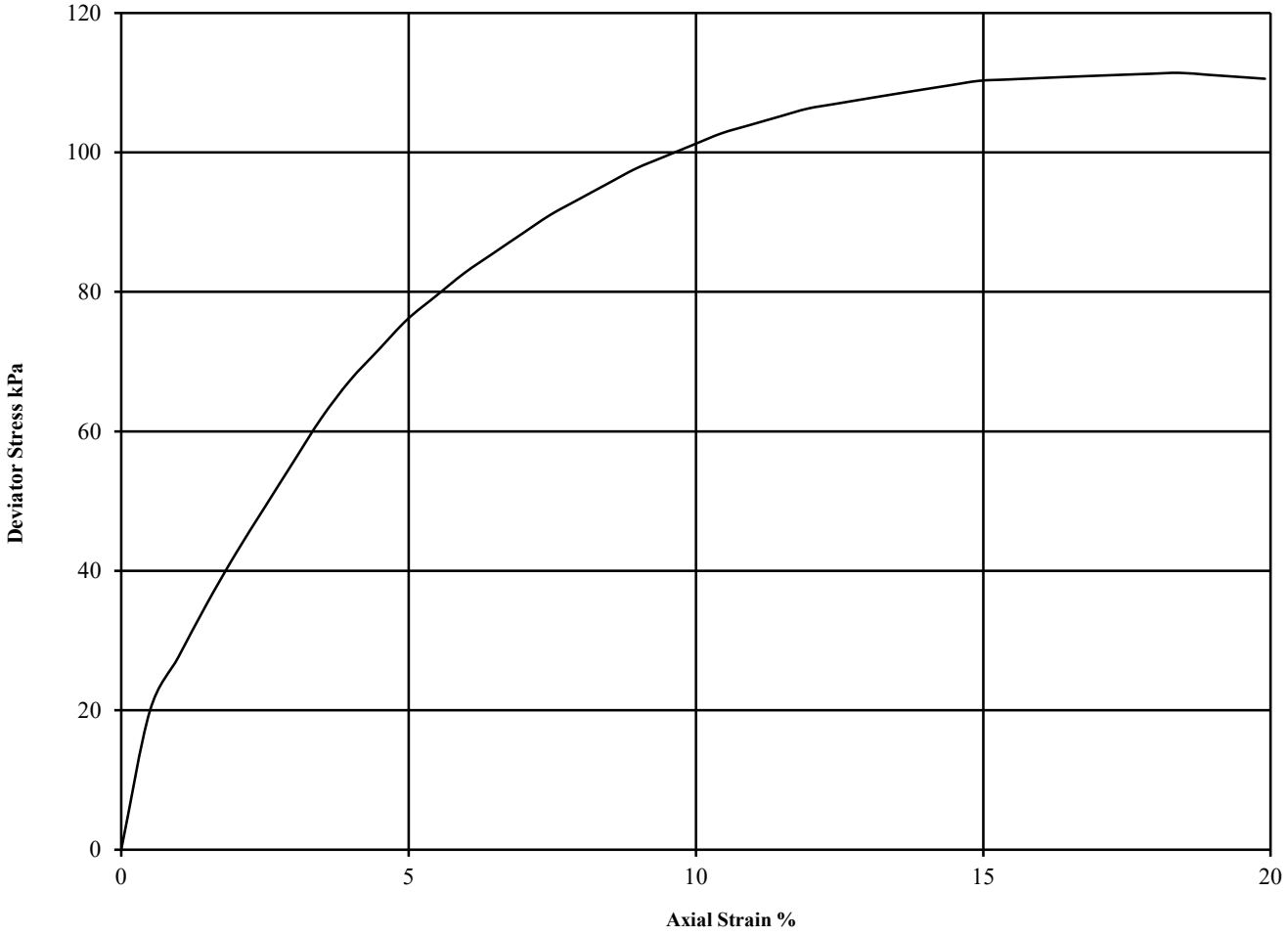
UKAS TESTING 4043	PSL Professional Soils Laboratory	**B401 Manchester Airport**	**Contract No:** PSL22/4391 **Client Ref:** LKC 22 1225

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

Hole Number:	**BH104**	**Top Depth (m):**	**4.00**
Sample Number:		**Base Depth (m):**	**4.45**
Sample Type	**U**		



Diameter (mm):		102	Height (mm):		205	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa) θ_3	Corr. Max. Deviator Stress (kPa) $(\theta_1-\theta_3)_f$	Shear Strength Cu (kPa) $^1/_2(\theta_1-\theta_3)_f$	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.34
1	16	2.11	1.81	80	111	56	18.4	Plastic	See summary of soil descriptions

UKAS TESTING 4043	PSL Professional Soils Laboratory	**B401 Manchester Airport**	**Contract No:** PSL22/4391 **Client Ref:** LKC 22 1225

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation	Dimensions (mm)		Area	D_e^2	D_e	Failure Load (P)		I_s	Corr Fac	I_{s50}	Failure Type	Remarks
				Par / Perp	W	D	(mm2)		(mm)	(Mpa)	(kN)	(MPa)	F	(MPa)		
BH104	10.00		I	Perp	50	20	1000	1273.24	35.68	-	17.41	13.67	0.859	11.75	Valid	
BH104	10.00		I	Perp	30	20	600	763.94	27.64	-	0.24	0.31	0.766	0.24	Valid	
BH104	14.00		I	Perp	50	19	950	1209.58	34.78	-	0.39	0.32	0.849	0.27	Valid	
BH104	14.00		I	Perp	46	30	1380	1757.07	41.92	-	0.31	0.18	0.924	0.16	Valid	
BH104	14.00		I	Perp	32	14	448	570.41	23.88	-	0.21	0.37	0.717	0.26	Valid	
BH104	17.00		I	Perp	60	30	1800	2291.83	47.87	-	0.88	0.38	0.981	0.38	Valid	
BH104	17.00		I	Perp	60	24	1440	1833.46	42.82	-	0.74	0.40	0.933	0.38	Valid	
BH104	17.00		I	Perp	51	26	1326	1688.32	41.09	-	0.55	0.33	0.915	0.30	Valid	
BH104	18.50		A	Perp	85	47	3995	5086.59	71.32	-	0.66	0.13	1.173	0.15	Valid	
BH104	18.50		I	Perp	47	30	1410	1795.27	42.37	-	0.54	0.30	0.928	0.28	Valid	
BH104	18.50		I	Perp	37	28	1036	1319.08	36.32	-	0.45	0.34	0.866	0.30	Valid	
BH104	23.00		I	Perp	40	21	840	1069.52	32.70	-	0.48	0.45	0.826	0.37	Valid	
BH104	23.00		I	Perp	40	16	640	814.87	28.55	-	0.32	0.39	0.777	0.31	Valid	
BH104	23.00		I	Perp	38	18	684	870.90	29.51	-	0.27	0.31	0.789	0.24	Valid	

Note All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

UKAS TESTING 4043

PSL Professional Soils Laboratory

B401 Manchester Airport

Contract No:

PSL22/4391

Client Ref:

LKC 22 1225

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation	Dimensions (mm)		D_e^2	D_e	Failure Load		I_s	Corr Fac	I_{s50}	Failure Type	Remarks
				Par / Perp	L	D		(mm)	(Mpa)	(kN)	(MPa)	F	(MPa)		
BH104	18.50		D	Par	-	85	7225	85.00	-	0.77	0.107	1.270	0.14	Valid	

Note All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

UKAS TESTING 4043	PSL Professional Soils Laboratory	**B401 Manchester Airport**	**Contract No:** PSL22/4391 Client Ref: LKC 22 1225

2531

ANALYTICAL TEST REPORT

Contract no: 111166

Contract name: B401 Manchester Airport (LKC 22 1225)

Client reference: PSL22/4391

Clients name: Professional Soils Laboratory

Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 06 July 2022

Analysis started: 06 July 2022

Analysis completed: 13 July 2022

Report issued: 13 July 2022

Key

U	UKAS accredited test
M	MCERTS & UKAS accredited test
$	Test carried out by an approved subcontractor
I/S	Insufficient sample to carry out test
N/S	Sample not suitable for testing

Approved by:

Megan Harris

Senior Reporting Administrator

Chemtech Environmental Limited

SOILS

Lab number			111166-1	111166-2
Sample id			BH104	BH104
Depth (m)			11.50-13.00	17.00-18.50
Sample Type			RC	RC
Date sampled			-	-
Test	**Method**	**Units**		
pH	CE004 [U]	units	7.9	8.0
Magnesium (2:1 water soluble)	CE061	mg/l Mg	72	53
Chloride (2:1 water soluble)	CE049 [U]	mg/l Cl	8.2	6.2
Nitrate (2:1 water soluble)	CE049 [U]	mg/l NO_3	56	57
Sulphate (2:1 water soluble)	CE061 [U]	mg/l SO_4	1867	1633
Sulphate (total)	CE062 [U]	mg/kg SO_4	166899	232161
Sulphur (total)	CE119	mg/kg S	60163	54811
Sulphur (total)	CE119	% w/w S	6.02	5.48

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO_3
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry	U	10	mg/l SO_4
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry	U	100	mg/kg SO_4
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key

N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
111166-1	BH104	11.50-13.00	Y	All (NSD)
111166-2	BH104	17.00-18.50	Y	All (NSD)

Chemtech Environmental Limited

ADDITIONAL INFORMATION

Notes

Opinions and interpretations expressed herein are outside the UKAS accreditation scope.

Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.

All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.

Methods, procedures and performance data are available on request.

Results reported herein relate only to the material supplied to the laboratory.

This report shall not be reproduced except in full, without prior written approval.

Samples will be disposed of 4 weeks from initial receipt unless otherwise instructed.

For soils and solids, all results are reported on a dry basis. Samples dried at no more than 30°C in a drying cabinet.

Analytical results are inclusive of stones, where applicable.

LABORATORY REPORT

4043

Contract Number: PSL22/4393

Report Date: 19 July 2022

Client's Reference: LKC 22 1225

Client Name: LK Group
Eton Business Park
Eton Hill Road
Manchester
M26 2ZS

For the attention of: Rachel Peart

Contract Title: B401 Manchester Airport

Date Received: 29/6/2022
Date Commenced: 29/6/2022
Date Completed: 19/7/2022

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins (Director)
R Berriman (Quality Manager)
S Royle (Laboratory Manager)
L Knight (Senior Technician)
S Eyre (Senior Technician)
T Watkins (Senior Technician)

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SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
BH105		UT	1.00	1.45	Firm brown slightly gravelly sandy CLAY.
BH105		B	2.00	2.45	Brown mottled grey sandy CLAY.
BH105		S	2.00	2.45	Brown mottled grey sandy CLAY.
BH105		UT	3.00	3.45	Stiff brown sandy CLAY.
BH105		B	4.00	4.45	Brown slightly gravelly sandy CLAY.
BH105		S	6.00	6.45	Brown mottled grey slightly gravelly very sandy CLAY.

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m^3 Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
BH105		UT	1.00	1.45	18							
BH105		S	2.00	2.45	19			36	18	18	100	Intermediate Plasticity CI
BH105		S	6.00	6.45	17			33	16	17	100	Low Plasticity CL

SYMBOLS : **NP : Non Plastic** *** : Liquid Limit and Plastic Limit Wet Sieved.**

UKAS TESTING 4043

PSL Professional Soils Laboratory

B401 Manchester Airport

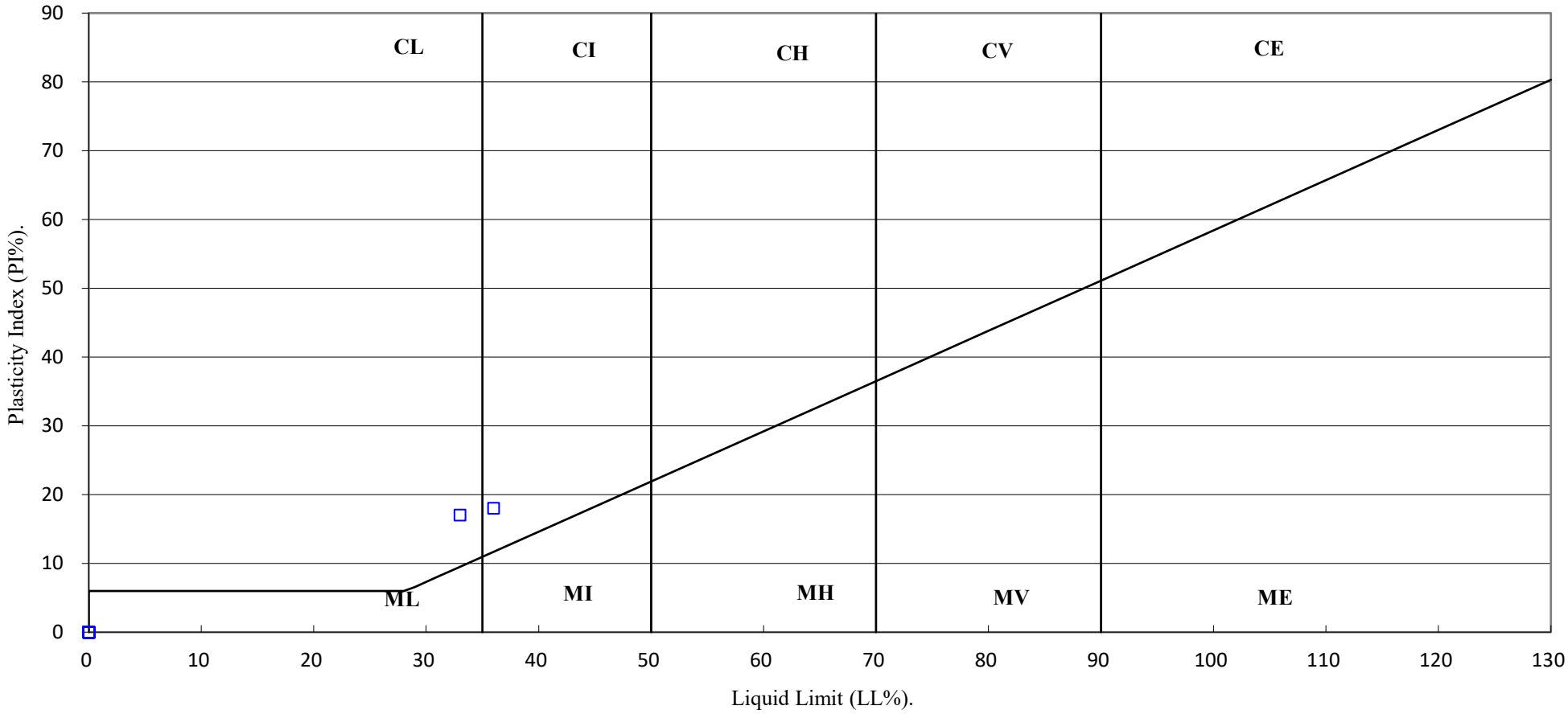
Contract No:

PSL22/4393

Client Ref:

LKC 22 1225

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



UKAS TESTING 4043	PSL Professional Soils Laboratory	B401 Manchester Airport	Contract No: PSL22/4393 Client Ref: LKC 22 1225

PARTICLE SIZE DISTRIBUTION TEST

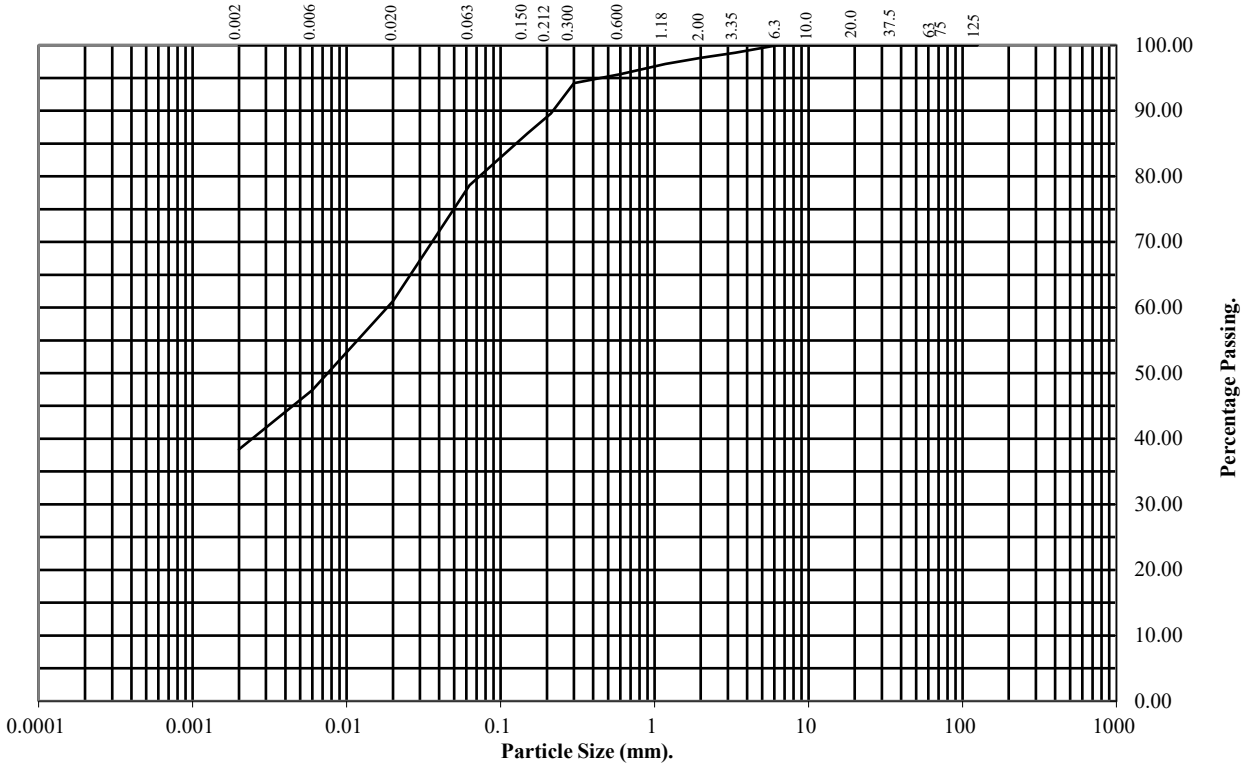
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: BH105 **Top Depth (m):** 4.00

Sample Number: **Base Depth(m):** 4.50

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	99
2	98
1.18	97
0.6	96
0.3	94
0.212	90
0.15	87
0.063	79

Particle Diameter	Percentage Passing
0.02	61
0.006	47
0.002	38

Soil Fraction	Total Percentage
Cobbles	0
Gravel	2
Sand	19
Silt	41
Clay	38

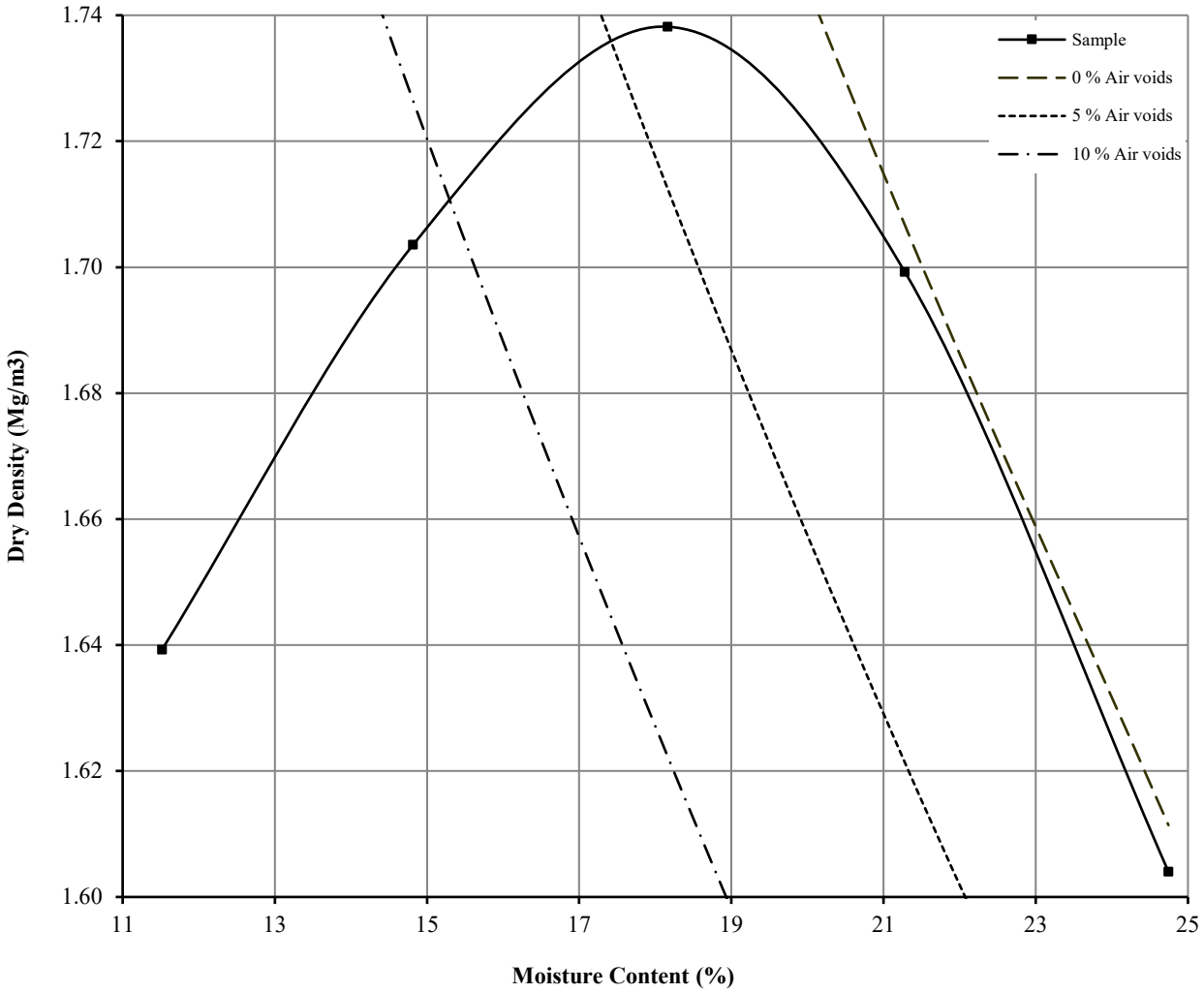
Remarks:

See Summary of Soil Descriptions

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.3 : 1990

Hole Number:	**BH105**	**Top Depth (m) :**	**2.00**
Sample Number:		**Base Depth (m) :**	**2.45**
Sample Type:	**B**		

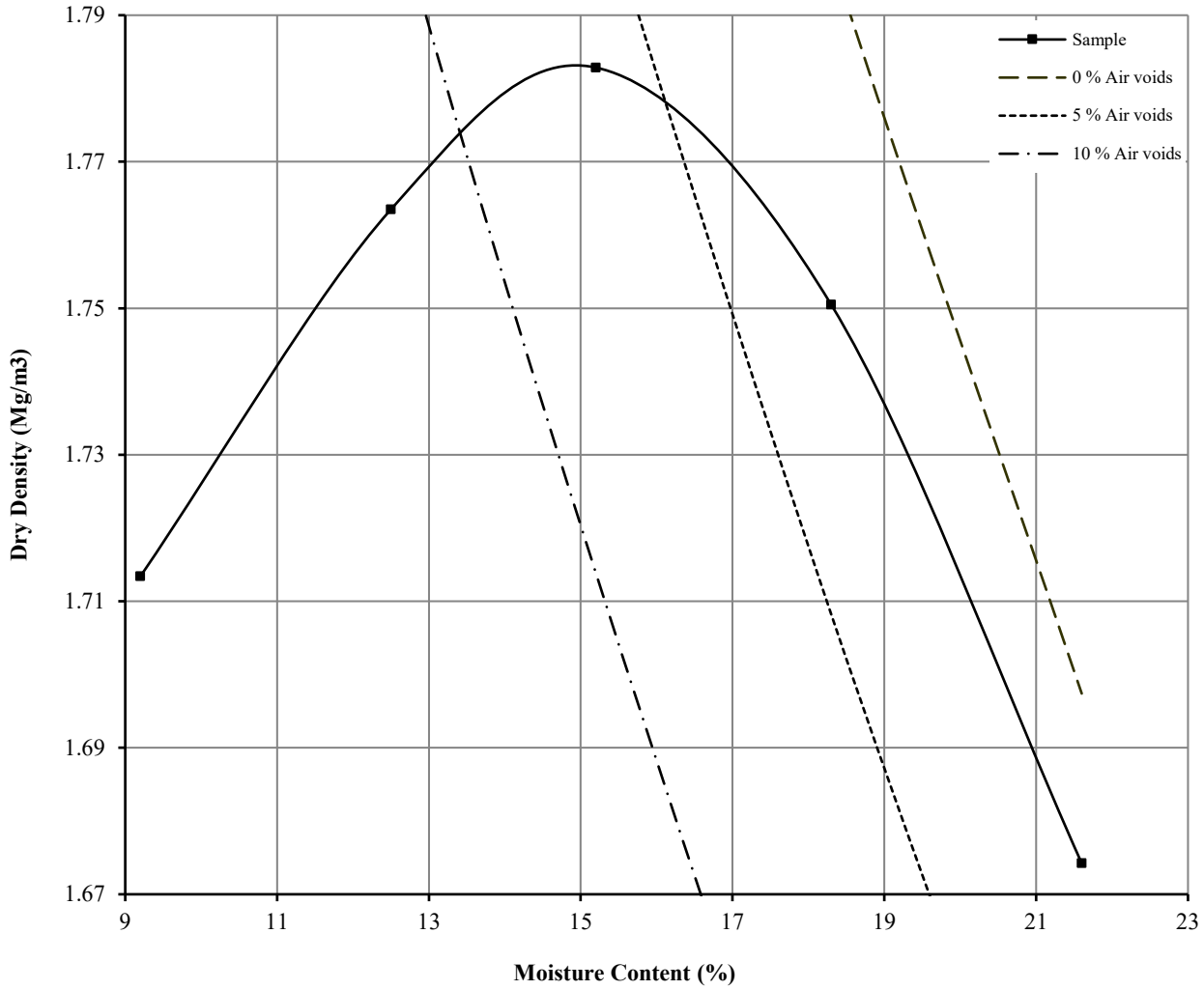


Initial Moisture Content:		21	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m3):	2.68	Assumed	Material Retained on 37.5 mm Test Sieve (%):		0
Maximum Dry Density (Mg/m3):		1.74	Material Retained on 20.0 mm Test Sieve (%):		0
Optimum Moisture Content (%):		18			
Remarks See summary of soil descriptions					

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.5 : 1990

Hole Number:	**BH105**	**Top Depth (m) :**	**2.00**
Sample Number:		**Base Depth (m) :**	**2.45**
Sample Type:	**B**		



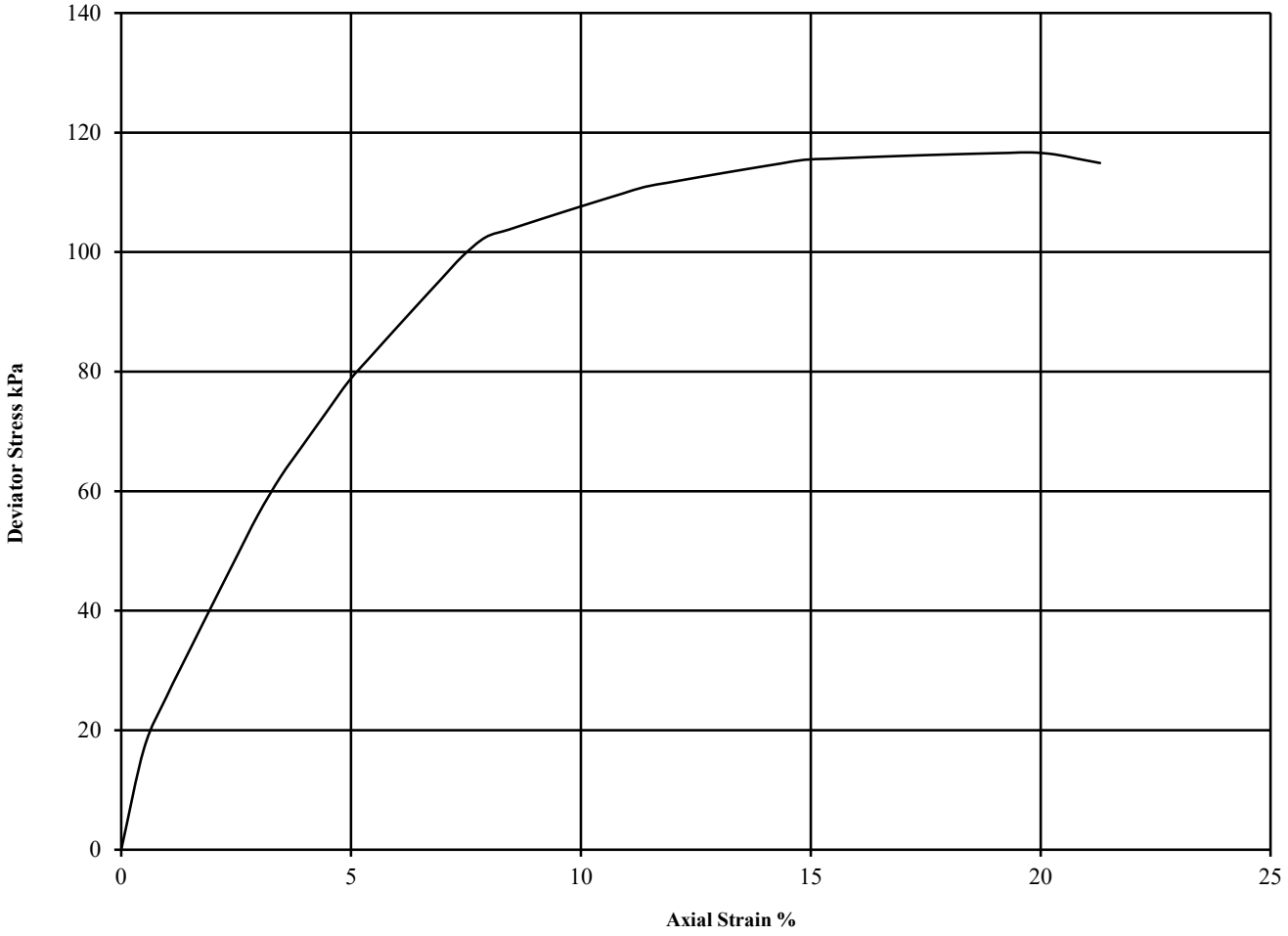
Initial Moisture Content:		21	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m3):	2.68	Assumed	Material Retained on 37.5 mm Test Sieve (%):		0
Maximum Dry Density (Mg/m3):		1.78	Material Retained on 20.0 mm Test Sieve (%):		0
Optimum Moisture Content (%):		15			
Remarks See summary of soil descriptions					

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

Hole Number:	**BH105**	**Top Depth (m):**	**1.00**
Sample Number:		**Base Depth (m):**	**1.45**
Sample Type	**UT**		



Diameter (mm):		102	Height (mm):		206	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa) θ_3	Corr. Max. Deviator Stress (kPa) $(\theta_1-\theta_3)_f$	Shear Strength Cu (kPa) $^1/_2(\theta_1-\theta_3)_f$	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.33
1	20	2.09	1.74	20	117	58	19.8	Plastic	See summary of soil descriptions

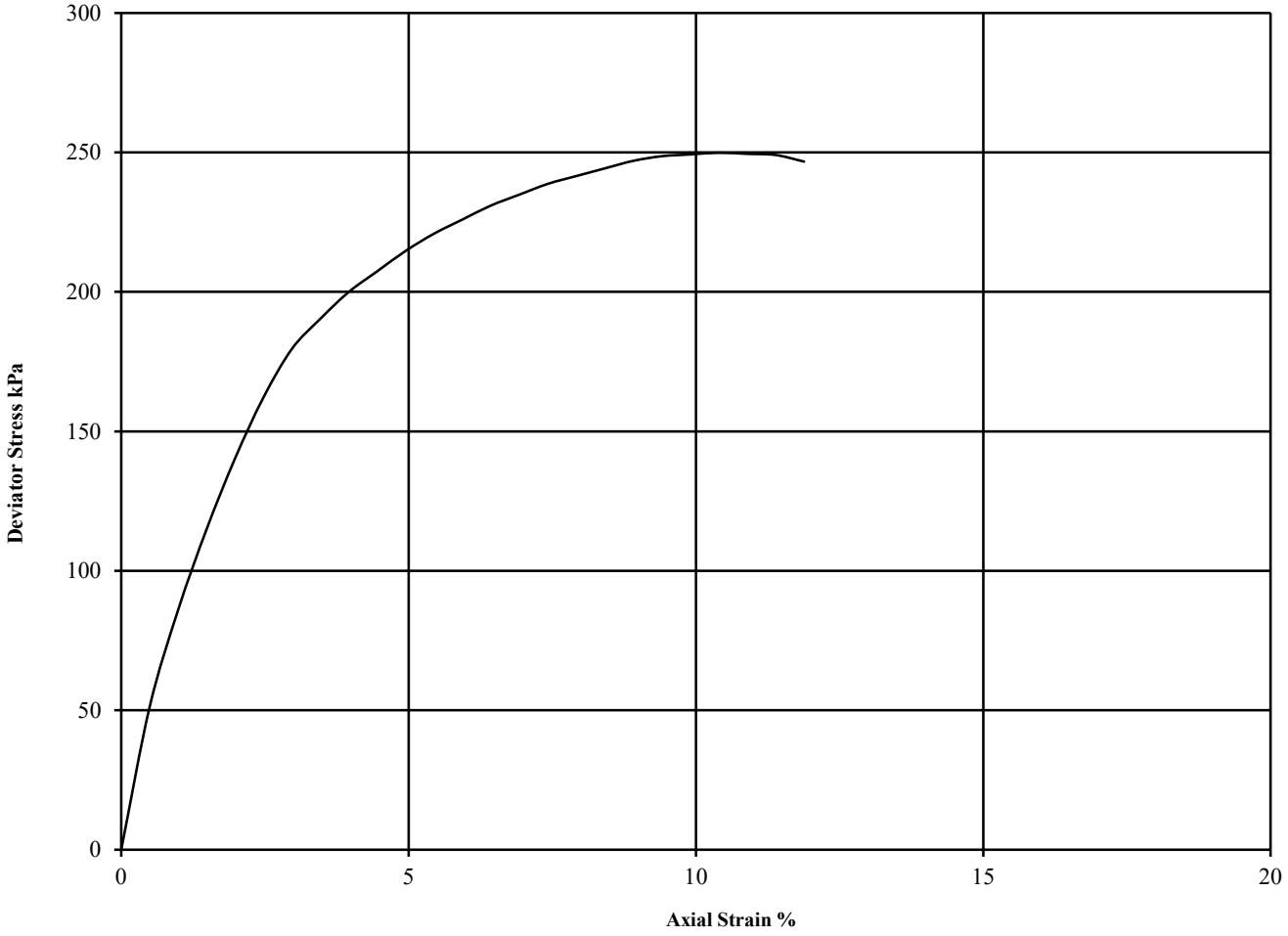
UKAS TESTING 4043	PSL Professional Soils Laboratory	**B401 Manchester Airport**	**Contract No:** PSL22/4393 **Client Ref:** LKC 22 1225

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

Hole Number:	**BH105**	**Top Depth (m):**	**3.00**
Sample Number:		**Base Depth (m):**	**3.45**
Sample Type	**UT**		



Diameter (mm):		102	Height (mm):		206	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa) θ_3	Corr. Max. Deviator Stress (kPa) $(\theta_1-\theta_3)_f$	Shear Strength Cu (kPa) $^1/_2(\theta_1-\theta_3)_f$	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.35
1	19	2.08	1.75	60	250	125	10.4	Brittle	See summary of soil descriptions

UKAS TESTING 4043	PSL Professional Soils Laboratory	**B401 Manchester Airport**	**Contract No:** PSL22/4393 **Client Ref:** LKC 22 1225

ONE DIMENSIONAL CONSOLIDATION TEST

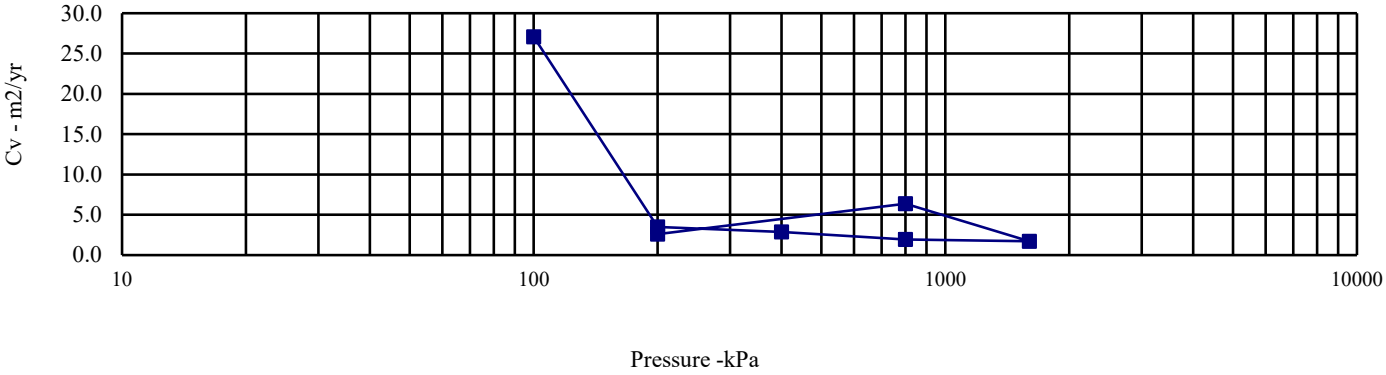
BS 1377: Part 5: 1990: Clause 3

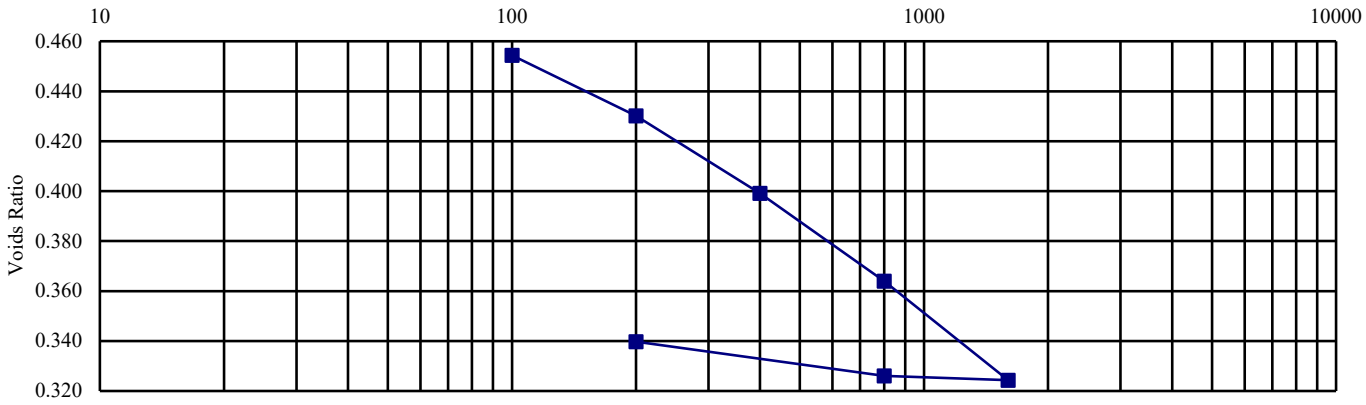
Hole Number: **BH105** **Top Depth (m):** **1.00**

Sample Number: **Base Depth (m) :** **1.45**

Sample Type: **UT**

Initial Conditions		Pressure Range kPa		Mv m2/MN	Cv m2/yr	Specimen location within tube:	Top
Moisture Content (%):	20						
Bulk Density (Mg/m3):	2.07	0	100	0.505	27.083	Method used to	
Dry Density (Mg/m3):	1.73	100	200	0.167	3.512	determine CV:	T90
Voids Ratio:	0.532	200	400	0.108	2.868	Nominal temperature	
Degree of saturation:	98.0	400	800	0.063	1.919	during test ' C:	20
Height (mm):	20.06	800	1600	0.036	1.718	Remarks:	
Diameter (mm)	75.08	1600	800	0.002	6.383	See summary of soil descriptions	
Particle Density (Mg/m3): Assumed	2.65	800	200	0.017	2.609		





UKAS TESTING 4043	PSL Professional Soils Laboratory	**B401 Manchester Airport**	**Contract No:** PSL22/4393 **Client Ref:** LKC 22 1225

ONE DIMENSIONAL CONSOLIDATION TEST

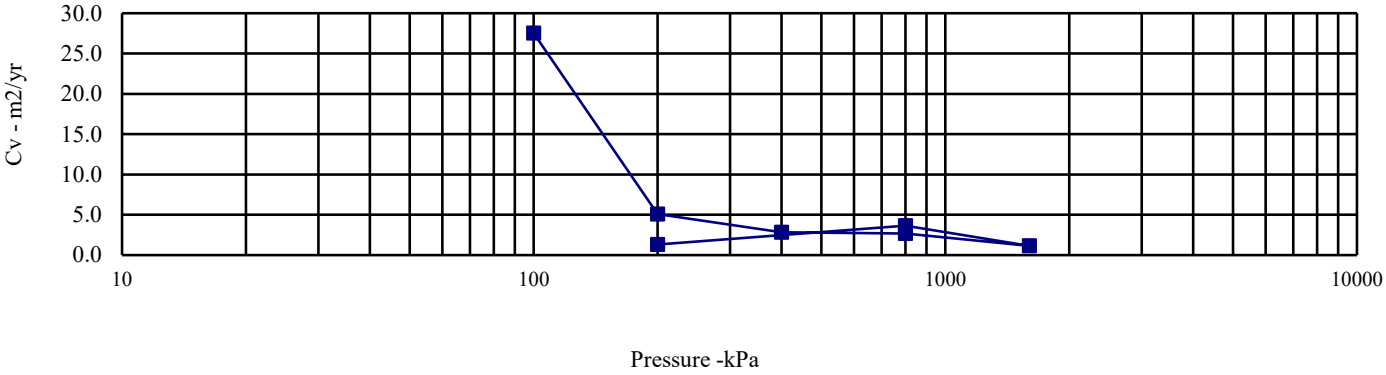
BS 1377: Part 5: 1990: Clause 3

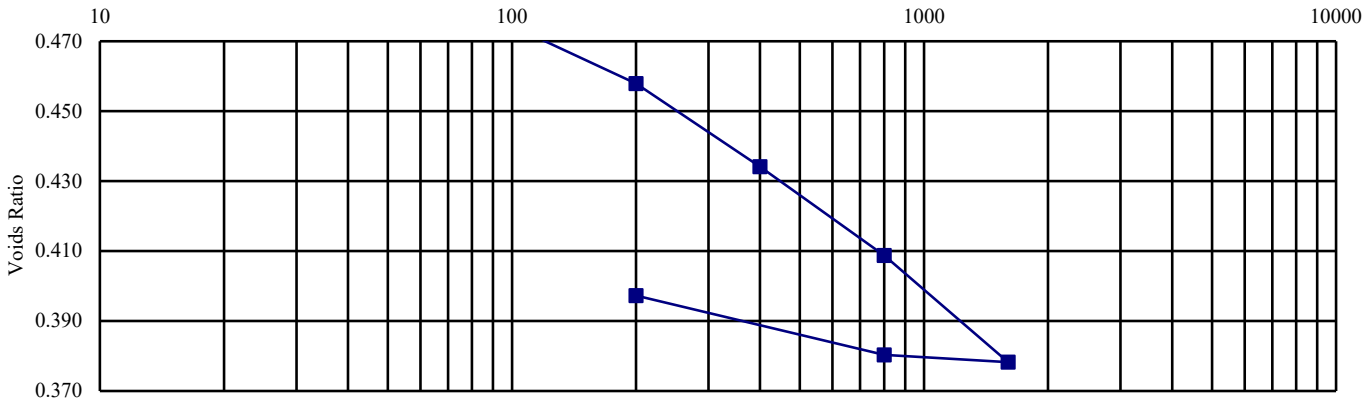
Hole Number: **BH105** **Top Depth (m):** **3.00**

Sample Number: **Base Depth (m) :** **3.45**

Sample Type: **UT**

Initial Conditions		Pressure Range kPa		Mv m2/MN	Cv m2/yr	Specimen location within tube:	Top
Moisture Content (%):	19						
Bulk Density (Mg/m3):	2.11	0	100	0.154	27.519	Method used to	
Dry Density (Mg/m3):	1.77	100	200	0.112	5.083	determine CV:	T90
Voids Ratio:	0.498	200	400	0.081	2.830	Nominal temperature	
Degree of saturation:	102.1	400	800	0.044	2.676	during test ' C:	20
Height (mm):	20.04	800	1600	0.027	1.147	Remarks:	
Diameter (mm)	75.11	1600	800	0.002	3.636	See summary of soil descriptions	
Particle Density (Mg/m3): Assumed	2.65	800	200	0.020	1.304		





UKAS TESTING 4043	PSL Professional Soils Laboratory	**B401 Manchester Airport**	**Contract No: PSL22/4393** **Client Ref: LKC 22 1225**

UKAS TESTING
2531

CHEMTECH environmental part of Cawood

ANALYTICAL TEST REPORT

Contract no: 111173

Contract name: B401 Manchester Airport

Client reference: PSL22/4393

Clients name: Professional Soils Laboratory

Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 06 July 2022

Analysis started: 06 July 2022

Analysis completed: 13 July 2022

Report issued: 13 July 2022

Key

U	UKAS accredited test
M	MCERTS & UKAS accredited test
$	Test carried out by an approved subcontractor
I/S	Insufficient sample to carry out test
N/S	Sample not suitable for testing
NAD	No Asbestos Detected

Approved by: M. Harris

Megan Harris

Senior Reporting Administrator

Chemtech Environmental Limited

SOILS

Lab number			111173-1	111173-2	111173-3
Sample id			BH105	BH105	BH105
Depth (m)			2.00-2.45	4.00-4.45	6.00-6.45
Sample Type			B	B	B
Date sampled			-	-	-
Test	**Method**	**Units**			
pH	CE004 [U]	units	8.3	8.6	8.2
Magnesium (2:1 water soluble)	CE061	mg/l Mg	84	29	62
Chloride (2:1 water soluble)	CE049 [U]	mg/l Cl	97	35	18
Nitrate (2:1 water soluble)	CE049 [U]	mg/l NO_3	<1	<1	<1
Sulphate (2:1 water soluble)	CE061 [U]	mg/l SO_4	2020	427	1909
Sulphate (total)	CE062 [U]	mg/kg SO_4	6884	1184	15799
Sulphur (total)	CE119	mg/kg S	2307	83	5762
Sulphur (total)	CE119	% w/w S	0.23	<0.01	0.58

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO_3
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry	U	10	mg/l SO_4
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry	U	100	mg/kg SO_4
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key

N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
111173-1	BH105	2.00-2.45	Y	All (NSD)
111173-2	BH105	4.00-4.45	Y	All (NSD)
111173-3	BH105	6.00-6.45	Y	All (NSD)

Chemtech Environmental Limited

ADDITIONAL INFORMATION

Notes

Opinions and interpretations expressed herein are outside the UKAS accreditation scope.

Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.

All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.

Methods, procedures and performance data are available on request.

Results reported herein relate only to the material supplied to the laboratory.

This report shall not be reproduced except in full, without prior written approval.

Samples will be disposed of 4 weeks from initial receipt unless otherwise instructed.

For soils and solids, all results are reported on a dry basis. Samples dried at no more than 30°C in a drying cabinet.

Analytical results are inclusive of stones, where applicable.

LABORATORY REPORT

4043

Contract Number: PSL22/4389

Report Date: 20 July 2022

Client's Reference: LKC 22 1225

Client Name: LK Group
Eton Business Park
Eton Hill Road
Manchester
M26 2ZS

For the attention of: Rachel Peart

Contract Title: B401 Manchester Airport

Date Received: 29/6/2022
Date Commenced: 29/6/2022
Date Completed: 20/07/2022

Notes: **Opinions and Interpretations are outside the UKAS Accreditation**

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins (Director)

R Berriman (Quality Manager)

S Royle (Laboratory Manager)

L Knight (Assistant Laboratory Manager)

S Eyre (Senior Technician)

M Fennell (Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
e-mail: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
BH106		UT	1.20	1.65	Stiff brown slightly gravelly sandy CLAY.
BH106		B	2.00	2.45	Brown slightly gravelly sandy CLAY.
BH106		UT	3.00	3.45	Stiff brown slightly gravelly very sandy CLAY.
BH106		B	5.00	5.45	Brown gravelly very sandy CLAY.
BH106		S	6.00	6.45	Brown slightly gravelly very sandy CLAY.
BH106		S	7.00	7.45	Brown slightly gravelly sandy silty CLAY.

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m^3 Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
BH106		UT	1.20	1.65	21							
BH106		B	2.00	2.45	25			38	17	21	98	Intermediate Plasticity CI
BH106		UT	3.00	3.45	18							
BH106		B	5.00	5.45	17			27	14	13	86	Low Plasticity CL
BH106		S	6.00	6.45	16			33	16	17	99	Low Plasticity CL
BH106		S	7.00	7.45	20			42	21	21	94	Intermediate Plasticity CI
BH106		RC	8.50	10.00	12							
BH106		RC	10.00	11.50	13							
BH106		RC	11.50	13.00	7.9							
BH106		RC	13.00	14.50	7.8							

SYMBOLS : **NP : Non Plastic** *** : Liquid Limit and Plastic Limit Wet Sieved.**

UKAS TESTING 4043

PSL Professional Soils Laboratory

B401 Manchester Airport

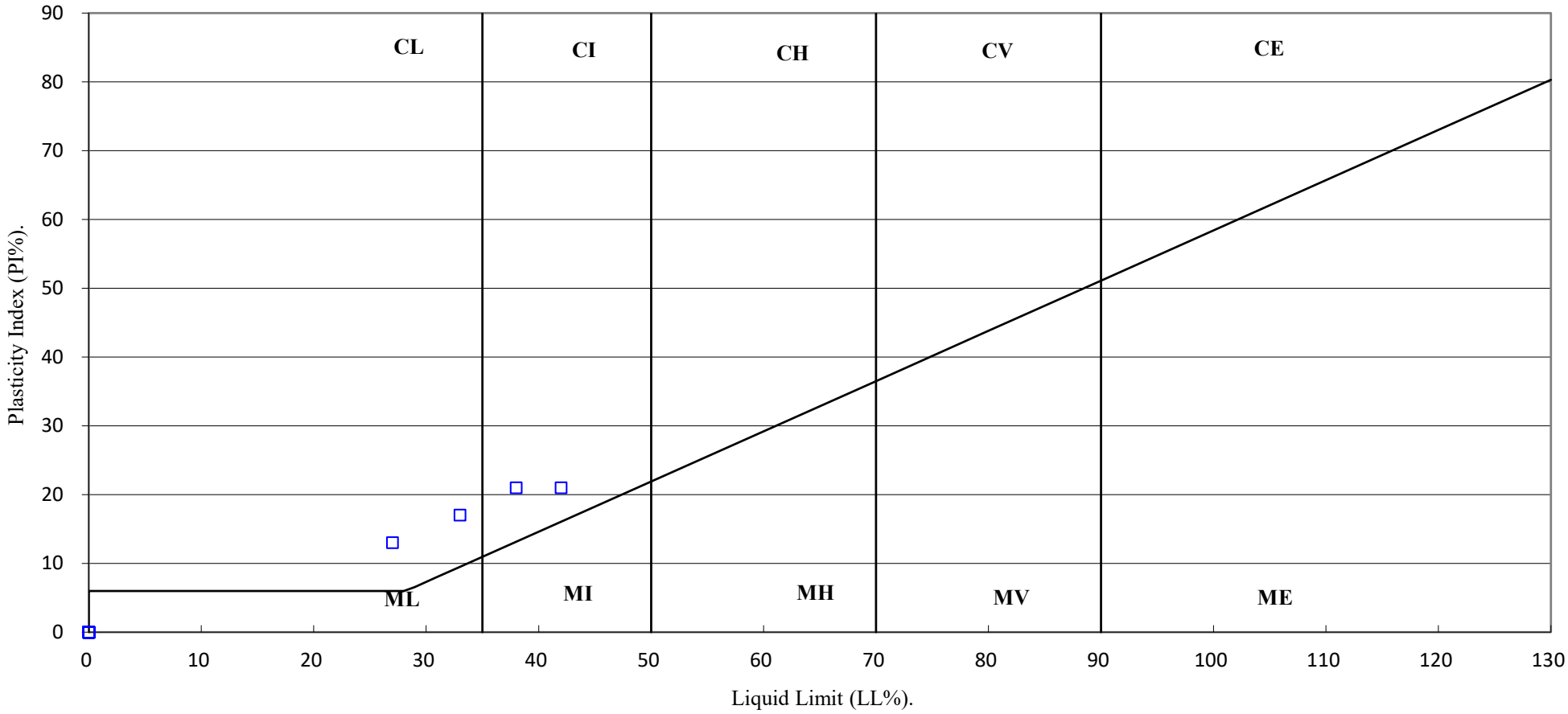
Contract No:

PSL22/4389

Client Ref:

LKC 22 1225

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



UKAS TESTING 4043	PSL Professional Soils Laboratory	B401 Manchester Airport	Contract No: PSL22/4389 Client Ref: LKC 22 1225

SUMMARY OF SOIL DENSITY RELATED TESTS

(BS1377 : PART 2 & 4 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content %	Bulk Density Mg/m^3	Dry Density Mg/m^3	Retained 20mm %	Retained 37.5mm %	Method of compaction kg	Maximum Dry Density Mg/m^3	Minimum Dry Density Mg/m^3	Remarks
BH106		UT	1.20	1.65	21.0	2.05	1.69						
BH106		UT	3.00	3.45	18	2.18	1.85						

UKAS TESTING
4043

PSL
Professional Soils Laboratory

B401 Manchester Airport

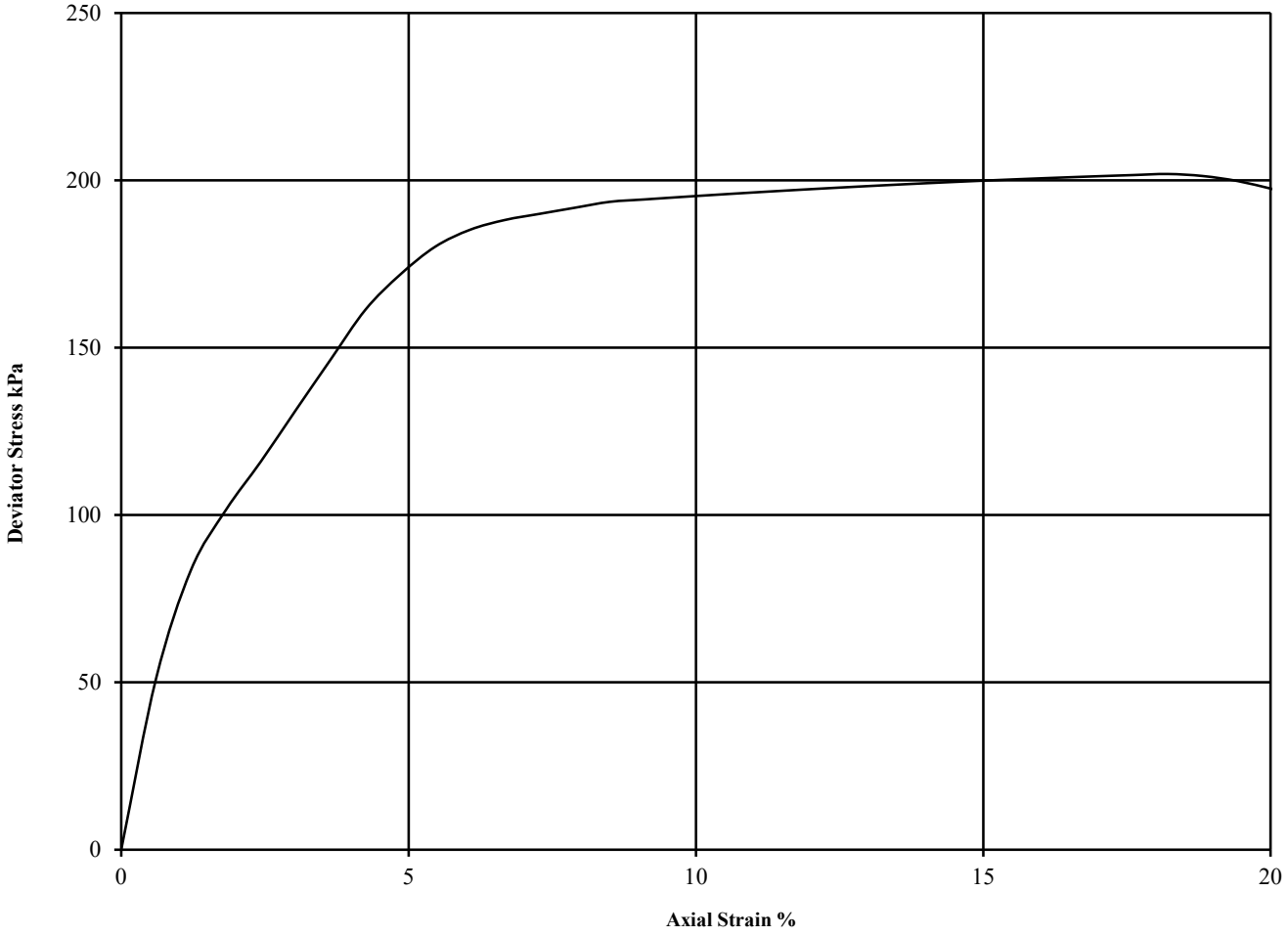
Contract No:
PSL22/4389
Client Ref:
LKC 22 1225

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

Hole Number:	**BH106**	**Top Depth (m):**	**1.20**
Sample Number:		**Base Depth (m):**	**1.65**
Sample Type	**UT**		



Diameter (mm):		102	Height (mm):		168	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa) θ_3	Corr. Max. Deviator Stress (kPa) $(\theta_1-\theta_3)_f$	Shear Strength Cu (kPa) $^1/_2(\theta_1-\theta_3)_f$	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.34
1	21	2.05	1.70	24	202	101	18.2	Intermediate	See summary of soil descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

B401 Manchester Airport

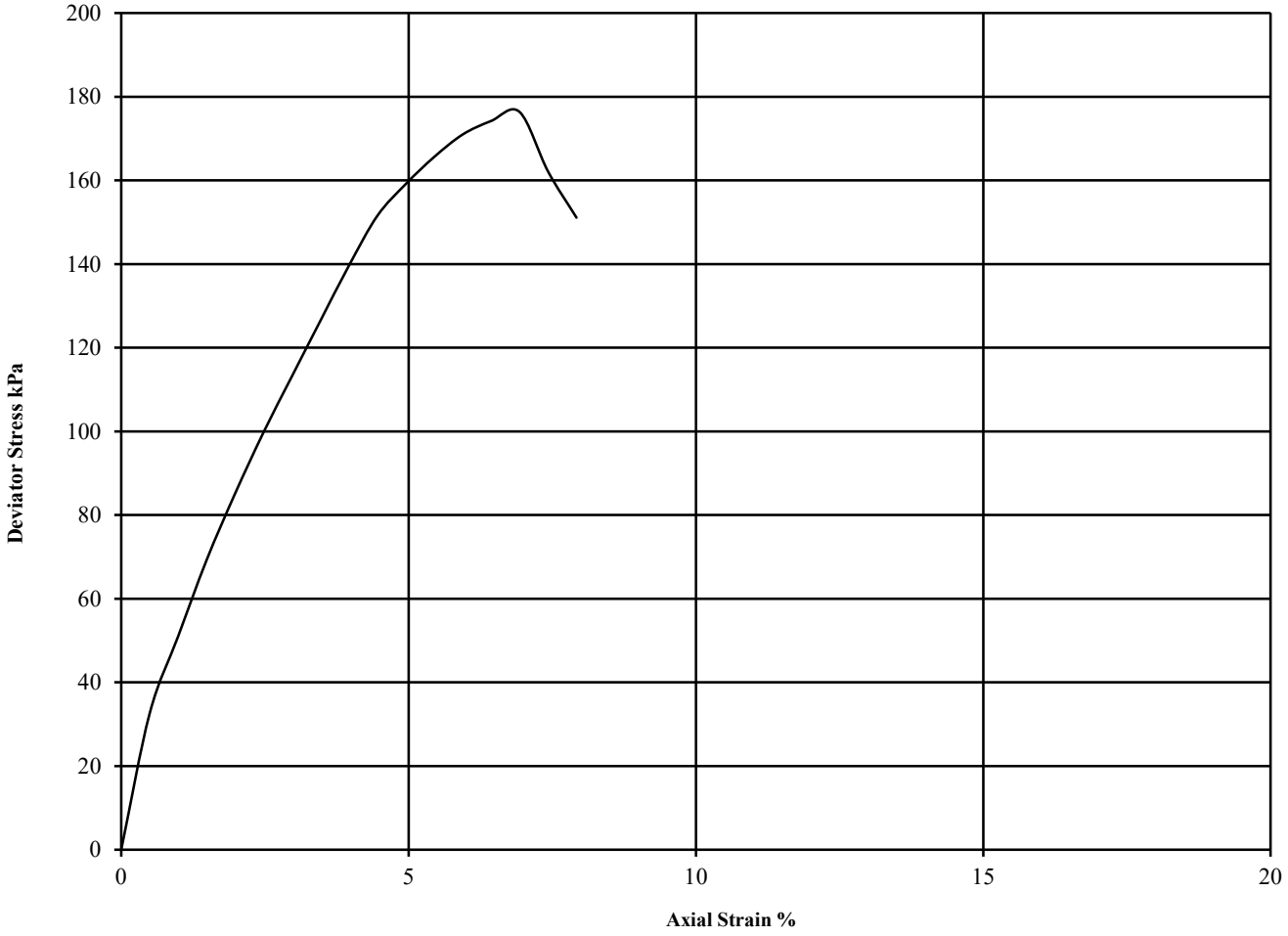
Contract No:
PSL22/4389
Client Ref:
LKC 22 1225

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 8

Hole Number:	**BH106**	**Top Depth (m):**	**3.00**
Sample Number:		**Base Depth (m):**	**3.45**
Sample Type	**UT**		



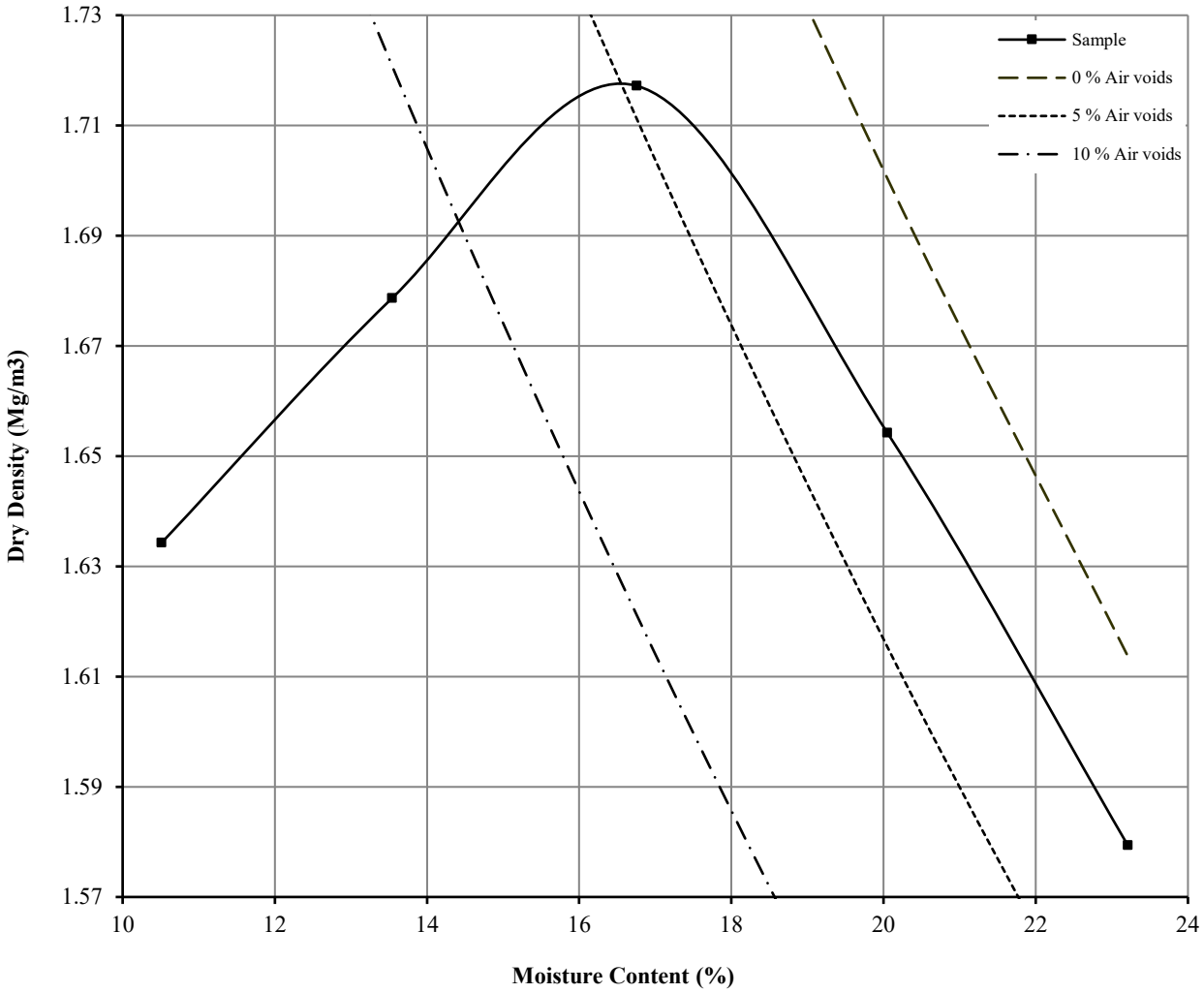
Diameter (mm):		102	Height (mm):		206	Test:	UU Single Stage		Remarks:
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa) θ_3	Corr. Max. Deviator Stress (kPa) $(\theta_1-\theta_3)_f$	Shear Strength Cu (kPa) $^1/_2(\theta_1-\theta_3)_f$	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick, Correction applied 0.36
1	18	2.18	1.85	60	176	88	6.9	Brittle	See summary of soil descriptions

UKAS TESTING 4043	PSL Professional Soils Laboratory	**B401 Manchester Airport**	**Contract No:** PSL22/4389 **Client Ref:** LKC 22 1225

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.3 : 1990

Hole Number:	**BH106**	**Top Depth (m) :**	**2.00**
Sample Number:		**Base Depth (m) :**	**2.45**
Sample Type:	**B**		

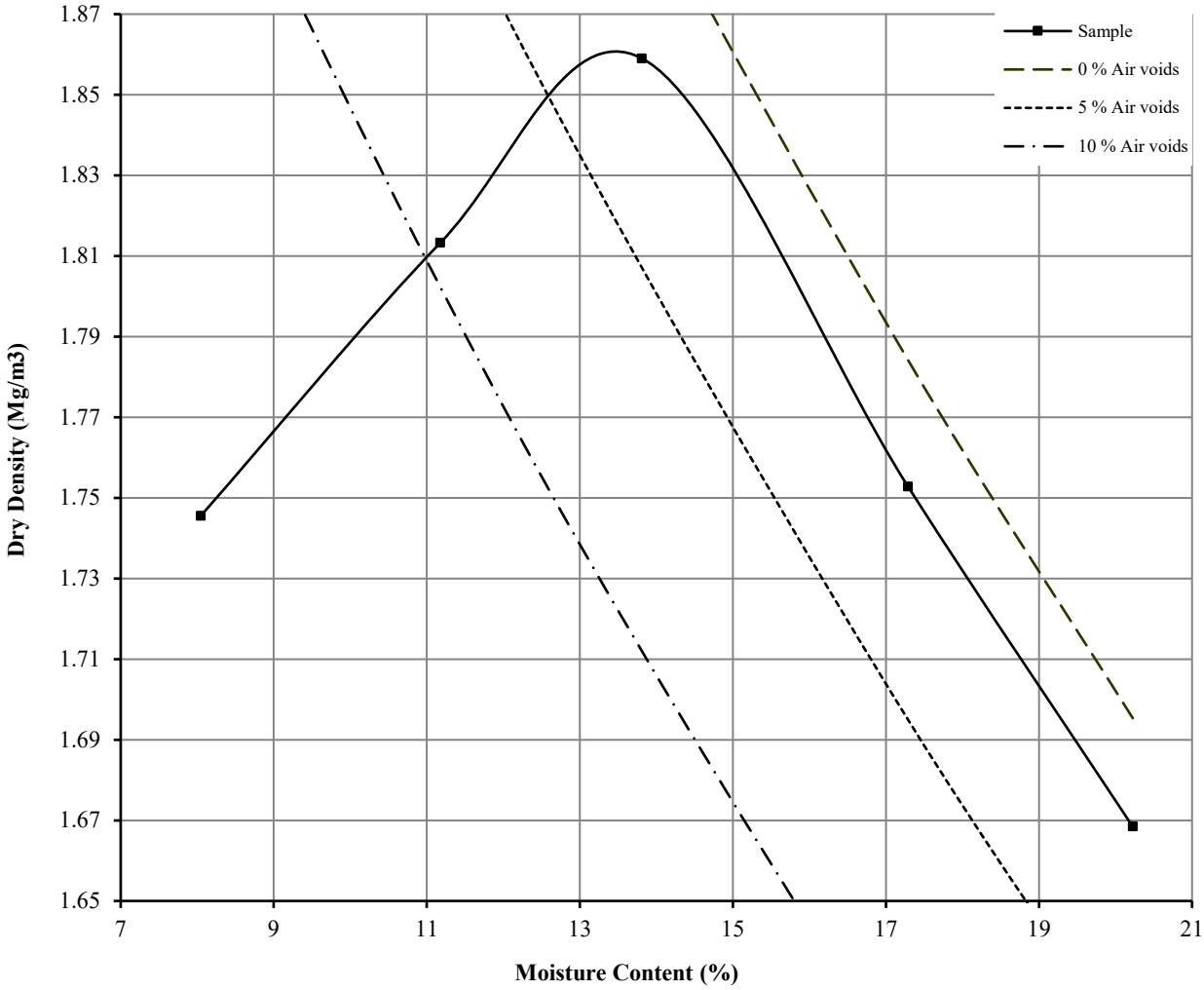


Initial Moisture Content:		23	Method of Compaction:	2.5kg	Separate Samples
Particle Density (Mg/m3):	2.58	Assumed	Material Retained on 37.5 mm Test Sieve (%):		0
Maximum Dry Density (Mg/m3):		1.72	Material Retained on 20.0 mm Test Sieve (%):		0
Optimum Moisture Content (%):		17			
Remarks See summary of soil descriptions					

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP

BS 1377 : Part 4 : Clause 3.5 : 1990

Hole Number:	**BH106**	**Top Depth (m) :**	**2.00**
Sample Number:		**Base Depth (m) :**	**2.45**
`	**B**		



Initial Moisture Content:		23	Method of Compaction:	4.5kg	Separate Samples
Particle Density (Mg/m3):	2.58	Assumed	Material Retained on 37.5 mm Test Sieve (%):		0
Maximum Dry Density (Mg/m3):		1.86	Material Retained on 20.0 mm Test Sieve (%):		0
Optimum Moisture Content (%):		14			
Remarks See summary of soil descriptions					

ONE DIMENSIONAL CONSOLIDATION TEST

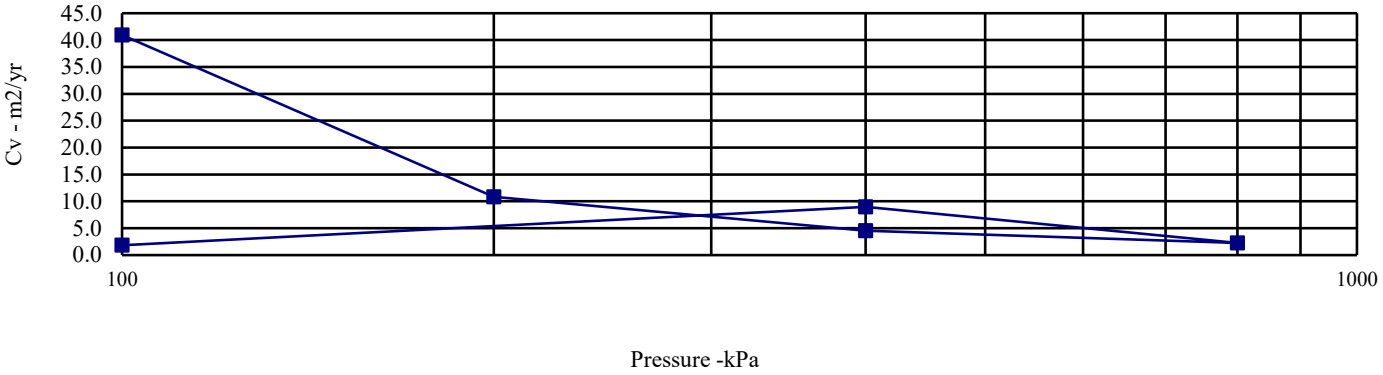
BS 1377: Part 5: 1990: Clause 3

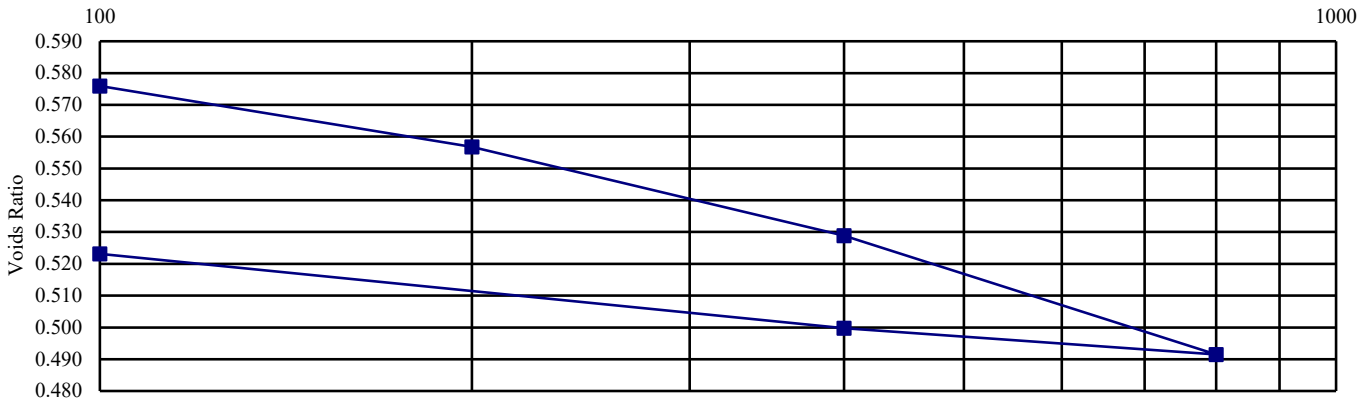
Hole Number: **BH106** **Top Depth (m):** **1.20**

Sample Number: **Base Depth (m) :** **1.65**

Sample Type: **UT**

Initial Conditions		Pressure Range kPa		Mv m2/MN	Cv m2/yr	Specimen location within tube:	Top
Moisture Content (%):	21						
Bulk Density (Mg/m3):	2.01	0	100	0.158	40.947	Method used to	
Dry Density (Mg/m3):	1.66	100	200	0.121	10.816	determine CV:	T90
Voids Ratio:	0.601	200	400	0.090	4.566	Nominal temperature	
Degree of saturation:	93.9	400	800	0.061	2.276	during test ' C:	20
Height (mm):	20.1	800	400	0.014	9.003	Remarks:	
Diameter (mm)	75.06	400	100	0.052	1.829	See summary of soil descriptions	
Particle Density (Mg/m3): Assumed	2.65						





UKAS TESTING 4043

PSL Professional Soils Laboratory

B401 Manchester Airport

Contract No:
PSL22/4389
Client Ref:
LKC 22 1225

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation	Dimensions (mm)		Area	D_e^2	D_e	Failure Load (P)		I_s	Corr Fac	I_{s50}	Failure Type	Remarks
				Par / Perp	W	D	(mm2)		(mm)	(Mpa)	(kN)	(MPa)	F	(MPa)		
BH106	8.50		I	Perp	85	21	1785	2272.73	47.67	-	1.88	0.83	0.979	0.81	Valid	
BH106	8.50		I	Perp	85	20	1700	2164.51	46.52	-	1.47	0.68	0.968	0.66	Valid	
BH106	8.50		I	Perp	22	20	440	560.23	23.67	-	1.20	2.14	0.714	1.53	Valid	
BH106	10.00		I	Perp	80	30	2400	3055.77	55.28	-	0.29	0.09	1.046	0.10	Valid	
BH106	10.00		I	Perp	45	31	1395	1776.17	42.14	-	0.07	0.04	0.926	0.04	Valid	
BH106	10.00		I	Perp	24	20	480	611.15	24.72	-	0.12	0.20	0.728	0.14	Valid	
BH106	11.50		I	Perp	80	53	4240	5398.54	73.47	-	0.98	0.18	1.189	0.22	Valid	
BH106	11.50		I	Perp	40	50	2000	2546.48	50.46	-	0.81	0.32	1.004	0.32	Valid	
BH106	11.50		I	Perp	41	32	1312	1670.49	40.87	-	0.37	0.22	0.913	0.20	Valid	
BH106	13.00		I	Perp	80	47	3760	4787.38	69.19	-	1.03	0.22	1.157	0.25	Valid	
BH106	13.00		I	Perp	80	32	2560	3259.49	57.09	-	1.01	0.31	1.062	0.33	Valid	
BH106	13.00		I	Perp	40	22	880	1120.45	33.47	-	0.98	0.87	0.835	0.73	Valid	

Note All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

UKAS TESTING 4043

PSL Professional Soils Laboratory

B401 Manchester Airport

Contract No:

PSL22/4389

Client Ref:

LKC 22 1225

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation	Dimensions (mm)		D_e^2	D_e	Failure Load		I_s	Corr Fac	I_{s50}	Failure Type	Remarks
				Par / Perp	L	D		(mm)	(Mpa)	(kN)	(MPa)	F	(MPa)		

Note All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

UKAS TESTING 4043	PSL Professional Soils Laboratory	**B401 Manchester Airport**	**Contract No:** PSL22/4389 Client Ref: LKC 22 1225

UKAS TESTING
2531

CHEMTECH environmental part of Cawood

ANALYTICAL TEST REPORT

Contract no: 111175

Contract name: B401 Manchester Airport

Client reference: PSL22/4389

Clients name: Professional Soils Laboratory

Clients address: 5/7 Hexthorpe Road
Doncaster
DN4 0AR

Samples received: 06 July 2022

Analysis started: 06 July 2022

Analysis completed: 13 July 2022

Report issued: 13 July 2022

Key

U	UKAS accredited test
M	MCERTS & UKAS accredited test
$	Test carried out by an approved subcontractor
I/S	Insufficient sample to carry out test
N/S	Sample not suitable for testing

Approved by: M. Harris

Megan Harris

Senior Reporting Administrator

Chemtech Environmental Limited

SOILS

Lab number			111175-1	111175-2	111175-3	111175-4
Sample id			BH106	BH106	BH106	BH106
Depth (m)			0.50	6.00-6.45	8.50-10.00	13.00-14.50
Sample Type			B	B	RC	RC
Date sampled			-	-	-	-
Test	**Method**	**Units**				
pH	CE004 [U]	units	8.3	8.0	8.0	8.1
Magnesium (2:1 water soluble)	CE061	mg/l Mg	25	79	89	63
Chloride (2:1 water soluble)	CE049 [U]	mg/l Cl	71	24	11	12
Nitrate (2:1 water soluble)	CE049 [U]	mg/l NO_3	<1	<1	<1	<1
Sulphate (2:1 water soluble)	CE061 [U]	mg/l SO_4	520	1893	1930	1963
Sulphate (total)	CE062 [U]	mg/kg SO_4	1262	126995	234739	250844
Sulphur (total)	CE119	mg/kg S	1064	46292	68680	52407
Sulphur (total)	CE119	% w/w S	0.11	4.63	6.87	5.24

Chemtech Environmental Limited

METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	U	-	units
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO_3
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry	U	10	mg/l SO_4
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry	U	100	mg/kg SO_4
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		0.01	% w/w S

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments
Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
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N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
111175-1	BH106	0.50	Y	All (NSD)
111175-2	BH106	6.00-6.45	Y	All (NSD)
111175-3	BH106	8.50-10.00	Y	All (NSD)
111175-4	BH106	13.00-14.50	Y	All (NSD)

Chemtech Environmental Limited

ADDITIONAL INFORMATION

Notes

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For soils and solids, all results are reported on a dry basis. Samples dried at no more than 30°C in a drying cabinet.

Analytical results are inclusive of stones, where applicable.

Appendix F

Falling Head Tests

LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** B401 Manchester Airport	**Borehole Number** **BH101**

In Situ Permeability Type	**Test No.**	**Ground Level (mOD)**	**Client**	**Job Number**
Falling Head	1	67.35	Threadneedle Curtis Ltd	LKC 22 1225
	Location	**Dates**	**Project Contractor**	**Sheet**
	380923.3 E 384901.5 N	25/05/2022- 31/05/2022	LK Consult	1/6

Height of casing above ground level:	0.00	**m**
Depth to Base of Borehole:	3.03	**m bgl**
Depth to Base of Casing:	2.00	**m bgl**
Depth to equilibrium water level:	3.03	**m btoc**
Test Length L:	1.03	**m**
Diameter of Test Length D:	0.15	**m**
Area of Test Section:	0.0177	**m2**
Intake Factor F: (after condition D,figure 6,BS5930:1990+A2:2010)	2.4653	

PERMEABILITY (after Hvorslev, 1951)

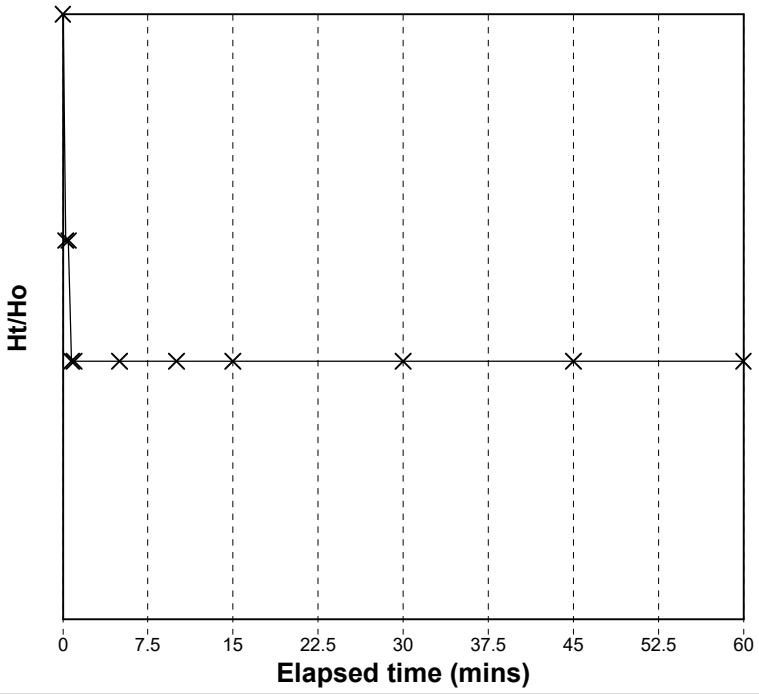
Basic Time Lag Analysis

The value T when Ht/Ho = 0.37 is the basic time lag, T

T =

k = **ms-1**

Elapsed time (mins)	Depth to water (m btoc)	Head of Water, H (m)	Ht / Ho
0.00	1.990	1.040	1.000
0.25	2.010	1.020	0.981
0.50	2.010	1.020	0.981
0.75	2.020	1.010	0.971
1.00	2.020	1.010	0.971
5.00	2.020	1.010	0.971
10.00	2.020	1.010	0.971
15.00	2.020	1.010	0.971
30.00	2.020	1.010	0.971
45.00	2.020	1.010	0.971
60.00	2.020	1.010	0.971



Remarks

Key: bgl = Below Ground Level btoc = Below Top of Casing

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** B401 Manchester Airport	**Borehole Number** **BH102**

In Situ Permeability Type	**Test No.**	**Ground Level (mOD)**	**Client**	**Job Number**
Falling Head	1	68.04	Threadneedle Curtis Ltd	LKC 22 1225
	Location	**Dates**	**Project Contractor**	**Sheet**
	380995.8 E 384847 N	27/05/2022- 07/06/2022	LK Consult	2/6

Height of casing above ground level:	0.00	**m**
Depth to Base of Borehole:	4.09	**m bgl**
Depth to Base of Casing:	3.00	**m bgl**
Depth to equilibrium water level:	4.09	**m btoc**
Test Length L:	1.09	**m**
Diameter of Test Length D:	0.15	**m**
Area of Test Section:	0.0177	**m2**
Intake Factor F: (after condition D,figure 6,BS5930:1990+A2:2010)	2.5544	

PERMEABILITY (after Hvorslev, 1951)

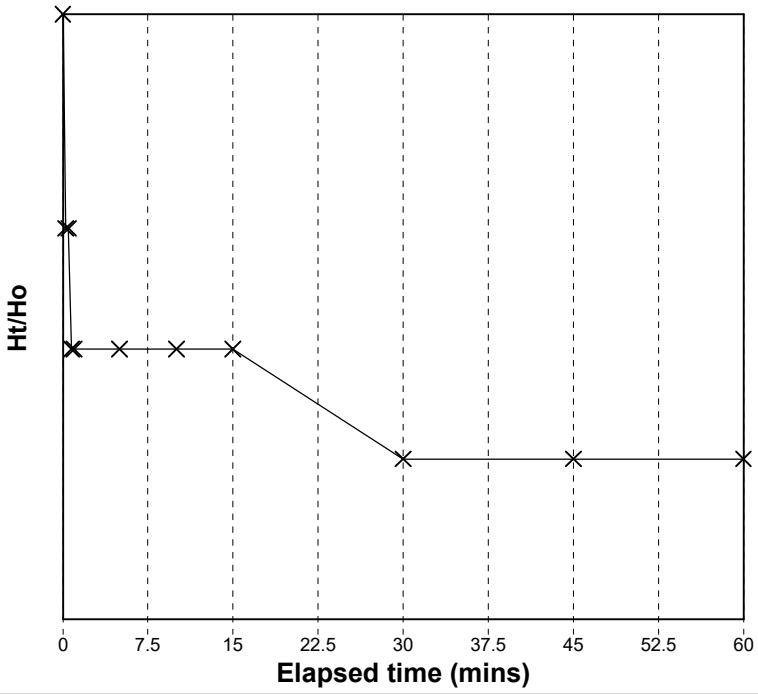
Basic Time Lag Analysis

The value T when Ht/Ho = 0.37 is the basic time lag, T

T =

k = **ms-1**

Elapsed time (mins)	Depth to water (m btoc)	Head of Water, H (m)	Ht / Ho
0.00	3.000	1.090	1.000
0.25	3.020	1.070	0.982
0.50	3.020	1.070	0.982
0.75	3.030	1.060	0.972
1.00	3.030	1.060	0.972
5.00	3.030	1.060	0.972
10.00	3.030	1.060	0.972
15.00	3.030	1.060	0.972
30.00	3.040	1.050	0.963
45.00	3.040	1.050	0.963
60.00	3.040	1.050	0.963



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In Situ Permeability Type	Test No.	Ground Level (mOD)	Client	Job Number
Falling Head	1	68.21	Threadneedle Curtis Ltd	LKC 22 1225
	Location 380974 E 384847 N	**Dates** 30/05/2022	**Project Contractor** LK Consult	**Sheet** 3/6

Height of casing above ground level:	0.00 **m**
Depth to Base of Borehole:	2.05 **m bgl**
Depth to Base of Casing:	1.00 **m bgl**
Depth to equilibrium water level:	2.05 **m btoc**
Test Length L:	1.05 **m**
Diameter of Test Length D:	0.15 **m**
Area of Test Section:	0.0177 **m2**
Intake Factor F: (after condition D,figure 6,BS5930:1990+A2:2010)	2.4951

PERMEABILITY (after Hvorslev, 1951)

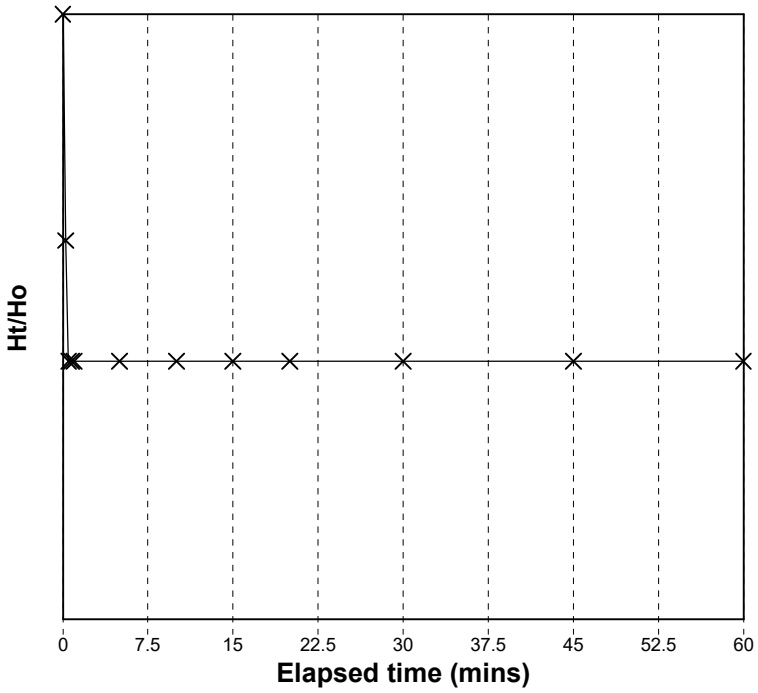
Basic Time Lag Analysis

The value T when Ht/Ho = 0.37 is the basic time lag, T

T =

k = **ms-1**

Elapsed time (mins)	Depth to water (m btoc)	Head of Water, H (m)	Ht / Ho
0.00	1.000	1.050	1.000
0.25	1.020	1.030	0.981
0.50	1.030	1.020	0.971
0.75	1.030	1.020	0.971
1.00	1.030	1.020	0.971
5.00	1.030	1.020	0.971
10.00	1.030	1.020	0.971
15.00	1.030	1.020	0.971
20.00	1.030	1.020	0.971
30.00	1.030	1.020	0.971
45.00	1.030	1.020	0.971
60.00	1.030	1.020	0.971



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Key: bgl = Below Ground Level btoc = Below Top of Casing

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In Situ Permeability Type	**Test No.**	**Ground Level (mOD)**	**Client**	**Job Number**
Falling Head	1	67.58	Threadneedle Curtis Ltd	LKC 22 1225
	Location	**Dates**	**Project Contractor**	**Sheet**
	380899 E 384759 N	25/05/2022- 01/06/2022	LK Consult	4/6

Height of casing above ground level:	0.00 **m**
Depth to Base of Borehole:	2.05 **m bgl**
Depth to Base of Casing:	1.05 **m bgl**
Depth to equilibrium water level:	2.05 **m btoc**
Test Length L:	1.00 **m**
Diameter of Test Length D:	0.15 **m**
Area of Test Section:	0.0177 **m2**
Intake Factor F: (after condition D,figure 6,BS5930:1990+A2:2010)	2.4205

PERMEABILITY (after Hvorslev, 1951)

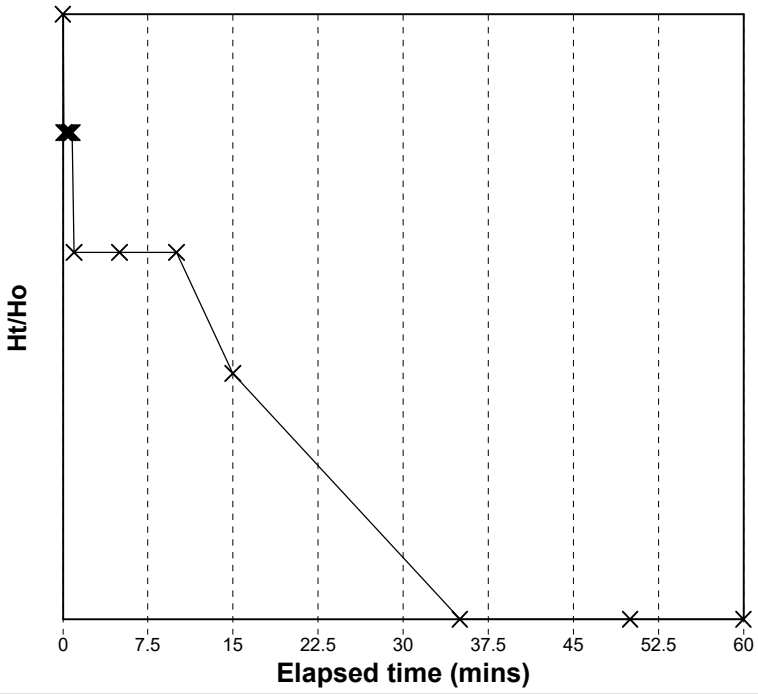
Basic Time Lag Analysis

The value T when Ht/Ho = 0.37 is the basic time lag, T

T =

k = **ms-1**

Elapsed time (mins)	Depth to water (m btoc)	Head of Water, H (m)	Ht / Ho
0.00	1.050	1.000	1.000
0.08	1.060	0.990	0.990
0.16	1.060	0.990	0.990
0.33	1.060	0.990	0.990
0.50	1.060	0.990	0.990
0.66	1.060	0.990	0.990
0.83	1.060	0.990	0.990
1.00	1.070	0.980	0.980
5.00	1.070	0.980	0.980
10.00	1.070	0.980	0.980
15.00	1.080	0.970	0.970
35.00	1.100	0.950	0.950
50.00	1.100	0.950	0.950
60.00	1.100	0.950	0.950



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Key: bgl = Below Ground Level btoc = Below Top of Casing

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In Situ Permeability Type	**Test No.**	**Ground Level (mOD)**	**Client**	**Job Number**
Falling Head	1	67.23	Threadneedle Curtis Ltd	LKC 22 1225
	Location	**Dates**	**Project Contractor**	**Sheet**
	380892.6 E 384807.7 N	25/05/2022-01/06/2022	LK Consult	5/6

Height of casing above ground level:	0.00	**m**
Depth to Base of Borehole:	3.29	**m bgl**
Depth to Base of Casing:	2.25	**m bgl**
Depth to equilibrium water level:	3.29	**m btoc**
Test Length L:	1.04	**m**
Diameter of Test Length D:	0.15	**m**
Area of Test Section:	0.0177	**m2**
Intake Factor F: (after condition D,figure 6,BS5930:1990+A2:2010)	2.4802	

PERMEABILITY (after Hvorslev, 1951)

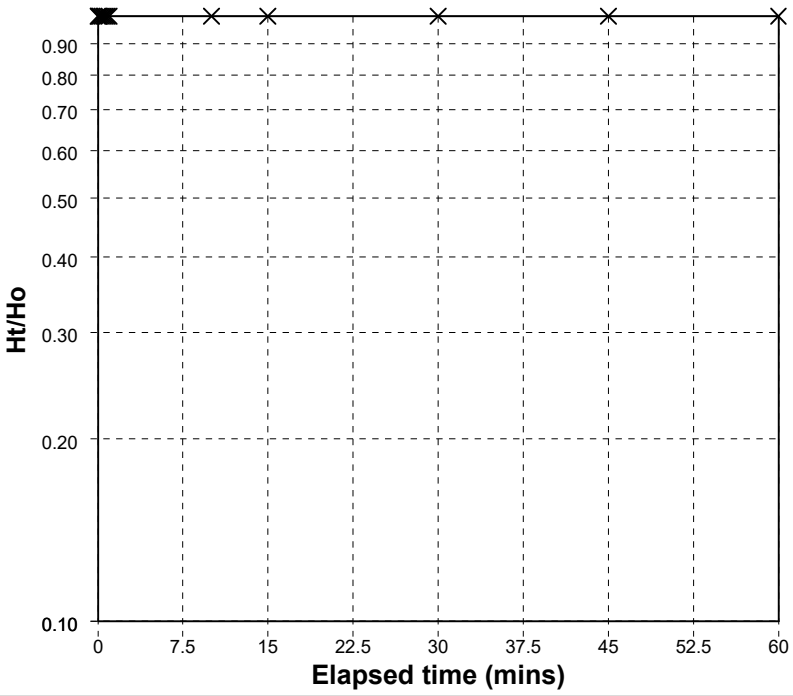
Basic Time Lag Analysis

The value T when Ht/Ho = 0.37 is the basic time lag, T

T =

k = **ms-1**

Elapsed time (mins)	Depth to water (m btoc)	Head of Water, H (m)	Ht / Ho
0.00	2.240	1.050	1.000
0.08	2.240	1.050	1.000
0.16	2.240	1.050	1.000
0.33	2.240	1.050	1.000
0.50	2.240	1.050	1.000
0.66	2.240	1.050	1.000
0.83	2.240	1.050	1.000
1.00	2.240	1.050	1.000
10.00	2.240	1.050	1.000
15.00	2.240	1.050	1.000
30.00	2.240	1.050	1.000
45.00	2.240	1.050	1.000
60.00	2.240	1.050	1.000



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Key: bgl = Below Ground Level btoc = Below Top of Casing

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In Situ Permeability Type	**Test No.**	**Ground Level (mOD)**	**Client**	**Job Number**
Falling Head	1	66.93	Threadneedle Curtis Ltd	LKC 22 1225
	Location	**Dates**	**Project Contractor**	**Sheet**
	380856 E 384813 N	24/05/2022	LK Consult	6/6

Height of casing above ground level:	0.00	**m**
Depth to Base of Borehole:	3.85	**m bgl**
Depth to Base of Casing:	2.60	**m bgl**
Depth to equilibrium water level:	3.85	**m btoc**
Test Length L:	1.25	**m**
Diameter of Test Length D:	0.15	**m**
Area of Test Section:	0.0177	**m2**
Intake Factor F: (after condition D,figure 6,BS5930:1990+A2:2010)	2.7881	

PERMEABILITY (after Hvorslev, 1951)

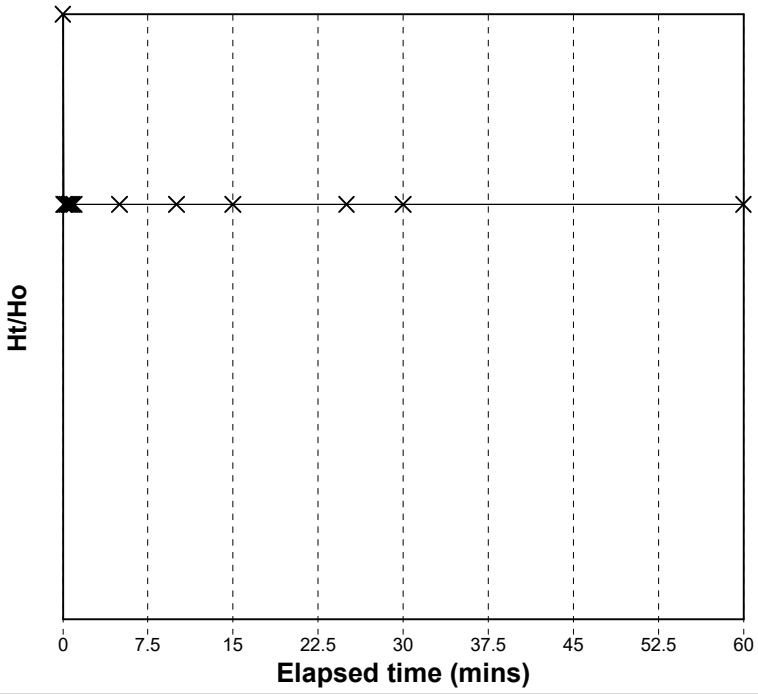
Basic Time Lag Analysis

The value T when Ht/Ho = 0.37 is the basic time lag, T

T =

k = **ms-1**

Elapsed time (mins)	Depth to water (m btoc)	Head of Water, H (m)	Ht / Ho
0.00	2.600	1.250	1.000
0.08	2.620	1.230	0.984
0.16	2.620	1.230	0.984
0.33	2.620	1.230	0.984
0.50	2.620	1.230	0.984
0.66	2.620	1.230	0.984
0.83	2.620	1.230	0.984
1.00	2.620	1.230	0.984
5.00	2.620	1.230	0.984
10.00	2.620	1.230	0.984
15.00	2.620	1.230	0.984
25.00	2.620	1.230	0.984
30.00	2.620	1.230	0.984
60.00	2.620	1.230	0.984



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Appendix G

Rock Core Photographs

BH101

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CORE PHOTOGRAPHIC BOARD
PROJECT NAME MANCHESTER AIRPORT
PROJECT NO. LKC 22 1225
DATE 6-6-2022
HOLE NO. BH101
SAMPLE NO. Box 1 & 7
DEPTH FROM 4.50 m TO 7.00 m
Grey Scale
Colour Control Patches
0.0m 0.1m 0.2m 0.3m 0.4m 0.5m 0.6m 0.7m 0.8m 0.9m 1.0m

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PROJECT NO. LKC 22 1225
DATE 6-6-2022
HOLE NO. BH101
SAMPLE NO. Box 2 & 7
DEPTH FROM 7.00 m TO 10.00 m
Grey Scale
Colour Control Patches
0.0m 0.1m 0.2m 0.3m 0.4m 0.5m 0.6m 0.7m 0.8m 0.9m 1.0m

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PROJECT NO. LKC 22 1225
DATE 6-6-2022
HOLE NO. BH101
SAMPLE NO. Box 3 of 7
DEPTH FROM 10.00 m TO 13.00 m
Grey Scale
Colour Control Patches
0.0m 0.1m 0.2m 0.3m 0.4m 0.5m 0.6m 0.7m 0.8m 0.9m 1.0m

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DATE 6-6-2022
HOLE NO. BH101
SAMPLE NO. Box 4 of 7
DEPTH FROM 13.00 m TO 16.00 m
Grey Scale
Colour Control Patches
0.0m 0.1m 0.2m 0.3m 0.4m 0.5m 0.6m 0.7m 0.8m 0.9m 1.0m

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PROJECT NO. LKC 22 1225
DATE 6-6-2022
HOLE NO. BH101
SAMPLE NO. Box 5 of 7
DEPTH FROM 16.00 m TO 19.00 m
Grey Scale
Colour Control Patches
0.0m 0.1m 0.2m 0.3m 0.4m 0.5m 0.6m 0.7m 0.8m 0.9m 1.0m

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DATE 6-6-2022
HOLE NO. BH101
SAMPLE NO. Box 6 of 7
DEPTH FROM 19.00 m TO 22.00 m
Grey Scale
Colour Control Patches
0.0m 0.1m 0.2m 0.3m 0.4m 0.5m 0.6m 0.7m 0.8m 0.9m 1.0m

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PROJECT NO. LKC 22 1225
DATE 6 - 6 - 2022
HOLE NO. BH101
SAMPLE NO. Box 7 & 7
DEPTH FROM 22.00 m TO 25.00 m
Grey Scale
Colour Control Patches
0.0m 0.1m 0.2m 0.3m 0.4m 0.5m 0.6m 0.7m 0.8m 0.9m 1.0m

BH102

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PROJECT NO. LKC 22 1225
DATE 8-6-22
HOLE NO. BH102
SAMPLE NO. Box 1 of 6
DEPTH FROM 4.50 m TO 6.50 m
Grey Scale
Colour Control Patches
0.0m 0.1m 0.2m 0.3m 0.4m 0.5m 0.6m 0.7m 0.8m 0.9m 1.0m
Top
Bottom

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PROJECT NO. LKC 22 1225
DATE 8-6-22
HOLE NO. BH102
SAMPLE NO. Box 2 of 6
DEPTH FROM 6.50 m TO 9.50 m
Grey Scale
Colour Control Patches
0.0m 0.1m 0.2m 0.3m 0.4m 0.5m 0.6m 0.7m 0.8m 0.9m 1.0m
6.50
8.00
9.50

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PROJECT NO. LKC 22 1225
DATE 8-6-22
HOLE NO. BH102
SAMPLE NO. Box 3 of 6
DEPTH FROM 9.50 m TO 12.50 m
Grey Scale
Colour Control Patches
0.0m 0.1m 0.2m 0.3m 0.4m 0.5m 0.6m 0.7m 0.8m 0.9m 1.0m

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DATE 8-6-22
HOLE NO. BH102
SAMPLE NO. Box 4 of 6
DEPTH FROM 12.50 m TO 15.50 m
Grey Scale
Colour Control Patches
0.0m 0.1m 0.2m 0.3m 0.4m 0.5m 0.6m 0.7m 0.8m 0.9m 1.0m

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DATE 8-6-22
HOLE NO. BH102
SAMPLE NO. Box 5 of 6
DEPTH FROM 15.50 m TO 18.50 m
Grey Scale
Colour Control Patches
0.0m 0.1m 0.2m 0.3m 0.4m 0.5m 0.6m 0.7m 0.8m 0.9m 1.0m

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PROJECT NO. LKC 22 1225
DATE 8-6-22
HOLE NO. BH102
SAMPLE NO. Box 6 of 6
DEPTH FROM 18.50 m TO 21.30 m
Grey Scale
Colour Control Patches
0.0m 0.1m 0.2m 0.3m 0.4m 0.5m 0.6m 0.7m 0.8m 0.9m 1.0m

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PROJECT NO. LKC 22 1225
DATE 30-5-2022
HOLE NO. BH 104
SAMPLE NO. Box 1 of 2
DEPTH FROM 10.00 m TO 13.00 m

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PROJECT NAME MANCHESTER AIRPORT
PROJECT NO. LKC 22 1225
DATE 30-5-2022
HOLE NO. BH 104
SAMPLE NO. Box 2 of 2
DEPTH FROM 13.00 m TO 15.00 m

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PROJECT NO. LKC 22 1225
DATE 8-6-22
HOLE NO. BH104
SAMPLE NO. Box 3&6
DEPTH FROM 15.00 m TO 17.00 m
Grey Scale
Colour Control Patches
0.0m 0.1m 0.2m 0.3m 0.4m 0.5m 0.6m 0.7m 0.8m 0.9m 1.0m

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PROJECT NO. LKC 22 1225
DATE 8-6-22
HOLE NO. BH104
SAMPLE NO. Box 4&6
DEPTH FROM 17.00 m TO 20.00 m
Grey Scale
Colour Control Patches
0.0m 0.1m 0.2m 0.3m 0.4m 0.5m 0.6m 0.7m 0.8m 0.9m 1.0m

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PROJECT NO. LKC 22 1225
DATE 8-6-22
HOLE NO. BH104
SAMPLE NO. Box 5 of 6
DEPTH FROM 20.00 m TO 23.00 m
Grey Scale
Colour Control Patches
0.0m 0.1m 0.2m 0.3m 0.4m 0.5m 0.6m 0.7m 0.8m 0.9m 1.0m

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PROJECT NAME MANCHESTER AIRPORT
PROJECT NO. LKC 22 1225
DATE 8-6-22
HOLE NO. BH104
SAMPLE NO. Box 6 of 6
DEPTH FROM 23.00 m TO 25.00 m
Grey Scale
Colour Control Patches
0.0m 0.1m 0.2m 0.3m 0.4m 0.5m 0.6m 0.7m 0.8m 0.9m 1.0m

BH106

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PROJECT NO. LKC 22 1225
DATE 26-5-22
HOLE NO. BH106
SAMPLE NO. Box 1 of 3
DEPTH FROM 7.00 m TO 10.00 m

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CORE
PHOTOGRAPHIC BOARD
PROJECT NAME MANCHESTER AIRPORT
PROJECT NO. LKC 22 1225
DATE 26-5-22
HOLE NO. BH106
SAMPLE NO. Box 2 of 3
DEPTH FROM 10.00 m TO 13.00 m

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CORE
PHOTOGRAPHIC BOARD
PROJECT NAME MANCHESTER AIRPORT
PROJECT NO. LKC 22 1225
DATE 26-5-22
HOLE NO. BH106
SAMPLE NO. Box 3 of 3
DEPTH FROM 13.00 m TO 14.50 m

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LK GROUP

- Geotechnical
- Contaminated Land
- Flood Risk and Drainage
- Asbestos
- Invasive Species
- Land Remediation
- Project Management
- Land Drilling

Appendix E Screening Sheets

Location ID			Human Health GAC - Commericial/Industrial - SLOAM 0.58-1.45%TOC	BH101	BH102	BH102	BH102	BH103	BH103	BH104	BH104	BH105	BH105	BH106	BH106	DS101	DS101	DS101	DS101
Depth (m)				2.1	0.15	0.3	1.7	0.14	1.5	0.1	1.3	0.2	1.5	0.1	1.4	0	0.3	0.44	1.65
Date				##########	##########	##########	##########	30/05/2022	##########	##########	##########	##########	##########	##########	##########	##########	30/05/2022	##########	##########
Lab Report				22-20268-2	22-20268-2	22-20268-2	22-20268-2	22-20268-2	22-20268-2	22-20268-2	22-20268-2	22-20268-2	22-20268-2	22-20268-2	22-20268-2	22-20268-2	22-20268-2	22-20268-2	22-20268-2
Analyte	**Unit**	**MDL**																	
Loss on ignition	%	0.1		0.81	-	-	8.4	-	-	1.3	-	1.2	-	-	6.6	29	-	-	-
TPH																			
Total Petroleum Hydrocarbons	mg/kg	2		<2	1100	<2	<2	1800	<2	400	<2	<2	38	<2	<2	480	<2	<2	<2
Total Aliphatics	mg/kg	1		<1	20	<1	<1	<1	<1	82	<1	<1	<1	<1	<1	130	<1	<1	<1
TPH aliphatic >C10-C12	mg kg^{-1}	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TPH aliphatic >C5-C6	mg kg^{-1}	0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
TPH aliphatic >C12-C16	mg kg^{-1}	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TPH aliphatic >C6-C8	mg kg^{-1}	0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
TPH aliphatic >C16-C21	mg kg^{-1}	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TPH aliphatic >C8-C10	mg kg^{-1}	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TPH aliphatic >C21-C35	mg kg^{-1}	0.1		<0.1	20	<0.1	<0.1	<0.1	<0.1	82	<0.1	<0.1	<0.1	<0.1	<0.1	130	<0.1	<0.1	<0.1
TPH aromatic >C10-C12	mg kg^{-1}	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TPH aromatic >C5-C7	mg kg^{-1}	0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
TPH aliphatic >C35-C44	mg kg^{-1}	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TPH aromatic >C12-C16	mg kg^{-1}	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TPH aromatic >C7-C8	mg kg^{-1}	0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
TPH aromatic >C16-C21	mg kg^{-1}	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TPH aromatic >C8-C10	mg kg^{-1}	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
TPH aromatic >C21-C35	mg kg^{-1}	0.1		<0.1	1000	<0.1	<0.1	1800	<0.1	320	<0.1	<0.1	38	<0.1	<0.1	350	<0.1	<0.1	<0.1
TPH aromatic >C35-C44	mg kg^{-1}	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
NA																			
Asbestos Identification	None	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WAC	mg/kg	10		<10	-	-	<10	-	-	65	-	130	-	-	<10	58	-	-	-
BTEX																			
Benzene	mg/kg	2E-04	27	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
Toluene	mg/kg	2E-04	56000	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
Ethylbenzene	mg/kg	2E-04	5700	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
Xylene (m & p)	mg/kg	2E-04		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
Xylene (o)	mg/kg	2E-04	6600	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
Total BTEX	mg/kg	0.01		<0.01	-	-	<0.01	-	-	<0.01	-	<0.01	-	-	<0.01	<0.01	-	-	-
Oxygenates																			
MTBE	mg/kg	2E-04	7900	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
Chlorinated Hydrocarbons																			
Chloromethane	mg/kg	2E-04	1	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
Vinyl chloride	mg/kg	2E-04	1.1	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
Chloroethane	mg/kg	2E-04	960	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
1,1-dichloroethene	mg/kg	2E-04	26	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
trans-1,2-dichloroethene	mg/kg	2E-04	22 300	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
1,1-dichloroethane	mg/kg	2E-04	280	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
cis-1,2-dichloroethene	mg/kg	2E-04	14 2300	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
Chloroform	mg/kg	2E-04	99	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
1,1,1-trichloroethane	mg/kg	2E-04	660	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
Carbon tetrachloride	mg/kg	2E-04	2.9	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
Trichloroethene	mg/kg	2E-04	0.73	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
1,1,2-trichloroethane	mg/kg	2E-04	94	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
Tetrachloroethene	mg/kg	2E-04	24	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
VOC																			
Bromochloromethane	mg/kg	5E-04	630	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005
1,1-dichloropropene	mg/kg	2E-04		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
1,2-dichloroethane	mg/kg	2E-04	0.67	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
1,2-dichloropropane	mg/kg	2E-04	3.3	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
Dibromomethane	mg/kg	2E-04	99	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
Bromodichloromethane	mg/kg	2E-04	1.3	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
cis-1,3-dichloropropene	mg/kg	2E-04		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
trans-1,3-dichloropropene	mg/kg	2E-04		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
1,3-dichloropropane	mg/kg	2E-04	23000	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
Chlorodibromomethane	mg/kg	2E-04	39	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
1,1,1,2-tetrachloroethane	mg/kg	2E-04	110	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
Styrene	mg/kg	2E-04	3300	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
Bromoform	mg/kg	2E-04	760	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
Isopropylbenzene	mg/kg	2E-04	1400	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
1,2,3-trichloropropane	mg/kg	2E-04	0.11	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
n-propylbenzene	mg/kg	2E-04	4100	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
1,3,5-trimethylbenzene	mg/kg	2E-04	1500	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
tert-butylbenzene	mg/kg	2E-04	120000	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
1,2,4-trimethylbenzene	mg/kg	2E-04	42	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
sec-butylbenzene	mg/kg	2E-04	120000	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
p-isopropyltoluene	mg/kg	2E-04		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
n-butylbenzene	mg/kg	2E-04	58000	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
1,2-dibromo-3-chloropropane	mg/kg	2E-04	0.064	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
Hexachlorobutadiene	mg/kg	2E-04	31	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
PAH																			
Naphthalene	mg/kg	0.01	190	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.58	0.44	<0.01	<0.01
Acenaphthylene	mg/kg	0.01	83000	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.23	0.089	<0.01	<0.01
Acenaphthene	mg/kg	0.01	84000	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.4	0.42	<0.01	<0.01
Fluorene	mg/kg	0.01	63000	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.34	0.24	<0.01	<0.01
Phenanthrene	mg/kg	0.01	22000	<0.01	0.17	<0.01	<0.01	0.19	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	4.6	1.9	0.19	<0.01
Anthracene	mg/kg	0.01	520000	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.97	0.4	0.1	<0.01
Fluoranthene	mg/kg	0.01	23000	<0.01	0.13	<0.01	<0.01	0.18	<0.01	<0.01	<0.01	0.1	<0.01	<0.01	<0.01	9.6	2.9	0.2	<0.01
Pyrene	mg/kg	0.01	54000	<0.01	0.13	<0.01	<0.01	0.19	<0.01	<0.01	<0.01	0.14	<0.01	<0.01	<0.01	9.3	2.6	0.17	<0.01
Benz(a)anthracene	mg/kg	0.01	170	<0.01	<0.01	<0.01	<0.01	0.18	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	5.1	1.4	<0.01	<0.01
Chrysene	mg/kg	0.01	350	<0.01	<0.01	<0.01	<0.01	0.12	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	5.3	1.2	<0.01	<0.01
Benzo(a)pyrene	mg/kg	0.01	35	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	5.9	1.6	<0.01	<0.01
Indeno(1,2,3-c,d)pyrene	mg/kg	0.01	500	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	3.2	0.98	<0.01	<0.01
Dibenz(a,h)anthracene	mg/kg	0.01	3.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.5	0.18	<0.01	<0.01
Benzo(g,h,i)perylene	mg/kg	0.01	3900	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	3.1	0.98	<0.01	<0.01
Benzo(b)fluoranthene	mg/kg	0.01	44	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	6.1	1.9	<0.01	<0.01
Benzo(k)fluoranthene	mg/kg	0.01	1200	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	2.1	0.53	<0.01	<0.01
PAHs (Sum of total)	mg/kg	0.2		<0.2	0.43	<0.2	<0.2	0.86	<0.2	<0.2	<0.2	0.24	<0.2	<0.2	<0.2	57	18	0.66	<0.2
SVOC																			
2-methylnaphthalene	mg/kg	0.05	3000	<0.05	<0.05	<0.05	<0.05	0.078	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	0.18	<0.05	<0.05	<0.05
4-bromophenyl phenyl ether	mg/kg	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
4-chlorophenyl phenyl ether	mg/kg	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Azobenzene	mg/kg	0.05	26	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Bis(2-chloroethoxy) methane	mg/kg	0.05	2500	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Bis(2-chloroethyl)ether	mg/kg	0.05	1	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Carbazole	mg/kg	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	0.14	<0.05	<0.05	<0.05
Dibenzofuran	mg/kg	0.05	1200	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	0.13	<0.05	<0.05	<0.05
Hexachlorocyclopentadiene	mg/kg	0.05	7.5	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Hexachloroethane	mg/kg	0.05	22	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Phenolics																			
2-methylphenol	mg/kg	0.05	160,000	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
2-nitrophenol	mg/kg	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
2,4-dimethylphenol	mg/kg	0.05	16000	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
4-chloro-3-methylphenol	mg/kg	0.05	82000	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
4-methylphenol	mg/kg	0.05	160,000	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
4-nitrophenol	mg/kg	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Phenol	mg/kg	0.05	440	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
2-chloronaphthalene	mg/kg	0.05	390	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
4,6-Dinitro-2-methylphenol	mg/kg	0.05	66	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
nonchlorinated phenols	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PCBs																			
PCB 118	mg/kg	0.01	0.49	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01
PCB 28	mg/kg	0.01		<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01
PCB 52	mg/kg	0.01		<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01
PCB 101	mg/kg	0.01		<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01
PCB 138	mg/kg	0.01		<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01
PCB 153	mg/kg	0.01		<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01
PCB 180	mg/kg	0.01		<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01
PCBs (Sum of total)	mg/kg	0.1	0.94	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Amino Aliphatics																			
N-nitrosodi-n-propylamine	mg/kg	0.05	0.33	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
N-Nitrosodimethylamine	mg/kg	0.05	0.034	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Anilines																			
2-nitroaniline	mg/kg	0.05	8000	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
3-nitroaniline	mg/kg	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
4-chloroaniline	mg/kg	0.05	11	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
4-nitroaniline	mg/kg	0.05	110	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Explosives																			
2,4-Dinitrotoluene	mg/kg	0.05	3700	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
2,6-dinitrotoluene	mg/kg	0.05	1900	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Nitrobenzene	mg/kg	0.05	22	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Halogenated Benzenes																			
Chlorobenzene	mg/kg	2E-04	56	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
Bromobenzene	mg/kg	2E-04	97	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
2-chlorotoluene	mg/kg	2E-04	23000	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
4-chlorotoluene	mg/kg	2E-04	23000	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
1,3-dichlorobenzene	mg/kg	2E-04	30	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
1,4-dichlorobenzene	mg/kg	2E-04	4400	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
1,2-dichlorobenzene	mg/kg	2E-04	2000	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
1,2,4-trichlorobenzene	mg/kg	2E-04	220	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
1,2,3-trichlorobenzene	mg/kg	2E-04	102	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
Hexachlorobenzene	mg/kg	0.05	110	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Halogenated Hydrocarbons																			
Dichlorodifluoromethane	mg/kg	2E-04	370	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
Bromomethane	mg/kg	2E-04	30	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
Trichlorofluoromethane	mg/kg	2E-04	350000	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
1,2-dibromoethane	mg/kg	2E-04	0.16	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002
Halogenated Phenols																			
2-chlorophenol	mg/kg	0.05	5800	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
2,4-dichlorophenol	mg/kg	0.05	2500	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
2,4,5-trichlorophenol	mg/kg	0.05	82000	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
2,4,6-trichlorophenol	mg/kg	0.05	210	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Pentachlorophenol	mg/kg	0.05	400	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Phthalates																			
Bis(2-ethylhexyl) phthalate	mg/kg	0.05	85000	<0.05	0.29	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Butyl benzyl phthalate	mg/kg	0.05	940000	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Di-n-butyl phthalate	mg/kg	0.05	15000	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Di-n-octyl phthalate	mg/kg	0.05	89000	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Diethylphthalate	mg/kg	0.05	150000	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Dimethyl phthalate	mg/kg	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Solvents																			
Isophorone	mg/kg	0.05	2400	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Metals																			
Arsenic	mg/kg	0.5	640	2.1	1.7	1.5	3.8	1.6	5.6	1.1	9.6	1.2	7.5	1.6	8.8	13	5.5	2	5.2
Barium	mg/kg	0.5	22000	64	78	120	33	690	120	18	45	26	78	80	130	230	130	240	160
Beryllium	mg/kg	0.5	12	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	0.9	<0.5	1	<0.5	1.6	0.7	<0.5	<0.5	<0.5
Boron	mg/kg	0.4	240000	1.9	<0.4	<0.4	1.1	0.58	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	0.41	<0.4	<0.4	<0.4
Cadmium	mg/kg	0.1	410	0.14	0.17	0.11	<0.1	0.14	<0.1	0.13	0.1	0.34	<0.1	0.35	0.13	0.36	0.41	0.19	2.1
Chromium (III+VI)	mg/kg	0.5	860	8.9	6.7	4.7	13	5.2	19	3.1	16	4	21	4.5	33	25	14	6.2	7
Copper	mg/kg	0.5	68000	15	5.2	3	9.2	4.2	13	2	12	2.5	16	2.7	21	59	21	3.9	29
Lead	mg/kg	0.5	2330	16	9.1	4.7	4	8.2	8.8	7.6	6.6	6	9.1	16	11	190	51	12	280
Mercury	mg/kg	0.05	350	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.29	0.13	0.05	0.06
Nickel	mg/kg	0.5	980	9.3	6.6	7.6	13	7.6	22	4	13	6	25	5.8	43	52	21	6	12
Selenium	mg/kg	0.25	12000	0.25	<0.25	<0.25	0.33	<0.25	0.37	0.4	0.76	0.37	0.83	0.35	1.2	0.83	0.49	0.48	0.29
Zinc	mg/kg	0.5	730000	20	16	9.4	24	17	28	16	18	14	35	23	49	120	60	23	440
Chromium (hexavalent)	mg/kg	0.5	49	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Organics																			
Fraction Organic Carbon	%	0.2		0.82	-	-	0.33	-	-	<0.2	-	<0.2	-	-	0.62	1.5	-	-	-
Inorganics																			
Sulphur	mg/kg	1		2.8	1.3	<1	<1	2.8	1.3	<1	<1	2	2.3	2.7	3.7	5.2	1.7	2.5	4.6
Cyanide Total	mg/kg	0.5	150	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Sulphide	mg/kg	0.5		20	3.7	1.4	1.6	2.4	2.3	25	25	1.9	1.4	5.7	31	4.3	4.5	5.2	5.7
Moisture	%	0.02		14	5.6	4.4	12	10	14	11	35	10	17	14	21	15	8.1	6	12
Sulphate (soluble)	g/l	0.01		0.28	0.39	0.17	0.85	0.7	0.092	0.018	0.023	0.059	0.72	0.039	0.054	0.045	0.029	0.029	0.089
pH (Lab)	pH_Units	4		8.4 - 9.4	11.8	11	8.6 - 8.8	11.2	8.9	8.8 - 9	8.3	9 - 9.1	7.8	8.7	8.2	8.7 - 9	9.2	9.5	9.2
Other																			
Bis(2-chloroisopropyl)ether	mg/kg	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05
Asbestos																			
Asbestos Type	None	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Key

XXX Exceedance of HH Soil. Commercial/Industrial. Sandy Loam. TOC >=0.58 to <1.45%

				Location_Code	BH101	BH102	BH103	BH104	BH105	BH106												
				Sampled_Date_Time	23/06/2022	23/06/2022	23/06/2022	23/06/2022	23/06/2022	23/06/2022												
				Field_ID	BH101	BH102	BH103	BH104	BH105	BH106												
				Well																		
				GAC_WTV_SC_DWS							Statistical Summary											
Chem_Group	ChemName	output unit	EQL								Number of Results	Number of Detects	Minimum Concentration	Minimum Detect	Maximum Concentration	Maximum Detect	Average Concentration	Median Concentration	Standard Deviation	Number of Guideline Exceedances	Number of Guideline Exceedances (Detects Only)	
	TPH aliphatic >C10-C12	µg/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
	TPH aliphatic >C5-C6	µg/L	0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0	0	
	TPH aliphatic >C12-C16	µg/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
	TPH aliphatic >C6-C8	µg/L	0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0	0	
	TPH aliphatic >C16-C21	µg/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
	TPH aliphatic >C8-C10	µg/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
	TPH aliphatic >C21-C35	µg/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
	TPH aromatic >C10-C12	µg/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
	TPH aromatic >C5-C7	µg/L	0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0	0	
	TPH aliphatic >C35-C44	µg/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
	TPH aromatic >C12-C16	µg/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
	TPH aromatic >C7-C8	µg/L	0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0	0	
	TPH aromatic >C16-C21	µg/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
	TPH aromatic >C8-C10	µg/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
	TPH aromatic >C21-C35	µg/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
	TPH aromatic >C35-C44	µg/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
1675	C2 Total Aromatic Hydrocarbons	ug/l	1		<1	<1	<1	<1	<1	<1	6	0	<1	ND	<1	ND	0.5	0.5	0	0	0	
TPH	Total Petroleum Hydrocarbons	µg/L	2		<2	<2	<2	<2	<2	<2	6	0	<2	ND	<2	ND	1	1	0	0	0	
	Total Aliphatics	µg/L	1		<1	<1	<1	<1	<1	<1	6	0	<1	ND	<1	ND	0.5	0.5	0	0	0	
BTEX	Benzene	µg/L	0.1	1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
	Toluene	µg/L	0.1	700	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
	Ethylbenzene	µg/L	0.1	300	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
	Xylene (m & p)	µg/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
	Xylene (o)	µg/L	0.1	190	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
Oxygenates	MTBE	µg/L	0.1	1800	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
Chlorinated Hydrocarbons	Chloromethane	µg/L	0.1	190	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
	Vinyl chloride	µg/L	0.1	0.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
	Chloroethane	µg/L	0.2	21000	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	6	0	<0.2	ND	<0.2	ND	0.1	0.1	0	0	0	
	1,1-dichloroethene	µg/L	0.1	7	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
	Dichloromethane	µg/L	50	5	<50	<50	<50	<50	<50	<50	6	0	<50	ND	<50	ND	25	25	0	6	0	
	trans-1,2-dichloroethene	µg/L	0.1	50|68	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
	1,1-dichloroethane	µg/L	0.1	2.8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
	cis-1,2-dichloroethene	µg/L	0.1	36|50	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
	Chloroform	µg/L	0.1	999000000000.015	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
	1,1,1-trichloroethane	µg/L	0.1	200	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
	Carbon tetrachloride	µg/L	0.1	3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
	Trichloroethene	µg/L	0.1	999000000000.042	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
	1,1,2-trichloroethane	µg/L	0.1	5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
	Tetrachloroethene	µg/L	0.1	999000000000.042	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
VOC	Bromochloromethane	µg/L	0.5	83	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	6	0	<0.5	ND	<0.5	ND	0.25	0.25	0	0	0	
	1,1-dichloropropene	µg/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
	1,2-dichloroethane	µg/L	0.2	3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	6	0	<0.2	ND	<0.2	ND	0.1	0.1	0	0	0	
	1,2-dichloropropane	µg/L	0.1	5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
	Dibromomethane	µg/L	0.1	8.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
	Bromodichloromethane	µg/L	0.5	60	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	6	0	<0.5	ND	<0.5	ND	0.25	0.25	0	0	0	
	cis-1,3-dichloropropene	µg/L	1		<1	<1	<1	<1	<1	<1	6	0	<1	ND	<1	ND	0.5	0.5	0	0	0	
	trans-1,3-dichloropropene	µg/L	1		<1	<1	<1	<1	<1	<1	6	0	<1	ND	<1	ND	0.5	0.5	0	0	0	
	1,3-dichloropropane	µg/L	0.2	20	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	6	0	<0.2	ND	<0.2	ND	0.1	0.1	0	0	0	
	Chlorodibromomethane	µg/L	1	999000000000.015	<1	<1	<1	<1	<1	<1	6	0	<1	ND	<1	ND	0.5	0.5	0	0	0	
	1,1,1,2-tetrachloroethane	µg/L	0.2	0.57	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	6	0	<0.2	ND	<0.2	ND	0.1	0.1	0	0	0	
	Styrene	µg/L	0.1	20	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
	Bromoform	µg/L	1	999000000000.015	<1	<1	<1	<1	<1	<1	6	0	<1	ND	<1	ND	0.5	0.5	0	0	0	
	Isopropylbenzene	µg/L	0.1	450	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
	1,2,3-trichloropropane	µg/L	5	0.00075	<5	<5	<5	<5	<5	<5	6	0	<5	ND	<5	ND	2.5	2.5	0	6	0	
	n-propylbenzene	µg/L	0.1	660	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
	1,3,5-trimethylbenzene	µg/L	0.1	60	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
	tert-butylbenzene	µg/L	0.1	690	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
	1,2,4-trimethylbenzene	µg/L	0.1	56	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
	sec-butylbenzene	µg/L	0.1	2000	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
	p-isopropyltoluene	µg/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
	n-butylbenzene	µg/L	0.1	1000	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0	
	1,2-dibromo-3-chloropropane	µg/L	5	0.2	<5	<5	<5	<5	<5	<5	6	0	<5	ND	<5	ND	2.5	2.5	0	6	0	
	Hexachlorobutadiene	µg/L	0.05	0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0	
PAH	Naphthalene	µg/L	0.01	6	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0	0	
	Acenaphthylene	µg/L	0.01	18	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0	0	
	Acenaphthene	µg/L	0.01	18	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0	0	
	Fluorene	µg/L	0.01	12	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0	0	
	Phenanthrene	µg/L	0.01	4	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0	0	
	Anthracene	µg/L	0.01	90	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0	0	
	Fluoranthene	µg/L	0.01	4	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0	0	
	Pyrene	µg/L	0.01	9	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0	0	
	Benz(a)anthracene	µg/L	0.01	3.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0	0	
	Chrysene	µg/L	0.01	7	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0	0	
	Benzo(a) pyrene	µg/L	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0	0	
	Indeno(1,2,3-c,d)pyrene	µg/L	0.01	999000000000.041	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0	0	
	Dibenz(a,h)anthracene	µg/L	0.01	0.07	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0	0	
	Benzo(g,h,i)perylene	µg/L	0.01	999000000000.041	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0	0	
	Benzo(b)fluoranthene	µg/L	0.01	999000000000.041	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0	0	
	Benzo(k)fluoranthene	µg/L	0.01	999000000000.041	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0	0	
	PAHs (Sum of total)	µg/L	0.2		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	6	0	<0.2	ND	<0.2	ND	0.1	0.1	0	0	0	
SVOC	2-methylnaphthalene	µg/L	0.05	36	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0	
	4-bromophenyl phenyl ether	µg/L	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0	
	4-chlorophenyl phenyl ether	µg/L	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0	
	Azobenzene	µg/L	0.05	0.12	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0	
	Bis(2-chloroethoxy) methane	µg/L	0.05	59	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0	
	Bis(2-chloroethyl)ether	µg/L	0.05	0.014	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	6	0	
	Carbazole	µg/L	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0	
	Dibenzofuran	µg/L	0.05	7.9	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0	
	Hexachlorocyclopentadiene	µg/L	0.05	0.41	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0	
	Hexachloroethane	µg/L	0.05	0.33	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0	
Phenolics	2-methylphenol	µg/L	0.05	930	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0	
	2-nitrophenol	µg/L	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0	
	2,4-dimethylphenol	µg/L	0.05	360	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0	
	4-chloro-3-methylphenol	µg/L	0.05	1400	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0	
	4-methylphenol	µg/L	0.05	1900	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0	
	4-nitrophenol	µg/L	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0	
	Phenol	µg/L	0.05	5800	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0	
	2-chloronaphthalene	µg/L	0.05	750	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0	
	2,3,4-Trichlorophenol	µg/L	0.2		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	6	0	<0.2	ND	<0.2	ND	0.1	0.1	0	0	0	
	2,3,5-Trichlorophenol	µg/L	0.2		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	6	0	<0.2	ND	<0.2	ND	0.1	0.1	0	0	0	
	2,3,6-Trichlorophenol	µg/L	0.2		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	6	0	<0.2	ND	<0.2	ND	0.1	0.1	0	0	0	
	3-Methylphenol	µg/L	0.2	930	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	6	0	<0.2	ND	<0.2	ND	0.1	0.1	0	0	0	

				Location_Code	BH101	BH102	BH103	BH104	BH105	BH106										
				Sampled_Date_Time	23/06/2022	23/06/2022	23/06/2022	23/06/2022	23/06/2022	23/06/2022										
				Field_ID	BH101	BH102	BH103	BH104	BH105	BH106										
				Well																
				GAC_WTV_SC_DWS							Statistical Summary									
Chem_Group	ChemName	output unit	EQL								Number of Results	Number of Detects	Minimum Concentration	Minimum Detect	Maximum Concentration	Maximum Detect	Average Concentration	Median Concentration	Standard Deviation	Number of Guideline Exceedances	Number of Guideline Exceedances (Detects Only)
	4,6-Dinitro-2-methylphenol	µg/L	0.05	1.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0
	3,4,5-Trichlorophenol	µg/L	0.2		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	6	0	<0.2	ND	<0.2	ND	0.1	0.1	0	0	0
	nonchlorinated phenols	µg/L	5		<5	<5	<5	<5	<5	<5	6	0	<5	ND	<5	ND	2.5	2.5	0	0	0
Herbicides	Dinoseb	µg/L	0.2	7	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	6	0	<0.2	ND	<0.2	ND	0.1	0.1	0	0	0
PCBs	PCB 118	µg/L	0.01	0.004	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	6	0
	PCB 28	µg/L	0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0	0
	PCB 52	µg/L	0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0	0
	PCB 101	µg/L	0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0	0
	PCB 138	µg/L	0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0	0
	PCB 153	µg/L	0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0	0
	PCB 180	µg/L	0.01		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0	0
	PCBs (Sum of total)	µg/L	0.01	0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0	0
Amino Aliphatics	N-nitrosodi-n-propylamine	µg/L	0.05	0.011	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	6	0
	N-Nitrosodimethylamine	µg/L	0.05	0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0
Anilines	2-nitroaniline	µg/L	0.05	190	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0
	3-nitroaniline	µg/L	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0
	4-chloroaniline	µg/L	0.05	0.37	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0
	4-nitroaniline	µg/L	0.05	3.8	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0
Explosives	2,4-Dinitrotoluene	µg/L	0.05	0.24	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0
	2,6-dinitrotoluene	µg/L	0.05	0.049	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	6	0
	Nitrobenzene	µg/L	0.05	999000000000.082	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0
Halogenated Benzenes	Chlorobenzene	µg/L	0.1	300	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0
	Bromobenzene	µg/L	0.1	62	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0
	2-chlorotoluene	µg/L	0.1	240	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0
	4-chlorotoluene	µg/L	0.1	250	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0
	1,3-dichlorobenzene	µg/L	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0
	1,4-dichlorobenzene	µg/L	0.05	80	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0
	1,2-dichlorobenzene	µg/L	0.05	600	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0
	1,2,4-trichlorobenzene	µg/L	0.05	70	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0
	1,2,3-trichlorobenzene	µg/L	0.2	7	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	6	0	<0.2	ND	<0.2	ND	0.1	0.1	0	0	0
	Hexachlorobenzene	µg/L	0.05	0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0
Halogenated Hydrocarbons	Dichlorodifluoromethane	µg/L	0.1	200	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0
	Bromomethane	µg/L	2	7.5	<2	<2	<2	<2	<2	<2	6	0	<2	ND	<2	ND	1	1	0	0	0
	Trichlorofluoromethane	µg/L	0.1	5200	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0	0
	1,2-dibromoethane	µg/L	0.5	0.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	6	0	<0.5	ND	<0.5	ND	0.25	0.25	0	6	0
Halogenated Phenols	2,3,4,5-tetrachlorophenol	µg/L	0.2		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	6	0	<0.2	ND	<0.2	ND	0.1	0.1	0	0	0
	2,3,4,6-tetrachlorophenol	µg/l	0.2	240	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	6	0	<0.2	ND	<0.2	ND	0.1	0.1	0	0	0
	2,3,5,6-Tetrachlorophenol	µg/L	0.2		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	6	0	<0.2	ND	<0.2	ND	0.1	0.1	0	0	0
	2,6-dichlorophenol	µg/l	0.2		<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	6	0	<0.2	ND	<0.2	ND	0.1	0.1	0	0	0
	2-chlorophenol	µg/L	0.05	91	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0
	2,4-dichlorophenol	µg/L	0.05	46	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0
	2,4,5-trichlorophenol	µg/L	0.05	1200	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0
	2,4,6-trichlorophenol	µg/L	0.05	200	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0
	Pentachlorophenol	µg/L	0.05	9	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0
Phthalates	Bis(2-ethylhexyl) phthalate	µg/L	0.05	6	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0
	Butyl benzyl phthalate	µg/L	0.05	16	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0
	Di-n-butyl phthalate	µg/L	0.05	900	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0
	Di-n-octyl phthalate	µg/L	0.05	200	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0
	Diethylphthalate	µg/L	0.05	15000	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0
	Dimethyl phthalate	µg/L	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0
Solvents	Isophorone	µg/L	0.05	78	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0
Metals	Arsenic (Filtered)	µg/L	0.2	10	1.3	3.3	2.3	1.2	1.2	3.1	6	6	1.2	1.2	3.3	3.3	2.1	1.8	0.97	0	0
	Barium (Filtered)	µg/L	5	700	77	79	79	110	98	55	6	6	55	55	110	110	83	79	19	0	0
	Beryllium (Filtered)	µg/L	1	4	<1	<1	<1	<1	<1	<1	6	0	<1	ND	<1	ND	0.5	0.5	0	0	0
	Boron (Filtered)	µg/L	10	1000	140	93	13	88	72	150	6	6	13	13	150	150	93	90.5	50	0	0
	Cadmium (Filtered)	µg/L	0.11	5	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	6	0	<0.11	ND	<0.11	ND	0.055	0.055	0	0	0
	Calcium	mg/L	2		150	410	280	460	180	420	6	6	150	150	460	460	317	345	132	0	0
	Chromium (III+VI) (Filtered)	µg/L	0.5	50	<0.5	<0.5	<0.5	<0.5	0.62	<0.5	6	1	<0.5	0.62	0.62	0.62	0.31	0.25	0.15	0	0
	Copper (Filtered)	µg/L	0.5	2000	<0.5	<0.5	3.5	<0.5	<0.5	<0.5	6	1	<0.5	3.5	3.5	3.5	0.79	0.25	1.3	0	0
	Lead (Filtered)	µg/L	0.5	10	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	6	0	<0.5	ND	<0.5	ND	0.25	0.25	0	0	0
	Magnesium	mg/L	0.2		32	57	5.6	41	62	76	6	6	5.6	5.6	76	76	46	49	25	0	0
	Mercury (Filtered)	µg/L	0.05	1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0
	Nickel (Filtered)	µg/L	0.5	20	<0.5	<0.5	<0.5	<0.5	<0.5	5.1	6	1	<0.5	5.1	5.1	5.1	1.1	0.25	2	0	0
	Selenium (Filtered)	µg/L	0.5	10	<0.5	0.67	2.9	<0.5	1.5	0.69	6	4	<0.5	0.67	2.9	2.9	1	0.68	1	0	0
	Vanadium (Filtered)	µg/L	0.5	86	<0.5	<0.5	3.4	<0.5	<0.5	<0.5	6	1	<0.5	3.4	3.4	3.4	0.78	0.25	1.3	0	0
	Zinc (Filtered)	µg/L	2.5	6000	<2.5	3.5	<2.5	<2.5	<2.5	<2.5	6	1	<2.5	3.5	3.5	3.5	1.6	1.25	0.92	0	0
	Potassium	mg/L	0.5		5	6.9	8.5	11	3.6	4	6	6	3.6	3.6	11	11	6.5	5.95	2.9	0	0
	Chromium (hexavalent)	µg/L	0.1	999000000000.069	2.5	<0.1	0.78	0.35	3.7	<0.1	6	4	<0.1	0.35	3.7	3.7	1.2	0.565	1.5	0	0
Inorganics	Ammonia as N	mg/L	0.05		0.41	0.4	1.2	1.6	1.2	2.8	6	6	0.4	0.4	2.8	2.8	1.3	1.2	0.89	0	0
	Sulphur	µg/L	1000		83,000	320,000	280,000	300,000	100,000	430,000	6	6	83000	83000	430000	430000	252167	290000	134952	0	0
	Sodium	mg/L	1.5	200	30	40	85	330	160	210	6	6	30	30	330	330	143	122.5	115	2	2
	Cyanide Total	mg/L	0.005	0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	6	0	<0.005	ND	<0.005	ND	0.0025	0.0025	0	0	0
	Electrical conductivity *(lab)	µS/cm	1		320	460	700	320	610	390	6	6	320	320	700	700	467	425	157	0	0
	Sulphate	mg/L	1	250	250	970	840	890	300	1300	6	6	250	250	1300	1300	758	865	408	6	6
	Chloride	mg/L	1	250	69	31	69	710	290	430	6	6	31	31	710	710	267	179.5	267	3	3
	Nitrate (as NO3-)	mg/L	0.5	50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	6	0	<0.5	ND	<0.5	ND	0.25	0.25	0	0	0
	Sulphide	mg/L	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0
	Hardness as CaCO3	mg/L	15		500	1300	720	1300	700	1400	6	6	500	500	1400	1400	987	1010	389	0	0
	pH (Lab)	pH_Units	0		7.9	7.6	7.5	7.3	7.6	7.7	6	6	7.3	7.3	7.9	7.9	7.6	7.6	0.2	0	0
Other	Bis(2-chloroisopropyl)ether	µg/L	0.05		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0	0

				Location_Code	BH101	BH102	BH102	BH104	BH104	BH105	BH106	DS101	DS101	Statistical Summary									
				Sampled_Date_Time	27/05/2022	27/05/2022	27/05/2022	25/05/2022	25/05/2022	26/05/2022	25/05/2022	30/05/2022	30/05/2022										
				Sample_Depth_Range	2.1	0.3	1.7	0.1	1.3	0.2	1.4	0	0.3										
				Lab_Report_Number	22-20268-2	22-20268-2	22-20268-2	22-20268-2	22-20268-2	22-20268-2	22-20268-2	22-20268-2	22-20268-2										
				GAC_WTV_SC_DWS																			
Chem_Group	ChemName	output unit	EQL											Number of Results	Number of Detects	Minimum Concentration	Minimum Detect	Maximum Concentration	Maximum Detect	Average Concentration	Median Concentration	Standard Deviation	Number of Guideline Exceedances
	TPH aliphatic >C10-C12	µg/L	0.1		<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0
	TPH aliphatic >C5-C6	µg/L	0.01		<0.01	<0.01	-	-	<0.01	<0.01	-	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0
	TPH aliphatic >C12-C16	µg/L	0.1		<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0
	TPH aliphatic >C6-C8	µg/L	0.01		<0.01	<0.01	-	-	<0.01	<0.01	-	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0
	TPH aliphatic >C16-C21	µg/L	0.1		<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0
	TPH aliphatic >C8-C10	µg/L	0.1		<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0
	TPH aliphatic >C21-C35	µg/L	0.1		<0.1	<0.1	-	-	<0.1	<0.1	-	480	360	6	2	<0.1	360	480	480	140	0.05	220	0
	TPH aromatic >C10-C12	µg/L	0.1		<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0
	TPH aromatic >C5-C7	µg/L	0.01		<0.01	<0.01	-	-	<0.01	<0.01	-	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0
	TPH aliphatic >C35-C44	µg/L	0.1		<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0
	TPH aromatic >C12-C16	µg/L	0.1		<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0
	TPH aromatic >C7-C8	µg/L	0.01		<0.01	<0.01	-	-	<0.01	<0.01	-	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0
	TPH aromatic >C16-C21	µg/L	0.1		<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0
	TPH aromatic >C8-C10	µg/L	0.1		<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0
	TPH aromatic >C21-C35	µg/L	0.1		<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0
	TPH aromatic >C35-C44	µg/L	0.1		<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0
1675	C2 Total Aromatic Hydrocarbons	ug/l	1		<1	<1	-	-	<1	<1	-	<1	<1	6	0	<1	ND	<1	ND	0.5	0.5	0	0
640	Volume Of C2 Leachant	l	0		0.318	-	0.324	0.339	-	0.338	0.298	0.321	-	6	6	0.298	0.298	0.339	0.339	0.32	0.3225	0.015	0
	Volume Of C8 Leachant	l	0		1.4	-	1.4	1.4	-	1.4	1.4	1.4	-	6	6	1.4	1.4	1.4	1.4	1.4	1.4	0	0
TPH	Total Petroleum Hydrocarbons	µg/L	2		<2	<2	-	-	<2	<2	-	480	360	6	2	<2	360	480	480	141	1	220	0
	Total Aliphatics	µg/L	1		<1	<1	-	-	<1	<1	-	480	360	6	2	<1	360	480	480	140	0.5	220	0
BTEX	Benzene	µg/L	0.1	1	<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0
	Toluene	µg/L	0.1	700	<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0
	Ethylbenzene	µg/L	0.1	300	<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0
	Xylene (m & p)	µg/L	0.1		<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0
	Xylene (o)	µg/L	0.1	190	<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0
Oxygenates	MTBE	µg/L	0.1	1800	<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0
Chlorinated Hydrocarbons	Chloromethane	µg/L	0.1	190	<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0
	Vinyl chloride	µg/L	0.1	0.5	<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0
	Chloroethane	µg/L	0.2	21000	<0.2	<0.2	-	-	<0.2	<0.2	-	<0.2	<0.2	6	0	<0.2	ND	<0.2	ND	0.1	0.1	0	0
	1,1-dichloroethene	µg/L	0.1	7	<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0
	trans-1,2-dichloroethene	µg/L	0.1	50|68	<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0
	1,1-dichloroethane	µg/L	0.1	2.8	<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0
	cis-1,2-dichloroethene	µg/L	0.1	36|50	<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0
	Chloroform	µg/L	0.1	999000000000.015	<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0
	1,1,1-trichloroethane	µg/L	0.1	200	<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0
	Carbon tetrachloride	µg/L	0.1	3	<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0
	Trichloroethene	µg/L	0.1	999000000000.042	<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0
	1,1,2-trichloroethane	µg/L	1	5	<1	<1	-	-	<1	<1	-	<1	<1	6	0	<1	ND	<1	ND	0.5	0.5	0	0
	Tetrachloroethene	µg/L	0.1	999000000000.042	<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0
VOC	Bromochloromethane	µg/L	0.5	83	<0.5	<0.5	-	-	<0.5	<0.5	-	<0.5	<0.5	6	0	<0.5	ND	<0.5	ND	0.25	0.25	0	0
	1,1-dichloropropene	µg/L	0.1		<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0
	1,2-dichloroethane	µg/L	0.2	3	<0.2	<0.2	-	-	<0.2	<0.2	-	<0.2	<0.2	6	0	<0.2	ND	<0.2	ND	0.1	0.1	0	0
	1,2-dichloropropane	µg/L	0.1	5	<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0
	Dibromomethane	µg/L	0.1	8.3	<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0
	Bromodichloromethane	µg/L	0.5	60	<0.5	<0.5	-	-	<0.5	<0.5	-	<0.5	<0.5	6	0	<0.5	ND	<0.5	ND	0.25	0.25	0	0
	cis-1,3-dichloropropene	µg/L	1		<1	<1	-	-	<1	<1	-	<1	<1	6	0	<1	ND	<1	ND	0.5	0.5	0	0
	trans-1,3-dichloropropene	µg/L	1		<1	<1	-	-	<1	<1	-	<1	<1	6	0	<1	ND	<1	ND	0.5	0.5	0	0
	1,3-dichloropropane	µg/L	0.2	20	<0.2	<0.2	-	-	<0.2	<0.2	-	<0.2	<0.2	6	0	<0.2	ND	<0.2	ND	0.1	0.1	0	0
	Chlorodibromomethane	µg/L	1	999000000000.015	<1	<1	-	-	<1	<1	-	<1	<1	6	0	<1	ND	<1	ND	0.5	0.5	0	0
	1,1,1,2-tetrachloroethane	µg/L	0.2	0.57	<0.2	<0.2	-	-	<0.2	<0.2	-	<0.2	<0.2	6	0	<0.2	ND	<0.2	ND	0.1	0.1	0	0
	Styrene	µg/L	0.1	20	<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0
	Bromoform	µg/L	1	999000000000.015	<1	<1	-	-	<1	<1	-	<1	<1	6	0	<1	ND	<1	ND	0.5	0.5	0	0
	Isopropylbenzene	µg/L	0.1	450	<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0
	1,2,3-trichloropropane	µg/L	5	0.00075	<5	<5	-	-	<5	<5	-	<5	<5	6	0	<5	ND	<5	ND	2.5	2.5	0	6
	n-propylbenzene	µg/L	0.1	660	<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0
	1,3,5-trimethylbenzene	µg/L	0.1	60	<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0
	tert-butylbenzene	µg/L	0.1	690	<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0
	1,2,4-trimethylbenzene	µg/L	0.1	56	<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0
	sec-butylbenzene	µg/L	0.1	2000	<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0
	p-isopropyltoluene	µg/L	0.1		<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0
	n-butylbenzene	µg/L	0.1	1000	<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0
	1,2-dibromo-3-chloropropane	µg/L	5	0.2	<5	<5	-	-	<5	<5	-	<5	<5	6	0	<5	ND	<5	ND	2.5	2.5	0	6
	Hexachlorobutadiene	µg/L	0.05	0.1	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0
PAH	Naphthalene	µg/L	0.01	6	<0.01	<0.01	-	-	<0.01	<0.01	-	<0.05 - 0.56	<0.05 - 0.51	6	2	<0.01	ND	0.56	0.56	0.097	0.005	0.14	0
	Acenaphthylene	µg/L	0.01	18	<0.01	<0.01	-	-	<0.01	<0.01	-	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0
	Acenaphthene	µg/L	0.01	18	<0.01	<0.01	-	-	<0.01	<0.01	-	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0
	Fluorene	µg/L	0.01	12	<0.01	<0.01	-	-	<0.01	<0.01	-	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0
	Phenanthrene	µg/L	0.01	4	<0.01	<0.01	-	-	<0.01	<0.01	-	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0
	Anthracene	µg/L	0.01	90	<0.01	<0.01	-	-	<0.01	<0.01	-	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0
	Fluoranthene	µg/L	0.01	4	<0.01	<0.01	-	-	<0.01	<0.01	-	<0.01	<0.01 - 0.52	6	1	<0.01	ND	0.52	0.52	0.048	0.005	0.11	0
	Pyrene	µg/L	0.01	9	<0.01	<0.01	-	-	<0.01	<0.01	-	<0.01	<0.01 - 0.89	6	1	<0.01	ND	0.89	0.89	0.079	0.005	0.18	0
	Benz(a)anthracene	µg/L	0.01	3.5	<0.01	<0.01	-	-	<0.01	<0.01	-	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0
	Chrysene	µg/L	0.01	7	<0.01	<0.01	-	-	<0.01	<0.01	-	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0
	Benzo(a) pyrene	µg/L	0.01	0.01	<0.01	<0.01	-	-	<0.01	<0.01	-	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0
	Indeno(1,2,3-c,d)pyrene	µg/L	0.01	999000000000.041	<0.01	<0.01	-	-	<0.01	<0.01	-	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0
	Dibenz(a,h)anthracene	µg/L	0.01	0.07	<0.01	<0.01	-	-	<0.01	<0.01	-	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0
	Benzo(g,h,i)perylene	µg/L	0.01	999000000000.041	<0.01	<0.01	-	-	<0.01	<0.01	-	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0
	Benzo(b)fluoranthene	µg/L	0.01	999000000000.041	<0.01	<0.01	-	-	<0.01	<0.01	-	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0
	Benzo(k)fluoranthene	µg/L	0.01	999000000000.041	<0.01	<0.01	-	-	<0.01	<0.01	-	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0
	PAHs (Sum of total)	µg/L	0.2		<0.2	<0.2	-	-	<0.2	<0.2	-	0.56	0.51	6	2	<0.2	0.51	0.56	0.56	0.25	0.1	0.23	0
SVOC	2-methylnaphthalene	µg/L	0.05	36	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0
	4-bromophenyl phenyl ether	µg/L	0.05		<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0
	4-chlorophenyl phenyl ether	µg/L	0.05		<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0
	Azobenzene	µg/L	0.05	0.12	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0
	Bis(2-chloroethoxy) methane	µg/L	0.05	59	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0
	Bis(2-chloroethyl)ether	µg/L	0.05	0.014	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	6
	Carbazole	µg/L	0.05		<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0
	Dibenzofuran	µg/L	0.05	7.9	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0
	Hexachlorocyclopentadiene	µg/L	0.05	0.41	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0
	Hexachloroethane	µg/L	0.05	0.33	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0
Phenolics	2-methylphenol	µg/L	0.05	930	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0
	2-nitrophenol	µg/L	0.05		<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0
	2,4-dimethylphenol	µg/L	0.05	360	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0
	4-chloro-3-methylphenol	µg/L	0.05	1400	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0
	4-methylphenol	µg/L	0.05	1900	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0
	4-nitrophenol	µg/L	0.05		<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0
	Phenol	µg/L	0.05	5800	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0
	2-chloronaphthalene	µg/L	0.05	750	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0
	4,6-Dinitro-2-methylphenol	µg/L	0.05	1.5	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0
	nonchlorinated phenols	µg/L	30		<30	<30	-	-	<30	<30	-	<30	<30	6	0	<30	ND	<30	ND	15	15	0	0
PCBs	PCB 118	µg/L	0.01	0.004	<0.01	<0.01	-	-	<0.01	<0.01	-	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	6
	PCB 28	µg/L	0.01		<0.01	<0.01	-	-	<0.01	<0.01	-	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0
	PCB 52	µg/L	0.01		<0.01	<0.01	-	-	<0.01	<0.01	-	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0
	PCB 101	µg/L	0.01		<0.01	<0.01	-	-	<0.01	<0.01	-	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0
	PCB 138	µg/L	0.01		<0.01	<0.01	-	-	<0.01	<0.01	-	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0
	PCB 153	µg/L	0.01		<0.01	<0.01	-	-	<0.01	<0.01	-	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0
	PCB 180	µg/L	0.01		<0.01	<0.01	-	-	<0.01	<0.01	-	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0
	PCBs (Sum of total)	µg/L	0.01	0.5	<0.01	<0.01	-	-	<0.01	<0.01	-	<0.01	<0.01	6	0	<0.01	ND	<0.01	ND	0.005	0.005	0	0
Amino Aliphatics	N-nitrosodi-n-propylamine	µg/L	0.05	0.011	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	6
	N-Nitrosodimethylamine	µg/L	0.05	0.1	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0
Anilines	2-nitroaniline	µg/L	0.05	190	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0
	3-nitroaniline	µg/L	0.05		<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0
	4-chloroaniline	µg/L	0.05	0.37	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0
	4-nitroaniline	µg/L	0.05	3.8	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0
Explosives	2,4-Dinitrotoluene	µg/L	0.05	0.24	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0
	2,6-dinitrotoluene	µg/L	0.05	0.049	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	6

AECOM

Table 3
Controlled Waters Screening Assessment - Groundwater
Manchester Airport BUilding 401

Threadneedle Curtis Ltd.

				Location_Code	BH101	BH102	BH102	BH104	BH104	BH105	BH106	DS101	DS101														
				Sampled_Date_Time	27/05/2022	27/05/2022	27/05/2022	25/05/2022	25/05/2022	26/05/2022	25/05/2022	30/05/2022	30/05/2022														
				Sample_Depth_Range	2.1	0.3	1.7	0.1	1.3	0.2	1.4	0	0.3														
				Lab_Report_Number	22-20268-2	22-20268-2	22-20268-2	22-20268-2	22-20268-2	22-20268-2	22-20268-2	22-20268-2	22-20268-2														
				GAC_WTV_SC_DWS										Statistical Summary													
Chem_Group	ChemName	output unit	EQL											Number of Results	Number of Detects	Minimum Concentration	Minimum Detect	Maximum Concentration	Maximum Detect	Average Concentration	Median Concentration	Standard Deviation	Number of Guideline Exceedances				
	Nitrobenzene	µg/L	0.05	999000000000.082	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0				
Halogenated Benzenes	Chlorobenzene	µg/L	0.1	300	<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0				
	Bromobenzene	µg/L	0.1	62	<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0				
	2-chlorotoluene	µg/L	0.1	240	<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0				
	4-chlorotoluene	µg/L	0.1	250	<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0				
	1,3-dichlorobenzene	µg/L	0.05		<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0				
	1,4-dichlorobenzene	µg/L	0.05	80	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0				
	1,2-dichlorobenzene	µg/L	0.05	600	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0				
	1,2,4-trichlorobenzene	µg/L	0.05	70	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0				
	1,2,3-trichlorobenzene	µg/L	0.2	7	<0.2	<0.2	-	-	<0.2	<0.2	-	<0.2	<0.2	6	0	<0.2	ND	<0.2	ND	0.1	0.1	0	0				
	Hexachlorobenzene	µg/L	0.05	0.1	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0				
Halogenated Hydrocarbons	Dichlorodifluoromethane	µg/L	0.1	200	<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0				
	Bromomethane	µg/L	2	7.5	<2	<2	-	-	<2	<2	-	<2	<2	6	0	<2	ND	<2	ND	1	1	0	0				
	Trichlorofluoromethane	µg/L	0.1	5200	<0.1	<0.1	-	-	<0.1	<0.1	-	<0.1	<0.1	6	0	<0.1	ND	<0.1	ND	0.05	0.05	0	0				
	1,2-dibromoethane	µg/L	0.5	0.4	<0.5	<0.5	-	-	<0.5	<0.5	-	<0.5	<0.5	6	0	<0.5	ND	<0.5	ND	0.25	0.25	0	6				
Halogenated Phenols	2-chlorophenol	µg/L	0.05	91	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0				
	2,4-dichlorophenol	µg/L	0.05	46	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0				
	2,4,5-trichlorophenol	µg/L	0.05	1200	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0				
	2,4,6-trichlorophenol	µg/L	0.05	200	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0				
	Pentachlorophenol	µg/L	0.05	9	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0				
Phthalates	Bis(2-ethylhexyl) phthalate	µg/L	0.05	6	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0				
	Butyl benzyl phthalate	µg/L	0.05	16	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0				
	Di-n-butyl phthalate	µg/L	0.05	900	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0				
	Di-n-octyl phthalate	µg/L	0.05	200	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0				
	Diethylphthalate	µg/L	0.05	15000	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0				
	Dimethyl phthalate	µg/L	0.05		<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0				
Solvents	Isophorone	µg/L	0.05	78	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0				
Metals	Arsenic	µg/L	0.2	10	0.9 - 2.4	0.64	-	0.4	2.5	0.43	-	1.4	16	7	7	0.4	0.4	13	13	2.9	1.4	4.5	1				
	Barium	µg/L	5	700	44	66	-	-	140	14	-	74	43	6	6	14	14	140	140	64	55	43	0				
	Beryllium	µg/L	1	4	<1	<1	-	-	140	<1	-	<1	6.9	6	2	<1	6.9	140	140	25	0.5	56	2				
	Boron	µg/L	10	1000	41	16	-	-	21	17	-	13	20	6	6	13	13	41	41	21	18.5	10	0				
	Cadmium	µg/L	0.11	5	<0.11	<0.11	-	<0.11	130	0.38	-	<0.11	6.6	7	3	<0.11	0.38	130	130	20	0.055	49	2				
	Chromium (III+VI)	µg/L	0.5	50	2.1	4.9	-	-	170	2.8	-	5.6	14	6	6	2.1	2.1	170	170	33	5.25	67	1				
	Copper	µg/L	0.5	2000	<0.5 - 1.2	2.4	-	0.8	140	1.5	-	4.9	8.8	7	7	0.5	0.8	140	140	23	2.4	52	0				
	Lead	µg/L	0.5	10	<0.5	<0.5	-	<0.5	81	<0.5	-	2	9.9	7	3	<0.5	2	81	81	13	0.25	30	1				
	Mercury	µg/L	0.05	1	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	0.08	6	1	<0.05	0.08	0.08	0.08	0.034	0.025	0.022	0				
	Molybdenum	µg/L	0.2	70	2	-	-	0.9	-	-	-	-	-	2	2	0.9	0.9	2	2		1.45		0				
	Nickel	µg/L	0.5	20	1.6	2.2	-	-	160	2.1	-	2.5	11	6	6	1.6	1.6	160	160	30	2.35	64	1				
	Selenium	µg/L	0.5	10	<0.5 - 0.87	1.3	-	<0.5	130	1	-	<0.5	6.8	7	5	<0.5	1	130	130	20	1	49	1				
	Zinc	µg/L	2.5	6000	5.5	<2.5	-	-	230	<2.5	-	<2.5	28	6	3	<2.5	5.5	230	230	45	3.375	91	0				
	Chromium (hexavalent)	µg/L	0.1	999000000000.069	<0.1	<20 - 1.2	-	-	<0.1	<20 - 0.15	-	1.3	0.51	6	4	<0.1	0.51	1.3	1.3	2.1	0.905	2.6	0				
Organics	Dissolved Organic Carbon	mg/L	2.5		<2.5	-	-	<2.5	-	-	-	-	-	2	0	<2.5	ND	<2.5	ND		1.25		0				
Inorganics	Ammonia as N	mg/L	0.05		0.12	0.72	-	-	0.093	0.12	-	0.12	0.15	6	6	0.093	0.093	0.72	0.72	0.22	0.12	0.25	0				
	Sulphur	µg/L	1000		330,000	12,000	-	-	6300	3300	-	1200	2300	6	6	1200	1200	330000	330000	59183	4800	132729	0				
	Cyanide Total	mg/L	0.05	0.05	<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0				
	Electrical conductivity *(lab)	µS/cm	1		1600	430	-	-	140	290	-	210	150	6	6	140	140	1600	1600	470	250	564	0				
	Sulphate	mg/L	1	250	968	37	-	-	19	10	-	3.5	6.9	6	6	3.5	3.5	990	990	178	14.5	398	1				
	Chloride	mg/L	1	250	1.7	1.5	-	-	7.9	53	-	3.2	3.8	6	6	1.5	1.5	53	53	12	3.5	20	0				
	Nitrate (as NO3-)	mg/L	0.5	50	<0.5	<0.5	-	-	1.8	2.1	-	5.7	1.2	6	4	<0.5	1.2	5.7	5.7	1.9	1.5	2	0				
	Sulphide	mg/L	0.05		<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0				
	pH (Lab)	pH_Units	0		7.5	10.3	-	-	8.2	8	-	9	8.9	6	6	7.5	7.5	10.3	10.3	8.7	8.55	0.99	0				
Other	Bis(2-chloroisopropyl)ether	µg/L	0.05		<0.05	<0.05	-	-	<0.05	<0.05	-	<0.05	<0.05	6	0	<0.05	ND	<0.05	ND	0.025	0.025	0	0				

Table 3
Ground Gas Results
Port Salford Ground Investigation Report

Exploratory Hole	Date	Steady Flow rate (l/h)	Barometric Pressure (mb)	Peak Min O2 (% vol)	C0 (ppm)	H2S (ppm)	Peak CH4 (% vol)	GSV (l/hr)	Characteristic Situation CH4	Peak CO2 (% vol)	GSV	Characteristic Situation CO2	Comments
BH101	16/06/22	0.0	1011	16.7	1	0	0.0	0.000	1	0.2	0.000	1	
	23/06/22	0.0	1004	15.9	5	0	0.2	0.000	1	0.7	0.000	1	
	30/06/22	0.0	1004	16.6	1	0	0.0	0.000	1	0.1	0.000	1	
	07/07/22	0.0	1024	17.4	1	0	0.0	0.000	1	0.3	0.000	1	
	14/07/22	0.0	1018	17.1	2	0	0.0	0.000	1	0.1	0.000	1	
	20/07/22	0.0	1009	17.1	2	0	0.0	0.000	1	0.7	0.000	1	
BH102	16/06/22	0.0	1011	12.6	1	0	0.0	0.000	1	0.0	0.000	1	
	23/06/22	-0.1	1004	17.3	2	0	0.0	0.000	1	0.2	0.000	1	
	30/06/22	0.0	1004	18.0	3	0	0.0	0.000	1	0.2	0.000	1	
	07/07/22	0.0	1023	18.8	1	0	0.0	0.000	1	0.2	0.000	1	
	14/07/22	0.0	1018	18.5	2	0	0.0	0.000	1	0.3	0.000	1	
	20/07/22	0.0	1008	18.3	2	0	0.0	0.000	1	0.2	0.000	1	
BH103	16/06/22	0.0	1011	18.8	0	0	0.0	0.000	1	0.1	0.000	1	
	23/06/22	0.0	1005	18.8	3	0	0.0	0.000	1	0.2	0.000	1	
	30/06/22	-0.1	1004	19.4	2	0	0.0	0.000	1	0.2	0.000	1	
	07/07/22	0.0	1023	18.4	0	0	0.0	0.000	1	0.2	0.000	1	
	14/07/22	0.0	1018	18.5	2	0	0.0	0.000	1	0.2	0.000	1	
	20/07/22	0.0	1009	19.0	2	0	0.0	0.000	1	0.3	0.000	1	
BH104	16/06/22	0.0	1011					0.000	1		0.000	1	
	23/06/22	0.0	1005	19.7	4	0	0.0	0.000	1	0.1	0.000	1	
	30/06/22	0.4	1004	17.2	1	0	0.0	0.000	1	1.7	0.007	1	
	07/07/22	-0.1	1023	12.8	2	0	0.0	0.000	1	3.9	-0.004	1	
	14/07/22	-0.1	1019	11.8	4	0	0.0	0.000	1	4.7	-0.005	1	
	20/07/22	0.0	1009	8.8	4	0	0.0	0.000	1	5.9	0.000	1	
BH105	16/06/22	0.0	1011	19.6	1	1	0.0	0.000	1	0.9	0.000	1	
	23/06/22	0.0	1005	19.9	6	0	0.0	0.000	1	0.9	0.000	1	
	30/06/22	0.0	1004	20.4	3	0	0.0	0.000	1	0.7	0.000	1	
	07/07/22	-0.1	1023	20.4	3	0	0.0	0.000	1	0.7	-0.001	1	
	14/07/22	0.0	1019	20.3	7	0	0.0	0.000	1	0.8	0.000	1	
	20/07/22	0.0	1010	19.7	11	0	0.0	0.000	1	0.8	0.000	1	
BH106	16/06/22	0.0	1011	1.8	1	1	0.6	0.000	1	6.2	0.000	1	
	23/06/22	0.0	1001	0.8	6	0	2.5	0.000	2	10.4	0.000	1	
	30/06/22	0.9	1005	0.5	2	0	2.9	0.026	2	12.1	0.109	2	
	07/07/22	-0.1	1024	4.1	1	0	2.4	-0.002	2	3.8	-0.004	1	
	14/07/22	0.2	1019	0.4	2	0	2.3	0.005	2	6.2	0.012	2	
	20/07/22	2.6	1009	0.4	2	0	2.5	0.065	2	4.8	0.1248	2	
Maximum				20.4	11.0	1.0	2.9	0.1	2	12.1	0.1	2	
Minimum				0.4	0.0	0.0	0.0	0.0	1	0.0	0.0	1	

Appendix F HazWaste Online

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.

PMDIO-VGP1B-N68LW

Job name

MAG

Description/Comments

Project

MAG

Site

Manchester Airport

Classified by

Name: **Laura Polazzi**
Date: **03 Aug 2022 13:58 GMT**
Telephone:

Company: **AECOM**
Croydon
London

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.

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Course	Date
Hazardous Waste Classification	04 Jun 2020

Next 3 year Refresher due by Jun 2023

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	BH104-25/05/2022-0.10	0.10-0.30	Non Hazardous		3
2	BH104-25/05/2022-1.30	1.30-1.40	Non Hazardous		9
3	BH106-25/05/2022-0.10	0.10-0.40	Non Hazardous		15
4	BH106-25/05/2022-1.40	1.40-1.50	Non Hazardous		21
5	BH105-26/05/2022-0.20	0.20-0.40	Non Hazardous		23
6	BH105-26/05/2022-1.50	1.50-1.60	Non Hazardous		29
7	BH101-27/05/2022-2.10	2.10-2.20	Non Hazardous		35
8	BH102-27/05/2022-0.15	0.15-0.30	Hazardous	HP 7, HP 8, HP 11	41
9	BH102-27/05/2022-0.30	0.30-0.75	Non Hazardous		48
10	BH102-27/05/2022-1.70	1.70-1.80	Non Hazardous		54
11	DS101-31/05/2022-1.65	1.65-1.75	Non Hazardous		60
12	BH103-30/05/2022-0.14	0.14-0.40	Hazardous	HP 7, HP 11	66
13	BH103-30/05/2022-1.50	1.50-1.60	Non Hazardous		72
14	DS101-30/05/2022-0.00	0.00-0.30	Non Hazardous		74
15	DS101-30/05/2022-0.30	0.30-0.44	Non Hazardous		80
16	DS101-30/05/2022-0.44	0.44-0.60	Non Hazardous		86

Related documents

#	Name	Description
1	HWOL_22-23896-20220711 161044.hwol	Eurofins Chemtest .hwol file used to populate the Job
2	AECOM 2022	waste stream template used to create this Job

Report

Created by: Laura Polazzi

Created date: 03 Aug 2022 13:58 GMT

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Appendix B: Rationale for selection of metal species	96

Appendices	Page
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Classification of sample: BH104-25/05/2022-0.10

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH104-25/05/2022-0.10
Sample Depth:
0.10-0.30 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	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		1.1 mg/kg	1.32	1.293 mg/kg	0.000129 %	✓	
2	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		<0.5 mg/kg	2.775	<1.388 mg/kg	<0.000139 %		<**LOD**
3	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		<0.4 mg/kg	3.22	<1.288 mg/kg	<0.000129 %		<**LOD**
4	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.13 mg/kg	1.142	0.132 mg/kg	0.0000132 %	✓	
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		3.1 mg/kg	1.462	4.032 mg/kg	0.000403 %	✓	
6	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				<0.5 mg/kg	2.27	<1.135 mg/kg	<0.000113 %		<**LOD**
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		2 mg/kg	1.126	2.004 mg/kg	0.0002 %	✓	
8	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	7.6 mg/kg		6.764 mg/kg	0.000676 %	✓	
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.05 mg/kg	1.353	<0.0677 mg/kg	<0.00000677 %		<**LOD**
10	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		4 mg/kg	2.976	10.596 mg/kg	0.00106 %	✓	
11	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.4 mg/kg	1.405	0.5 mg/kg	0.00005 %	✓	
12	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		16 mg/kg	2.469	35.163 mg/kg	0.00352 %	✓	
13	TPH (C6 to C40) petroleum group			TPH		400 mg/kg		356 mg/kg	0.0356 %	✓	
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<**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		benzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
16		toluene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
17		ethylbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
18		xylene				<0.0004	mg/kg		<0.0004	mg/kg	<0.00000004 %		<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]									
19		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 }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<LOD
		006-007-00-5											
20		pH				8.8	pH		8.8	pH	8.8 pH		
				PH									
21		naphthalene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
22		acenaphthylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-917-1	208-96-8									
23		acenaphthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-469-6	83-32-9									
24		fluorene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-695-5	86-73-7									
25		phenanthrene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-581-5	85-01-8									
26		anthracene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			204-371-1	120-12-7									
27		fluoranthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-912-4	206-44-0									
28		pyrene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			204-927-3	129-00-0									
29		benzo[a]anthracene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
30		chrysene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
31		benzo[b]fluoranthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
32		benzo[k]fluoranthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
33		benzo[a]pyrene; benzo[def]chrysene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
34		indeno[123-cd]pyrene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-893-2	193-39-5									
35		dibenz[a,h]anthracene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
36		benzo[ghi]perylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-883-8	191-24-2									
37		phenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
38		1,1-dichloroethane and 1,2-dichloroethane (combined)				<0.0004	mg/kg		<0.0004	mg/kg	<0.00000004 %		<LOD
			203-458-1, 200-863-5	107-06-2, 75-34-3									
39		tetrachloroethylene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-028-00-4	204-825-9	127-18-4									
40		carbon tetrachloride; tetrachloromethane				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-008-00-5	200-262-8	56-23-5									

#		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
41		trichloroethylene; trichloroethene	602-027-00-9	201-167-4	79-01-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
42		vinyl chloride; chloroethylene	602-023-00-7	200-831-0	75-01-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
43		hexachlorobenzene	602-065-00-6	204-273-9	118-74-1		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
44		polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
45		sulfur { sulfur }	016-094-00-1	231-722-6	7704-34-9		<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
46		barium { barium sulphide }	016-002-00-X	244-214-4	21109-95-5		18	mg/kg	1.233	19.761	mg/kg	0.00198 %	✓	
47		dichlorodifluoromethane		200-893-9	75-71-8		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
48		chloromethane; methyl chloride	602-001-00-7	200-817-4	74-87-3		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
49		bromomethane; methylbromide	602-002-00-2	200-813-2	74-83-9		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
50		chloroethane	602-009-00-0	200-830-5	75-00-3		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
51		trichlorofluoromethane		200-892-3	75-69-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
52		1,1-dichloroethylene; vinylidene chloride	602-025-00-8	200-864-0	75-35-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
53		bromochloromethane		200-826-3	74-97-5		<0.0005	mg/kg		<0.0005	mg/kg	<0.00000005 %		<LOD
54		chloroform; trichloromethane	602-006-00-4	200-663-8	67-66-3		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
55		1,1,1-trichloroethane; methyl chloroform	602-013-00-2	200-756-3	71-55-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
56		1,1-dichloropropene	602-031-00-0	209-253-3	563-58-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
57		1,2-dichloropropane; propylene dichloride	602-020-00-0	201-152-2	78-87-5		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
58		dibromomethane	602-003-00-8	200-824-2	74-95-3		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
59		bromodichloromethane		200-856-7	75-27-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
60		1,3-dichloropropene; [1] (Z)-1,3-dichloropropene [2]	602-030-00-5	208-826-5 [1] 233-195-8 [2]	542-75-6 [1] 10061-01-5 [2]		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
61		trans-1,3-dichloropropene		431-460-4	10061-02-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
62		1,1,2-trichloroethane	602-014-00-8	201-166-9	79-00-5		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
63		1,3-dichloropropane		205-531-3	142-28-9		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
64		dibromochloromethane		204-704-0	124-48-1		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
65		1,2-dibromoethane	602-010-00-6	203-444-5	106-93-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
66		chlorobenzene	602-033-00-1	203-628-5	108-90-7		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
67		1,1,1,2-tetrachloroethane		211-135-1	630-20-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
68		styrene	601-026-00-0	202-851-5	100-42-5		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
69		bromoform; tribromomethane	602-007-00-X	200-854-6	75-25-2		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<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							
70		bromobenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-060-00-9	203-623-8	108-86-1							
71		1,2,3-trichloropropane				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-062-00-X	202-486-1	96-18-4							
72		mesitylene; 1,3,5-trimethylbenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		601-025-00-5	203-604-4	108-67-8							
73		tert-butylbenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
			202-632-4	98-06-6							
74		1,2,4-trimethylbenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		601-043-00-3	202-436-9	95-63-6							
75		sec-butylbenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
			205-227-0	135-98-8							
76		1,3-dichlorbenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-067-00-7	208-792-1	541-73-1							
77		4-isopropyltoluene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
			202-796-7	99-87-6							
78		1,4-dichlorobenzene; p-dichlorobenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-035-00-2	203-400-5	106-46-7							
79		n-butylbenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
			203-209-7	104-51-8							
80		1,2-dichlorobenzene; o-dichlorobenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-034-00-7	202-425-9	95-50-1							
81		1,2-dibromo-3-chloropropane				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-021-00-6	202-479-3	96-12-8							
82		1,2,4-trichlorobenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-087-00-6	204-428-0	120-82-1							
83		hexachlorobutadiene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
			201-765-5	87-68-3							
84		1,2,3-trichlorobenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
			201-757-1	87-61-6							
85		dimethylnitrosoamine; N-nitrosodimethylamine				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		612-077-00-3	200-549-8	62-75-9							
86		2-chlorophenol; [1] 4-chlorophenol; [2] 3-chlorophenol; [3] chlorophenol [4]				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		604-008-00-0	202-433-2 [1] 203-402-6 [2] 203-582-6 [3] 246-691-4 [4]	95-57-8 [1] 106-48-9 [2] 108-43-0 [3] 25167-80-0 [4]							
87		bis(2-chloroethyl) ether				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		603-029-00-2	203-870-1	111-44-4							
88		hexachloroethane				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
			200-666-4	67-72-1							
89		nitrosodipropylamine				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		612-098-00-8	210-698-0	621-64-7							
90		nitrobenzene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		609-003-00-7	202-716-0	98-95-3							
91		3,5,5-trimethylcyclohex-2-enone; isophorone				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		606-012-00-8	201-126-0	78-59-1							
92		2-nitrophenol				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
			201-857-5	88-75-5							
93		3,4-xylenol; [1] 2,5-xylenol; [2] 2,4-xylenol; [3] 2,3-xylenol; [4] 2,6-xylenol; [5] xylenol; [6] 2,4(or 2,5)-xylenol [7]				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		604-006-00-X	202-439-5 [1] 202-461-5 [2] 203-321-6 [3] 208-395-3 [4] 209-400-1 [5] 215-089-3 [6] 276-245-4 [7]	95-65-8 [1] 95-87-4 [2] 105-67-9 [3] 526-75-0 [4] 576-26-1 [5] 1300-71-6 [6] 71975-58-1 [7]							
94		bis(2-chloroethoxy)methane				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
			203-920-2	111-91-1							

#		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									
95		2,4-dichlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-011-00-7	204-429-6	120-83-2									
96		4-chloroaniline				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		612-137-00-9	203-401-0	106-47-8									
97		chlorocresol; 4-chloro-m-cresol; 4-chloro-3-methylphenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-014-00-3	200-431-6	59-50-7									
98		2-methyl naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			202-078-3	91-57-6									
99		hexachlorocyclopentadiene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		602-078-00-7	201-029-3	77-47-4									
100		2,4,6-trichlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-018-00-5	201-795-9	88-06-2									
101		2,4,5-trichlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-017-00-X	202-467-8	95-95-4									
102		2-chloronaphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			202-079-9	91-58-7									
103		dimethyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-011-6	131-11-3									
104		2,6-dinitrotoluene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-049-00-8	210-106-0	606-20-2									
105		dibenzofuran				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-071-3	132-64-9									
106		4-chlorophenylphenylether				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			230-281-7	7005-72-3									
107		2,4-dinitrotoluene; [1] dinitrotoluene [2]				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-007-00-9	204-450-0 [1] 246-836-1 [2]	121-14-2 [1] 25321-14-6 [2]									
108		diethyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-550-6	84-66-2									
109		DNOC (ISO); 4,6-dinitro-o-cresol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-020-00-X	208-601-1	534-52-1									
110		azobenzene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		611-001-00-6	203-102-5	103-33-3									
111		4-bromophenylphenylether				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			202-952-4	101-55-3									
112		pentachlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-002-00-8	201-778-6	87-86-5									
113		carbazole				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-696-0	86-74-8									
114		dibutyl phthalate; DBP				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		607-318-00-4	201-557-4	84-74-2									
115		BBP; benzyl butyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		607-430-00-3	201-622-7	85-68-7									
116		bis(2-ethylhexyl) phthalate; di-(2-ethylhexyl) phthalate; DEHP				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		607-317-00-9	204-211-0	117-81-7									
117		di-n-octyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			204-214-7	117-84-0									
118		4-nitrophenol; p-nitrophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-015-00-2	202-811-7	100-02-7									
119		monohydric phenols				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
				P1186									
120		m-cresol; [1] o-cresol; [2] p-cresol; [3] mix-cresol [4]				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		604-004-00-9	203-577-9 [1] 202-423-8 [2] 203-398-6 [3] 215-293-2 [4]	108-39-4 [1] 95-48-7 [2] 106-44-5 [3] 1319-77-3 [4]									

#		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							
121		1,2-dichloroethylene; [1] cis-dichloroethylene; [2] trans-dichloroethylene [3]				<0.0004 mg/kg		<0.0004 mg/kg	<0.00000004 %		<**LOD**
		602-026-00-3	208-750-2 [1] 205-859-7 [2] 205-860-2 [3]	540-59-0 [1] 156-59-2 [2] 156-60-5 [3]							
122		cumene; [1] propylbenzene [2]				<0.0004 mg/kg		<0.0004 mg/kg	<0.00000004 %		<**LOD**
		601-024-00-X	202-704-5 [1] 203-132-9 [2]	98-82-8 [1] 103-65-1 [2]							
123		2-chlorotoluene; [1] 3-chlorotoluene; [2] 4-chlorotoluene; [3] chlorotoluene [4]				<0.0004 mg/kg		<0.0004 mg/kg	<0.00000004 %		<**LOD**
		602-040-00-X	202-424-3 [1] 203-580-5 [2] 203-397-0 [3] 246-698-2 [4]	95-49-8 [1] 108-41-8 [2] 106-43-4 [3] 25168-05-2 [4]							
124		o-nitroaniline; [1] m-nitroaniline; [2] p-nitroaniline [3]				<0.15 mg/kg		<0.15 mg/kg	<0.000015 %		<**LOD**
		612-012-00-9	201-855-4 [1] 202-729-1 [2] 202-810-1 [3]	88-74-4 [1] 99-09-2 [2] 100-01-6 [3]							
								Total:	0.0444 %		

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 As the samples is a solid waste (soil and stones) it is not considered to be hazardous in terms of the flammable hazardous property HP 3(i) as this hazard property relates to liquid substance only.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0356%)

Classification of sample: BH104-25/05/2022-1.30

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH104-25/05/2022-1.30
Sample Depth:
1.30-1.40 m
Moisture content:
35%
(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: 35% 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	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		9.6 mg/kg	1.32	8.239 mg/kg	0.000824 %	✓	
2	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.9 mg/kg	2.775	1.624 mg/kg	0.000162 %	✓	
3	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		<0.4 mg/kg	3.22	<1.288 mg/kg	<0.000129 %		<LOD
4	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.1 mg/kg	1.142	0.0743 mg/kg	0.00000743 %	✓	
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		16 mg/kg	1.462	15.2 mg/kg	0.00152 %	✓	
6	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				<0.5 mg/kg	2.27	<1.135 mg/kg	<0.000113 %		<LOD
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		12 mg/kg	1.126	8.782 mg/kg	0.000878 %	✓	
8	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	6.6 mg/kg		4.29 mg/kg	0.000429 %	✓	
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.05 mg/kg	1.353	<0.0677 mg/kg	<0.00000677 %		<LOD
10	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		13 mg/kg	2.976	25.149 mg/kg	0.00251 %	✓	
11	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.76 mg/kg	1.405	0.694 mg/kg	0.0000694 %	✓	
12	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		18 mg/kg	2.469	28.891 mg/kg	0.00289 %	✓	
13	TPH (C6 to C40) petroleum group			TPH		<2 mg/kg		<2 mg/kg	<0.0002 %		<LOD
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<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		benzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
16		toluene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
17		ethylbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
18		xylene				<0.0004	mg/kg		<0.0004	mg/kg	<0.00000004 %		<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]									
19		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 }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<LOD
		006-007-00-5											
20		pH				8.3	pH		8.3	pH	8.3 pH		
				PH									
21		naphthalene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
22		acenaphthylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-917-1	208-96-8									
23		acenaphthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-469-6	83-32-9									
24		fluorene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-695-5	86-73-7									
25		phenanthrene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-581-5	85-01-8									
26		anthracene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			204-371-1	120-12-7									
27		fluoranthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-912-4	206-44-0									
28		pyrene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			204-927-3	129-00-0									
29		benzo[a]anthracene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
30		chrysene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
31		benzo[b]fluoranthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
32		benzo[k]fluoranthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
33		benzo[a]pyrene; benzo[def]chrysene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
34		indeno[123-cd]pyrene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-893-2	193-39-5									
35		dibenz[a,h]anthracene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
36		benzo[ghi]perylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-883-8	191-24-2									
37		phenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
38		1,1-dichloroethane and 1,2-dichloroethane (combined)				<0.0004	mg/kg		<0.0004	mg/kg	<0.00000004 %		<LOD
			203-458-1, 200-863-5	107-06-2, 75-34-3									
39		tetrachloroethylene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-028-00-4	204-825-9	127-18-4									
40		carbon tetrachloride; tetrachloromethane				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-008-00-5	200-262-8	56-23-5									

#		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
41		trichloroethylene; trichloroethene	602-027-00-9	201-167-4	79-01-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
42		vinyl chloride; chloroethylene	602-023-00-7	200-831-0	75-01-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
43		hexachlorobenzene	602-065-00-6	204-273-9	118-74-1		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
44		polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
45		sulfur { sulfur }	016-094-00-1	231-722-6	7704-34-9		<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
46		barium { barium sulphide }	016-002-00-X	244-214-4	21109-95-5		45	mg/kg	1.233	36.08	mg/kg	0.00361 %	✓	
47		dichlorodifluoromethane		200-893-9	75-71-8		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
48		chloromethane; methyl chloride	602-001-00-7	200-817-4	74-87-3		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
49		bromomethane; methylbromide	602-002-00-2	200-813-2	74-83-9		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
50		chloroethane	602-009-00-0	200-830-5	75-00-3		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
51		trichlorofluoromethane		200-892-3	75-69-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
52		1,1-dichloroethylene; vinylidene chloride	602-025-00-8	200-864-0	75-35-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
53		bromochloromethane		200-826-3	74-97-5		<0.0005	mg/kg		<0.0005	mg/kg	<0.00000005 %		<LOD
54		chloroform; trichloromethane	602-006-00-4	200-663-8	67-66-3		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
55		1,1,1-trichloroethane; methyl chloroform	602-013-00-2	200-756-3	71-55-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
56		1,1-dichloropropene	602-031-00-0	209-253-3	563-58-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
57		1,2-dichloropropane; propylene dichloride	602-020-00-0	201-152-2	78-87-5		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
58		dibromomethane	602-003-00-8	200-824-2	74-95-3		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
59		bromodichloromethane		200-856-7	75-27-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
60		1,3-dichloropropene; [1] (Z)-1,3-dichloropropene [2]	602-030-00-5	208-826-5 [1] 233-195-8 [2]	542-75-6 [1] 10061-01-5 [2]		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
61		trans-1,3-dichloropropene		431-460-4	10061-02-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
62		1,1,2-trichloroethane	602-014-00-8	201-166-9	79-00-5		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
63		1,3-dichloropropane		205-531-3	142-28-9		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
64		dibromochloromethane		204-704-0	124-48-1		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
65		1,2-dibromoethane	602-010-00-6	203-444-5	106-93-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
66		chlorobenzene	602-033-00-1	203-628-5	108-90-7		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
67		1,1,1,2-tetrachloroethane		211-135-1	630-20-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
68		styrene	601-026-00-0	202-851-5	100-42-5		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
69		bromoform; tribromomethane	602-007-00-X	200-854-6	75-25-2		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<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							
70		bromobenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-060-00-9	203-623-8	108-86-1							
71		1,2,3-trichloropropane				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-062-00-X	202-486-1	96-18-4							
72		mesitylene; 1,3,5-trimethylbenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		601-025-00-5	203-604-4	108-67-8							
73		tert-butylbenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
			202-632-4	98-06-6							
74		1,2,4-trimethylbenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		601-043-00-3	202-436-9	95-63-6							
75		sec-butylbenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
			205-227-0	135-98-8							
76		1,3-dichlorbenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-067-00-7	208-792-1	541-73-1							
77		4-isopropyltoluene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
			202-796-7	99-87-6							
78		1,4-dichlorobenzene; p-dichlorobenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-035-00-2	203-400-5	106-46-7							
79		n-butylbenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
			203-209-7	104-51-8							
80		1,2-dichlorobenzene; o-dichlorobenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-034-00-7	202-425-9	95-50-1							
81		1,2-dibromo-3-chloropropane				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-021-00-6	202-479-3	96-12-8							
82		1,2,4-trichlorobenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-087-00-6	204-428-0	120-82-1							
83		hexachlorobutadiene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
			201-765-5	87-68-3							
84		1,2,3-trichlorobenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
			201-757-1	87-61-6							
85		dimethylnitrosoamine; N-nitrosodimethylamine				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		612-077-00-3	200-549-8	62-75-9							
86		2-chlorophenol; [1] 4-chlorophenol; [2] 3-chlorophenol; [3] chlorophenol [4]				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		604-008-00-0	202-433-2 [1] 203-402-6 [2] 203-582-6 [3] 246-691-4 [4]	95-57-8 [1] 106-48-9 [2] 108-43-0 [3] 25167-80-0 [4]							
87		bis(2-chloroethyl) ether				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		603-029-00-2	203-870-1	111-44-4							
88		hexachloroethane				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
			200-666-4	67-72-1							
89		nitrosodipropylamine				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		612-098-00-8	210-698-0	621-64-7							
90		nitrobenzene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		609-003-00-7	202-716-0	98-95-3							
91		3,5,5-trimethylcyclohex-2-enone; isophorone				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		606-012-00-8	201-126-0	78-59-1							
92		2-nitrophenol				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
			201-857-5	88-75-5							
93		3,4-xylenol; [1] 2,5-xylenol; [2] 2,4-xylenol; [3] 2,3-xylenol; [4] 2,6-xylenol; [5] xylenol; [6] 2,4(or 2,5)-xylenol [7]				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		604-006-00-X	202-439-5 [1] 202-461-5 [2] 203-321-6 [3] 208-395-3 [4] 209-400-1 [5] 215-089-3 [6] 276-245-4 [7]	95-65-8 [1] 95-87-4 [2] 105-67-9 [3] 526-75-0 [4] 576-26-1 [5] 1300-71-6 [6] 71975-58-1 [7]							
94		bis(2-chloroethoxy)methane				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
			203-920-2	111-91-1							

#		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									
95		2,4-dichlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-011-00-7	204-429-6	120-83-2									
96		4-chloroaniline				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		612-137-00-9	203-401-0	106-47-8									
97		chlorocresol; 4-chloro-m-cresol; 4-chloro-3-methylphenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-014-00-3	200-431-6	59-50-7									
98		2-methyl naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			202-078-3	91-57-6									
99		hexachlorocyclopentadiene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		602-078-00-7	201-029-3	77-47-4									
100		2,4,6-trichlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-018-00-5	201-795-9	88-06-2									
101		2,4,5-trichlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-017-00-X	202-467-8	95-95-4									
102		2-chloronaphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			202-079-9	91-58-7									
103		dimethyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-011-6	131-11-3									
104		2,6-dinitrotoluene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-049-00-8	210-106-0	606-20-2									
105		dibenzofuran				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-071-3	132-64-9									
106		4-chlorophenylphenylether				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			230-281-7	7005-72-3									
107		2,4-dinitrotoluene; [1] dinitrotoluene [2]				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-007-00-9	204-450-0 [1] 246-836-1 [2]	121-14-2 [1] 25321-14-6 [2]									
108		diethyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-550-6	84-66-2									
109		DNOC (ISO); 4,6-dinitro-o-cresol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-020-00-X	208-601-1	534-52-1									
110		azobenzene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		611-001-00-6	203-102-5	103-33-3									
111		4-bromophenylphenylether				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			202-952-4	101-55-3									
112		pentachlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-002-00-8	201-778-6	87-86-5									
113		carbazole				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-696-0	86-74-8									
114		dibutyl phthalate; DBP				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		607-318-00-4	201-557-4	84-74-2									
115		BBP; benzyl butyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		607-430-00-3	201-622-7	85-68-7									
116		bis(2-ethylhexyl) phthalate; di-(2-ethylhexyl) phthalate; DEHP				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		607-317-00-9	204-211-0	117-81-7									
117		di-n-octyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			204-214-7	117-84-0									
118		4-nitrophenol; p-nitrophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-015-00-2	202-811-7	100-02-7									
119		monohydric phenols				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
				P1186									
120		m-cresol; [1] o-cresol; [2] p-cresol; [3] mix-cresol [4]				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		604-004-00-9	203-577-9 [1] 202-423-8 [2] 203-398-6 [3] 215-293-2 [4]	108-39-4 [1] 95-48-7 [2] 106-44-5 [3] 1319-77-3 [4]									

#		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							
121		1,2-dichloroethylene; [1] cis-dichloroethylene; [2] trans-dichloroethylene [3]				<0.0004 mg/kg		<0.0004 mg/kg	<0.00000004 %		<**LOD**
		602-026-00-3	208-750-2 [1] 205-859-7 [2] 205-860-2 [3]	540-59-0 [1] 156-59-2 [2] 156-60-5 [3]							
122		cumene; [1] propylbenzene [2]				<0.0004 mg/kg		<0.0004 mg/kg	<0.00000004 %		<**LOD**
		601-024-00-X	202-704-5 [1] 203-132-9 [2]	98-82-8 [1] 103-65-1 [2]							
123		2-chlorotoluene; [1] 3-chlorotoluene; [2] 4-chlorotoluene; [3] chlorotoluene [4]				<0.0004 mg/kg		<0.0004 mg/kg	<0.00000004 %		<**LOD**
		602-040-00-X	202-424-3 [1] 203-580-5 [2] 203-397-0 [3] 246-698-2 [4]	95-49-8 [1] 108-41-8 [2] 106-43-4 [3] 25168-05-2 [4]							
124		o-nitroaniline; [1] m-nitroaniline; [2] p-nitroaniline [3]				<0.15 mg/kg		<0.15 mg/kg	<0.000015 %		<**LOD**
		612-012-00-9	201-855-4 [1] 202-729-1 [2] 202-810-1 [3]	88-74-4 [1] 99-09-2 [2] 100-01-6 [3]							
								Total:	0.0138 %		

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: BH106-25/05/2022-0.10

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH106-25/05/2022-0.10
Sample Depth:
0.10-0.40 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	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		1.6 mg/kg	1.32	1.817 mg/kg	0.000182 %	✓	
2	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		<0.5 mg/kg	2.775	<1.388 mg/kg	<0.000139 %		<**LOD**
3	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		<0.4 mg/kg	3.22	<1.288 mg/kg	<0.000129 %		<**LOD**
4	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.35 mg/kg	1.142	0.344 mg/kg	0.0000344 %	✓	
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		4.5 mg/kg	1.462	5.656 mg/kg	0.000566 %	✓	
6	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				<0.5 mg/kg	2.27	<1.135 mg/kg	<0.000113 %		<**LOD**
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		2.7 mg/kg	1.126	2.614 mg/kg	0.000261 %	✓	
8	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	16 mg/kg		13.76 mg/kg	0.00138 %	✓	
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.05 mg/kg	1.353	<0.0677 mg/kg	<0.00000677 %		<**LOD**
10	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		5.8 mg/kg	2.976	14.846 mg/kg	0.00148 %	✓	
11	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.35 mg/kg	1.405	0.423 mg/kg	0.0000423 %	✓	
12	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		23 mg/kg	2.469	48.843 mg/kg	0.00488 %	✓	
13	TPH (C6 to C40) petroleum group			TPH		<2 mg/kg		<2 mg/kg	<0.0002 %		<**LOD**
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<**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		benzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
16		toluene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
17		ethylbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
18		xylene				<0.0004	mg/kg		<0.0004	mg/kg	<0.00000004 %		<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]									
19		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 }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<LOD
		006-007-00-5											
20		pH				8.7	pH		8.7	pH	8.7 pH		
				PH									
21		naphthalene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
22		acenaphthylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-917-1	208-96-8									
23		acenaphthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-469-6	83-32-9									
24		fluorene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-695-5	86-73-7									
25		phenanthrene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-581-5	85-01-8									
26		anthracene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			204-371-1	120-12-7									
27		fluoranthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-912-4	206-44-0									
28		pyrene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			204-927-3	129-00-0									
29		benzo[a]anthracene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
30		chrysene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
31		benzo[b]fluoranthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
32		benzo[k]fluoranthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
33		benzo[a]pyrene; benzo[def]chrysene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
34		indeno[123-cd]pyrene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-893-2	193-39-5									
35		dibenz[a,h]anthracene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
36		benzo[ghi]perylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-883-8	191-24-2									
37		phenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
38		1,1-dichloroethane and 1,2-dichloroethane (combined)				<0.0004	mg/kg		<0.0004	mg/kg	<0.00000004 %		<LOD
			203-458-1, 200-863-5	107-06-2, 75-34-3									
39		tetrachloroethylene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-028-00-4	204-825-9	127-18-4									
40		carbon tetrachloride; tetrachloromethane				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-008-00-5	200-262-8	56-23-5									

#		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
41		trichloroethylene; trichloroethene	602-027-00-9	201-167-4	79-01-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
42		vinyl chloride; chloroethylene	602-023-00-7	200-831-0	75-01-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
43		hexachlorobenzene	602-065-00-6	204-273-9	118-74-1		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
44		polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
45		sulfur { sulfur }	016-094-00-1	231-722-6	7704-34-9		2.7	mg/kg		2.322	mg/kg	0.000232 %	✓	
46		barium { barium sulphide }	016-002-00-X	244-214-4	21109-95-5		80	mg/kg	1.233	84.864	mg/kg	0.00849 %	✓	
47		dichlorodifluoromethane		200-893-9	75-71-8		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
48		chloromethane; methyl chloride	602-001-00-7	200-817-4	74-87-3		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
49		bromomethane; methylbromide	602-002-00-2	200-813-2	74-83-9		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
50		chloroethane	602-009-00-0	200-830-5	75-00-3		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
51		trichlorofluoromethane		200-892-3	75-69-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
52		1,1-dichloroethylene; vinylidene chloride	602-025-00-8	200-864-0	75-35-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
53		bromochloromethane		200-826-3	74-97-5		<0.0005	mg/kg		<0.0005	mg/kg	<0.00000005 %		<LOD
54		chloroform; trichloromethane	602-006-00-4	200-663-8	67-66-3		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
55		1,1,1-trichloroethane; methyl chloroform	602-013-00-2	200-756-3	71-55-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
56		1,1-dichloropropene	602-031-00-0	209-253-3	563-58-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
57		1,2-dichloropropane; propylene dichloride	602-020-00-0	201-152-2	78-87-5		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
58		dibromomethane	602-003-00-8	200-824-2	74-95-3		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
59		bromodichloromethane		200-856-7	75-27-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
60		1,3-dichloropropene; [1] (Z)-1,3-dichloropropene [2]	602-030-00-5	208-826-5 [1] 233-195-8 [2]	542-75-6 [1] 10061-01-5 [2]		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
61		trans-1,3-dichloropropene		431-460-4	10061-02-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
62		1,1,2-trichloroethane	602-014-00-8	201-166-9	79-00-5		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
63		1,3-dichloropropane		205-531-3	142-28-9		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
64		dibromochloromethane		204-704-0	124-48-1		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
65		1,2-dibromoethane	602-010-00-6	203-444-5	106-93-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
66		chlorobenzene	602-033-00-1	203-628-5	108-90-7		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
67		1,1,1,2-tetrachloroethane		211-135-1	630-20-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
68		styrene	601-026-00-0	202-851-5	100-42-5		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
69		bromoform; tribromomethane	602-007-00-X	200-854-6	75-25-2		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<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							
70		bromobenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-060-00-9	203-623-8	108-86-1							
71		1,2,3-trichloropropane				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-062-00-X	202-486-1	96-18-4							
72		mesitylene; 1,3,5-trimethylbenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		601-025-00-5	203-604-4	108-67-8							
73		tert-butylbenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
			202-632-4	98-06-6							
74		1,2,4-trimethylbenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		601-043-00-3	202-436-9	95-63-6							
75		sec-butylbenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
			205-227-0	135-98-8							
76		1,3-dichlorbenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-067-00-7	208-792-1	541-73-1							
77		4-isopropyltoluene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
			202-796-7	99-87-6							
78		1,4-dichlorobenzene; p-dichlorobenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-035-00-2	203-400-5	106-46-7							
79		n-butylbenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
			203-209-7	104-51-8							
80		1,2-dichlorobenzene; o-dichlorobenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-034-00-7	202-425-9	95-50-1							
81		1,2-dibromo-3-chloropropane				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-021-00-6	202-479-3	96-12-8							
82		1,2,4-trichlorobenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-087-00-6	204-428-0	120-82-1							
83		hexachlorobutadiene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
			201-765-5	87-68-3							
84		1,2,3-trichlorobenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
			201-757-1	87-61-6							
85		dimethylnitrosoamine; N-nitrosodimethylamine				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		612-077-00-3	200-549-8	62-75-9							
86		2-chlorophenol; [1] 4-chlorophenol; [2] 3-chlorophenol; [3] chlorophenol [4]				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		604-008-00-0	202-433-2 [1] 203-402-6 [2] 203-582-6 [3] 246-691-4 [4]	95-57-8 [1] 106-48-9 [2] 108-43-0 [3] 25167-80-0 [4]							
87		bis(2-chloroethyl) ether				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		603-029-00-2	203-870-1	111-44-4							
88		hexachloroethane				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
			200-666-4	67-72-1							
89		nitrosodipropylamine				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		612-098-00-8	210-698-0	621-64-7							
90		nitrobenzene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		609-003-00-7	202-716-0	98-95-3							
91		3,5,5-trimethylcyclohex-2-enone; isophorone				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		606-012-00-8	201-126-0	78-59-1							
92		2-nitrophenol				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
			201-857-5	88-75-5							
93		3,4-xylenol; [1] 2,5-xylenol; [2] 2,4-xylenol; [3] 2,3-xylenol; [4] 2,6-xylenol; [5] xylenol; [6] 2,4(or 2,5)-xylenol [7]				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		604-006-00-X	202-439-5 [1] 202-461-5 [2] 203-321-6 [3] 208-395-3 [4] 209-400-1 [5] 215-089-3 [6] 276-245-4 [7]	95-65-8 [1] 95-87-4 [2] 105-67-9 [3] 526-75-0 [4] 576-26-1 [5] 1300-71-6 [6] 71975-58-1 [7]							
94		bis(2-chloroethoxy)methane				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
			203-920-2	111-91-1							

#		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									
95		2,4-dichlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-011-00-7	204-429-6	120-83-2									
96		4-chloroaniline				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		612-137-00-9	203-401-0	106-47-8									
97		chlorocresol; 4-chloro-m-cresol; 4-chloro-3-methylphenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-014-00-3	200-431-6	59-50-7									
98		2-methyl naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			202-078-3	91-57-6									
99		hexachlorocyclopentadiene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		602-078-00-7	201-029-3	77-47-4									
100		2,4,6-trichlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-018-00-5	201-795-9	88-06-2									
101		2,4,5-trichlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-017-00-X	202-467-8	95-95-4									
102		2-chloronaphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			202-079-9	91-58-7									
103		dimethyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-011-6	131-11-3									
104		2,6-dinitrotoluene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-049-00-8	210-106-0	606-20-2									
105		dibenzofuran				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-071-3	132-64-9									
106		4-chlorophenylphenylether				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			230-281-7	7005-72-3									
107		2,4-dinitrotoluene; [1] dinitrotoluene [2]				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-007-00-9	204-450-0 [1] 246-836-1 [2]	121-14-2 [1] 25321-14-6 [2]									
108		diethyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-550-6	84-66-2									
109		DNOC (ISO); 4,6-dinitro-o-cresol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-020-00-X	208-601-1	534-52-1									
110		azobenzene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		611-001-00-6	203-102-5	103-33-3									
111		4-bromophenylphenylether				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			202-952-4	101-55-3									
112		pentachlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-002-00-8	201-778-6	87-86-5									
113		carbazole				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-696-0	86-74-8									
114		dibutyl phthalate; DBP				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		607-318-00-4	201-557-4	84-74-2									
115		BBP; benzyl butyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		607-430-00-3	201-622-7	85-68-7									
116		bis(2-ethylhexyl) phthalate; di-(2-ethylhexyl) phthalate; DEHP				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		607-317-00-9	204-211-0	117-81-7									
117		di-n-octyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			204-214-7	117-84-0									
118		4-nitrophenol; p-nitrophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-015-00-2	202-811-7	100-02-7									
119		monohydric phenols				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
				P1186									
120		m-cresol; [1] o-cresol; [2] p-cresol; [3] mix-cresol [4]				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		604-004-00-9	203-577-9 [1] 202-423-8 [2] 203-398-6 [3] 215-293-2 [4]	108-39-4 [1] 95-48-7 [2] 106-44-5 [3] 1319-77-3 [4]									

#		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							
121		1,2-dichloroethylene; [1] cis-dichloroethylene; [2] trans-dichloroethylene [3]				<0.0004 mg/kg		<0.0004 mg/kg	<0.00000004 %		<**LOD**
		602-026-00-3	208-750-2 [1] 205-859-7 [2] 205-860-2 [3]	540-59-0 [1] 156-59-2 [2] 156-60-5 [3]							
122		cumene; [1] propylbenzene [2]				<0.0004 mg/kg		<0.0004 mg/kg	<0.00000004 %		<**LOD**
		601-024-00-X	202-704-5 [1] 203-132-9 [2]	98-82-8 [1] 103-65-1 [2]							
123		2-chlorotoluene; [1] 3-chlorotoluene; [2] 4-chlorotoluene; [3] chlorotoluene [4]				<0.0004 mg/kg		<0.0004 mg/kg	<0.00000004 %		<**LOD**
		602-040-00-X	202-424-3 [1] 203-580-5 [2] 203-397-0 [3] 246-698-2 [4]	95-49-8 [1] 108-41-8 [2] 106-43-4 [3] 25168-05-2 [4]							
124		o-nitroaniline; [1] m-nitroaniline; [2] p-nitroaniline [3]				<0.15 mg/kg		<0.15 mg/kg	<0.000015 %		<**LOD**
		612-012-00-9	201-855-4 [1] 202-729-1 [2] 202-810-1 [3]	88-74-4 [1] 99-09-2 [2] 100-01-6 [3]							
								Total:	0.0185 %		

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: BH106-25/05/2022-1.40

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH106-25/05/2022-1.40
Sample Depth:
1.40-1.50 m
Moisture content:
21%
(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: 21% 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	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		8.8 mg/kg	1.32	9.179 mg/kg	0.000918 %	✓	
2	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		1.6 mg/kg	2.775	3.508 mg/kg	0.000351 %	✓	
3	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		<0.4 mg/kg	3.22	<1.288 mg/kg	<0.000129 %		**<LOD**
4	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.13 mg/kg	1.142	0.117 mg/kg	0.0000117 %	✓	
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		33 mg/kg	1.462	38.103 mg/kg	0.00381 %	✓	
6	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				<0.5 mg/kg	2.27	<1.135 mg/kg	<0.000113 %		**<LOD**
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		21 mg/kg	1.126	18.678 mg/kg	0.00187 %	✓	
8	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	11 mg/kg		8.69 mg/kg	0.000869 %	✓	
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.05 mg/kg	1.353	<0.0677 mg/kg	<0.00000677 %		**<LOD**
10	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		43 mg/kg	2.976	101.104 mg/kg	0.0101 %	✓	
11	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				1.2 mg/kg	1.405	1.332 mg/kg	0.000133 %	✓	
12	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		49 mg/kg	2.469	95.586 mg/kg	0.00956 %	✓	
13	TPH (C6 to C40) petroleum group			TPH		<2 mg/kg		<2 mg/kg	<0.0002 %		**<LOD**
14	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides,					<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		**<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									
		ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }											
		006-007-00-5											
15		pH				8.2	pH		8.2	pH	8.2 pH		
				PH									
16		naphthalene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
17		acenaphthylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-917-1	208-96-8									
18		acenaphthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-469-6	83-32-9									
19		fluorene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-695-5	86-73-7									
20		phenanthrene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-581-5	85-01-8									
21		anthracene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			204-371-1	120-12-7									
22		fluoranthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-912-4	206-44-0									
23		pyrene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			204-927-3	129-00-0									
24		benzo[a]anthracene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
25		chrysene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
26		benzo[b]fluoranthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
27		benzo[k]fluoranthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
28		benzo[a]pyrene; benzo[def]chrysene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
29		indeno[123-cd]pyrene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-893-2	193-39-5									
30		dibenz[a,h]anthracene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
31		benzo[ghi]perylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-883-8	191-24-2									
32		sulfur { sulfur }				3.7	mg/kg		2.923	mg/kg	0.000292 %	✓	
		016-094-00-1	231-722-6	7704-34-9									
33		barium { barium sulphide }				130	mg/kg	1.233	126.68	mg/kg	0.0127 %	✓	
		016-002-00-X	244-214-4	21109-95-5									
34		monohydric phenols				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
				P1186									
										Total:	0.0412 %		

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: BH105-26/05/2022-0.20

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH105-26/05/2022-0.20
Sample Depth:
0.20-0.40 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	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		1.2 mg/kg	1.32	1.426 mg/kg	0.000143 %	✓	
2	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		<0.5 mg/kg	2.775	<1.388 mg/kg	<0.000139 %		<**LOD**
3	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		<0.4 mg/kg	3.22	<1.288 mg/kg	<0.000129 %		<**LOD**
4	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.34 mg/kg	1.142	0.35 mg/kg	0.000035 %	✓	
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		4 mg/kg	1.462	5.262 mg/kg	0.000526 %	✓	
6	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				<0.5 mg/kg	2.27	<1.135 mg/kg	<0.000113 %		<**LOD**
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		2.5 mg/kg	1.126	2.533 mg/kg	0.000253 %	✓	
8	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	6 mg/kg		5.4 mg/kg	0.00054 %	✓	
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.05 mg/kg	1.353	<0.0677 mg/kg	<0.00000677 %		<**LOD**
10	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		6 mg/kg	2.976	16.072 mg/kg	0.00161 %	✓	
11	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.37 mg/kg	1.405	0.468 mg/kg	0.0000468 %	✓	
12	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		14 mg/kg	2.469	31.113 mg/kg	0.00311 %	✓	
13	TPH (C6 to C40) petroleum group			TPH		<2 mg/kg		<2 mg/kg	<0.0002 %		<**LOD**
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<**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		benzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
16		toluene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
17		ethylbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
18		xylene				<0.0004	mg/kg		<0.0004	mg/kg	<0.00000004 %		<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]									
19		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 }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<LOD
		006-007-00-5											
20		pH				9.1	pH		9.1	pH	9.1 pH		
				PH									
21		naphthalene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
22		acenaphthylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-917-1	208-96-8									
23		acenaphthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-469-6	83-32-9									
24		fluorene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-695-5	86-73-7									
25		phenanthrene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-581-5	85-01-8									
26		anthracene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			204-371-1	120-12-7									
27		fluoranthene				0.1	mg/kg		0.09	mg/kg	0.000009 %	✓	
			205-912-4	206-44-0									
28		pyrene				0.14	mg/kg		0.126	mg/kg	0.0000126 %	✓	
			204-927-3	129-00-0									
29		benzo[a]anthracene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
30		chrysene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
31		benzo[b]fluoranthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
32		benzo[k]fluoranthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
33		benzo[a]pyrene; benzo[def]chrysene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
34		indeno[123-cd]pyrene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-893-2	193-39-5									
35		dibenz[a,h]anthracene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
36		benzo[ghi]perylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-883-8	191-24-2									
37		phenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
38		1,1-dichloroethane and 1,2-dichloroethane (combined)				<0.0004	mg/kg		<0.0004	mg/kg	<0.00000004 %		<LOD
			203-458-1, 200-863-5	107-06-2, 75-34-3									
39		tetrachloroethylene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-028-00-4	204-825-9	127-18-4									
40		carbon tetrachloride; tetrachloromethane				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-008-00-5	200-262-8	56-23-5									

#		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
41		trichloroethylene; trichloroethene	602-027-00-9	201-167-4	79-01-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
42		vinyl chloride; chloroethylene	602-023-00-7	200-831-0	75-01-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
43		hexachlorobenzene	602-065-00-6	204-273-9	118-74-1		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
44		polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
45		sulfur { sulfur }	016-094-00-1	231-722-6	7704-34-9		2	mg/kg		1.8	mg/kg	0.00018 %	✓	
46		barium { barium sulphide }	016-002-00-X	244-214-4	21109-95-5		26	mg/kg	1.233	28.864	mg/kg	0.00289 %	✓	
47		dichlorodifluoromethane		200-893-9	75-71-8		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
48		chloromethane; methyl chloride	602-001-00-7	200-817-4	74-87-3		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
49		bromomethane; methylbromide	602-002-00-2	200-813-2	74-83-9		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
50		chloroethane	602-009-00-0	200-830-5	75-00-3		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
51		trichlorofluoromethane		200-892-3	75-69-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
52		1,1-dichloroethylene; vinylidene chloride	602-025-00-8	200-864-0	75-35-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
53		bromochloromethane		200-826-3	74-97-5		<0.0005	mg/kg		<0.0005	mg/kg	<0.00000005 %		<LOD
54		chloroform; trichloromethane	602-006-00-4	200-663-8	67-66-3		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
55		1,1,1-trichloroethane; methyl chloroform	602-013-00-2	200-756-3	71-55-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
56		1,1-dichloropropene	602-031-00-0	209-253-3	563-58-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
57		1,2-dichloropropane; propylene dichloride	602-020-00-0	201-152-2	78-87-5		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
58		dibromomethane	602-003-00-8	200-824-2	74-95-3		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
59		bromodichloromethane		200-856-7	75-27-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
60		1,3-dichloropropene; [1] (Z)-1,3-dichloropropene [2]	602-030-00-5	208-826-5 [1] 233-195-8 [2]	542-75-6 [1] 10061-01-5 [2]		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
61		trans-1,3-dichloropropene		431-460-4	10061-02-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
62		1,1,2-trichloroethane	602-014-00-8	201-166-9	79-00-5		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
63		1,3-dichloropropane		205-531-3	142-28-9		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
64		dibromochloromethane		204-704-0	124-48-1		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
65		1,2-dibromoethane	602-010-00-6	203-444-5	106-93-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
66		chlorobenzene	602-033-00-1	203-628-5	108-90-7		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
67		1,1,1,2-tetrachloroethane		211-135-1	630-20-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
68		styrene	601-026-00-0	202-851-5	100-42-5		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
69		bromoform; tribromomethane	602-007-00-X	200-854-6	75-25-2		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<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							
70		bromobenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-060-00-9	203-623-8	108-86-1							
71		1,2,3-trichloropropane				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-062-00-X	202-486-1	96-18-4							
72		mesitylene; 1,3,5-trimethylbenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		601-025-00-5	203-604-4	108-67-8							
73		tert-butylbenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
			202-632-4	98-06-6							
74		1,2,4-trimethylbenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		601-043-00-3	202-436-9	95-63-6							
75		sec-butylbenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
			205-227-0	135-98-8							
76		1,3-dichlorbenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-067-00-7	208-792-1	541-73-1							
77		4-isopropyltoluene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
			202-796-7	99-87-6							
78		1,4-dichlorobenzene; p-dichlorobenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-035-00-2	203-400-5	106-46-7							
79		n-butylbenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
			203-209-7	104-51-8							
80		1,2-dichlorobenzene; o-dichlorobenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-034-00-7	202-425-9	95-50-1							
81		1,2-dibromo-3-chloropropane				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-021-00-6	202-479-3	96-12-8							
82		1,2,4-trichlorobenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-087-00-6	204-428-0	120-82-1							
83		hexachlorobutadiene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
			201-765-5	87-68-3							
84		1,2,3-trichlorobenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
			201-757-1	87-61-6							
85		dimethylnitrosoamine; N-nitrosodimethylamine				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		612-077-00-3	200-549-8	62-75-9							
86		2-chlorophenol; [1] 4-chlorophenol; [2] 3-chlorophenol; [3] chlorophenol [4]				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		604-008-00-0	202-433-2 [1] 203-402-6 [2] 203-582-6 [3] 246-691-4 [4]	95-57-8 [1] 106-48-9 [2] 108-43-0 [3] 25167-80-0 [4]							
87		bis(2-chloroethyl) ether				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		603-029-00-2	203-870-1	111-44-4							
88		hexachloroethane				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
			200-666-4	67-72-1							
89		nitrosodipropylamine				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		612-098-00-8	210-698-0	621-64-7							
90		nitrobenzene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		609-003-00-7	202-716-0	98-95-3							
91		3,5,5-trimethylcyclohex-2-enone; isophorone				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		606-012-00-8	201-126-0	78-59-1							
92		2-nitrophenol				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
			201-857-5	88-75-5							
93		3,4-xylenol; [1] 2,5-xylenol; [2] 2,4-xylenol; [3] 2,3-xylenol; [4] 2,6-xylenol; [5] xylenol; [6] 2,4(or 2,5)-xylenol [7]				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		604-006-00-X	202-439-5 [1] 202-461-5 [2] 203-321-6 [3] 208-395-3 [4] 209-400-1 [5] 215-089-3 [6] 276-245-4 [7]	95-65-8 [1] 95-87-4 [2] 105-67-9 [3] 526-75-0 [4] 576-26-1 [5] 1300-71-6 [6] 71975-58-1 [7]							
94		bis(2-chloroethoxy)methane				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
			203-920-2	111-91-1							

#		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									
95		2,4-dichlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-011-00-7	204-429-6	120-83-2									
96		4-chloroaniline				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		612-137-00-9	203-401-0	106-47-8									
97		chlorocresol; 4-chloro-m-cresol; 4-chloro-3-methylphenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-014-00-3	200-431-6	59-50-7									
98		2-methyl naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			202-078-3	91-57-6									
99		hexachlorocyclopentadiene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		602-078-00-7	201-029-3	77-47-4									
100		2,4,6-trichlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-018-00-5	201-795-9	88-06-2									
101		2,4,5-trichlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-017-00-X	202-467-8	95-95-4									
102		2-chloronaphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			202-079-9	91-58-7									
103		dimethyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-011-6	131-11-3									
104		2,6-dinitrotoluene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-049-00-8	210-106-0	606-20-2									
105		dibenzofuran				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-071-3	132-64-9									
106		4-chlorophenylphenylether				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			230-281-7	7005-72-3									
107		2,4-dinitrotoluene; [1] dinitrotoluene [2]				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-007-00-9	204-450-0 [1] 246-836-1 [2]	121-14-2 [1] 25321-14-6 [2]									
108		diethyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-550-6	84-66-2									
109		DNOC (ISO); 4,6-dinitro-o-cresol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-020-00-X	208-601-1	534-52-1									
110		azobenzene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		611-001-00-6	203-102-5	103-33-3									
111		4-bromophenylphenylether				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			202-952-4	101-55-3									
112		pentachlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-002-00-8	201-778-6	87-86-5									
113		carbazole				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-696-0	86-74-8									
114		dibutyl phthalate; DBP				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		607-318-00-4	201-557-4	84-74-2									
115		BBP; benzyl butyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		607-430-00-3	201-622-7	85-68-7									
116		bis(2-ethylhexyl) phthalate; di-(2-ethylhexyl) phthalate; DEHP				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		607-317-00-9	204-211-0	117-81-7									
117		di-n-octyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			204-214-7	117-84-0									
118		4-nitrophenol; p-nitrophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-015-00-2	202-811-7	100-02-7									
119		monohydric phenols				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
				P1186									
120		m-cresol; [1] o-cresol; [2] p-cresol; [3] mix-cresol [4]				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		604-004-00-9	203-577-9 [1] 202-423-8 [2] 203-398-6 [3] 215-293-2 [4]	108-39-4 [1] 95-48-7 [2] 106-44-5 [3] 1319-77-3 [4]									

#		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							
121		1,2-dichloroethylene; [1] cis-dichloroethylene; [2] trans-dichloroethylene [3]				<0.0004 mg/kg		<0.0004 mg/kg	<0.00000004 %		<**LOD**
		602-026-00-3	208-750-2 [1] 205-859-7 [2] 205-860-2 [3]	540-59-0 [1] 156-59-2 [2] 156-60-5 [3]							
122		cumene; [1] propylbenzene [2]				<0.0004 mg/kg		<0.0004 mg/kg	<0.00000004 %		<**LOD**
		601-024-00-X	202-704-5 [1] 203-132-9 [2]	98-82-8 [1] 103-65-1 [2]							
123		2-chlorotoluene; [1] 3-chlorotoluene; [2] 4-chlorotoluene; [3] chlorotoluene [4]				<0.0004 mg/kg		<0.0004 mg/kg	<0.00000004 %		<**LOD**
		602-040-00-X	202-424-3 [1] 203-580-5 [2] 203-397-0 [3] 246-698-2 [4]	95-49-8 [1] 108-41-8 [2] 106-43-4 [3] 25168-05-2 [4]							
124		o-nitroaniline; [1] m-nitroaniline; [2] p-nitroaniline [3]				<0.15 mg/kg		<0.15 mg/kg	<0.000015 %		<**LOD**
		612-012-00-9	201-855-4 [1] 202-729-1 [2] 202-810-1 [3]	88-74-4 [1] 99-09-2 [2] 100-01-6 [3]							
								Total:	0.0103 %		

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: BH105-26/05/2022-1.50

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH105-26/05/2022-1.50
Sample Depth:
1.50-1.60 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	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		7.5 mg/kg	1.32	8.219 mg/kg	0.000822 %	✓	
2	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		1 mg/kg	2.775	2.304 mg/kg	0.00023 %	✓	
3	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		<0.4 mg/kg	3.22	<1.288 mg/kg	<0.000129 %		<LOD
4	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.1 mg/kg	1.142	<0.114 mg/kg	<0.0000114 %		<LOD
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		21 mg/kg	1.462	25.475 mg/kg	0.00255 %	✓	
6	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				<0.5 mg/kg	2.27	<1.135 mg/kg	<0.000113 %		<LOD
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		16 mg/kg	1.126	14.952 mg/kg	0.0015 %	✓	
8	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	9.1 mg/kg		7.553 mg/kg	0.000755 %	✓	
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.05 mg/kg	1.353	<0.0677 mg/kg	<0.00000677 %		<LOD
10	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		25 mg/kg	2.976	61.757 mg/kg	0.00618 %	✓	
11	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.83 mg/kg	1.405	0.968 mg/kg	0.0000968 %	✓	
12	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		35 mg/kg	2.469	71.733 mg/kg	0.00717 %	✓	
13	TPH (C6 to C40) petroleum group			TPH		38 mg/kg		31.54 mg/kg	0.00315 %	✓	
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<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		benzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
16		toluene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
17		ethylbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
18		xylene				<0.0004	mg/kg		<0.0004	mg/kg	<0.00000004 %		<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]									
19		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 }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<LOD
		006-007-00-5											
20		pH				7.8	pH		7.8	pH	7.8 pH		
				PH									
21		naphthalene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
22		acenaphthylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-917-1	208-96-8									
23		acenaphthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-469-6	83-32-9									
24		fluorene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-695-5	86-73-7									
25		phenanthrene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-581-5	85-01-8									
26		anthracene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			204-371-1	120-12-7									
27		fluoranthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-912-4	206-44-0									
28		pyrene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			204-927-3	129-00-0									
29		benzo[a]anthracene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
30		chrysene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
31		benzo[b]fluoranthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
32		benzo[k]fluoranthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
33		benzo[a]pyrene; benzo[def]chrysene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
34		indeno[123-cd]pyrene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-893-2	193-39-5									
35		dibenz[a,h]anthracene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
36		benzo[ghi]perylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-883-8	191-24-2									
37		phenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
38		1,1-dichloroethane and 1,2-dichloroethane (combined)				<0.0004	mg/kg		<0.0004	mg/kg	<0.00000004 %		<LOD
			203-458-1, 200-863-5	107-06-2, 75-34-3									
39		tetrachloroethylene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-028-00-4	204-825-9	127-18-4									
40		carbon tetrachloride; tetrachloromethane				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-008-00-5	200-262-8	56-23-5									

#		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
41		trichloroethylene; trichloroethene	602-027-00-9	201-167-4	79-01-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
42		vinyl chloride; chloroethylene	602-023-00-7	200-831-0	75-01-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
43		hexachlorobenzene	602-065-00-6	204-273-9	118-74-1		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
44		polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
45		sulfur { sulfur }	016-094-00-1	231-722-6	7704-34-9		2.3	mg/kg		1.909	mg/kg	0.000191 %	✓	
46		barium { barium sulphide }	016-002-00-X	244-214-4	21109-95-5		78	mg/kg	1.233	79.856	mg/kg	0.00799 %	✓	
47		dichlorodifluoromethane		200-893-9	75-71-8		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
48		chloromethane; methyl chloride	602-001-00-7	200-817-4	74-87-3		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
49		bromomethane; methylbromide	602-002-00-2	200-813-2	74-83-9		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
50		chloroethane	602-009-00-0	200-830-5	75-00-3		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
51		trichlorofluoromethane		200-892-3	75-69-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
52		1,1-dichloroethylene; vinylidene chloride	602-025-00-8	200-864-0	75-35-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
53		bromochloromethane		200-826-3	74-97-5		<0.0005	mg/kg		<0.0005	mg/kg	<0.00000005 %		<LOD
54		chloroform; trichloromethane	602-006-00-4	200-663-8	67-66-3		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
55		1,1,1-trichloroethane; methyl chloroform	602-013-00-2	200-756-3	71-55-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
56		1,1-dichloropropene	602-031-00-0	209-253-3	563-58-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
57		1,2-dichloropropane; propylene dichloride	602-020-00-0	201-152-2	78-87-5		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
58		dibromomethane	602-003-00-8	200-824-2	74-95-3		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
59		bromodichloromethane		200-856-7	75-27-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
60		1,3-dichloropropene; [1] (Z)-1,3-dichloropropene [2]	602-030-00-5	208-826-5 [1] 233-195-8 [2]	542-75-6 [1] 10061-01-5 [2]		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
61		trans-1,3-dichloropropene		431-460-4	10061-02-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
62		1,1,2-trichloroethane	602-014-00-8	201-166-9	79-00-5		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
63		1,3-dichloropropane		205-531-3	142-28-9		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
64		dibromochloromethane		204-704-0	124-48-1		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
65		1,2-dibromoethane	602-010-00-6	203-444-5	106-93-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
66		chlorobenzene	602-033-00-1	203-628-5	108-90-7		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
67		1,1,1,2-tetrachloroethane		211-135-1	630-20-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
68		styrene	601-026-00-0	202-851-5	100-42-5		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
69		bromoform; tribromomethane	602-007-00-X	200-854-6	75-25-2		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<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							
70		bromobenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-060-00-9	203-623-8	108-86-1							
71		1,2,3-trichloropropane				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-062-00-X	202-486-1	96-18-4							
72		mesitylene; 1,3,5-trimethylbenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		601-025-00-5	203-604-4	108-67-8							
73		tert-butylbenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
			202-632-4	98-06-6							
74		1,2,4-trimethylbenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		601-043-00-3	202-436-9	95-63-6							
75		sec-butylbenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
			205-227-0	135-98-8							
76		1,3-dichlorbenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-067-00-7	208-792-1	541-73-1							
77		4-isopropyltoluene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
			202-796-7	99-87-6							
78		1,4-dichlorobenzene; p-dichlorobenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-035-00-2	203-400-5	106-46-7							
79		n-butylbenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
			203-209-7	104-51-8							
80		1,2-dichlorobenzene; o-dichlorobenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-034-00-7	202-425-9	95-50-1							
81		1,2-dibromo-3-chloropropane				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-021-00-6	202-479-3	96-12-8							
82		1,2,4-trichlorobenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-087-00-6	204-428-0	120-82-1							
83		hexachlorobutadiene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
			201-765-5	87-68-3							
84		1,2,3-trichlorobenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
			201-757-1	87-61-6							
85		dimethylnitrosoamine; N-nitrosodimethylamine				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		612-077-00-3	200-549-8	62-75-9							
86		2-chlorophenol; [1] 4-chlorophenol; [2] 3-chlorophenol; [3] chlorophenol [4]				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		604-008-00-0	202-433-2 [1] 203-402-6 [2] 203-582-6 [3] 246-691-4 [4]	95-57-8 [1] 106-48-9 [2] 108-43-0 [3] 25167-80-0 [4]							
87		bis(2-chloroethyl) ether				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		603-029-00-2	203-870-1	111-44-4							
88		hexachloroethane				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
			200-666-4	67-72-1							
89		nitrosodipropylamine				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		612-098-00-8	210-698-0	621-64-7							
90		nitrobenzene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		609-003-00-7	202-716-0	98-95-3							
91		3,5,5-trimethylcyclohex-2-enone; isophorone				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		606-012-00-8	201-126-0	78-59-1							
92		2-nitrophenol				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
			201-857-5	88-75-5							
93		3,4-xylenol; [1] 2,5-xylenol; [2] 2,4-xylenol; [3] 2,3-xylenol; [4] 2,6-xylenol; [5] xylenol; [6] 2,4(or 2,5)-xylenol [7]				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		604-006-00-X	202-439-5 [1] 202-461-5 [2] 203-321-6 [3] 208-395-3 [4] 209-400-1 [5] 215-089-3 [6] 276-245-4 [7]	95-65-8 [1] 95-87-4 [2] 105-67-9 [3] 526-75-0 [4] 576-26-1 [5] 1300-71-6 [6] 71975-58-1 [7]							
94		bis(2-chloroethoxy)methane				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
			203-920-2	111-91-1							

#		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									
95		2,4-dichlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-011-00-7	204-429-6	120-83-2									
96		4-chloroaniline				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		612-137-00-9	203-401-0	106-47-8									
97		chlorocresol; 4-chloro-m-cresol; 4-chloro-3-methylphenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-014-00-3	200-431-6	59-50-7									
98		2-methyl naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			202-078-3	91-57-6									
99		hexachlorocyclopentadiene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		602-078-00-7	201-029-3	77-47-4									
100		2,4,6-trichlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-018-00-5	201-795-9	88-06-2									
101		2,4,5-trichlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-017-00-X	202-467-8	95-95-4									
102		2-chloronaphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			202-079-9	91-58-7									
103		dimethyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-011-6	131-11-3									
104		2,6-dinitrotoluene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-049-00-8	210-106-0	606-20-2									
105		dibenzofuran				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-071-3	132-64-9									
106		4-chlorophenylphenylether				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			230-281-7	7005-72-3									
107		2,4-dinitrotoluene; [1] dinitrotoluene [2]				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-007-00-9	204-450-0 [1] 246-836-1 [2]	121-14-2 [1] 25321-14-6 [2]									
108		diethyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-550-6	84-66-2									
109		DNOC (ISO); 4,6-dinitro-o-cresol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-020-00-X	208-601-1	534-52-1									
110		azobenzene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		611-001-00-6	203-102-5	103-33-3									
111		4-bromophenylphenylether				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			202-952-4	101-55-3									
112		pentachlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-002-00-8	201-778-6	87-86-5									
113		carbazole				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-696-0	86-74-8									
114		dibutyl phthalate; DBP				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		607-318-00-4	201-557-4	84-74-2									
115		BBP; benzyl butyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		607-430-00-3	201-622-7	85-68-7									
116		bis(2-ethylhexyl) phthalate; di-(2-ethylhexyl) phthalate; DEHP				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		607-317-00-9	204-211-0	117-81-7									
117		di-n-octyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			204-214-7	117-84-0									
118		4-nitrophenol; p-nitrophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-015-00-2	202-811-7	100-02-7									
119		monohydric phenols				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
				P1186									
120		m-cresol; [1] o-cresol; [2] p-cresol; [3] mix-cresol [4]				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		604-004-00-9	203-577-9 [1] 202-423-8 [2] 203-398-6 [3] 215-293-2 [4]	108-39-4 [1] 95-48-7 [2] 106-44-5 [3] 1319-77-3 [4]									

#		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							
121		1,2-dichloroethylene; [1] cis-dichloroethylene; [2] trans-dichloroethylene [3]				<0.0004 mg/kg		<0.0004 mg/kg	<0.00000004 %		<**LOD**
		602-026-00-3	208-750-2 [1] 205-859-7 [2] 205-860-2 [3]	540-59-0 [1] 156-59-2 [2] 156-60-5 [3]							
122		cumene; [1] propylbenzene [2]				<0.0004 mg/kg		<0.0004 mg/kg	<0.00000004 %		<**LOD**
		601-024-00-X	202-704-5 [1] 203-132-9 [2]	98-82-8 [1] 103-65-1 [2]							
123		2-chlorotoluene; [1] 3-chlorotoluene; [2] 4-chlorotoluene; [3] chlorotoluene [4]				<0.0004 mg/kg		<0.0004 mg/kg	<0.00000004 %		<**LOD**
		602-040-00-X	202-424-3 [1] 203-580-5 [2] 203-397-0 [3] 246-698-2 [4]	95-49-8 [1] 108-41-8 [2] 106-43-4 [3] 25168-05-2 [4]							
124		o-nitroaniline; [1] m-nitroaniline; [2] p-nitroaniline [3]				<0.15 mg/kg		<0.15 mg/kg	<0.000015 %		<**LOD**
		612-012-00-9	201-855-4 [1] 202-729-1 [2] 202-810-1 [3]	88-74-4 [1] 99-09-2 [2] 100-01-6 [3]							
								Total:	0.0312 %		

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 As the samples is a solid waste (soil and stones) it is not considered to be hazardous in terms of the flammable hazardous property HP 3(i) as this hazard property relates to liquid substance only.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00315%)

Classification of sample: BH101-27/05/2022-2.10

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH101-27/05/2022-2.10
Sample Depth:
2.10-2.20 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	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		2.1 mg/kg	1.32	2.385 mg/kg	0.000238 %	✓	
2	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		<0.5 mg/kg	2.775	<1.388 mg/kg	<0.000139 %		<**LOD**
3	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		1.9 mg/kg	3.22	5.261 mg/kg	0.000526 %	✓	
4	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.14 mg/kg	1.142	0.138 mg/kg	0.0000138 %	✓	
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		8.9 mg/kg	1.462	11.187 mg/kg	0.00112 %	✓	
6	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				<0.5 mg/kg	2.27	<1.135 mg/kg	<0.000113 %		<**LOD**
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		15 mg/kg	1.126	14.524 mg/kg	0.00145 %	✓	
8	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	16 mg/kg		13.76 mg/kg	0.00138 %	✓	
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.05 mg/kg	1.353	<0.0677 mg/kg	<0.00000677 %		<**LOD**
10	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		9.3 mg/kg	2.976	23.804 mg/kg	0.00238 %	✓	
11	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.25 mg/kg	1.405	0.302 mg/kg	0.0000302 %	✓	
12	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		20 mg/kg	2.469	42.472 mg/kg	0.00425 %	✓	
13	TPH (C6 to C40) petroleum group			TPH		<2 mg/kg		<2 mg/kg	<0.0002 %		<**LOD**
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<**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		benzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
16		toluene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
17		ethylbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
18		xylene				<0.0004	mg/kg		<0.0004	mg/kg	<0.00000004 %		<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]									
19		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 }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<LOD
		006-007-00-5											
20		pH				9.4	pH		9.4	pH	9.4 pH		
				PH									
21		naphthalene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
22		acenaphthylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-917-1	208-96-8									
23		acenaphthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-469-6	83-32-9									
24		fluorene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-695-5	86-73-7									
25		phenanthrene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-581-5	85-01-8									
26		anthracene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			204-371-1	120-12-7									
27		fluoranthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-912-4	206-44-0									
28		pyrene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			204-927-3	129-00-0									
29		benzo[a]anthracene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
30		chrysene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
31		benzo[b]fluoranthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
32		benzo[k]fluoranthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
33		benzo[a]pyrene; benzo[def]chrysene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
34		indeno[123-cd]pyrene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-893-2	193-39-5									
35		dibenz[a,h]anthracene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
36		benzo[ghi]perylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-883-8	191-24-2									
37		phenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
38		1,1-dichloroethane and 1,2-dichloroethane (combined)				<0.0004	mg/kg		<0.0004	mg/kg	<0.00000004 %		<LOD
			203-458-1, 200-863-5	107-06-2, 75-34-3									
39		tetrachloroethylene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-028-00-4	204-825-9	127-18-4									
40		carbon tetrachloride; tetrachloromethane				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-008-00-5	200-262-8	56-23-5									

#		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
41		trichloroethylene; trichloroethene	602-027-00-9	201-167-4	79-01-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
42		vinyl chloride; chloroethylene	602-023-00-7	200-831-0	75-01-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
43		hexachlorobenzene	602-065-00-6	204-273-9	118-74-1		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
44		polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
45		sulfur { sulfur }	016-094-00-1	231-722-6	7704-34-9		2.8	mg/kg		2.408	mg/kg	0.000241 %	✓	
46		barium { barium sulphide }	016-002-00-X	244-214-4	21109-95-5		64	mg/kg	1.233	67.891	mg/kg	0.00679 %	✓	
47		dichlorodifluoromethane		200-893-9	75-71-8		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
48		chloromethane; methyl chloride	602-001-00-7	200-817-4	74-87-3		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
49		bromomethane; methylbromide	602-002-00-2	200-813-2	74-83-9		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
50		chloroethane	602-009-00-0	200-830-5	75-00-3		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
51		trichlorofluoromethane		200-892-3	75-69-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
52		1,1-dichloroethylene; vinylidene chloride	602-025-00-8	200-864-0	75-35-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
53		bromochloromethane		200-826-3	74-97-5		<0.0005	mg/kg		<0.0005	mg/kg	<0.00000005 %		<LOD
54		chloroform; trichloromethane	602-006-00-4	200-663-8	67-66-3		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
55		1,1,1-trichloroethane; methyl chloroform	602-013-00-2	200-756-3	71-55-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
56		1,1-dichloropropene	602-031-00-0	209-253-3	563-58-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
57		1,2-dichloropropane; propylene dichloride	602-020-00-0	201-152-2	78-87-5		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
58		dibromomethane	602-003-00-8	200-824-2	74-95-3		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
59		bromodichloromethane		200-856-7	75-27-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
60		1,3-dichloropropene; [1] (Z)-1,3-dichloropropene [2]	602-030-00-5	208-826-5 [1] 233-195-8 [2]	542-75-6 [1] 10061-01-5 [2]		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
61		trans-1,3-dichloropropene		431-460-4	10061-02-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
62		1,1,2-trichloroethane	602-014-00-8	201-166-9	79-00-5		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
63		1,3-dichloropropane		205-531-3	142-28-9		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
64		dibromochloromethane		204-704-0	124-48-1		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
65		1,2-dibromoethane	602-010-00-6	203-444-5	106-93-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
66		chlorobenzene	602-033-00-1	203-628-5	108-90-7		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
67		1,1,1,2-tetrachloroethane		211-135-1	630-20-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
68		styrene	601-026-00-0	202-851-5	100-42-5		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
69		bromoform; tribromomethane	602-007-00-X	200-854-6	75-25-2		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<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							
70		bromobenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-060-00-9	203-623-8	108-86-1							
71		1,2,3-trichloropropane				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-062-00-X	202-486-1	96-18-4							
72		mesitylene; 1,3,5-trimethylbenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		601-025-00-5	203-604-4	108-67-8							
73		tert-butylbenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
			202-632-4	98-06-6							
74		1,2,4-trimethylbenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		601-043-00-3	202-436-9	95-63-6							
75		sec-butylbenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
			205-227-0	135-98-8							
76		1,3-dichlorbenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-067-00-7	208-792-1	541-73-1							
77		4-isopropyltoluene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
			202-796-7	99-87-6							
78		1,4-dichlorobenzene; p-dichlorobenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-035-00-2	203-400-5	106-46-7							
79		n-butylbenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
			203-209-7	104-51-8							
80		1,2-dichlorobenzene; o-dichlorobenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-034-00-7	202-425-9	95-50-1							
81		1,2-dibromo-3-chloropropane				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-021-00-6	202-479-3	96-12-8							
82		1,2,4-trichlorobenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
		602-087-00-6	204-428-0	120-82-1							
83		hexachlorobutadiene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
			201-765-5	87-68-3							
84		1,2,3-trichlorobenzene				<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
			201-757-1	87-61-6							
85		dimethylnitrosoamine; N-nitrosodimethylamine				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		612-077-00-3	200-549-8	62-75-9							
86		2-chlorophenol; [1] 4-chlorophenol; [2] 3-chlorophenol; [3] chlorophenol [4]				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		604-008-00-0	202-433-2 [1] 203-402-6 [2] 203-582-6 [3] 246-691-4 [4]	95-57-8 [1] 106-48-9 [2] 108-43-0 [3] 25167-80-0 [4]							
87		bis(2-chloroethyl) ether				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		603-029-00-2	203-870-1	111-44-4							
88		hexachloroethane				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
			200-666-4	67-72-1							
89		nitrosodipropylamine				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		612-098-00-8	210-698-0	621-64-7							
90		nitrobenzene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		609-003-00-7	202-716-0	98-95-3							
91		3,5,5-trimethylcyclohex-2-enone; isophorone				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		606-012-00-8	201-126-0	78-59-1							
92		2-nitrophenol				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
			201-857-5	88-75-5							
93		3,4-xylenol; [1] 2,5-xylenol; [2] 2,4-xylenol; [3] 2,3-xylenol; [4] 2,6-xylenol; [5] xylenol; [6] 2,4(or 2,5)-xylenol [7]				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		604-006-00-X	202-439-5 [1] 202-461-5 [2] 203-321-6 [3] 208-395-3 [4] 209-400-1 [5] 215-089-3 [6] 276-245-4 [7]	95-65-8 [1] 95-87-4 [2] 105-67-9 [3] 526-75-0 [4] 576-26-1 [5] 1300-71-6 [6] 71975-58-1 [7]							
94		bis(2-chloroethoxy)methane				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
			203-920-2	111-91-1							

#		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									
95		2,4-dichlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-011-00-7	204-429-6	120-83-2									
96		4-chloroaniline				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		612-137-00-9	203-401-0	106-47-8									
97		chlorocresol; 4-chloro-m-cresol; 4-chloro-3-methylphenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-014-00-3	200-431-6	59-50-7									
98		2-methyl naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			202-078-3	91-57-6									
99		hexachlorocyclopentadiene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		602-078-00-7	201-029-3	77-47-4									
100		2,4,6-trichlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-018-00-5	201-795-9	88-06-2									
101		2,4,5-trichlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-017-00-X	202-467-8	95-95-4									
102		2-chloronaphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			202-079-9	91-58-7									
103		dimethyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-011-6	131-11-3									
104		2,6-dinitrotoluene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-049-00-8	210-106-0	606-20-2									
105		dibenzofuran				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-071-3	132-64-9									
106		4-chlorophenylphenylether				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			230-281-7	7005-72-3									
107		2,4-dinitrotoluene; [1] dinitrotoluene [2]				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-007-00-9	204-450-0 [1] 246-836-1 [2]	121-14-2 [1] 25321-14-6 [2]									
108		diethyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-550-6	84-66-2									
109		DNOC (ISO); 4,6-dinitro-o-cresol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-020-00-X	208-601-1	534-52-1									
110		azobenzene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		611-001-00-6	203-102-5	103-33-3									
111		4-bromophenylphenylether				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			202-952-4	101-55-3									
112		pentachlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-002-00-8	201-778-6	87-86-5									
113		carbazole				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-696-0	86-74-8									
114		dibutyl phthalate; DBP				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		607-318-00-4	201-557-4	84-74-2									
115		BBP; benzyl butyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		607-430-00-3	201-622-7	85-68-7									
116		bis(2-ethylhexyl) phthalate; di-(2-ethylhexyl) phthalate; DEHP				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		607-317-00-9	204-211-0	117-81-7									
117		di-n-octyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			204-214-7	117-84-0									
118		4-nitrophenol; p-nitrophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-015-00-2	202-811-7	100-02-7									
119		monohydric phenols				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
				P1186									
120		m-cresol; [1] o-cresol; [2] p-cresol; [3] mix-cresol [4]				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		604-004-00-9	203-577-9 [1] 202-423-8 [2] 203-398-6 [3] 215-293-2 [4]	108-39-4 [1] 95-48-7 [2] 106-44-5 [3] 1319-77-3 [4]									

#		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							
121		1,2-dichloroethylene; [1] cis-dichloroethylene; [2] trans-dichloroethylene [3]				<0.0004 mg/kg		<0.0004 mg/kg	<0.00000004 %		<**LOD**
		602-026-00-3	208-750-2 [1] 205-859-7 [2] 205-860-2 [3]	540-59-0 [1] 156-59-2 [2] 156-60-5 [3]							
122		cumene; [1] propylbenzene [2]				<0.0004 mg/kg		<0.0004 mg/kg	<0.00000004 %		<**LOD**
		601-024-00-X	202-704-5 [1] 203-132-9 [2]	98-82-8 [1] 103-65-1 [2]							
123		2-chlorotoluene; [1] 3-chlorotoluene; [2] 4-chlorotoluene; [3] chlorotoluene [4]				<0.0004 mg/kg		<0.0004 mg/kg	<0.00000004 %		<**LOD**
		602-040-00-X	202-424-3 [1] 203-580-5 [2] 203-397-0 [3] 246-698-2 [4]	95-49-8 [1] 108-41-8 [2] 106-43-4 [3] 25168-05-2 [4]							
124		o-nitroaniline; [1] m-nitroaniline; [2] p-nitroaniline [3]				<0.15 mg/kg		<0.15 mg/kg	<0.000015 %		<**LOD**
		612-012-00-9	201-855-4 [1] 202-729-1 [2] 202-810-1 [3]	88-74-4 [1] 99-09-2 [2] 100-01-6 [3]							
								Total:	0.0192 %		

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: BH102-27/05/2022-0.15

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample name:
BH102-27/05/2022-0.15
Sample Depth:
0.15-0.30 m
Moisture content:
5.6%
(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.: 0.104%)

HP 8: Corrosive "waste which on application can cause skin corrosion"

pH; pH "Assumed to be irritant/corrosive because of pH value"

Because of determinand:

pH: (conc.: 11.8 pH)

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.: 0.104%)

Determinands

Moisture content: 5.6% 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	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		1.7 mg/kg	1.32	2.119 mg/kg	0.000212 %	✓	
2	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		<0.5 mg/kg	2.775	<1.388 mg/kg	<0.000139 %		<**LOD**
3	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		<0.4 mg/kg	3.22	<1.288 mg/kg	<0.000129 %		<**LOD**
4	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.17 mg/kg	1.142	0.183 mg/kg	0.0000183 %	✓	
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		6.7 mg/kg	1.462	9.244 mg/kg	0.000924 %	✓	

#		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
6		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				<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		<LOD
7		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		5.2	mg/kg	1.126	5.527	mg/kg	0.000553 %	✓	
8		lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	9.1	mg/kg		8.59	mg/kg	0.000859 %	✓	
9		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.05	mg/kg	1.353	<0.0677	mg/kg	<0.00000677 %		<LOD
10		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		6.6	mg/kg	2.976	18.543	mg/kg	0.00185 %	✓	
11		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.25	mg/kg	1.405	<0.351	mg/kg	<0.0000351 %		<LOD
12		zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		16	mg/kg	2.469	37.296	mg/kg	0.00373 %	✓	
13		TPH (C6 to C40) petroleum group			TPH		1100	mg/kg		1038.4	mg/kg	0.104 %	✓	
14		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
15		benzene	601-020-00-8	200-753-7	71-43-2		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
16		toluene	601-021-00-3	203-625-9	108-88-3		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
17		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
18		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]		<0.0004	mg/kg		<0.0004	mg/kg	<0.00000004 %		<LOD
19		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				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<LOD
20		pH			PH		11.8	pH		11.8	pH	11.8 pH		
21		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
22		acenaphthylene		205-917-1	208-96-8		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
23		acenaphthene		201-469-6	83-32-9		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
24		fluorene		201-695-5	86-73-7		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
25		phenanthrene		201-581-5	85-01-8		0.17	mg/kg		0.16	mg/kg	0.000016 %	✓	
26		anthracene		204-371-1	120-12-7		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
27		fluoranthene		205-912-4	206-44-0		0.35	mg/kg		0.33	mg/kg	0.000033 %	✓	
28		pyrene		204-927-3	129-00-0		0.32	mg/kg		0.302	mg/kg	0.0000302 %	✓	
29		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.2	mg/kg		0.189	mg/kg	0.0000189 %	✓	

#		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									
30		chrysene				0.25	mg/kg		0.236	mg/kg	0.0000236 %	✓	
		601-048-00-0	205-923-4	218-01-9									
31		benzo[b]fluoranthene				0.32	mg/kg		0.302	mg/kg	0.0000302 %	✓	
		601-034-00-4	205-911-9	205-99-2									
32		benzo[k]fluoranthene				0.12	mg/kg		0.113	mg/kg	0.0000113 %	✓	
		601-036-00-5	205-916-6	207-08-9									
33		benzo[a]pyrene; benzo[def]chrysene				0.22	mg/kg		0.208	mg/kg	0.0000208 %	✓	
		601-032-00-3	200-028-5	50-32-8									
34		indeno[123-cd]pyrene				0.14	mg/kg		0.132	mg/kg	0.0000132 %	✓	
			205-893-2	193-39-5									
35		dibenz[a,h]anthracene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
36		benzo[ghi]perylene				0.16	mg/kg		0.151	mg/kg	0.0000151 %	✓	
			205-883-8	191-24-2									
37		phenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
38		1,1-dichloroethane and 1,2-dichloroethane (combined)				<0.0004	mg/kg		<0.0004	mg/kg	<0.00000004 %		<LOD
			203-458-1, 200-863-5	107-06-2, 75-34-3									
39		tetrachloroethylene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-028-00-4	204-825-9	127-18-4									
40		carbon tetrachloride; tetrachloromethane				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-008-00-5	200-262-8	56-23-5									
41		trichloroethylene; trichloroethene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-027-00-9	201-167-4	79-01-6									
42		vinyl chloride; chloroethylene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-023-00-7	200-831-0	75-01-4									
43		hexachlorobenzene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		602-065-00-6	204-273-9	118-74-1									
44		polychlorobiphenyls; PCB				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		602-039-00-4	215-648-1	1336-36-3									
45		sulfur { sulfur }				1.3	mg/kg		1.227	mg/kg	0.000123 %	✓	
		016-094-00-1	231-722-6	7704-34-9									
46		barium { barium sulphide }				78	mg/kg	1.233	90.825	mg/kg	0.00908 %	✓	
		016-002-00-X	244-214-4	21109-95-5									
47		dichlorodifluoromethane				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
			200-893-9	75-71-8									
48		chloromethane; methyl chloride				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-001-00-7	200-817-4	74-87-3									
49		bromomethane; methylbromide				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-002-00-2	200-813-2	74-83-9									
50		chloroethane				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-009-00-0	200-830-5	75-00-3									
51		trichlorofluoromethane				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
			200-892-3	75-69-4									
52		1,1-dichloroethylene; vinylidene chloride				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-025-00-8	200-864-0	75-35-4									
53		bromochloromethane				<0.0005	mg/kg		<0.0005	mg/kg	<0.00000005 %		<LOD
			200-826-3	74-97-5									
54		chloroform; trichloromethane				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-006-00-4	200-663-8	67-66-3									
55		1,1,1-trichloroethane; methyl chloroform				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-013-00-2	200-756-3	71-55-6									
56		1,1-dichloropropene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-031-00-0	209-253-3	563-58-6									
57		1,2-dichloropropane; propylene dichloride				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-020-00-0	201-152-2	78-87-5									
58		dibromomethane				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-003-00-8	200-824-2	74-95-3									

#		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
59	●	bromodichloromethane		200-856-7	75-27-4		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
60		1,3-dichloropropene; [1] (Z)-1,3-dichloropropene [2]	602-030-00-5	208-826-5 [1] 233-195-8 [2]	542-75-6 [1] 10061-01-5 [2]		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
61	●	trans-1,3-dichloropropene		431-460-4	10061-02-6		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
62		1,1,2-trichloroethane	602-014-00-8	201-166-9	79-00-5		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
63	●	1,3-dichloropropane		205-531-3	142-28-9		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
64	●	dibromochloromethane		204-704-0	124-48-1		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
65		1,2-dibromoethane	602-010-00-6	203-444-5	106-93-4		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
66		chlorobenzene	602-033-00-1	203-628-5	108-90-7		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
67	●	1,1,1,2-tetrachloroethane		211-135-1	630-20-6		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
68		styrene	601-026-00-0	202-851-5	100-42-5		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
69		bromoform; tribromomethane	602-007-00-X	200-854-6	75-25-2		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
70		bromobenzene	602-060-00-9	203-623-8	108-86-1		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
71		1,2,3-trichloropropane	602-062-00-X	202-486-1	96-18-4		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
72		mesitylene; 1,3,5-trimethylbenzene	601-025-00-5	203-604-4	108-67-8		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
73	●	tert-butylbenzene		202-632-4	98-06-6		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
74		1,2,4-trimethylbenzene	601-043-00-3	202-436-9	95-63-6		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
75	●	sec-butylbenzene		205-227-0	135-98-8		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
76		1,3-dichlorbenzene	602-067-00-7	208-792-1	541-73-1		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
77	●	4-isopropyltoluene		202-796-7	99-87-6		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
78		1,4-dichlorobenzene; p-dichlorobenzene	602-035-00-2	203-400-5	106-46-7		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
79	●	n-butylbenzene		203-209-7	104-51-8		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
80		1,2-dichlorobenzene; o-dichlorobenzene	602-034-00-7	202-425-9	95-50-1		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
81		1,2-dibromo-3-chloropropane	602-021-00-6	202-479-3	96-12-8		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
82		1,2,4-trichlorobenzene	602-087-00-6	204-428-0	120-82-1		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
83	●	hexachlorobutadiene		201-765-5	87-68-3		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
84	●	1,2,3-trichlorobenzene		201-757-1	87-61-6		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
85		dimethylnitrosoamine; N-nitrosodimethylamine	612-077-00-3	200-549-8	62-75-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
86		2-chlorophenol; [1] 4-chlorophenol; [2] 3-chlorophenol; [3] chlorophenol [4]	604-008-00-0	202-433-2 [1] 203-402-6 [2]	95-57-8 [1] 106-48-9 [2]		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<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							
			203-582-6 [3] 246-691-4 [4]	108-43-0 [3] 25167-80-0 [4]							
87		bis(2-chloroethyl) ether				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		603-029-00-2	203-870-1	111-44-4							
88	●	hexachloroethane				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
			200-666-4	67-72-1							
89		nitrosodipropylamine				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		612-098-00-8	210-698-0	621-64-7							
90		nitrobenzene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		609-003-00-7	202-716-0	98-95-3							
91		3,5,5-trimethylcyclohex-2-enone; isophorone				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		606-012-00-8	201-126-0	78-59-1							
92	●	2-nitrophenol				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
			201-857-5	88-75-5							
93		3,4-xylenol; [1] 2,5-xylenol; [2] 2,4-xylenol; [3] 2,3-xylenol; [4] 2,6-xylenol; [5] xylenol; [6] 2,4(or 2,5)-xylenol [7]				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		604-006-00-X	202-439-5 [1] 202-461-5 [2] 203-321-6 [3] 208-395-3 [4] 209-400-1 [5] 215-089-3 [6] 276-245-4 [7]	95-65-8 [1] 95-87-4 [2] 105-67-9 [3] 526-75-0 [4] 576-26-1 [5] 1300-71-6 [6] 71975-58-1 [7]							
94	●	bis(2-chloroethoxy)methane				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
			203-920-2	111-91-1							
95		2,4-dichlorophenol				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		604-011-00-7	204-429-6	120-83-2							
96		4-chloroaniline				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		612-137-00-9	203-401-0	106-47-8							
97		chlorocresol; 4-chloro-m-cresol; 4-chloro-3-methylphenol				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		604-014-00-3	200-431-6	59-50-7							
98	●	2-methyl naphthalene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
			202-078-3	91-57-6							
99		hexachlorocyclopentadiene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		602-078-00-7	201-029-3	77-47-4							
100		2,4,6-trichlorophenol				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		604-018-00-5	201-795-9	88-06-2							
101		2,4,5-trichlorophenol				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		604-017-00-X	202-467-8	95-95-4							
102	●	2-chloronaphthalene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
			202-079-9	91-58-7							
103	●	dimethyl phthalate				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
			205-011-6	131-11-3							
104		2,6-dinitrotoluene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		609-049-00-8	210-106-0	606-20-2							
105	●	dibenzofuran				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
			205-071-3	132-64-9							
106	●	4-chlorophenylphenylether				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
			230-281-7	7005-72-3							
107		2,4-dinitrotoluene; [1] dinitrotoluene [2]				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		609-007-00-9	204-450-0 [1] 246-836-1 [2]	121-14-2 [1] 25321-14-6 [2]							
108	●	diethyl phthalate				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
			201-550-6	84-66-2							
109		DNOC (ISO); 4,6-dinitro-o-cresol				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		609-020-00-X	208-601-1	534-52-1							
110		azobenzene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		611-001-00-6	203-102-5	103-33-3							
111	●	4-bromophenylphenylether				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
			202-952-4	101-55-3							

#		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									
112		pentachlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-002-00-8	201-778-6	87-86-5									
113		carbazole				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-696-0	86-74-8									
114		dibutyl phthalate; DBP				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		607-318-00-4	201-557-4	84-74-2									
115		BBP; benzyl butyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		607-430-00-3	201-622-7	85-68-7									
116		bis(2-ethylhexyl) phthalate; di-(2-ethylhexyl) phthalate; DEHP				0.29	mg/kg		0.274	mg/kg	0.0000274 %	✓	
		607-317-00-9	204-211-0	117-81-7									
117		di-n-octyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			204-214-7	117-84-0									
118		4-nitrophenol; p-nitrophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-015-00-2	202-811-7	100-02-7									
119		monohydric phenols				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
				P1186									
120		m-cresol; [1] o-cresol; [2] p-cresol; [3] mix-cresol [4]				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		604-004-00-9	203-577-9 [1] 202-423-8 [2] 203-398-6 [3] 215-293-2 [4]	108-39-4 [1] 95-48-7 [2] 106-44-5 [3] 1319-77-3 [4]									
121		1,2-dichloroethylene; [1] cis-dichloroethylene; [2] trans-dichloroethylene [3]				<0.0004	mg/kg		<0.0004	mg/kg	<0.00000004 %		<LOD
		602-026-00-3	208-750-2 [1] 205-859-7 [2] 205-860-2 [3]	540-59-0 [1] 156-59-2 [2] 156-60-5 [3]									
122		cumene; [1] propylbenzene [2]				<0.0004	mg/kg		<0.0004	mg/kg	<0.00000004 %		<LOD
		601-024-00-X	202-704-5 [1] 203-132-9 [2]	98-82-8 [1] 103-65-1 [2]									
123		2-chlorotoluene; [1] 3-chlorotoluene; [2] 4-chlorotoluene; [3] chlorotoluene [4]				<0.0004	mg/kg		<0.0004	mg/kg	<0.00000004 %		<LOD
		602-040-00-X	202-424-3 [1] 203-580-5 [2] 203-397-0 [3] 246-698-2 [4]	95-49-8 [1] 108-41-8 [2] 106-43-4 [3] 25168-05-2 [4]									
124		o-nitroaniline; [1] m-nitroaniline; [2] p-nitroaniline [3]				<0.15	mg/kg		<0.15	mg/kg	<0.000015 %		<LOD
		612-012-00-9	201-855-4 [1] 202-729-1 [2] 202-810-1 [3]	88-74-4 [1] 99-09-2 [2] 100-01-6 [3]									
										Total:	0.122 %		

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 As the samples is a solid waste (soil and stones) it is not considered to be hazardous in terms of the flammable hazardous property HP 3(i) as this hazard property relates to liquid substance only.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.104%)

Classification of sample: BH102-27/05/2022-0.30

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH102-27/05/2022-0.30
Sample Depth:
0.30-0.75 m
Moisture content:
4.4%
(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: 4.4% 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	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		1.5 mg/kg	1.32	1.893 mg/kg	0.000189 %	✓	
2	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		<0.5 mg/kg	2.775	<1.388 mg/kg	<0.000139 %		<LOD
3	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		<0.4 mg/kg	3.22	<1.288 mg/kg	<0.000129 %		<LOD
4	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.11 mg/kg	1.142	0.12 mg/kg	0.000012 %	✓	
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		4.7 mg/kg	1.462	6.567 mg/kg	0.000657 %	✓	
6	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				<0.5 mg/kg	2.27	<1.135 mg/kg	<0.000113 %		<LOD
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		3 mg/kg	1.126	3.229 mg/kg	0.000323 %	✓	
8	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	4.7 mg/kg		4.493 mg/kg	0.000449 %	✓	
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.05 mg/kg	1.353	<0.0677 mg/kg	<0.00000677 %		<LOD
10	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		7.6 mg/kg	2.976	21.624 mg/kg	0.00216 %	✓	
11	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.25 mg/kg	1.405	<0.351 mg/kg	<0.0000351 %		<LOD
12	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		9.4 mg/kg	2.469	22.19 mg/kg	0.00222 %	✓	
13	TPH (C6 to C40) petroleum group			TPH		<2 mg/kg		<2 mg/kg	<0.0002 %		<LOD
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<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		benzene	601-020-00-8	200-753-7	71-43-2		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<**LOD**
16		toluene	601-021-00-3	203-625-9	108-88-3		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<**LOD**
17		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<**LOD**
18		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]		<0.0004	mg/kg		<0.0004	mg/kg	<0.00000004 %		<**LOD**
19		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				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<**LOD**
20		pH			PH		11	pH		11	pH	11pH		
21		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
22		acenaphthylene		205-917-1	208-96-8		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
23		acenaphthene		201-469-6	83-32-9		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
24		fluorene		201-695-5	86-73-7		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
25		phenanthrene		201-581-5	85-01-8		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
26		anthracene		204-371-1	120-12-7		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
27		fluoranthene		205-912-4	206-44-0		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
28		pyrene		204-927-3	129-00-0		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
29		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
30		chrysene	601-048-00-0	205-923-4	218-01-9		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
31		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
32		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
33		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
34		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
35		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
36		benzo[ghi]perylene		205-883-8	191-24-2		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
37		phenol	604-001-00-2	203-632-7	108-95-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
38		1,1-dichloroethane and 1,2-dichloroethane (combined)		203-458-1, 200-863-5	107-06-2, 75-34-3		<0.0004	mg/kg		<0.0004	mg/kg	<0.00000004 %		<**LOD**
39		tetrachloroethylene	602-028-00-4	204-825-9	127-18-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<**LOD**
40		carbon tetrachloride; tetrachloromethane	602-008-00-5	200-262-8	56-23-5		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<**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
41		trichloroethylene; trichloroethene	602-027-00-9	201-167-4	79-01-6		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
42		vinyl chloride; chloroethylene	602-023-00-7	200-831-0	75-01-4		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
43		hexachlorobenzene	602-065-00-6	204-273-9	118-74-1		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
44		polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
45		sulfur { sulfur }	016-094-00-1	231-722-6	7704-34-9		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
46		barium { barium sulphide }	016-002-00-X	244-214-4	21109-95-5		120 mg/kg	1.233	141.506 mg/kg	0.0142 %	✓	
47		dichlorodifluoromethane		200-893-9	75-71-8		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
48		chloromethane; methyl chloride	602-001-00-7	200-817-4	74-87-3		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
49		bromomethane; methylbromide	602-002-00-2	200-813-2	74-83-9		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
50		chloroethane	602-009-00-0	200-830-5	75-00-3		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
51		trichlorofluoromethane		200-892-3	75-69-4		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
52		1,1-dichloroethylene; vinylidene chloride	602-025-00-8	200-864-0	75-35-4		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
53		bromochloromethane		200-826-3	74-97-5		<0.0005 mg/kg		<0.0005 mg/kg	<0.00000005 %		<LOD
54		chloroform; trichloromethane	602-006-00-4	200-663-8	67-66-3		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
55		1,1,1-trichloroethane; methyl chloroform	602-013-00-2	200-756-3	71-55-6		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
56		1,1-dichloropropene	602-031-00-0	209-253-3	563-58-6		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
57		1,2-dichloropropane; propylene dichloride	602-020-00-0	201-152-2	78-87-5		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
58		dibromomethane	602-003-00-8	200-824-2	74-95-3		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
59		bromodichloromethane		200-856-7	75-27-4		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
60		1,3-dichloropropene; [1] (Z)-1,3-dichloropropene [2]	602-030-00-5	208-826-5 [1] 233-195-8 [2]	542-75-6 [1] 10061-01-5 [2]		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
61		trans-1,3-dichloropropene		431-460-4	10061-02-6		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
62		1,1,2-trichloroethane	602-014-00-8	201-166-9	79-00-5		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
63		1,3-dichloropropane		205-531-3	142-28-9		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
64		dibromochloromethane		204-704-0	124-48-1		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
65		1,2-dibromoethane	602-010-00-6	203-444-5	106-93-4		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
66		chlorobenzene	602-033-00-1	203-628-5	108-90-7		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
67		1,1,1,2-tetrachloroethane		211-135-1	630-20-6		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
68		styrene	601-026-00-0	202-851-5	100-42-5		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
69		bromoform; tribromomethane	602-007-00-X	200-854-6	75-25-2		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<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									
70		bromobenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-060-00-9	203-623-8	108-86-1									
71		1,2,3-trichloropropane				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-062-00-X	202-486-1	96-18-4									
72		mesitylene; 1,3,5-trimethylbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		601-025-00-5	203-604-4	108-67-8									
73		tert-butylbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
			202-632-4	98-06-6									
74		1,2,4-trimethylbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		601-043-00-3	202-436-9	95-63-6									
75		sec-butylbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
			205-227-0	135-98-8									
76		1,3-dichlorbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-067-00-7	208-792-1	541-73-1									
77		4-isopropyltoluene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
			202-796-7	99-87-6									
78		1,4-dichlorobenzene; p-dichlorobenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-035-00-2	203-400-5	106-46-7									
79		n-butylbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
			203-209-7	104-51-8									
80		1,2-dichlorobenzene; o-dichlorobenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-034-00-7	202-425-9	95-50-1									
81		1,2-dibromo-3-chloropropane				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-021-00-6	202-479-3	96-12-8									
82		1,2,4-trichlorobenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-087-00-6	204-428-0	120-82-1									
83		hexachlorobutadiene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
			201-765-5	87-68-3									
84		1,2,3-trichlorobenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
			201-757-1	87-61-6									
85		dimethylnitrosoamine; N-nitrosodimethylamine				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		612-077-00-3	200-549-8	62-75-9									
86		2-chlorophenol; [1] 4-chlorophenol; [2] 3-chlorophenol; [3] chlorophenol [4]				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-008-00-0	202-433-2 [1] 203-402-6 [2] 203-582-6 [3] 246-691-4 [4]	95-57-8 [1] 106-48-9 [2] 108-43-0 [3] 25167-80-0 [4]									
87		bis(2-chloroethyl) ether				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		603-029-00-2	203-870-1	111-44-4									
88		hexachloroethane				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			200-666-4	67-72-1									
89		nitrosodipropylamine				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		612-098-00-8	210-698-0	621-64-7									
90		nitrobenzene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-003-00-7	202-716-0	98-95-3									
91		3,5,5-trimethylcyclohex-2-enone; isophorone				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		606-012-00-8	201-126-0	78-59-1									
92		2-nitrophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-857-5	88-75-5									
93		3,4-xylenol; [1] 2,5-xylenol; [2] 2,4-xylenol; [3] 2,3-xylenol; [4] 2,6-xylenol; [5] xylenol; [6] 2,4(or 2,5)-xylenol [7]				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-006-00-X	202-439-5 [1] 202-461-5 [2] 203-321-6 [3] 208-395-3 [4] 209-400-1 [5] 215-089-3 [6] 276-245-4 [7]	95-65-8 [1] 95-87-4 [2] 105-67-9 [3] 526-75-0 [4] 576-26-1 [5] 1300-71-6 [6] 71975-58-1 [7]									
94		bis(2-chloroethoxy)methane				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			203-920-2	111-91-1									

#		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									
95		2,4-dichlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-011-00-7	204-429-6	120-83-2									
96		4-chloroaniline				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		612-137-00-9	203-401-0	106-47-8									
97		chlorocresol; 4-chloro-m-cresol; 4-chloro-3-methylphenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-014-00-3	200-431-6	59-50-7									
98		2-methyl naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			202-078-3	91-57-6									
99		hexachlorocyclopentadiene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		602-078-00-7	201-029-3	77-47-4									
100		2,4,6-trichlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-018-00-5	201-795-9	88-06-2									
101		2,4,5-trichlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-017-00-X	202-467-8	95-95-4									
102		2-chloronaphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			202-079-9	91-58-7									
103		dimethyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-011-6	131-11-3									
104		2,6-dinitrotoluene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-049-00-8	210-106-0	606-20-2									
105		dibenzofuran				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-071-3	132-64-9									
106		4-chlorophenylphenylether				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			230-281-7	7005-72-3									
107		2,4-dinitrotoluene; [1] dinitrotoluene [2]				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-007-00-9	204-450-0 [1] 246-836-1 [2]	121-14-2 [1] 25321-14-6 [2]									
108		diethyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-550-6	84-66-2									
109		DNOC (ISO); 4,6-dinitro-o-cresol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-020-00-X	208-601-1	534-52-1									
110		azobenzene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		611-001-00-6	203-102-5	103-33-3									
111		4-bromophenylphenylether				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			202-952-4	101-55-3									
112		pentachlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-002-00-8	201-778-6	87-86-5									
113		carbazole				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-696-0	86-74-8									
114		dibutyl phthalate; DBP				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		607-318-00-4	201-557-4	84-74-2									
115		BBP; benzyl butyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		607-430-00-3	201-622-7	85-68-7									
116		bis(2-ethylhexyl) phthalate; di-(2-ethylhexyl) phthalate; DEHP				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		607-317-00-9	204-211-0	117-81-7									
117		di-n-octyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			204-214-7	117-84-0									
118		4-nitrophenol; p-nitrophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-015-00-2	202-811-7	100-02-7									
119		monohydric phenols				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
				P1186									
120		m-cresol; [1] o-cresol; [2] p-cresol; [3] mix-cresol [4]				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		604-004-00-9	203-577-9 [1] 202-423-8 [2] 203-398-6 [3] 215-293-2 [4]	108-39-4 [1] 95-48-7 [2] 106-44-5 [3] 1319-77-3 [4]									

#		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							
121		1,2-dichloroethylene; [1] cis-dichloroethylene; [2] trans-dichloroethylene [3]				<0.0004 mg/kg		<0.0004 mg/kg	<0.00000004 %		<**LOD**
		602-026-00-3	208-750-2 [1] 205-859-7 [2] 205-860-2 [3]	540-59-0 [1] 156-59-2 [2] 156-60-5 [3]							
122		cumene; [1] propylbenzene [2]				<0.0004 mg/kg		<0.0004 mg/kg	<0.00000004 %		<**LOD**
		601-024-00-X	202-704-5 [1] 203-132-9 [2]	98-82-8 [1] 103-65-1 [2]							
123		2-chlorotoluene; [1] 3-chlorotoluene; [2] 4-chlorotoluene; [3] chlorotoluene [4]				<0.0004 mg/kg		<0.0004 mg/kg	<0.00000004 %		<**LOD**
		602-040-00-X	202-424-3 [1] 203-580-5 [2] 203-397-0 [3] 246-698-2 [4]	95-49-8 [1] 108-41-8 [2] 106-43-4 [3] 25168-05-2 [4]							
124		o-nitroaniline; [1] m-nitroaniline; [2] p-nitroaniline [3]				<0.15 mg/kg		<0.15 mg/kg	<0.000015 %		<**LOD**
		612-012-00-9	201-855-4 [1] 202-729-1 [2] 202-810-1 [3]	88-74-4 [1] 99-09-2 [2] 100-01-6 [3]							
								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

Classification of sample: BH102-27/05/2022-1.70

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH102-27/05/2022-1.70
Sample Depth:
1.70-1.80 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	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		3.8 mg/kg	1.32	4.415 mg/kg	0.000442 %	✓	
2	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		<0.5 mg/kg	2.775	<1.388 mg/kg	<0.000139 %		<**LOD**
3	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		1.1 mg/kg	3.22	3.117 mg/kg	0.000312 %	✓	
4	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.1 mg/kg	1.142	<0.114 mg/kg	<0.0000114 %		<**LOD**
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		13 mg/kg	1.462	16.72 mg/kg	0.00167 %	✓	
6	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				<0.5 mg/kg	2.27	<1.135 mg/kg	<0.000113 %		<**LOD**
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		9.2 mg/kg	1.126	9.115 mg/kg	0.000912 %	✓	
8	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	4 mg/kg		3.52 mg/kg	0.000352 %	✓	
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.05 mg/kg	1.353	<0.0677 mg/kg	<0.00000677 %		<**LOD**
10	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		13 mg/kg	2.976	34.048 mg/kg	0.0034 %	✓	
11	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.33 mg/kg	1.405	0.408 mg/kg	0.0000408 %	✓	
12	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		24 mg/kg	2.469	52.152 mg/kg	0.00522 %	✓	
13	TPH (C6 to C40) petroleum group			TPH		<2 mg/kg		<2 mg/kg	<0.0002 %		<**LOD**
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<**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		benzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
16		toluene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
17		ethylbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
18		xylene				<0.0004	mg/kg		<0.0004	mg/kg	<0.00000004 %		<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]									
19		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 }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<LOD
		006-007-00-5											
20		pH				8.8	pH		8.8	pH	8.8 pH		
				PH									
21		naphthalene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-052-00-2	202-049-5	91-20-3									
22		acenaphthylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-917-1	208-96-8									
23		acenaphthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-469-6	83-32-9									
24		fluorene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-695-5	86-73-7									
25		phenanthrene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			201-581-5	85-01-8									
26		anthracene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			204-371-1	120-12-7									
27		fluoranthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-912-4	206-44-0									
28		pyrene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			204-927-3	129-00-0									
29		benzo[a]anthracene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-033-00-9	200-280-6	56-55-3									
30		chrysene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-048-00-0	205-923-4	218-01-9									
31		benzo[b]fluoranthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-034-00-4	205-911-9	205-99-2									
32		benzo[k]fluoranthene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-036-00-5	205-916-6	207-08-9									
33		benzo[a]pyrene; benzo[def]chrysene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
34		indeno[123-cd]pyrene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-893-2	193-39-5									
35		dibenz[a,h]anthracene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
36		benzo[ghi]perylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-883-8	191-24-2									
37		phenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
38		1,1-dichloroethane and 1,2-dichloroethane (combined)				<0.0004	mg/kg		<0.0004	mg/kg	<0.00000004 %		<LOD
			203-458-1, 200-863-5	107-06-2, 75-34-3									
39		tetrachloroethylene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-028-00-4	204-825-9	127-18-4									
40		carbon tetrachloride; tetrachloromethane				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-008-00-5	200-262-8	56-23-5									

#		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
41		trichloroethylene; trichloroethene	602-027-00-9	201-167-4	79-01-6		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
42		vinyl chloride; chloroethylene	602-023-00-7	200-831-0	75-01-4		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
43		hexachlorobenzene	602-065-00-6	204-273-9	118-74-1		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
44		polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
45		sulfur { sulfur }	016-094-00-1	231-722-6	7704-34-9		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
46		barium { barium sulphide }	016-002-00-X	244-214-4	21109-95-5		33 mg/kg	1.233	35.821 mg/kg	0.00358 %	✓	
47		dichlorodifluoromethane		200-893-9	75-71-8		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
48		chloromethane; methyl chloride	602-001-00-7	200-817-4	74-87-3		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
49		bromomethane; methylbromide	602-002-00-2	200-813-2	74-83-9		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
50		chloroethane	602-009-00-0	200-830-5	75-00-3		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
51		trichlorofluoromethane		200-892-3	75-69-4		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
52		1,1-dichloroethylene; vinylidene chloride	602-025-00-8	200-864-0	75-35-4		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
53		bromochloromethane		200-826-3	74-97-5		<0.0005 mg/kg		<0.0005 mg/kg	<0.00000005 %		<LOD
54		chloroform; trichloromethane	602-006-00-4	200-663-8	67-66-3		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
55		1,1,1-trichloroethane; methyl chloroform	602-013-00-2	200-756-3	71-55-6		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
56		1,1-dichloropropene	602-031-00-0	209-253-3	563-58-6		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
57		1,2-dichloropropane; propylene dichloride	602-020-00-0	201-152-2	78-87-5		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
58		dibromomethane	602-003-00-8	200-824-2	74-95-3		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
59		bromodichloromethane		200-856-7	75-27-4		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
60		1,3-dichloropropene; [1] (Z)-1,3-dichloropropene [2]	602-030-00-5	208-826-5 [1] 233-195-8 [2]	542-75-6 [1] 10061-01-5 [2]		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
61		trans-1,3-dichloropropene		431-460-4	10061-02-6		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
62		1,1,2-trichloroethane	602-014-00-8	201-166-9	79-00-5		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
63		1,3-dichloropropane		205-531-3	142-28-9		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
64		dibromochloromethane		204-704-0	124-48-1		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
65		1,2-dibromoethane	602-010-00-6	203-444-5	106-93-4		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
66		chlorobenzene	602-033-00-1	203-628-5	108-90-7		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
67		1,1,1,2-tetrachloroethane		211-135-1	630-20-6		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
68		styrene	601-026-00-0	202-851-5	100-42-5		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
69		bromoform; tribromomethane	602-007-00-X	200-854-6	75-25-2		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<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									
70		bromobenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-060-00-9	203-623-8	108-86-1									
71		1,2,3-trichloropropane				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-062-00-X	202-486-1	96-18-4									
72		mesitylene; 1,3,5-trimethylbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		601-025-00-5	203-604-4	108-67-8									
73		tert-butylbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
			202-632-4	98-06-6									
74		1,2,4-trimethylbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		601-043-00-3	202-436-9	95-63-6									
75		sec-butylbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
			205-227-0	135-98-8									
76		1,3-dichlorbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-067-00-7	208-792-1	541-73-1									
77		4-isopropyltoluene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
			202-796-7	99-87-6									
78		1,4-dichlorobenzene; p-dichlorobenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-035-00-2	203-400-5	106-46-7									
79		n-butylbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
			203-209-7	104-51-8									
80		1,2-dichlorobenzene; o-dichlorobenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-034-00-7	202-425-9	95-50-1									
81		1,2-dibromo-3-chloropropane				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-021-00-6	202-479-3	96-12-8									
82		1,2,4-trichlorobenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-087-00-6	204-428-0	120-82-1									
83		hexachlorobutadiene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
			201-765-5	87-68-3									
84		1,2,3-trichlorobenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
			201-757-1	87-61-6									
85		dimethylnitrosoamine; N-nitrosodimethylamine				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		612-077-00-3	200-549-8	62-75-9									
86		2-chlorophenol; [1] 4-chlorophenol; [2] 3-chlorophenol; [3] chlorophenol [4]				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-008-00-0	202-433-2 [1] 203-402-6 [2] 203-582-6 [3] 246-691-4 [4]	95-57-8 [1] 106-48-9 [2] 108-43-0 [3] 25167-80-0 [4]									
87		bis(2-chloroethyl) ether				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		603-029-00-2	203-870-1	111-44-4									
88		hexachloroethane				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			200-666-4	67-72-1									
89		nitrosodipropylamine				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		612-098-00-8	210-698-0	621-64-7									
90		nitrobenzene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-003-00-7	202-716-0	98-95-3									
91		3,5,5-trimethylcyclohex-2-enone; isophorone				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		606-012-00-8	201-126-0	78-59-1									
92		2-nitrophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-857-5	88-75-5									
93		3,4-xylenol; [1] 2,5-xylenol; [2] 2,4-xylenol; [3] 2,3-xylenol; [4] 2,6-xylenol; [5] xylenol; [6] 2,4(or 2,5)-xylenol [7]				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-006-00-X	202-439-5 [1] 202-461-5 [2] 203-321-6 [3] 208-395-3 [4] 209-400-1 [5] 215-089-3 [6] 276-245-4 [7]	95-65-8 [1] 95-87-4 [2] 105-67-9 [3] 526-75-0 [4] 576-26-1 [5] 1300-71-6 [6] 71975-58-1 [7]									
94		bis(2-chloroethoxy)methane				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			203-920-2	111-91-1									

#		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									
95		2,4-dichlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-011-00-7	204-429-6	120-83-2									
96		4-chloroaniline				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		612-137-00-9	203-401-0	106-47-8									
97		chlorocresol; 4-chloro-m-cresol; 4-chloro-3-methylphenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-014-00-3	200-431-6	59-50-7									
98		2-methyl naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			202-078-3	91-57-6									
99		hexachlorocyclopentadiene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		602-078-00-7	201-029-3	77-47-4									
100		2,4,6-trichlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-018-00-5	201-795-9	88-06-2									
101		2,4,5-trichlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-017-00-X	202-467-8	95-95-4									
102		2-chloronaphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			202-079-9	91-58-7									
103		dimethyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-011-6	131-11-3									
104		2,6-dinitrotoluene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-049-00-8	210-106-0	606-20-2									
105		dibenzofuran				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-071-3	132-64-9									
106		4-chlorophenylphenylether				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			230-281-7	7005-72-3									
107		2,4-dinitrotoluene; [1] dinitrotoluene [2]				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-007-00-9	204-450-0 [1] 246-836-1 [2]	121-14-2 [1] 25321-14-6 [2]									
108		diethyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-550-6	84-66-2									
109		DNOC (ISO); 4,6-dinitro-o-cresol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-020-00-X	208-601-1	534-52-1									
110		azobenzene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		611-001-00-6	203-102-5	103-33-3									
111		4-bromophenylphenylether				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			202-952-4	101-55-3									
112		pentachlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-002-00-8	201-778-6	87-86-5									
113		carbazole				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-696-0	86-74-8									
114		dibutyl phthalate; DBP				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		607-318-00-4	201-557-4	84-74-2									
115		BBP; benzyl butyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		607-430-00-3	201-622-7	85-68-7									
116		bis(2-ethylhexyl) phthalate; di-(2-ethylhexyl) phthalate; DEHP				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		607-317-00-9	204-211-0	117-81-7									
117		di-n-octyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			204-214-7	117-84-0									
118		4-nitrophenol; p-nitrophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-015-00-2	202-811-7	100-02-7									
119		monohydric phenols				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
				P1186									
120		m-cresol; [1] o-cresol; [2] p-cresol; [3] mix-cresol [4]				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		604-004-00-9	203-577-9 [1] 202-423-8 [2] 203-398-6 [3] 215-293-2 [4]	108-39-4 [1] 95-48-7 [2] 106-44-5 [3] 1319-77-3 [4]									

#		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							
121		1,2-dichloroethylene; [1] cis-dichloroethylene; [2] trans-dichloroethylene [3]				<0.0004 mg/kg		<0.0004 mg/kg	<0.00000004 %		<**LOD**
		602-026-00-3	208-750-2 [1] 205-859-7 [2] 205-860-2 [3]	540-59-0 [1] 156-59-2 [2] 156-60-5 [3]							
122		cumene; [1] propylbenzene [2]				<0.0004 mg/kg		<0.0004 mg/kg	<0.00000004 %		<**LOD**
		601-024-00-X	202-704-5 [1] 203-132-9 [2]	98-82-8 [1] 103-65-1 [2]							
123		2-chlorotoluene; [1] 3-chlorotoluene; [2] 4-chlorotoluene; [3] chlorotoluene [4]				<0.0004 mg/kg		<0.0004 mg/kg	<0.00000004 %		<**LOD**
		602-040-00-X	202-424-3 [1] 203-580-5 [2] 203-397-0 [3] 246-698-2 [4]	95-49-8 [1] 108-41-8 [2] 106-43-4 [3] 25168-05-2 [4]							
124		o-nitroaniline; [1] m-nitroaniline; [2] p-nitroaniline [3]				<0.15 mg/kg		<0.15 mg/kg	<0.000015 %		<**LOD**
		612-012-00-9	201-855-4 [1] 202-729-1 [2] 202-810-1 [3]	88-74-4 [1] 99-09-2 [2] 100-01-6 [3]							
								Total:	0.0168 %		

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: DS101-31/05/2022-1.65

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
DS101-31/05/2022-1.65
Sample Depth:
1.65-1.75 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	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		5.2 mg/kg	1.32	6.042 mg/kg	0.000604 %	✓	
2	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		<0.5 mg/kg	2.775	<1.388 mg/kg	<0.000139 %		<**LOD**
3	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		<0.4 mg/kg	3.22	<1.288 mg/kg	<0.000129 %		<**LOD**
4	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		2.1 mg/kg	1.142	2.111 mg/kg	0.000211 %	✓	
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		7 mg/kg	1.462	9.003 mg/kg	0.0009 %	✓	
6	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				<0.5 mg/kg	2.27	<1.135 mg/kg	<0.000113 %		<**LOD**
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		29 mg/kg	1.126	28.733 mg/kg	0.00287 %	✓	
8	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	280 mg/kg		246.4 mg/kg	0.0246 %	✓	
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.06 mg/kg	1.353	0.0715 mg/kg	0.00000715 %	✓	
10	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		12 mg/kg	2.976	31.429 mg/kg	0.00314 %	✓	
11	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.29 mg/kg	1.405	0.359 mg/kg	0.0000359 %	✓	
12	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		440 mg/kg	2.469	956.112 mg/kg	0.0956 %	✓	
13	TPH (C6 to C40) petroleum group			TPH		<2 mg/kg		<2 mg/kg	<0.0002 %		<**LOD**
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<**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		benzene	601-020-00-8	200-753-7	71-43-2		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
16		toluene	601-021-00-3	203-625-9	108-88-3		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
17		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
18		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]		<0.0004 mg/kg		<0.0004 mg/kg	<0.00000004 %		<LOD
19		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				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<LOD
20		pH			PH		9.2 pH		9.2 pH	9.2 pH		
21		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
22		acenaphthylene		205-917-1	208-96-8		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
23		acenaphthene		201-469-6	83-32-9		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
24		fluorene		201-695-5	86-73-7		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
25		phenanthrene		201-581-5	85-01-8		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
26		anthracene		204-371-1	120-12-7		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
27		fluoranthene		205-912-4	206-44-0		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
28		pyrene		204-927-3	129-00-0		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
29		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
30		chrysene	601-048-00-0	205-923-4	218-01-9		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
31		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
32		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
33		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
34		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
35		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
36		benzo[ghi]perylene		205-883-8	191-24-2		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
37		phenol	604-001-00-2	203-632-7	108-95-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
38		1,1-dichloroethane and 1,2-dichloroethane (combined)		203-458-1, 200-863-5	107-06-2, 75-34-3		<0.0004 mg/kg		<0.0004 mg/kg	<0.00000004 %		<LOD
39		tetrachloroethylene	602-028-00-4	204-825-9	127-18-4		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
40		carbon tetrachloride; tetrachloromethane	602-008-00-5	200-262-8	56-23-5		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<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
41		trichloroethylene; trichloroethene	602-027-00-9	201-167-4	79-01-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
42		vinyl chloride; chloroethylene	602-023-00-7	200-831-0	75-01-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
43		hexachlorobenzene	602-065-00-6	204-273-9	118-74-1		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
44		polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
45		sulfur { sulfur }	016-094-00-1	231-722-6	7704-34-9		4.6	mg/kg		4.048	mg/kg	0.000405 %	✓	
46		barium { barium sulphide }	016-002-00-X	244-214-4	21109-95-5		160	mg/kg	1.233	173.676	mg/kg	0.0174 %	✓	
47		dichlorodifluoromethane		200-893-9	75-71-8		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
48		chloromethane; methyl chloride	602-001-00-7	200-817-4	74-87-3		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
49		bromomethane; methylbromide	602-002-00-2	200-813-2	74-83-9		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
50		chloroethane	602-009-00-0	200-830-5	75-00-3		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
51		trichlorofluoromethane		200-892-3	75-69-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
52		1,1-dichloroethylene; vinylidene chloride	602-025-00-8	200-864-0	75-35-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
53		bromochloromethane		200-826-3	74-97-5		<0.0005	mg/kg		<0.0005	mg/kg	<0.00000005 %		<LOD
54		chloroform; trichloromethane	602-006-00-4	200-663-8	67-66-3		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
55		1,1,1-trichloroethane; methyl chloroform	602-013-00-2	200-756-3	71-55-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
56		1,1-dichloropropene	602-031-00-0	209-253-3	563-58-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
57		1,2-dichloropropane; propylene dichloride	602-020-00-0	201-152-2	78-87-5		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
58		dibromomethane	602-003-00-8	200-824-2	74-95-3		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
59		bromodichloromethane		200-856-7	75-27-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
60		1,3-dichloropropene; [1] (Z)-1,3-dichloropropene [2]	602-030-00-5	208-826-5 [1] 233-195-8 [2]	542-75-6 [1] 10061-01-5 [2]		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
61		trans-1,3-dichloropropene		431-460-4	10061-02-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
62		1,1,2-trichloroethane	602-014-00-8	201-166-9	79-00-5		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
63		1,3-dichloropropane		205-531-3	142-28-9		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
64		dibromochloromethane		204-704-0	124-48-1		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
65		1,2-dibromoethane	602-010-00-6	203-444-5	106-93-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
66		chlorobenzene	602-033-00-1	203-628-5	108-90-7		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
67		1,1,1,2-tetrachloroethane		211-135-1	630-20-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
68		styrene	601-026-00-0	202-851-5	100-42-5		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
69		bromoform; tribromomethane	602-007-00-X	200-854-6	75-25-2		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<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									
70		bromobenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-060-00-9	203-623-8	108-86-1									
71		1,2,3-trichloropropane				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-062-00-X	202-486-1	96-18-4									
72		mesitylene; 1,3,5-trimethylbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		601-025-00-5	203-604-4	108-67-8									
73		tert-butylbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
			202-632-4	98-06-6									
74		1,2,4-trimethylbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		601-043-00-3	202-436-9	95-63-6									
75		sec-butylbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
			205-227-0	135-98-8									
76		1,3-dichlorbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-067-00-7	208-792-1	541-73-1									
77		4-isopropyltoluene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
			202-796-7	99-87-6									
78		1,4-dichlorobenzene; p-dichlorobenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-035-00-2	203-400-5	106-46-7									
79		n-butylbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
			203-209-7	104-51-8									
80		1,2-dichlorobenzene; o-dichlorobenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-034-00-7	202-425-9	95-50-1									
81		1,2-dibromo-3-chloropropane				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-021-00-6	202-479-3	96-12-8									
82		1,2,4-trichlorobenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-087-00-6	204-428-0	120-82-1									
83		hexachlorobutadiene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
			201-765-5	87-68-3									
84		1,2,3-trichlorobenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
			201-757-1	87-61-6									
85		dimethylnitrosoamine; N-nitrosodimethylamine				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		612-077-00-3	200-549-8	62-75-9									
86		2-chlorophenol; [1] 4-chlorophenol; [2] 3-chlorophenol; [3] chlorophenol [4]				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-008-00-0	202-433-2 [1] 203-402-6 [2] 203-582-6 [3] 246-691-4 [4]	95-57-8 [1] 106-48-9 [2] 108-43-0 [3] 25167-80-0 [4]									
87		bis(2-chloroethyl) ether				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		603-029-00-2	203-870-1	111-44-4									
88		hexachloroethane				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			200-666-4	67-72-1									
89		nitrosodipropylamine				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		612-098-00-8	210-698-0	621-64-7									
90		nitrobenzene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-003-00-7	202-716-0	98-95-3									
91		3,5,5-trimethylcyclohex-2-enone; isophorone				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		606-012-00-8	201-126-0	78-59-1									
92		2-nitrophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-857-5	88-75-5									
93		3,4-xylenol; [1] 2,5-xylenol; [2] 2,4-xylenol; [3] 2,3-xylenol; [4] 2,6-xylenol; [5] xylenol; [6] 2,4(or 2,5)-xylenol [7]				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-006-00-X	202-439-5 [1] 202-461-5 [2] 203-321-6 [3] 208-395-3 [4] 209-400-1 [5] 215-089-3 [6] 276-245-4 [7]	95-65-8 [1] 95-87-4 [2] 105-67-9 [3] 526-75-0 [4] 576-26-1 [5] 1300-71-6 [6] 71975-58-1 [7]									
94		bis(2-chloroethoxy)methane				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			203-920-2	111-91-1									

#		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									
95		2,4-dichlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-011-00-7	204-429-6	120-83-2									
96		4-chloroaniline				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		612-137-00-9	203-401-0	106-47-8									
97		chlorocresol; 4-chloro-m-cresol; 4-chloro-3-methylphenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-014-00-3	200-431-6	59-50-7									
98		2-methyl naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			202-078-3	91-57-6									
99		hexachlorocyclopentadiene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		602-078-00-7	201-029-3	77-47-4									
100		2,4,6-trichlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-018-00-5	201-795-9	88-06-2									
101		2,4,5-trichlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-017-00-X	202-467-8	95-95-4									
102		2-chloronaphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			202-079-9	91-58-7									
103		dimethyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-011-6	131-11-3									
104		2,6-dinitrotoluene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-049-00-8	210-106-0	606-20-2									
105		dibenzofuran				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-071-3	132-64-9									
106		4-chlorophenylphenylether				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			230-281-7	7005-72-3									
107		2,4-dinitrotoluene; [1] dinitrotoluene [2]				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-007-00-9	204-450-0 [1] 246-836-1 [2]	121-14-2 [1] 25321-14-6 [2]									
108		diethyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-550-6	84-66-2									
109		DNOC (ISO); 4,6-dinitro-o-cresol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-020-00-X	208-601-1	534-52-1									
110		azobenzene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		611-001-00-6	203-102-5	103-33-3									
111		4-bromophenylphenylether				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			202-952-4	101-55-3									
112		pentachlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-002-00-8	201-778-6	87-86-5									
113		carbazole				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-696-0	86-74-8									
114		dibutyl phthalate; DBP				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		607-318-00-4	201-557-4	84-74-2									
115		BBP; benzyl butyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		607-430-00-3	201-622-7	85-68-7									
116		bis(2-ethylhexyl) phthalate; di-(2-ethylhexyl) phthalate; DEHP				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		607-317-00-9	204-211-0	117-81-7									
117		di-n-octyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			204-214-7	117-84-0									
118		4-nitrophenol; p-nitrophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-015-00-2	202-811-7	100-02-7									
119		monohydric phenols				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
				P1186									
120		m-cresol; [1] o-cresol; [2] p-cresol; [3] mix-cresol [4]				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		604-004-00-9	203-577-9 [1] 202-423-8 [2] 203-398-6 [3] 215-293-2 [4]	108-39-4 [1] 95-48-7 [2] 106-44-5 [3] 1319-77-3 [4]									

#		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							
121		1,2-dichloroethylene; [1] cis-dichloroethylene; [2] trans-dichloroethylene [3]				<0.0004 mg/kg		<0.0004 mg/kg	<0.00000004 %		<**LOD**
		602-026-00-3	208-750-2 [1] 205-859-7 [2] 205-860-2 [3]	540-59-0 [1] 156-59-2 [2] 156-60-5 [3]							
122		cumene; [1] propylbenzene [2]				<0.0004 mg/kg		<0.0004 mg/kg	<0.00000004 %		<**LOD**
		601-024-00-X	202-704-5 [1] 203-132-9 [2]	98-82-8 [1] 103-65-1 [2]							
123		2-chlorotoluene; [1] 3-chlorotoluene; [2] 4-chlorotoluene; [3] chlorotoluene [4]				<0.0004 mg/kg		<0.0004 mg/kg	<0.00000004 %		<**LOD**
		602-040-00-X	202-424-3 [1] 203-580-5 [2] 203-397-0 [3] 246-698-2 [4]	95-49-8 [1] 108-41-8 [2] 106-43-4 [3] 25168-05-2 [4]							
124		o-nitroaniline; [1] m-nitroaniline; [2] p-nitroaniline [3]				<0.15 mg/kg		<0.15 mg/kg	<0.000015 %		<**LOD**
		612-012-00-9	201-855-4 [1] 202-729-1 [2] 202-810-1 [3]	88-74-4 [1] 99-09-2 [2] 100-01-6 [3]							
								Total:	0.147 %		

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: BH103-30/05/2022-0.14

Hazardous Waste
Classified as **17 05 03 ***
in the List of Waste

Sample details

Sample name:
BH103-30/05/2022-0.14
Sample Depth:
0.14-0.40 m
Moisture content:
10%
(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.: 0.162%)

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.: 0.162%)

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	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		1.6 mg/kg	1.32	1.901 mg/kg	0.00019 %	✓	
2	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		<0.5 mg/kg	2.775	<1.388 mg/kg	<0.000139 %		<**LOD**
3	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		0.58 mg/kg	3.22	1.681 mg/kg	0.000168 %	✓	
4	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.14 mg/kg	1.142	0.144 mg/kg	0.0000144 %	✓	
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		5.2 mg/kg	1.462	6.84 mg/kg	0.000684 %	✓	
6	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				<0.5 mg/kg	2.27	<1.135 mg/kg	<0.000113 %		<**LOD**
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		4.2 mg/kg	1.126	4.256 mg/kg	0.000426 %	✓	

#		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		lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	8.2	mg/kg		7.38	mg/kg	0.000738 %	✓	
9		mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.05	mg/kg	1.353	<0.0677	mg/kg	<0.00000677 %		<**LOD**
10		nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		7.6	mg/kg	2.976	20.358	mg/kg	0.00204 %	✓	
11		selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				<0.25	mg/kg	1.405	<0.351	mg/kg	<0.0000351 %		<**LOD**
12		zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		17	mg/kg	2.469	37.78	mg/kg	0.00378 %	✓	
13		TPH (C6 to C40) petroleum group			TPH		1800	mg/kg		1620	mg/kg	0.162 %	✓	
14		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<**LOD**
15		benzene	601-020-00-8	200-753-7	71-43-2		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<**LOD**
16		toluene	601-021-00-3	203-625-9	108-88-3		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<**LOD**
17		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<**LOD**
18		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]		<0.0004	mg/kg		<0.0004	mg/kg	<0.00000004 %		<**LOD**
19		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				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<**LOD**
20		pH			PH		11.2	pH		11.2	pH	11.2 pH		
21		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
22		acenaphthylene		205-917-1	208-96-8		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
23		acenaphthene		201-469-6	83-32-9		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
24		fluorene		201-695-5	86-73-7		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
25		phenanthrene		201-581-5	85-01-8		0.19	mg/kg		0.171	mg/kg	0.0000171 %	✓	
26		anthracene		204-371-1	120-12-7		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
27		fluoranthene		205-912-4	206-44-0		0.18	mg/kg		0.162	mg/kg	0.0000162 %	✓	
28		pyrene		204-927-3	129-00-0		0.19	mg/kg		0.171	mg/kg	0.0000171 %	✓	
29		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.18	mg/kg		0.162	mg/kg	0.0000162 %	✓	
30		chrysene	601-048-00-0	205-923-4	218-01-9		0.12	mg/kg		0.108	mg/kg	0.0000108 %	✓	
31		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.067	mg/kg		0.0603	mg/kg	0.00000603 %	✓	
32		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<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									
33		benzo[a]pyrene; benzo[def]chrysene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-032-00-3	200-028-5	50-32-8									
34		indeno[123-cd]pyrene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-893-2	193-39-5									
35		dibenz[a,h]anthracene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
		601-041-00-2	200-181-8	53-70-3									
36		benzo[ghi]perylene				<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
			205-883-8	191-24-2									
37		phenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
38		1,1-dichloroethane and 1,2-dichloroethane (combined)				<0.0004	mg/kg		<0.0004	mg/kg	<0.00000004 %		<LOD
			203-458-1, 200-863-5	107-06-2, 75-34-3									
39		tetrachloroethylene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-028-00-4	204-825-9	127-18-4									
40		carbon tetrachloride; tetrachloromethane				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-008-00-5	200-262-8	56-23-5									
41		trichloroethylene; trichloroethene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-027-00-9	201-167-4	79-01-6									
42		vinyl chloride; chloroethylene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-023-00-7	200-831-0	75-01-4									
43		hexachlorobenzene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		602-065-00-6	204-273-9	118-74-1									
44		polychlorobiphenyls; PCB				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		602-039-00-4	215-648-1	1336-36-3									
45		sulfur { sulfur }				2.8	mg/kg		2.52	mg/kg	0.000252 %	✓	
		016-094-00-1	231-722-6	7704-34-9									
46		barium { barium sulphide }				690	mg/kg	1.233	766	mg/kg	0.0766 %	✓	
		016-002-00-X	244-214-4	21109-95-5									
47		dichlorodifluoromethane				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
			200-893-9	75-71-8									
48		chloromethane; methyl chloride				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-001-00-7	200-817-4	74-87-3									
49		bromomethane; methylbromide				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-002-00-2	200-813-2	74-83-9									
50		chloroethane				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-009-00-0	200-830-5	75-00-3									
51		trichlorofluoromethane				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
			200-892-3	75-69-4									
52		1,1-dichloroethylene; vinylidene chloride				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-025-00-8	200-864-0	75-35-4									
53		bromochloromethane				<0.0005	mg/kg		<0.0005	mg/kg	<0.00000005 %		<LOD
			200-826-3	74-97-5									
54		chloroform; trichloromethane				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-006-00-4	200-663-8	67-66-3									
55		1,1,1-trichloroethane; methyl chloroform				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-013-00-2	200-756-3	71-55-6									
56		1,1-dichloropropene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-031-00-0	209-253-3	563-58-6									
57		1,2-dichloropropane; propylene dichloride				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-020-00-0	201-152-2	78-87-5									
58		dibromomethane				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-003-00-8	200-824-2	74-95-3									
59		bromodichloromethane				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
			200-856-7	75-27-4									
60		1,3-dichloropropene; [1] (Z)-1,3-dichloropropene [2]				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-030-00-5	208-826-5 [1] 233-195-8 [2]	542-75-6 [1] 10061-01-5 [2]									

#		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
61	●	trans-1,3-dichloropropene		431-460-4	10061-02-6		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
62		1,1,2-trichloroethane	602-014-00-8	201-166-9	79-00-5		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
63	●	1,3-dichloropropane		205-531-3	142-28-9		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
64	●	dibromochloromethane		204-704-0	124-48-1		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
65		1,2-dibromoethane	602-010-00-6	203-444-5	106-93-4		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
66		chlorobenzene	602-033-00-1	203-628-5	108-90-7		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
67	●	1,1,1,2-tetrachloroethane		211-135-1	630-20-6		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
68		styrene	601-026-00-0	202-851-5	100-42-5		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
69		bromoform; tribromomethane	602-007-00-X	200-854-6	75-25-2		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
70		bromobenzene	602-060-00-9	203-623-8	108-86-1		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
71		1,2,3-trichloropropane	602-062-00-X	202-486-1	96-18-4		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
72		mesitylene; 1,3,5-trimethylbenzene	601-025-00-5	203-604-4	108-67-8		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
73	●	tert-butylbenzene		202-632-4	98-06-6		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
74		1,2,4-trimethylbenzene	601-043-00-3	202-436-9	95-63-6		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
75	●	sec-butylbenzene		205-227-0	135-98-8		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
76		1,3-dichlorbenzene	602-067-00-7	208-792-1	541-73-1		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
77	●	4-isopropyltoluene		202-796-7	99-87-6		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
78		1,4-dichlorobenzene; p-dichlorobenzene	602-035-00-2	203-400-5	106-46-7		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
79	●	n-butylbenzene		203-209-7	104-51-8		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
80		1,2-dichlorobenzene; o-dichlorobenzene	602-034-00-7	202-425-9	95-50-1		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
81		1,2-dibromo-3-chloropropane	602-021-00-6	202-479-3	96-12-8		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
82		1,2,4-trichlorobenzene	602-087-00-6	204-428-0	120-82-1		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
83	●	hexachlorobutadiene		201-765-5	87-68-3		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
84	●	1,2,3-trichlorobenzene		201-757-1	87-61-6		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
85		dimethylnitrosoamine; N-nitrosodimethylamine	612-077-00-3	200-549-8	62-75-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
86		2-chlorophenol; [1] 4-chlorophenol; [2] 3-chlorophenol; [3] chlorophenol [4]	604-008-00-0	202-433-2 [1] 203-402-6 [2] 203-582-6 [3] 246-691-4 [4]	95-57-8 [1] 106-48-9 [2] 108-43-0 [3] 25167-80-0 [4]		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
87		bis(2-chloroethyl) ether	603-029-00-2	203-870-1	111-44-4		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
88	●	hexachloroethane		200-666-4	67-72-1		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<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									
89		nitrosodipropylamine				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		612-098-00-8	210-698-0	621-64-7									
90		nitrobenzene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		609-003-00-7	202-716-0	98-95-3									
91		3,5,5-trimethylcyclohex-2-enone; isophorone				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		606-012-00-8	201-126-0	78-59-1									
92		2-nitrophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-857-5	88-75-5									
93		3,4-xylenol; [1] 2,5-xylenol; [2] 2,4-xylenol; [3] 2,3-xylenol; [4] 2,6-xylenol; [5] xylenol; [6] 2,4(or 2,5)-xylenol [7]				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		604-006-00-X	202-439-5 [1] 202-461-5 [2] 203-321-6 [3] 208-395-3 [4] 209-400-1 [5] 215-089-3 [6] 276-245-4 [7]	95-65-8 [1] 95-87-4 [2] 105-67-9 [3] 526-75-0 [4] 576-26-1 [5] 1300-71-6 [6] 71975-58-1 [7]									
94		bis(2-chloroethoxy)methane				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			203-920-2	111-91-1									
95		2,4-dichlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		604-011-00-7	204-429-6	120-83-2									
96		4-chloroaniline				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		612-137-00-9	203-401-0	106-47-8									
97		chlorocresol; 4-chloro-m-cresol; 4-chloro-3-methylphenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		604-014-00-3	200-431-6	59-50-7									
98		2-methyl naphthalene				0.078	mg/kg		0.0702	mg/kg	0.00000702 %	✓	
			202-078-3	91-57-6									
99		hexachlorocyclopentadiene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		602-078-00-7	201-029-3	77-47-4									
100		2,4,6-trichlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		604-018-00-5	201-795-9	88-06-2									
101		2,4,5-trichlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		604-017-00-X	202-467-8	95-95-4									
102		2-chloronaphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			202-079-9	91-58-7									
103		dimethyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			205-011-6	131-11-3									
104		2,6-dinitrotoluene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		609-049-00-8	210-106-0	606-20-2									
105		dibenzofuran				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			205-071-3	132-64-9									
106		4-chlorophenylphenylether				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			230-281-7	7005-72-3									
107		2,4-dinitrotoluene; [1] dinitrotoluene [2]				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		609-007-00-9	204-450-0 [1] 246-836-1 [2]	121-14-2 [1] 25321-14-6 [2]									
108		diethyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-550-6	84-66-2									
109		DNOC (ISO); 4,6-dinitro-o-cresol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		609-020-00-X	208-601-1	534-52-1									
110		azobenzene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		611-001-00-6	203-102-5	103-33-3									
111		4-bromophenylphenylether				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			202-952-4	101-55-3									
112		pentachlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		604-002-00-8	201-778-6	87-86-5									
113		carbazole				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-696-0	86-74-8									
114		dibutyl phthalate; DBP				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		607-318-00-4	201-557-4	84-74-2									

#		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									
115		BBP; benzyl butyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		607-430-00-3	201-622-7	85-68-7									
116		bis(2-ethylhexyl) phthalate; di-(2-ethylhexyl) phthalate; DEHP				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		607-317-00-9	204-211-0	117-81-7									
117		di-n-octyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			204-214-7	117-84-0									
118		4-nitrophenol; p-nitrophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		609-015-00-2	202-811-7	100-02-7									
119		monohydric phenols				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
				P1186									
120		m-cresol; [1] o-cresol; [2] p-cresol; [3] mix-cresol [4]				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<**LOD**
		604-004-00-9	203-577-9 [1] 202-423-8 [2] 203-398-6 [3] 215-293-2 [4]	108-39-4 [1] 95-48-7 [2] 106-44-5 [3] 1319-77-3 [4]									
121		1,2-dichloroethylene; [1] cis-dichloroethylene; [2] trans-dichloroethylene [3]				<0.0004	mg/kg		<0.0004	mg/kg	<0.00000004 %		<**LOD**
		602-026-00-3	208-750-2 [1] 205-859-7 [2] 205-860-2 [3]	540-59-0 [1] 156-59-2 [2] 156-60-5 [3]									
122		cumene; [1] propylbenzene [2]				<0.0004	mg/kg		<0.0004	mg/kg	<0.00000004 %		<**LOD**
		601-024-00-X	202-704-5 [1] 203-132-9 [2]	98-82-8 [1] 103-65-1 [2]									
123		2-chlorotoluene; [1] 3-chlorotoluene; [2] 4-chlorotoluene; [3] chlorotoluene [4]				<0.0004	mg/kg		<0.0004	mg/kg	<0.00000004 %		<**LOD**
		602-040-00-X	202-424-3 [1] 203-580-5 [2] 203-397-0 [3] 246-698-2 [4]	95-49-8 [1] 108-41-8 [2] 106-43-4 [3] 25168-05-2 [4]									
124		o-nitroaniline; [1] m-nitroaniline; [2] p-nitroaniline [3]				<0.15	mg/kg		<0.15	mg/kg	<0.000015 %		<**LOD**
		612-012-00-9	201-855-4 [1] 202-729-1 [2] 202-810-1 [3]	88-74-4 [1] 99-09-2 [2] 100-01-6 [3]									
										Total:	0.248 %		

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 As the samples is a solid waste (soil and stones) it is not considered to be hazardous in terms of the flammable hazardous property HP 3(i) as this hazard property relates to liquid substance only.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.162%)

Classification of sample: BH103-30/05/2022-1.50

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
BH103-30/05/2022-1.50
Sample Depth:
1.50-1.60 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	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		5.6 mg/kg	1.32	6.359 mg/kg	0.000636 %	✓	
2	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.6 mg/kg	2.775	1.432 mg/kg	0.000143 %	✓	
3	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		<0.4 mg/kg	3.22	<1.288 mg/kg	<0.000129 %		<LOD
4	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.1 mg/kg	1.142	<0.114 mg/kg	<0.0000114 %		<LOD
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		19 mg/kg	1.462	23.882 mg/kg	0.00239 %	✓	
6	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				<0.5 mg/kg	2.27	<1.135 mg/kg	<0.000113 %		<LOD
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		13 mg/kg	1.126	12.587 mg/kg	0.00126 %	✓	
8	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	8.8 mg/kg		7.568 mg/kg	0.000757 %	✓	
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		<0.05 mg/kg	1.353	<0.0677 mg/kg	<0.00000677 %		<LOD
10	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		22 mg/kg	2.976	56.311 mg/kg	0.00563 %	✓	
11	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.37 mg/kg	1.405	0.447 mg/kg	0.0000447 %	✓	
12	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		28 mg/kg	2.469	59.461 mg/kg	0.00595 %	✓	
13	TPH (C6 to C40) petroleum group			TPH		<2 mg/kg		<2 mg/kg	<0.0002 %		<LOD
14	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides,					<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %		<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
		ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }	006-007-00-5											
15		pH			PH		8.9	pH		8.9	pH	8.9 pH		
16		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
17		acenaphthylene		205-917-1	208-96-8		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
18		acenaphthene		201-469-6	83-32-9		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
19		fluorene		201-695-5	86-73-7		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
20		phenanthrene		201-581-5	85-01-8		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
21		anthracene		204-371-1	120-12-7		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
22		fluoranthene		205-912-4	206-44-0		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
23		pyrene		204-927-3	129-00-0		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
24		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
25		chrysene	601-048-00-0	205-923-4	218-01-9		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
26		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
27		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
28		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
29		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
30		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
31		benzo[ghi]perylene		205-883-8	191-24-2		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
32		sulfur { sulfur }	016-094-00-1	231-722-6	7704-34-9		1.3	mg/kg		1.118	mg/kg	0.000112 %	✓	
33		barium { barium sulphide }	016-002-00-X	244-214-4	21109-95-5		120	mg/kg	1.233	127.297	mg/kg	0.0127 %	✓	
34		monohydric phenols			P1186		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
											Total:	0.0302 %		

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: DS101-30/05/2022-0.00

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
DS101-30/05/2022-0.00
Sample Depth:
0.00-0.30 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	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		13 mg/kg	1.32	14.59 mg/kg	0.00146 %	✓	
2	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		0.7 mg/kg	2.775	1.651 mg/kg	0.000165 %	✓	
3	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		0.41 mg/kg	3.22	1.122 mg/kg	0.000112 %	✓	
4	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.36 mg/kg	1.142	0.35 mg/kg	0.000035 %	✓	
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		25 mg/kg	1.462	31.058 mg/kg	0.00311 %	✓	
6	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				<0.5 mg/kg	2.27	<1.135 mg/kg	<0.000113 %		<**LOD**
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		59 mg/kg	1.126	56.463 mg/kg	0.00565 %	✓	
8	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	190 mg/kg		161.5 mg/kg	0.0162 %	✓	
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.29 mg/kg	1.353	0.334 mg/kg	0.0000334 %	✓	
10	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		52 mg/kg	2.976	131.551 mg/kg	0.0132 %	✓	
11	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.83 mg/kg	1.405	0.991 mg/kg	0.0000991 %	✓	
12	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		120 mg/kg	2.469	251.868 mg/kg	0.0252 %	✓	
13	TPH (C6 to C40) petroleum group			TPH		480 mg/kg		408 mg/kg	0.0408 %	✓	
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<**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		benzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<**LOD**
		601-020-00-8	200-753-7	71-43-2									
16		toluene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<**LOD**
		601-021-00-3	203-625-9	108-88-3									
17		ethylbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<**LOD**
		601-023-00-4	202-849-4	100-41-4									
18		xylene				<0.0004	mg/kg		<0.0004	mg/kg	<0.00000004 %		<**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]									
19		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 }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<**LOD**
		006-007-00-5											
20		pH				9	pH		9	pH	9pH		
				PH									
21		naphthalene				0.58	mg/kg		0.493	mg/kg	0.0000493 %	✓	
		601-052-00-2	202-049-5	91-20-3									
22		acenaphthylene				0.23	mg/kg		0.196	mg/kg	0.0000196 %	✓	
			205-917-1	208-96-8									
23		acenaphthene				0.4	mg/kg		0.34	mg/kg	0.000034 %	✓	
			201-469-6	83-32-9									
24		fluorene				0.34	mg/kg		0.289	mg/kg	0.0000289 %	✓	
			201-695-5	86-73-7									
25		phenanthrene				4.6	mg/kg		3.91	mg/kg	0.000391 %	✓	
			201-581-5	85-01-8									
26		anthracene				0.97	mg/kg		0.825	mg/kg	0.0000824 %	✓	
			204-371-1	120-12-7									
27		fluoranthene				9.6	mg/kg		8.16	mg/kg	0.000816 %	✓	
			205-912-4	206-44-0									
28		pyrene				9.3	mg/kg		7.905	mg/kg	0.000791 %	✓	
			204-927-3	129-00-0									
29		benzo[a]anthracene				5.1	mg/kg		4.335	mg/kg	0.000433 %	✓	
		601-033-00-9	200-280-6	56-55-3									
30		chrysene				5.3	mg/kg		4.505	mg/kg	0.000451 %	✓	
		601-048-00-0	205-923-4	218-01-9									
31		benzo[b]fluoranthene				6.1	mg/kg		5.185	mg/kg	0.000519 %	✓	
		601-034-00-4	205-911-9	205-99-2									
32		benzo[k]fluoranthene				2.1	mg/kg		1.785	mg/kg	0.000179 %	✓	
		601-036-00-5	205-916-6	207-08-9									
33		benzo[a]pyrene; benzo[def]chrysene				5.9	mg/kg		5.015	mg/kg	0.000502 %	✓	
		601-032-00-3	200-028-5	50-32-8									
34		indeno[123-cd]pyrene				3.2	mg/kg		2.72	mg/kg	0.000272 %	✓	
			205-893-2	193-39-5									
35		dibenz[a,h]anthracene				0.5	mg/kg		0.425	mg/kg	0.0000425 %	✓	
		601-041-00-2	200-181-8	53-70-3									
36		benzo[ghi]perylene				3.1	mg/kg		2.635	mg/kg	0.000263 %	✓	
			205-883-8	191-24-2									
37		phenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		604-001-00-2	203-632-7	108-95-2									
38		1,1-dichloroethane and 1,2-dichloroethane (combined)				<0.0004	mg/kg		<0.0004	mg/kg	<0.00000004 %		<**LOD**
			203-458-1, 200-863-5	107-06-2, 75-34-3									
39		tetrachloroethylene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<**LOD**
		602-028-00-4	204-825-9	127-18-4									
40		carbon tetrachloride; tetrachloromethane				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<**LOD**
		602-008-00-5	200-262-8	56-23-5									

#		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
41		trichloroethylene; trichloroethene	602-027-00-9	201-167-4	79-01-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
42		vinyl chloride; chloroethylene	602-023-00-7	200-831-0	75-01-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
43		hexachlorobenzene	602-065-00-6	204-273-9	118-74-1		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
44		polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
45		sulfur { sulfur }	016-094-00-1	231-722-6	7704-34-9		5.2	mg/kg		4.42	mg/kg	0.000442 %	✓	
46		barium { barium sulphide }	016-002-00-X	244-214-4	21109-95-5		230	mg/kg	1.233	241.148	mg/kg	0.0241 %	✓	
47		dichlorodifluoromethane		200-893-9	75-71-8		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
48		chloromethane; methyl chloride	602-001-00-7	200-817-4	74-87-3		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
49		bromomethane; methylbromide	602-002-00-2	200-813-2	74-83-9		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
50		chloroethane	602-009-00-0	200-830-5	75-00-3		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
51		trichlorofluoromethane		200-892-3	75-69-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
52		1,1-dichloroethylene; vinylidene chloride	602-025-00-8	200-864-0	75-35-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
53		bromochloromethane		200-826-3	74-97-5		<0.0005	mg/kg		<0.0005	mg/kg	<0.00000005 %		<LOD
54		chloroform; trichloromethane	602-006-00-4	200-663-8	67-66-3		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
55		1,1,1-trichloroethane; methyl chloroform	602-013-00-2	200-756-3	71-55-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
56		1,1-dichloropropene	602-031-00-0	209-253-3	563-58-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
57		1,2-dichloropropane; propylene dichloride	602-020-00-0	201-152-2	78-87-5		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
58		dibromomethane	602-003-00-8	200-824-2	74-95-3		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
59		bromodichloromethane		200-856-7	75-27-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
60		1,3-dichloropropene; [1] (Z)-1,3-dichloropropene [2]	602-030-00-5	208-826-5 [1] 233-195-8 [2]	542-75-6 [1] 10061-01-5 [2]		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
61		trans-1,3-dichloropropene		431-460-4	10061-02-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
62		1,1,2-trichloroethane	602-014-00-8	201-166-9	79-00-5		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
63		1,3-dichloropropane		205-531-3	142-28-9		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
64		dibromochloromethane		204-704-0	124-48-1		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
65		1,2-dibromoethane	602-010-00-6	203-444-5	106-93-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
66		chlorobenzene	602-033-00-1	203-628-5	108-90-7		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
67		1,1,1,2-tetrachloroethane		211-135-1	630-20-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
68		styrene	601-026-00-0	202-851-5	100-42-5		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
69		bromoform; tribromomethane	602-007-00-X	200-854-6	75-25-2		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<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									
70		bromobenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-060-00-9	203-623-8	108-86-1									
71		1,2,3-trichloropropane				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-062-00-X	202-486-1	96-18-4									
72		mesitylene; 1,3,5-trimethylbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		601-025-00-5	203-604-4	108-67-8									
73		tert-butylbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
			202-632-4	98-06-6									
74		1,2,4-trimethylbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		601-043-00-3	202-436-9	95-63-6									
75		sec-butylbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
			205-227-0	135-98-8									
76		1,3-dichlorbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-067-00-7	208-792-1	541-73-1									
77		4-isopropyltoluene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
			202-796-7	99-87-6									
78		1,4-dichlorobenzene; p-dichlorobenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-035-00-2	203-400-5	106-46-7									
79		n-butylbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
			203-209-7	104-51-8									
80		1,2-dichlorobenzene; o-dichlorobenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-034-00-7	202-425-9	95-50-1									
81		1,2-dibromo-3-chloropropane				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-021-00-6	202-479-3	96-12-8									
82		1,2,4-trichlorobenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-087-00-6	204-428-0	120-82-1									
83		hexachlorobutadiene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
			201-765-5	87-68-3									
84		1,2,3-trichlorobenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
			201-757-1	87-61-6									
85		dimethylnitrosoamine; N-nitrosodimethylamine				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		612-077-00-3	200-549-8	62-75-9									
86		2-chlorophenol; [1] 4-chlorophenol; [2] 3-chlorophenol; [3] chlorophenol [4]				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-008-00-0	202-433-2 [1] 203-402-6 [2] 203-582-6 [3] 246-691-4 [4]	95-57-8 [1] 106-48-9 [2] 108-43-0 [3] 25167-80-0 [4]									
87		bis(2-chloroethyl) ether				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		603-029-00-2	203-870-1	111-44-4									
88		hexachloroethane				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			200-666-4	67-72-1									
89		nitrosodipropylamine				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		612-098-00-8	210-698-0	621-64-7									
90		nitrobenzene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-003-00-7	202-716-0	98-95-3									
91		3,5,5-trimethylcyclohex-2-enone; isophorone				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		606-012-00-8	201-126-0	78-59-1									
92		2-nitrophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-857-5	88-75-5									
93		3,4-xylenol; [1] 2,5-xylenol; [2] 2,4-xylenol; [3] 2,3-xylenol; [4] 2,6-xylenol; [5] xylenol; [6] 2,4(or 2,5)-xylenol [7]				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-006-00-X	202-439-5 [1] 202-461-5 [2] 203-321-6 [3] 208-395-3 [4] 209-400-1 [5] 215-089-3 [6] 276-245-4 [7]	95-65-8 [1] 95-87-4 [2] 105-67-9 [3] 526-75-0 [4] 576-26-1 [5] 1300-71-6 [6] 71975-58-1 [7]									
94		bis(2-chloroethoxy)methane				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			203-920-2	111-91-1									

#		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									
95		2,4-dichlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-011-00-7	204-429-6	120-83-2									
96		4-chloroaniline				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		612-137-00-9	203-401-0	106-47-8									
97		chlorocresol; 4-chloro-m-cresol; 4-chloro-3-methylphenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-014-00-3	200-431-6	59-50-7									
98		2-methyl naphthalene				0.18	mg/kg		0.153	mg/kg	0.0000153 %	✓	
			202-078-3	91-57-6									
99		hexachlorocyclopentadiene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		602-078-00-7	201-029-3	77-47-4									
100		2,4,6-trichlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-018-00-5	201-795-9	88-06-2									
101		2,4,5-trichlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-017-00-X	202-467-8	95-95-4									
102		2-chloronaphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			202-079-9	91-58-7									
103		dimethyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-011-6	131-11-3									
104		2,6-dinitrotoluene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-049-00-8	210-106-0	606-20-2									
105		dibenzofuran				0.13	mg/kg		0.111	mg/kg	0.0000111 %	✓	
			205-071-3	132-64-9									
106		4-chlorophenylphenylether				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			230-281-7	7005-72-3									
107		2,4-dinitrotoluene; [1] dinitrotoluene [2]				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-007-00-9	204-450-0 [1] 246-836-1 [2]	121-14-2 [1] 25321-14-6 [2]									
108		diethyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-550-6	84-66-2									
109		DNOC (ISO); 4,6-dinitro-o-cresol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-020-00-X	208-601-1	534-52-1									
110		azobenzene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		611-001-00-6	203-102-5	103-33-3									
111		4-bromophenylphenylether				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			202-952-4	101-55-3									
112		pentachlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-002-00-8	201-778-6	87-86-5									
113		carbazole				0.14	mg/kg		0.119	mg/kg	0.0000119 %	✓	
			201-696-0	86-74-8									
114		dibutyl phthalate; DBP				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		607-318-00-4	201-557-4	84-74-2									
115		BBP; benzyl butyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		607-430-00-3	201-622-7	85-68-7									
116		bis(2-ethylhexyl) phthalate; di-(2-ethylhexyl) phthalate; DEHP				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		607-317-00-9	204-211-0	117-81-7									
117		di-n-octyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			204-214-7	117-84-0									
118		4-nitrophenol; p-nitrophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-015-00-2	202-811-7	100-02-7									
119		monohydric phenols				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
				P1186									
120		m-cresol; [1] o-cresol; [2] p-cresol; [3] mix-cresol [4]				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		604-004-00-9	203-577-9 [1] 202-423-8 [2] 203-398-6 [3] 215-293-2 [4]	108-39-4 [1] 95-48-7 [2] 106-44-5 [3] 1319-77-3 [4]									

#		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							
121		1,2-dichloroethylene; [1] cis-dichloroethylene; [2] trans-dichloroethylene [3]				<0.0004 mg/kg		<0.0004 mg/kg	<0.00000004 %		**<LOD**
		602-026-00-3	208-750-2 [1] 205-859-7 [2] 205-860-2 [3]	540-59-0 [1] 156-59-2 [2] 156-60-5 [3]							
122		cumene; [1] propylbenzene [2]				<0.0004 mg/kg		<0.0004 mg/kg	<0.00000004 %		**<LOD**
		601-024-00-X	202-704-5 [1] 203-132-9 [2]	98-82-8 [1] 103-65-1 [2]							
123		2-chlorotoluene; [1] 3-chlorotoluene; [2] 4-chlorotoluene; [3] chlorotoluene [4]				<0.0004 mg/kg		<0.0004 mg/kg	<0.00000004 %		**<LOD**
		602-040-00-X	202-424-3 [1] 203-580-5 [2] 203-397-0 [3] 246-698-2 [4]	95-49-8 [1] 108-41-8 [2] 106-43-4 [3] 25168-05-2 [4]							
124		o-nitroaniline; [1] m-nitroaniline; [2] p-nitroaniline [3]				<0.15 mg/kg		<0.15 mg/kg	<0.000015 %		**<LOD**
		612-012-00-9	201-855-4 [1] 202-729-1 [2] 202-810-1 [3]	88-74-4 [1] 99-09-2 [2] 100-01-6 [3]							
								Total:	0.136 %		

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 As the samples is a solid waste (soil and stones) it is not considered to be hazardous in terms of the flammable hazardous property HP 3(i) as this hazard property relates to liquid substance only.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0408%)

Classification of sample: DS101-30/05/2022-0.30

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
DS101-30/05/2022-0.30
Sample Depth:
0.30-0.44 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	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		5.5 mg/kg	1.32	6.674 mg/kg	0.000667 %	✓	
2	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		<0.5 mg/kg	2.775	<1.388 mg/kg	<0.000139 %		<**LOD**
3	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		<0.4 mg/kg	3.22	<1.288 mg/kg	<0.000129 %		<**LOD**
4	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.41 mg/kg	1.142	0.43 mg/kg	0.000043 %	✓	
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		14 mg/kg	1.462	18.804 mg/kg	0.00188 %	✓	
6	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				<0.5 mg/kg	2.27	<1.135 mg/kg	<0.000113 %		<**LOD**
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		21 mg/kg	1.126	21.729 mg/kg	0.00217 %	✓	
8	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	51 mg/kg		46.869 mg/kg	0.00469 %	✓	
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.13 mg/kg	1.353	0.162 mg/kg	0.0000162 %	✓	
10	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		21 mg/kg	2.976	57.439 mg/kg	0.00574 %	✓	
11	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.49 mg/kg	1.405	0.633 mg/kg	0.0000633 %	✓	
12	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		60 mg/kg	2.469	136.157 mg/kg	0.0136 %	✓	
13	TPH (C6 to C40) petroleum group			TPH		<2 mg/kg		<2 mg/kg	<0.0002 %		<**LOD**
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<**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		benzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		601-020-00-8	200-753-7	71-43-2									
16		toluene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		601-021-00-3	203-625-9	108-88-3									
17		ethylbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		601-023-00-4	202-849-4	100-41-4									
18		xylene				<0.0004	mg/kg		<0.0004	mg/kg	<0.00000004 %		<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]									
19		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 }				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<LOD
		006-007-00-5											
20		pH				9.2	pH		9.2	pH	9.2 pH		
				PH									
21		naphthalene				0.44	mg/kg		0.404	mg/kg	0.0000404 %	✓	
		601-052-00-2	202-049-5	91-20-3									
22		acenaphthylene				0.089	mg/kg		0.0818	mg/kg	0.00000818 %	✓	
			205-917-1	208-96-8									
23		acenaphthene				0.42	mg/kg		0.386	mg/kg	0.0000386 %	✓	
			201-469-6	83-32-9									
24		fluorene				0.24	mg/kg		0.221	mg/kg	0.0000221 %	✓	
			201-695-5	86-73-7									
25		phenanthrene				1.9	mg/kg		1.746	mg/kg	0.000175 %	✓	
			201-581-5	85-01-8									
26		anthracene				0.4	mg/kg		0.368	mg/kg	0.0000368 %	✓	
			204-371-1	120-12-7									
27		fluoranthene				2.9	mg/kg		2.665	mg/kg	0.000267 %	✓	
			205-912-4	206-44-0									
28		pyrene				2.6	mg/kg		2.389	mg/kg	0.000239 %	✓	
			204-927-3	129-00-0									
29		benzo[a]anthracene				1.4	mg/kg		1.287	mg/kg	0.000129 %	✓	
		601-033-00-9	200-280-6	56-55-3									
30		chrysene				1.2	mg/kg		1.103	mg/kg	0.00011 %	✓	
		601-048-00-0	205-923-4	218-01-9									
31		benzo[b]fluoranthene				1.9	mg/kg		1.746	mg/kg	0.000175 %	✓	
		601-034-00-4	205-911-9	205-99-2									
32		benzo[k]fluoranthene				0.53	mg/kg		0.487	mg/kg	0.0000487 %	✓	
		601-036-00-5	205-916-6	207-08-9									
33		benzo[a]pyrene; benzo[def]chrysene				1.6	mg/kg		1.47	mg/kg	0.000147 %	✓	
		601-032-00-3	200-028-5	50-32-8									
34		indeno[123-cd]pyrene				0.98	mg/kg		0.901	mg/kg	0.0000901 %	✓	
			205-893-2	193-39-5									
35		dibenz[a,h]anthracene				0.18	mg/kg		0.165	mg/kg	0.0000165 %	✓	
		601-041-00-2	200-181-8	53-70-3									
36		benzo[ghi]perylene				0.98	mg/kg		0.901	mg/kg	0.0000901 %	✓	
			205-883-8	191-24-2									
37		phenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-001-00-2	203-632-7	108-95-2									
38		1,1-dichloroethane and 1,2-dichloroethane (combined)				<0.0004	mg/kg		<0.0004	mg/kg	<0.00000004 %		<LOD
			203-458-1, 200-863-5	107-06-2, 75-34-3									
39		tetrachloroethylene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-028-00-4	204-825-9	127-18-4									
40		carbon tetrachloride; tetrachloromethane				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-008-00-5	200-262-8	56-23-5									

#		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
41		trichloroethylene; trichloroethene	602-027-00-9	201-167-4	79-01-6		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
42		vinyl chloride; chloroethylene	602-023-00-7	200-831-0	75-01-4		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
43		hexachlorobenzene	602-065-00-6	204-273-9	118-74-1		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
44		polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
45		sulfur { sulfur }	016-094-00-1	231-722-6	7704-34-9		1.7 mg/kg		1.562 mg/kg	0.000156 %	✓	
46		barium { barium sulphide }	016-002-00-X	244-214-4	21109-95-5		130 mg/kg	1.233	147.366 mg/kg	0.0147 %	✓	
47		dichlorodifluoromethane		200-893-9	75-71-8		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
48		chloromethane; methyl chloride	602-001-00-7	200-817-4	74-87-3		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
49		bromomethane; methylbromide	602-002-00-2	200-813-2	74-83-9		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
50		chloroethane	602-009-00-0	200-830-5	75-00-3		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
51		trichlorofluoromethane		200-892-3	75-69-4		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
52		1,1-dichloroethylene; vinylidene chloride	602-025-00-8	200-864-0	75-35-4		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
53		bromochloromethane		200-826-3	74-97-5		<0.0005 mg/kg		<0.0005 mg/kg	<0.00000005 %		<LOD
54		chloroform; trichloromethane	602-006-00-4	200-663-8	67-66-3		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
55		1,1,1-trichloroethane; methyl chloroform	602-013-00-2	200-756-3	71-55-6		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
56		1,1-dichloropropene	602-031-00-0	209-253-3	563-58-6		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
57		1,2-dichloropropane; propylene dichloride	602-020-00-0	201-152-2	78-87-5		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
58		dibromomethane	602-003-00-8	200-824-2	74-95-3		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
59		bromodichloromethane		200-856-7	75-27-4		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
60		1,3-dichloropropene; [1] (Z)-1,3-dichloropropene [2]	602-030-00-5	208-826-5 [1] 233-195-8 [2]	542-75-6 [1] 10061-01-5 [2]		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
61		trans-1,3-dichloropropene		431-460-4	10061-02-6		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
62		1,1,2-trichloroethane	602-014-00-8	201-166-9	79-00-5		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
63		1,3-dichloropropane		205-531-3	142-28-9		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
64		dibromochloromethane		204-704-0	124-48-1		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
65		1,2-dibromoethane	602-010-00-6	203-444-5	106-93-4		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
66		chlorobenzene	602-033-00-1	203-628-5	108-90-7		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
67		1,1,1,2-tetrachloroethane		211-135-1	630-20-6		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
68		styrene	601-026-00-0	202-851-5	100-42-5		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<LOD
69		bromoform; tribromomethane	602-007-00-X	200-854-6	75-25-2		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<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									
70		bromobenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-060-00-9	203-623-8	108-86-1									
71		1,2,3-trichloropropane				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-062-00-X	202-486-1	96-18-4									
72		mesitylene; 1,3,5-trimethylbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		601-025-00-5	203-604-4	108-67-8									
73		tert-butylbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
			202-632-4	98-06-6									
74		1,2,4-trimethylbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		601-043-00-3	202-436-9	95-63-6									
75		sec-butylbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
			205-227-0	135-98-8									
76		1,3-dichlorbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-067-00-7	208-792-1	541-73-1									
77		4-isopropyltoluene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
			202-796-7	99-87-6									
78		1,4-dichlorobenzene; p-dichlorobenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-035-00-2	203-400-5	106-46-7									
79		n-butylbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
			203-209-7	104-51-8									
80		1,2-dichlorobenzene; o-dichlorobenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-034-00-7	202-425-9	95-50-1									
81		1,2-dibromo-3-chloropropane				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-021-00-6	202-479-3	96-12-8									
82		1,2,4-trichlorobenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-087-00-6	204-428-0	120-82-1									
83		hexachlorobutadiene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
			201-765-5	87-68-3									
84		1,2,3-trichlorobenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
			201-757-1	87-61-6									
85		dimethylnitrosoamine; N-nitrosodimethylamine				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		612-077-00-3	200-549-8	62-75-9									
86		2-chlorophenol; [1] 4-chlorophenol; [2] 3-chlorophenol; [3] chlorophenol [4]				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-008-00-0	202-433-2 [1] 203-402-6 [2] 203-582-6 [3] 246-691-4 [4]	95-57-8 [1] 106-48-9 [2] 108-43-0 [3] 25167-80-0 [4]									
87		bis(2-chloroethyl) ether				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		603-029-00-2	203-870-1	111-44-4									
88		hexachloroethane				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			200-666-4	67-72-1									
89		nitrosodipropylamine				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		612-098-00-8	210-698-0	621-64-7									
90		nitrobenzene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-003-00-7	202-716-0	98-95-3									
91		3,5,5-trimethylcyclohex-2-enone; isophorone				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		606-012-00-8	201-126-0	78-59-1									
92		2-nitrophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-857-5	88-75-5									
93		3,4-xylenol; [1] 2,5-xylenol; [2] 2,4-xylenol; [3] 2,3-xylenol; [4] 2,6-xylenol; [5] xylenol; [6] 2,4(or 2,5)-xylenol [7]				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-006-00-X	202-439-5 [1] 202-461-5 [2] 203-321-6 [3] 208-395-3 [4] 209-400-1 [5] 215-089-3 [6] 276-245-4 [7]	95-65-8 [1] 95-87-4 [2] 105-67-9 [3] 526-75-0 [4] 576-26-1 [5] 1300-71-6 [6] 71975-58-1 [7]									
94		bis(2-chloroethoxy)methane				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			203-920-2	111-91-1									

#		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									
95		2,4-dichlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-011-00-7	204-429-6	120-83-2									
96		4-chloroaniline				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		612-137-00-9	203-401-0	106-47-8									
97		chlorocresol; 4-chloro-m-cresol; 4-chloro-3-methylphenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-014-00-3	200-431-6	59-50-7									
98		2-methyl naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			202-078-3	91-57-6									
99		hexachlorocyclopentadiene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		602-078-00-7	201-029-3	77-47-4									
100		2,4,6-trichlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-018-00-5	201-795-9	88-06-2									
101		2,4,5-trichlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-017-00-X	202-467-8	95-95-4									
102		2-chloronaphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			202-079-9	91-58-7									
103		dimethyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-011-6	131-11-3									
104		2,6-dinitrotoluene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-049-00-8	210-106-0	606-20-2									
105		dibenzofuran				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-071-3	132-64-9									
106		4-chlorophenylphenylether				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			230-281-7	7005-72-3									
107		2,4-dinitrotoluene; [1] dinitrotoluene [2]				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-007-00-9	204-450-0 [1] 246-836-1 [2]	121-14-2 [1] 25321-14-6 [2]									
108		diethyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-550-6	84-66-2									
109		DNOC (ISO); 4,6-dinitro-o-cresol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-020-00-X	208-601-1	534-52-1									
110		azobenzene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		611-001-00-6	203-102-5	103-33-3									
111		4-bromophenylphenylether				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			202-952-4	101-55-3									
112		pentachlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-002-00-8	201-778-6	87-86-5									
113		carbazole				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-696-0	86-74-8									
114		dibutyl phthalate; DBP				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		607-318-00-4	201-557-4	84-74-2									
115		BBP; benzyl butyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		607-430-00-3	201-622-7	85-68-7									
116		bis(2-ethylhexyl) phthalate; di-(2-ethylhexyl) phthalate; DEHP				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		607-317-00-9	204-211-0	117-81-7									
117		di-n-octyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			204-214-7	117-84-0									
118		4-nitrophenol; p-nitrophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-015-00-2	202-811-7	100-02-7									
119		monohydric phenols				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
				P1186									
120		m-cresol; [1] o-cresol; [2] p-cresol; [3] mix-cresol [4]				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		604-004-00-9	203-577-9 [1] 202-423-8 [2] 203-398-6 [3] 215-293-2 [4]	108-39-4 [1] 95-48-7 [2] 106-44-5 [3] 1319-77-3 [4]									

#		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							
121		1,2-dichloroethylene; [1] cis-dichloroethylene; [2] trans-dichloroethylene [3]				<0.0004 mg/kg		<0.0004 mg/kg	<0.00000004 %		<**LOD**
		602-026-00-3	208-750-2 [1] 205-859-7 [2] 205-860-2 [3]	540-59-0 [1] 156-59-2 [2] 156-60-5 [3]							
122		cumene; [1] propylbenzene [2]				<0.0004 mg/kg		<0.0004 mg/kg	<0.00000004 %		<**LOD**
		601-024-00-X	202-704-5 [1] 203-132-9 [2]	98-82-8 [1] 103-65-1 [2]							
123		2-chlorotoluene; [1] 3-chlorotoluene; [2] 4-chlorotoluene; [3] chlorotoluene [4]				<0.0004 mg/kg		<0.0004 mg/kg	<0.00000004 %		<**LOD**
		602-040-00-X	202-424-3 [1] 203-580-5 [2] 203-397-0 [3] 246-698-2 [4]	95-49-8 [1] 108-41-8 [2] 106-43-4 [3] 25168-05-2 [4]							
124		o-nitroaniline; [1] m-nitroaniline; [2] p-nitroaniline [3]				<0.15 mg/kg		<0.15 mg/kg	<0.000015 %		<**LOD**
		612-012-00-9	201-855-4 [1] 202-729-1 [2] 202-810-1 [3]	88-74-4 [1] 99-09-2 [2] 100-01-6 [3]							
								Total:	0.0463 %		

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: DS101-30/05/2022-0.44

Non Hazardous Waste
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:
DS101-30/05/2022-0.44
Sample Depth:
0.44-0.60 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	arsenic { arsenic trioxide }	033-003-00-0	215-481-4	1327-53-3		2 mg/kg	1.32	2.482 mg/kg	0.000248 %	✓	
2	beryllium { beryllium oxide }	004-003-00-8	215-133-1	1304-56-9		<0.5 mg/kg	2.775	<1.388 mg/kg	<0.000139 %		<**LOD**
3	boron { diboron trioxide; boric oxide }	005-008-00-8	215-125-8	1303-86-2		<0.4 mg/kg	3.22	<1.288 mg/kg	<0.000129 %		<**LOD**
4	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.19 mg/kg	1.142	0.204 mg/kg	0.0000204 %	✓	
5	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		6.2 mg/kg	1.462	8.518 mg/kg	0.000852 %	✓	
6	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				<0.5 mg/kg	2.27	<1.135 mg/kg	<0.000113 %		<**LOD**
7	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		3.9 mg/kg	1.126	4.128 mg/kg	0.000413 %	✓	
8	lead { lead compounds with the exception of those specified elsewhere in this Annex (worst case) }	082-001-00-6			1	12 mg/kg		11.28 mg/kg	0.00113 %	✓	
9	mercury { mercury dichloride }	080-010-00-X	231-299-8	7487-94-7		0.05 mg/kg	1.353	0.0636 mg/kg	0.00000636 %	✓	
10	nickel { nickel chromate }	028-035-00-7	238-766-5	14721-18-7		6 mg/kg	2.976	16.786 mg/kg	0.00168 %	✓	
11	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }	034-002-00-8				0.48 mg/kg	1.405	0.634 mg/kg	0.0000634 %	✓	
12	zinc { zinc sulphate }	030-006-00-9	231-793-3 [1] 231-793-3 [2]	7446-19-7 [1] 7733-02-0 [2]		23 mg/kg	2.469	53.386 mg/kg	0.00534 %	✓	
13	TPH (C6 to C40) petroleum group			TPH		<2 mg/kg		<2 mg/kg	<0.0002 %		<**LOD**
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.0002 mg/kg		<0.0002 mg/kg	<0.00000002 %		<**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		benzene	601-020-00-8	200-753-7	71-43-2		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<**LOD**
16		toluene	601-021-00-3	203-625-9	108-88-3		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<**LOD**
17		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<**LOD**
18		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]		<0.0004	mg/kg		<0.0004	mg/kg	<0.00000004 %		<**LOD**
19		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				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<**LOD**
20		pH			PH		9.5	pH		9.5	pH	9.5 pH		
21		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
22		acenaphthylene		205-917-1	208-96-8		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
23		acenaphthene		201-469-6	83-32-9		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
24		fluorene		201-695-5	86-73-7		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
25		phenanthrene		201-581-5	85-01-8		0.19	mg/kg		0.179	mg/kg	0.0000179 %	✓	
26		anthracene		204-371-1	120-12-7		0.1	mg/kg		0.094	mg/kg	0.0000094 %	✓	
27		fluoranthene		205-912-4	206-44-0		0.2	mg/kg		0.188	mg/kg	0.0000188 %	✓	
28		pyrene		204-927-3	129-00-0		0.17	mg/kg		0.16	mg/kg	0.000016 %	✓	
29		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
30		chrysene	601-048-00-0	205-923-4	218-01-9		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
31		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
32		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
33		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
34		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
35		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
36		benzo[ghi]perylene		205-883-8	191-24-2		<0.01	mg/kg		<0.01	mg/kg	<0.000001 %		<**LOD**
37		phenol	604-001-00-2	203-632-7	108-95-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
38		1,1-dichloroethane and 1,2-dichloroethane (combined)		203-458-1, 200-863-5	107-06-2, 75-34-3		<0.0004	mg/kg		<0.0004	mg/kg	<0.00000004 %		<**LOD**
39		tetrachloroethylene	602-028-00-4	204-825-9	127-18-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<**LOD**
40		carbon tetrachloride; tetrachloromethane	602-008-00-5	200-262-8	56-23-5		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<**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
41		trichloroethylene; trichloroethene	602-027-00-9	201-167-4	79-01-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
42		vinyl chloride; chloroethylene	602-023-00-7	200-831-0	75-01-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
43		hexachlorobenzene	602-065-00-6	204-273-9	118-74-1		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
44		polychlorobiphenyls; PCB	602-039-00-4	215-648-1	1336-36-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
45		sulfur { sulfur }	016-094-00-1	231-722-6	7704-34-9		2.5	mg/kg		2.35	mg/kg	0.000235 %	✓	
46		barium { barium sulphide }	016-002-00-X	244-214-4	21109-95-5		240	mg/kg	1.233	278.276	mg/kg	0.0278 %	✓	
47		dichlorodifluoromethane		200-893-9	75-71-8		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
48		chloromethane; methyl chloride	602-001-00-7	200-817-4	74-87-3		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
49		bromomethane; methylbromide	602-002-00-2	200-813-2	74-83-9		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
50		chloroethane	602-009-00-0	200-830-5	75-00-3		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
51		trichlorofluoromethane		200-892-3	75-69-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
52		1,1-dichloroethylene; vinylidene chloride	602-025-00-8	200-864-0	75-35-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
53		bromochloromethane		200-826-3	74-97-5		<0.0005	mg/kg		<0.0005	mg/kg	<0.00000005 %		<LOD
54		chloroform; trichloromethane	602-006-00-4	200-663-8	67-66-3		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
55		1,1,1-trichloroethane; methyl chloroform	602-013-00-2	200-756-3	71-55-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
56		1,1-dichloropropene	602-031-00-0	209-253-3	563-58-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
57		1,2-dichloropropane; propylene dichloride	602-020-00-0	201-152-2	78-87-5		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
58		dibromomethane	602-003-00-8	200-824-2	74-95-3		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
59		bromodichloromethane		200-856-7	75-27-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
60		1,3-dichloropropene; [1] (Z)-1,3-dichloropropene [2]	602-030-00-5	208-826-5 [1] 233-195-8 [2]	542-75-6 [1] 10061-01-5 [2]		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
61		trans-1,3-dichloropropene		431-460-4	10061-02-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
62		1,1,2-trichloroethane	602-014-00-8	201-166-9	79-00-5		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
63		1,3-dichloropropane		205-531-3	142-28-9		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
64		dibromochloromethane		204-704-0	124-48-1		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
65		1,2-dibromoethane	602-010-00-6	203-444-5	106-93-4		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
66		chlorobenzene	602-033-00-1	203-628-5	108-90-7		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
67		1,1,1,2-tetrachloroethane		211-135-1	630-20-6		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
68		styrene	601-026-00-0	202-851-5	100-42-5		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
69		bromoform; tribromomethane	602-007-00-X	200-854-6	75-25-2		<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<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									
70		bromobenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-060-00-9	203-623-8	108-86-1									
71		1,2,3-trichloropropane				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-062-00-X	202-486-1	96-18-4									
72		mesitylene; 1,3,5-trimethylbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		601-025-00-5	203-604-4	108-67-8									
73		tert-butylbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
			202-632-4	98-06-6									
74		1,2,4-trimethylbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		601-043-00-3	202-436-9	95-63-6									
75		sec-butylbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
			205-227-0	135-98-8									
76		1,3-dichlorbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-067-00-7	208-792-1	541-73-1									
77		4-isopropyltoluene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
			202-796-7	99-87-6									
78		1,4-dichlorobenzene; p-dichlorobenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-035-00-2	203-400-5	106-46-7									
79		n-butylbenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
			203-209-7	104-51-8									
80		1,2-dichlorobenzene; o-dichlorobenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-034-00-7	202-425-9	95-50-1									
81		1,2-dibromo-3-chloropropane				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-021-00-6	202-479-3	96-12-8									
82		1,2,4-trichlorobenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
		602-087-00-6	204-428-0	120-82-1									
83		hexachlorobutadiene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
			201-765-5	87-68-3									
84		1,2,3-trichlorobenzene				<0.0002	mg/kg		<0.0002	mg/kg	<0.00000002 %		<LOD
			201-757-1	87-61-6									
85		dimethylnitrosoamine; N-nitrosodimethylamine				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		612-077-00-3	200-549-8	62-75-9									
86		2-chlorophenol; [1] 4-chlorophenol; [2] 3-chlorophenol; [3] chlorophenol [4]				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-008-00-0	202-433-2 [1] 203-402-6 [2] 203-582-6 [3] 246-691-4 [4]	95-57-8 [1] 106-48-9 [2] 108-43-0 [3] 25167-80-0 [4]									
87		bis(2-chloroethyl) ether				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		603-029-00-2	203-870-1	111-44-4									
88		hexachloroethane				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			200-666-4	67-72-1									
89		nitrosodipropylamine				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		612-098-00-8	210-698-0	621-64-7									
90		nitrobenzene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-003-00-7	202-716-0	98-95-3									
91		3,5,5-trimethylcyclohex-2-enone; isophorone				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		606-012-00-8	201-126-0	78-59-1									
92		2-nitrophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-857-5	88-75-5									
93		3,4-xylenol; [1] 2,5-xylenol; [2] 2,4-xylenol; [3] 2,3-xylenol; [4] 2,6-xylenol; [5] xylenol; [6] 2,4(or 2,5)-xylenol [7]				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-006-00-X	202-439-5 [1] 202-461-5 [2] 203-321-6 [3] 208-395-3 [4] 209-400-1 [5] 215-089-3 [6] 276-245-4 [7]	95-65-8 [1] 95-87-4 [2] 105-67-9 [3] 526-75-0 [4] 576-26-1 [5] 1300-71-6 [6] 71975-58-1 [7]									
94		bis(2-chloroethoxy)methane				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			203-920-2	111-91-1									

#		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									
95		2,4-dichlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-011-00-7	204-429-6	120-83-2									
96		4-chloroaniline				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		612-137-00-9	203-401-0	106-47-8									
97		chlorocresol; 4-chloro-m-cresol; 4-chloro-3-methylphenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-014-00-3	200-431-6	59-50-7									
98		2-methyl naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			202-078-3	91-57-6									
99		hexachlorocyclopentadiene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		602-078-00-7	201-029-3	77-47-4									
100		2,4,6-trichlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-018-00-5	201-795-9	88-06-2									
101		2,4,5-trichlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-017-00-X	202-467-8	95-95-4									
102		2-chloronaphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			202-079-9	91-58-7									
103		dimethyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-011-6	131-11-3									
104		2,6-dinitrotoluene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-049-00-8	210-106-0	606-20-2									
105		dibenzofuran				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			205-071-3	132-64-9									
106		4-chlorophenylphenylether				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			230-281-7	7005-72-3									
107		2,4-dinitrotoluene; [1] dinitrotoluene [2]				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-007-00-9	204-450-0 [1] 246-836-1 [2]	121-14-2 [1] 25321-14-6 [2]									
108		diethyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-550-6	84-66-2									
109		DNOC (ISO); 4,6-dinitro-o-cresol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-020-00-X	208-601-1	534-52-1									
110		azobenzene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		611-001-00-6	203-102-5	103-33-3									
111		4-bromophenylphenylether				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			202-952-4	101-55-3									
112		pentachlorophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		604-002-00-8	201-778-6	87-86-5									
113		carbazole				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			201-696-0	86-74-8									
114		dibutyl phthalate; DBP				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		607-318-00-4	201-557-4	84-74-2									
115		BBP; benzyl butyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		607-430-00-3	201-622-7	85-68-7									
116		bis(2-ethylhexyl) phthalate; di-(2-ethylhexyl) phthalate; DEHP				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		607-317-00-9	204-211-0	117-81-7									
117		di-n-octyl phthalate				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
			204-214-7	117-84-0									
118		4-nitrophenol; p-nitrophenol				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		609-015-00-2	202-811-7	100-02-7									
119		monohydric phenols				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
				P1186									
120		m-cresol; [1] o-cresol; [2] p-cresol; [3] mix-cresol [4]				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		604-004-00-9	203-577-9 [1] 202-423-8 [2] 203-398-6 [3] 215-293-2 [4]	108-39-4 [1] 95-48-7 [2] 106-44-5 [3] 1319-77-3 [4]									

#		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							
121		1,2-dichloroethylene; [1] cis-dichloroethylene; [2] trans-dichloroethylene [3]				<0.0004 mg/kg		<0.0004 mg/kg	<0.00000004 %		<**LOD**
		602-026-00-3	208-750-2 [1] 205-859-7 [2] 205-860-2 [3]	540-59-0 [1] 156-59-2 [2] 156-60-5 [3]							
122		cumene; [1] propylbenzene [2]				<0.0004 mg/kg		<0.0004 mg/kg	<0.00000004 %		<**LOD**
		601-024-00-X	202-704-5 [1] 203-132-9 [2]	98-82-8 [1] 103-65-1 [2]							
123		2-chlorotoluene; [1] 3-chlorotoluene; [2] 4-chlorotoluene; [3] chlorotoluene [4]				<0.0004 mg/kg		<0.0004 mg/kg	<0.00000004 %		<**LOD**
		602-040-00-X	202-424-3 [1] 203-580-5 [2] 203-397-0 [3] 246-698-2 [4]	95-49-8 [1] 108-41-8 [2] 106-43-4 [3] 25168-05-2 [4]							
124		o-nitroaniline; [1] m-nitroaniline; [2] p-nitroaniline [3]				<0.15 mg/kg		<0.15 mg/kg	<0.000015 %		<**LOD**
		612-012-00-9	201-855-4 [1] 202-729-1 [2] 202-810-1 [3]	88-74-4 [1] 99-09-2 [2] 100-01-6 [3]							
								Total:	0.0388 %		

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

- **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

- **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

- **pH** (CAS Number: PH)

Description/Comments: Appendix C4
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

- **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

1,1-dichloroethane and 1,2-dichloroethane (combined) (EC Number: 203-458-1, 200-863-5, CAS Number: 107-06-2, 75-34-3)

Description/Comments: Combines the hazard statements and risk phrases for 1,1-dichloroethane and 1,2-dichloroethane
Data source: N/a
Data source date: 14 Oct 2016
Hazard Statements: Flam. Liq. 2; H225 , Acute Tox. 4; H302 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Carc. 1B; H350 , Aquatic Chronic 3; H412

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

barium sulphide (EC Number: 244-214-4, CAS Number: 21109-95-5)

GB MCL index number: 016-002-00-X
Description/Comments:
Additional Hazard Statement(s): EUH031 >= 0.8 %
Reason for additional Hazards Statement(s):
20 Nov 2021 - EUH031 >= 0.8 % hazard statement sourced from: WM3, Table C12.2

dichlorodifluoromethane (EC Number: 200-893-9, CAS Number: 75-71-8)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Aquatic Chronic 3; H412 , Ozone 1; H420 , Press. Gas; H280

- **trichlorofluoromethane** (EC Number: 200-892-3, CAS Number: 75-69-4)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H312 , Ozone 1; H420

- **bromochloromethane** (EC Number: 200-826-3, CAS Number: 74-97-5)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H312 , Skin Corr. 1B; H314 , Eye Dam. 1; H318 , Acute Tox. 4; H332 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Ozone 1; H420

- **bromodichloromethane** (EC Number: 200-856-7, CAS Number: 75-27-4)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 2B;
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Skin Irrit. 2; H315 , Eye Dam. 1; H318 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Muta. 1B; H340 , Carc. 1B; H350 , Repr. 1A; H360

- **trans-1,3-dichloropropene** (EC Number: 431-460-4, CAS Number: 10061-02-6)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Flam. Liq. 3; H226 , Acute Tox. 3; H301 , Asp. Tox. 1; H304 , Acute Tox. 3; H311 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Eye Irrit. 2; H319 , Acute Tox. 4; H332 , STOT SE 3; H335 , Aquatic Chronic 1; H410

- **1,3-dichloropropane** (EC Number: 205-531-3, CAS Number: 142-28-9)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H332 , Flam. Liq. 2; H225 , Flam. Liq. 3; H226 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335

- **dibromochloromethane** (EC Number: 204-704-0, CAS Number: 124-48-1)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 3;
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 4; H312 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , Acute Tox. 4; H332 , STOT SE 3; H335 , STOT SE 3; H336 , Muta. 2; H341 , Aquatic Chronic 2; H411

- **1,1,1,2-tetrachloroethane** (EC Number: 211-135-1, CAS Number: 630-20-6)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 2B;
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 1; H310 , Eye Irrit. 2; H319 , Acute Tox. 3; H331 , Eye Dam. 1; H318 , Acute Tox. 4; H332 , Carc. 2; H351 , Acute Tox. 4; H312 , Aquatic Chronic 3; H412 , Skin Irrit. 2; H315

- **tert-butylbenzene** (EC Number: 202-632-4, CAS Number: 98-06-6)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Flam. Liq. 3; H226 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , Acute Tox. 3; H331 , Acute Tox. 4; H332 , STOT SE 3; H335 , Asp. Tox. 1; H304 , Aquatic Chronic 2; H411

- **sec-butylbenzene** (EC Number: 205-227-0, CAS Number: 135-98-8)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Flam. Liq. 3; H226 , Asp. Tox. 1; H304 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , Aquatic Chronic 2; H411

- **4-isopropyltoluene** (EC Number: 202-796-7, CAS Number: 99-87-6)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Flam. Liq. 3; H226 , Asp. Tox. 1; H304 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Chronic 2; H411

n-butylbenzene (EC Number: 203-209-7, CAS Number: 104-51-8)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Flam. Liq. 3; H226 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

hexachlorobutadiene (EC Number: 201-765-5, CAS Number: 87-68-3)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 3;
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 3; H301 , Acute Tox. 2; H310 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Eye Irrit. 2; H319 , Acute Tox. 2; H330 , Carc. 2; H351 , Repr. 2; H361 , STOT SE 2; H371 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

1,2,3-trichlorobenzene (EC Number: 201-757-1, CAS Number: 87-61-6)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , STOT SE 3; H336 , Aquatic Acute 1; H400 , Aquatic Chronic 3; H410

hexachloroethane (EC Number: 200-666-4, CAS Number: 67-72-1)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 2B;
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Carc. 2; H351 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , STOT RE 2; H373

2-nitrophenol (EC Number: 201-857-5, CAS Number: 88-75-5)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 4; H312 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , Acute Tox. 4; H332 , STOT SE 3; H335 , STOT RE 2; H373 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

bis(2-chloroethoxy)methane (EC Number: 203-920-2, CAS Number: 111-91-1)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 3; H301 , Acute Tox. 4; H312 , Acute Tox. 1; H330 , Acute Tox. 2; H330 , STOT SE 1; H370 , STOT RE 2; H373

2-methyl naphthalene (EC Number: 202-078-3, CAS Number: 91-57-6)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , STOT SE 3; H336 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

2-chloronaphthalene (EC Number: 202-079-9, CAS Number: 91-58-7)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315

dimethyl phthalate (EC Number: 205-011-6, CAS Number: 131-11-3)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , Acute Tox. 3; H331 , STOT SE 3; H335 , STOT SE 3; H336 , Repr. 2; H361 , Aquatic Chronic 3; H412

dibenzofuran (EC Number: 205-071-3, CAS Number: 132-64-9)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 4; H312 , Acute Tox. 4; H332 , Aquatic Chronic 2; H411

4-chlorophenylphenylether (EC Number: 230-281-7, CAS Number: 7005-72-3)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Eye Dam. 1; H318 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

diethyl phthalate (EC Number: 201-550-6, CAS Number: 84-66-2)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Skin Irrit. 2; H315 , Acute Tox. 3; H331 , Acute Tox. 3; H311 , STOT SE 3; H335 , STOT RE 2; H373 , Repr. 2; H361 , Acute Tox. 4; H302 , STOT SE 3; H336 , Skin Sens. 1; H317 , Aquatic Chronic 1; H410

4-bromophenylphenylether (EC Number: 202-952-4, CAS Number: 101-55-3)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Eye Dam. 1; H318 , Eye Irrit. 2; H319 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

carbazole (EC Number: 201-696-0, CAS Number: 86-74-8)

Description/Comments: VOC; Data from C&L Inventory Database; IARC considers substance Group 2B;
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Acute Tox. 4; H302 , Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Muta. 2; H341 , Carc. 2; H351 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Acute Tox. 3; H331 , Acute Tox. 3; H311 , Acute Tox. 3; H301

di-n-octyl phthalate (EC Number: 204-214-7, CAS Number: 117-84-0)

Description/Comments: VOC; Data from C&L Inventory Database
Data source: https://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 02 Mar 2017
Hazard Statements: Repr. 2; H361 , Skin Sens. 1; H317 , Resp. Sens. 1; H334 , Eye Irrit. 2; H319 , Aquatic Chronic 4; H413

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

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

Reasonable case CLP species were selected based on hazard statements/molecular weight, most common (stable) oxide of arsenic and following a review of the CSM.

beryllium {beryllium oxide}

Reasonable case CLP species based on hazard statements/molecular weight selected following a review of the CSM.

boron {diboron trioxide; boric oxide}

Reasonable case CLP species based on hazard statements/ molecular weight, physical form and low solubility. These were selected following a review of the CSM.

cadmium {cadmium oxide}

Reasonable case CLP species based on hazard statements/molecular weight, very low solubility in water.

chromium in chromium(III) compounds {chromium(III) oxide (worst case)}

Reasonable case species based on hazard statements/molecular weight, selected following a review of the CSM.

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.

copper {dicopper oxide; copper (I) oxide}

Reasonable case CLP species based on hazard statements/molecular weight and insolubility in water. These were selected following a review of the CSM.

lead {lead compounds with the exception of those specified elsewhere in this Annex (worst case)}

There isn't enough Cr(VI) to make hazardous levels of the Metal chromate so the next most conservative specie was selected.

mercury {mercury dichloride}

Reasonable case CLP species based on hazard statements/molecular weight. these were selected following a review of the CSM.

nickel {nickel chromate}

Worst case CLP species based on hazard statements/molecular weight.

selenium {selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case.

zinc {zinc sulphate}

There isn't enough Cr(VI) to make hazardous levels of zinc chromate so the next most conservative specie was selected.

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.

sulfur {sulfur}

Worst Case CLP Species.

barium {barium sulphide}

Reported chromium VI concentrations are insufficient for chromate species to be present; next most conservative specie selected.

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.2.GB - Oct 2021
HazWasteOnline Classification Engine Version: 2022.192.5237.9831 (11 Jul 2022)
HazWasteOnline Database: 2022.192.5237.9831 (11 Jul 2022)

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

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Project name:
Manchester Airport Building 401

Project ref:
60663052

Date:
19 July 2022

Memo

Subject: Interim Geotechnical Design Advice Note for Manchester Airport Building 401

Introduction

This memo provides interim geotechnical design advice for the MAN B401 project following the receipt of the interim factual report (Ref CL-602-LKC 22 1225-02), dated 7th July 2022, for the ground investigation undertaken by LK Group between 24th May and 7th June 2022. The interim factual report by LK Group is included as Appendix A

The ground investigation included 7no. cable percussive boreholes, 4no. of which were rotary core follow on boreholes. At the time of writing, only results from insitu testing including SPTs, hand shear vanes and lightweight deflectometers were available. No geotechnical laboratory test results were available and assessment on geo-environmental samples is ongoing. As such preliminary design values presented within this technical note are subject to change as further information related to the project becomes available.

Ground Conditions and Groundwater

The ground conditions encountered by the investigation are summarised in the below Table 1 and the groundwater data is in Table 2.

Observations on Contamination

Ground gas monitoring and assessments on contamination are still ongoing at the time of writing, no visual or olfactory contamination was observed during the ground investigation. PID headspace samples undertaken on discrete samples of Made Ground and Glacial Till ranged between 0.8ppm (BH103) and 3.4ppm (BH101) indicating that significant concentrations volatile contaminants are likely not present taken. It is important to note that substations adjacent to the site and the areas formerly occupied by Above Ground Storage Tanks have not been investigated as part of this scope of works. These should be given cautious consideration as the development of the project progresses. This should include appropriate risk assessment for construction workers.

Table 1. Ground Conditions Summary

Stratum	Typical Description	Top of Layer (m bgl)	Base of Layer (m bgl)	Layer Thickness (m)
Made Ground	Tarmacadam underlain by MADE GROUND comprised of sandy Gravel or gravelly Sand with frequent tarmacadam fragments. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded of sandstone and limestone. 0.7m thick concrete former loading dock encountered under Tarmacadam at BH101.	0	0.30 – 1.00	0.30 – 1.00
Glacial Till - Cohesive	Firm to very stiff consistency medium to high strength slightly gravelly silty CLAY. Gravel is fine to medium subangular to subrounded of various lithologies	0.30 – 1.00	1.20 – 6.00	0.65 – 4.00
Glacial Till - Granular	Dense to very dense slightly gravelly SAND with discrete bands of stiff Clay. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded of various lithologies.	1.20 – 4.70	1.40 – 6.00	0.20 – 2.00
Bollin Mudstone Member – Weathered (Mercia Mudstone)	Very weak to extremely weak weathered MUDSTONE recovered as stiff to very stiff consistency gravelly Clay. Gravel is fine to coarse subangular to angular of mudstone.	2.80 – 6.00	4.50 – 10.60	1.00 – 4.90
Bollin Mudstone Member (Mercia Mudstone)	Weak to extremely weak MUDSTONE. Distinct weathering noted.	4.50 – 10.60	25.00 (Base Not Proven)	20.50 (Base Not Proven)

Table 2. Groundwater Data Summary

Location	Water Strike Depth (m bgl)	Water Monitoring Depths (m bgl)
BH101	-	1.43 – 1.70
BH102	-	1.44 – 1.57
BH103	-	2.35 – 2.49
BH104	-	3.65 – 3.80
BH105	5.00	3.37 – 3.50
BH106	5.50	3.06 – 3.21
DS101	-	-

Preliminary Engineering Parameters

SPT results in the cohesive Glacial Till strata ranged from 15 to 22 at depths of 1m to 3m bgl. Using the correlation[1] of undrained shear strength, c_u, is equal to five times the SPT value gives a range of c_u values of 75kPa to 110kPa. The bearing resistance of the Glacial Till is therefore expected to be approximately 100kPa with settlement in the order of 20mm. This is subject to confirmation with the laboratory testing data.

The Mudstone was found to be highly variable in both depth and weathering grade. The top depth ranged from 2.8m to 6m bgl (see Table 1) and the weathering grade ranged from Grade IVa & IVb to Grade II with Grade IVa and IVb encountered at depth. The weakest grade is therefore conservatively adopted for the strata. An estimation of bearing resistance has been made using technical literature. CIRIA's C570 Engineering in Mercia Mudstone recommends a bearing resistance of 125kPa to 250kPa on shallow pad formations founded in Mercia Mudstone.

These are preliminary conservative estimates only and will be reviewed further following receipt of the full factual report containing laboratory testing data.

[1] Stroud and Butler (1975) The standard penetration test and the engineering properties of glacial materials

Lightweight deflectometer tests were undertaken at 0.30m intervals in hand dug inspection pits to determine equivalent California Bearing Ratio (CBR) values to a maximum depth of 0.90m bgl due to constraints operating the equipment. These are summarised in Table 3. The design CBR for pavement design will be subject to the results of laboratory testing but is likely to be in the range of 3% to 4%.

Table 3. Lightweight Deflectometer Testing Result Summary

Stratum	Depth (m bgl)	CBR (%) Location					
		BH101	BH102	BH103	BH104	BH105	BH106
Made Ground	0.30	8	33	26	21	11	-
	0.60	-	23	-	-	-	-
Glacial Till - Cohesive	0.30	-	-	-	-	-	6
	0.60	10	-	3	9	4	15
	0.90	6	11	5	4	7	4

A full BRE assessment has not been undertaken at this stage however as Bollin Mudstone contains gypsum it is highly likely that sulphate resisting concrete will be required.

It is understood that vibro-stone columns have been proposed as a potential foundation for the site. Based on previous experience with stone columns, a bearing resistance of approximately 160kPa could be expected to be achieved.

Some buried foundations were encountered during the ground investigation which could pose an obstruction to driving stone columns. No significant boulders were encountered in the Glacial Till, but hard driving conditions could be anticipated in the Bollin Mudstone.

Geotechnical Risk Register

The geotechnical risk register included in the desk study report has been reviewed and updated and is included as Table 7. The classification of probability and impact, risk matrix and classification of risk rating are included in Tables 4, 5 and 6.

Table 4. Classification of Probability and Impact

Likelihood (L)		Severity (S)	
Very Likely	5	Very High	5
Likely	4	High	4
Probable	3	Medium	3
Unlikely	2	Low	2
Negligible	1	Very Low	1

Table 5. Risk Matrix

Likelihood (L)						
	5	5	10	15	20	25
	4	4	8	12	16	20
	3	3	6	9	12	15
	2	2	4	6	8	10
	1	1	2	3	4	5
		1	2	3	4	5
		Severity (S)				

Table 6. Classification of Risk Rating

Risk Rating	Response
Intolerable	Unacceptable
Substantial	Early Attention
Tolerable	Regular Attention
Trivial	Monitor

The key risks are considered to be:

- Variable Made Ground thickness and obstructions (such as the concrete former loading dock encountered in BH101) affecting the stone column installation. No boulders were encountered within the Glacial Till during the ground investigation however the stone columns may have difficulty penetrating the weak/very weak Mudstone.
- Material reuse as the Bollin Mudstone will not be suitable for reuse on site and the Glacial Till will require re-classification beforehand.
- Made Ground, Glacial Till and Bollin Mudstone are potentially sulphate bearing stratum so aggressive ground chemistry is a risk to buried concrete structures. Bollin Mudstone also contains gypsum so sulphate resisting concrete is highly likely to be required.

James McIntosh	**William Hartas**	**Martin de Kretser**
Geotechnical Engineer	**Senior Engineer**	**Technical Director**

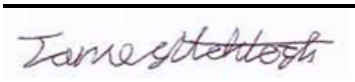


Table 7. Updated Geotechnical Risk Register

Identified Geotechnical Hazard	Location	Cause	Risk before Control			Consequence	Possible Mitigation Measures
			L	S	RR (L*S)		
Aggressive ground chemistry	Scheme Wide	Made Ground, Glacial Till and Bollin Mudstone are potentially sulphide/sulphate bearing stratum.	4	3	12	Deleterious effects on buried concrete/piles.	Analyse BRE test results and design concrete mix during detailed design in accordance with BRE guidance.
Variable thickness and composition of superficial deposits and Made Ground/variable hard ground	Scheme Wide	The inherent variability of Glacial Till and Made Ground or variable rock head level and properties. Investigation found up to 1m of Made Ground, Glacial Till thickness of between 0.5m and 4m and encountered rock head at between 2.8m and 6m bgl.	4	3	12	Unsuitable method of construction. Potential presence of boulders/buried concrete structures may obstruct piling/drilling. Obstruction will be difficult to excavate or drill through. Additional cost.	Design to allow for ground conditions encountered. Works to prepare for variable conditions to those reported by the ground investigation.
Underground obstructions due to current and historical development	Scheme Wide	Known and unknown/unrecorded buried structures. BH101 encountered a former concrete loading dock at 0.3m bgl. Full extent of this loading dock is unknown.	4	3	12	Costs due to damage to plant and delays removing obstructions. Potential settlement issue in areas between proposed and existing foundations of previous structures.	Proposed work to be located away from existing foundations where possible. Extent of concrete loading dock to be proven and installation of stone columns to plan for encountering the dock and any other obstructions.
Re-grading of site	Scheme Wide	Slope stability and long-term settlement of raised earthworks. A gravity vegetated wall is proposed for the site.	3	3	9	Failure of earthworks slopes and serviceability issues with excessive total and differential settlement.	Earthwork slopes will be designed using conservative parameters from the ground investigation findings. Gravity vegetated wall is to be designed by a specialist contractor.
Unforeseen contamination	Scheme Wide	Historical contamination associated with former site uses e.g. substations and refuelling areas.	3	3	9	Risks to human health and environment, increased costs to remediate.	Review of laboratory data and further assessment to inform construction and risks to construction workers. Allowance for unforeseen contamination within risk register. Inspection and discovery strategy to be employed during earthworks and construction/demolition.
The presence of weak and compressible soils	Scheme Wide	Glacial Till was described as firm to very stiff and dense to very dense for cohesive and granular layers respectively. However soft cohesive and loose granular deposits may be present as Glacial tills are typically highly variable in composition. Compressible materials may be present. Made Ground encountered to a maximum depth of 1m bgl.	2	4	8	Differential settlement as a result of differing foundation material. Failure of structures or earthworks.	Adopt conservative design based on findings of ground investigation and specify appropriate foundations.
Frost susceptible soils	Scheme Wide	Construction of pavement and silt-rich soils.	2	3	6	Surface damage or alternative design. Frost heave.	During detailed design review findings of ground investigation and assess risk. Increase pavement thickness to incorporate risk.

Identified Geotechnical Hazard	Location	Cause	Risk before Control			Consequence	Possible Mitigation Measures
			L	S	RR (L*S)		
Shrinkable clay soils	Scheme Wide	Artificial and/or superficial deposits.	2	3	6	Damage to structures due to seasonal subsidence and heave of clay soils and near trees.	Check Atterberg limits of cohesive soils and specify foundations according to relevant guidance, e.g. NHBC.
Challenges re-using site won material for earthworks	Scheme Wide	Potential cobbles and boulders in Glacial Till.	2	3	6	Potential difficulty compacting Glacial Till as an engineered fill due to potential presence of coarse granular material. Increased costs from importing suitable material.	Import suitable engineered fill or remove coarse material from existing site won material. Carry out testing to classify material.
Weak pavement formation	Scheme Wide	Site soils including Made Ground may be variable or possess low Cu/CBR/stiffness values. This may result in weak pavement formation and differential settlement.	3	2	6	Increased cost such as resurfacing access roads and car park may be required.	Review laboratory testing results for design CBR values to inform pavement design. Undertake remediation for instance implementation of mechanical compaction, thicker capping material, ground improvement (lime improvement/soil stabilisation) or excavation and replacement.
UXO	Scheme Wide	Potential UXO related to historic military activity as a result of being part of the airport during WWII.	1	5	5	H&S impact during excavation, ground investigation, piling and construction.	UXO Desk Study & Risk Assessment for Avro Way Manchester, undertaken by Zetica (Ref P11632-22-R1, dated 19th April 2022) indicates a low risk of encountering UXO at the site. Specialist UXO supervision is therefore not recommended for future works including excavations and/or boreholes and piling, but a UXO Awareness Briefing should be given to future site operatives.

Appendix A – Interim Factual Report

BUILDING 401,
MANCHESTER AIRPORT

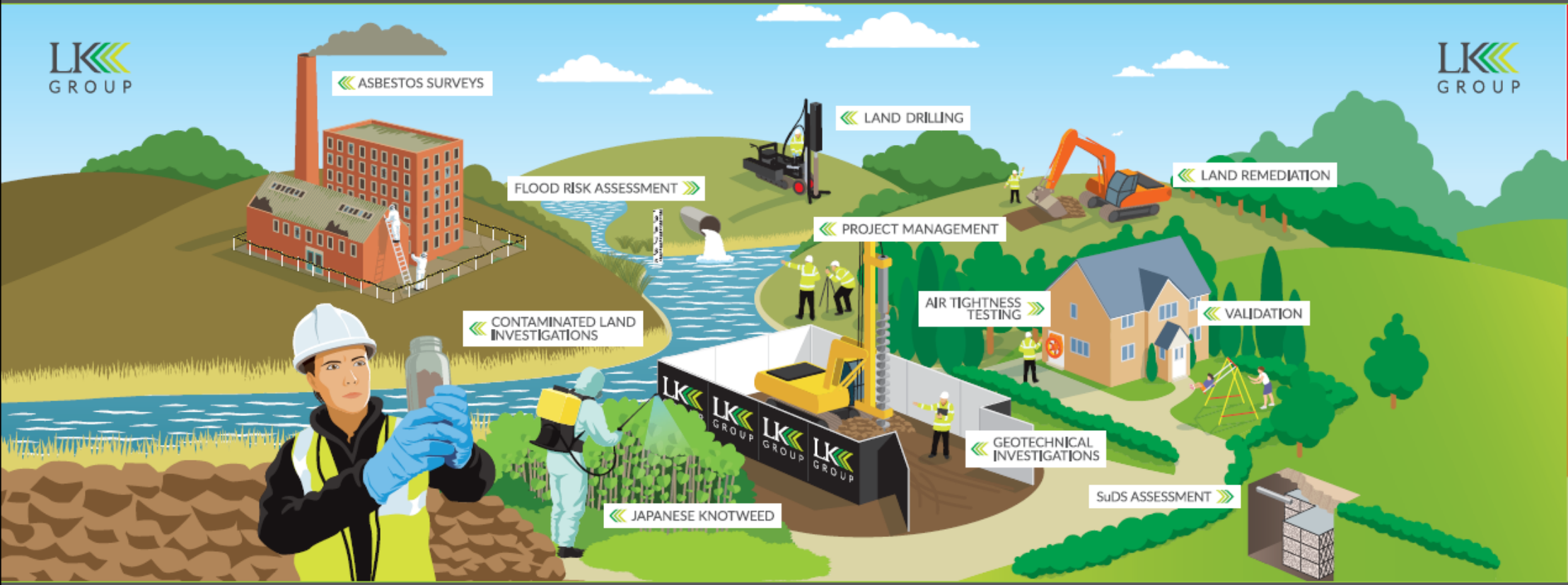
INTERIM
FACTUAL GROUND
INVESTIGATION REPORT

Job Number: LKC 22 1225
Date: 7th July 2022
Client: Threadneedle Curtis Ltd

INCREASING LAND VALUE

LK GROUP

INCREASING LAND VALUE



LK GROUP

LK Consult Document Verification			
Site Address	Building 401, Avro Way/Pinfold Lane, Manchester, M90 5XR		
Report Title	Interim Factual Ground Investigation Report		
Job Number	LKC 22 1225	**Document Ref.**	CL-602-LKC 22 1225-02
Date Issued	7th July 2022	**Report Version**	R0
Prepared By	Rachel Peart	**Reviewed By**	Colin Crompton

Revision Record			
Revision No.	**Date**	**Nature of Revision**	**Approved By**

DISCLAIMER

This report has been prepared by LK Consult (LKC) who have exercised such professional skill, care and diligence as may reasonably be expected of a properly qualified and competent consultant, experienced in preparing reports of a similar scope.

However, to the extent that the report is based or relies upon information contained in records, reports or other materials provided to LKC, which have not been independently produced or verified, LKC gives no warranty, representation or assurance as to the accuracy or completeness of such information.

This report is issued on the condition that LKC will not be held liable for any loss arising from ground conditions between sampling points (i.e. boreholes/trial pits/hand augers/surface samples) which have not been shown by the sampling points or related testing carried out during the investigation, nor for any loss arising from conditions below the maximum depth of the investigation. Opinions on such conditions, where given, are for general guidance only.

This report is prepared solely for the benefit of Threadneedle Curtis Ltd. It may not be relied upon by, or submitted to a third party for their reliance for the purposes of valuation, mortgage, insurance and regulatory approval, until all invoices have been settled in full.

Those using this information in subsequent assessments or evaluations do so at their own risk.

EXECUTIVE SUMMARY

Site Details

Site Location:	The site is located to the west of the junction between Avro Way and Pinfold Lane. Centred at approximate National Grid Reference 380910E 384825N.
Site Area:	2.16Ha.
Current Land Use:	The site currently comprises the demolition site of Building 401.
Proposed Development:	Planning Application No. 131892/FO/2021: erection of a terrace of three Class B8 warehouse units with associated parking, access and landscaping, following demolition of existing building.
Purpose of Report:	Factual Contamination and Geotechnical information. Interim report pending completion of gas monitoring and receipt of geotechnical laboratory testing results.

Ground Investigation Work Undertaken

Date of Investigation:	24th May to 7th June 2022.
Intrusive Investigation Work Undertaken:	7no. cable percussive boreholes (BH101-BH106, DS101). 4no. follow on rotary core boreholes (BH101, BH102, BH104 and BH106).
Monitoring Wells:	Installed in BH101-BH106.
Contamination Testing – Soils	16no. samples tested for metals / metalloids, pH, sulphate suite, speciated PAHs, TPHCWG, phenols, cyanide suite, FOC and asbestos screen (Suite S-1) 14no. samples tested for PCBs, SVOCs, VOCs. 6no. samples tested Inert WAC. 6no. samples tested for leachable metals / metalloids, pH, sulphate suite, speciated PAHs, TPHCWG, phenols, ammoniacal nitrogen cyanide suite, chloride, electrical conductivity and nitrate. 6no. samples tested for leachable PCBs, SVOCs, VOCs.
Contamination Testing – Groundwater	6no samples tested for metals / metalloids, pH, sulphate suite, speciated PAHs, TPHCWG, phenols, ammoniacal nitrogen cyanide suite, chloride, electrical conductivity, nitrate, PCBs, SVOCs and VOCs.
Monitoring:	6no. gas monitoring visits over 6 weeks months proposed.
Insitu Testing	SPTs, hand shear vanes, lightweight deflectometer, PID headspace.
Laboratory Geotechnical Testing:	19no. samples tested for BRE Suite D. 9no. samples tested for Density and Moisture Content. 22no samples tested Atterberg Limits. 7no. samples tested for Particle Size Distribution. 7no. samples tested for One-Dimensional Consolidation. 11no. samples tested for Quick Undrained Triaxial. 13no. samples tested for Uniaxial Compressive Strength. 17no. samples tested for Point Load (axial and diametral).
Other Work:	Falling Head Tests.

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FIGURES

Figure 1: Site Location and Boundary Plan

Figure 2: Proposed Development Plan

Figure 3: As Built Borehole Location Plan

APPENDICES

Appendix A: Profile Logs

Appendix B: Certificates of Analysis – Soil and Leaching Tests

Appendix C: Certificate of Analysis – Groundwater

Appendix D: Gas Monitoring Results

Appendix E: Certificate of Analysis – Geotechnical

Appendix F: Falling Head Tests

1 Introduction

1.1 Background

LK Consult Ltd (LKC) has been commissioned by R&M Developments Ltd on behalf of Threadneedle Curtis Ltd to carry out a Ground Investigation for Building 401, Manchester Airport.

The investigation was undertaken to provide information to assess the geotechnical, geo-environmental, geological and hydrological ground conditions in order to inform design of the proposed redevelopment of the site (planning application no. 131892/FO/2021).

LKC are aware of the following work which has previously been undertaken:

- Phase 1 Tier 1 Geo-Environmental and Geotechnical Assessment, undertaken by AECOM Ltd (Ref: 60663052-ACM-402-XX-RP-G-00001, Revision 100, dated 24th February 2022).

This report details the investigation work undertaken to date using the recommended scope of works provided by AECOM Ltd (specification document 60663052-ACM-401-XX-SP-G-00002, dated 8th March 2022). The scope of work comprised:

- 7no. hand dug inspection pits to 1.2 metres below ground level (mbgl).
- 1no. dynamic sampling borehole to 5.00mbgl.
- 6no. cable percussive boreholes with follow on rotary coring.
- On site testing to include SPTs, UT100/U100s, hand shear vanes and lightweight deflectometer tests.
- Insitu permeability testing within cable percussive boreholes.
- Collection of soil and rock samples for contamination and geotechnical testing purposes.
- Photo Ionisation Detector testing.
- Installation of 50mm internal diameter gas/water monitoring wells.
- Groundwater monitoring and sampling following completion of fieldworks.
- Gas monitoring of well installations following completion of fieldworks.
- Geotechnical and chemical laboratory testing.
- Factual report with AGS data.

Given the prevailing ground conditions encountered during the fieldworks AECOM Ltd as Investigation Supervisor issued a variation that follow on rotary cores would be undertaken in 4no. locations only, but the termination depth would be deeper than assumed in the specification document. The termination depths upon coring were ultimately between 14.5 and 25.0mbgl.

It should be noted that LKC assume that all previous work has been submitted to and approved by the regulators.

This is an interim report including all investigation work completed to date. A final report will be issued on completion of gas monitoring and receipt of the outstanding geotechnical laboratory test results.

1.2 Site Details

A summary of the site details is presented in Table 1-1. Figure 1 indicates the site location and boundary. Figure 2 indicates the proposed development.

Site Location	The site is located to the west of the junction between Avro Way and Pinfold Lane. Centred at approximate National Grid Reference 380910E 384825N.
Approximate Area	2.16Ha.
Topography	66-69 metres Above Ordnance Datum (AOD). Site slopes very gradually from north east down to the south west.
Current Site Use	At the time of the fieldworks building B401 was undergoing demolition. Areas of hardstanding were present to the northwest and southeast elevations with a soft landscaped verge and a backfilled service trench to the north east elevation. The area of hardstanding to the south west of the building was a former bus depot operated by Manchester Airport with associated vehicle wash and above ground storage tanks and pumps for refuelling buses. An electrical substation is located on the western side of the building and a HV cable is known to run under the building from Pinfold Lane.
Planning Ref.	131892/FO/2021.
Proposed Development	Erection of a terrace of three Class B8 warehouse units with associated parking, access and landscaping, following demolition of existing building.

Table 1-1: Summary of site details.

2 Ground Investigation

2.1 Site Investigation Design and Methodology

In order to assess the ground conditions at the site and to investigate the potential pollutant linkages identified in the preliminary contamination conceptual model an intrusive investigation was undertaken.

The investigation was carried out on 24th May 2022 to 7th June 2022 and comprised the following:

- 6no. cable percussive boreholes drilled to 4.50 to 10.25 metres below ground level (mbgl) (ref. BH101 to BH106).
- 6no. follow on rotary cored boreholes through the cable percussive boreholes, drilled to 14.50 to 25.00mbgl (ref. BH101, BH102, BH104 and BH106).
- 1no. cable percussive borehole drilled to 5.20mbgl (ref. DS101).
- Hand excavated inspection pits to 1.20mbgl with shear vane tests undertaken at 0.25m intervals to 0.75mbgl and CBR tests undertaken using a Lightweight Deflectometer at 0.3m intervals between depths of 0.30mbgl and 0.90mbgl. It was agreed with AECOM Ltd that a lightweight deflectometer test would not be carried out at 1.20mbgl in each location.

A hand dug inspection pit and in situ testing was not possible within BH101 due to concrete present between 0.30 to 1.00mbgl. This was noted as the former loading bay or dock. The concrete was broken out by R&M Developments Ltd and then backfilled with granular material to facilitate drilling.

Shear vane and lightweight deflectometer tests were not carried out in BH101 due to the presence of concrete to 1.0mbgl. It was agreed with AECOM Ltd that this testing would be carried out in the nearby DS101.

Cable percussion boreholes were carried out to allow contamination and geotechnical sample collection in addition to an assessment of the deeper ground conditions for geotechnical purposes. Follow on rotary coring was then undertaken from the base of the cable percussive boreholes in BH101, BH102, BH104 and BH106. This was a variation specified by AECOM Ltd as a result of the prevailing ground conditions.

All site investigation locations are shown in Figure 3.

The intrusive locations were initially specified by AECOM Ltd with any variations from the specified locations agreed with AECOM Ltd prior to drilling. Locations and elevations of the intrusive positions were captured on site by R&M Developments Ltd.

All profile logs are provided in Appendix A and are in line with BS14688-1[1] and BS5930[2].

2.2 Well Installations

In total, 6no. of the boreholes (BH101 to BH106) were installed with monitoring wells for gas and groundwater monitoring, groundwater sampling. The well construction was agreed with the Investigation Supervisor prior to installation.

[1] British Standards (2002) Geotechnical investigation and testing – Identification and Classification of Soil. Part 1: Identification and description. BS EN ISO 14688-1:2002.
[2] British Standard (2015). "Code of Practice for Ground Investigations". BS5930:2015.

Monitoring wells were installed in accordance with BS10175 and CIRIA C665[3] and generally comprised variable lengths plain pipe over slotted pipe surrounded by pea gravel and sealed at the top with bentonite and concrete.

Well installation details are provided in Profile Logs in Appendix A.

2.3 Sampling Protocol

2.3.1 Soil Sampling (Contamination)

Standard sampling protocol and preservation of samples was undertaken as described in the EA guidance on site investigation[4].

Soil was collected for onsite testing. A plastic zip bag was half filled with soil allowing a suitably sized headspace. The bag was sealed and stored for at least 20 minutes before being tested for total volatile organic compounds (TVOCs) using a PhoCheck photoionisation detector (PID). Results of the PID readings are presented on the profile logs (Appendix A). The on-site monitoring was carried out in line CIRIA C665[5] to aid in screening samples for volatile analysis.

Soil samples of approximately 500g were recovered in amber jars, amber vials for volatile analysis and plastic tubs. All the samples were labelled and stored in cool boxes prior to being collected by courier at the end of the day for delivery to the Eurofins Chemtest laboratory in Newmarket for chemical testing. If collection was not possible the same day then samples were stored in the sample storage fridge at the LK Group offices below 4˚C. Samples were tracked using appropriate Chain of Custody forms provided by Chemtest.

Many of the contamination tests are UKAS or MCERTS accredited and further details are given in the Certificate of Analysis presented in Appendix B. Table 2-1 shows the soil testing undertaken.

Suites and Contaminants	No. Samples	Location and Depth	
Suite S-1 (Main Soils) Metals / metalloids, pH, sulphate suite, speciated PAHs, TPHCWG, phenols, cyanide suite, FOC and asbestos screen.	16	BH101 2.10-2.20m BH102 0.15-0.30m BH102 0.30-0.75m BH102 1.70-1.80m BH103 0.14-0.40m BH103 1.50-1.60m BH104 0.10-0.30m BH104 1.30-1.40m	BH105 0.20-0.40m BH105 1.50-1.60m BH106 0.10-0.40m BH106 1.40-1.50m DS101 0.00-0.30m DS101 0.30-0.44m DS101 0.44-0.60m DS101 1.65-1.75m
Suite S-2 (Additional Soils) PCBs, SVOCs, VOCs.	14	BH101 2.10-2.20m BH102 0.15-0.30m BH102 0.30-0.75m BH102 1.70-1.80m BH103 0.14-0.40m BH104 0.10-0.30m BH104 1.30-1.40m	BH105 0.20-0.40m BH105 1.50-1.60m BH106 0.10-0.40m DS101 0.00-0.30m DS101 0.30-0.44m DS101 0.44-0.60m DS101 1.65-1.75m

Table 2-1. Summary of soil sample testing undertaken.

[3] CIRIA (2007). "Assessing Risks Posed by Hazardous Ground Gases to Buildings." CIRIA C665.
[4] EA (2000). "Technical Aspects of Site Investigation. Volumes 1 & 2 Text Supplements Research and Development Technical Report." P5-065/Tr.
[5] CIRIA (2007). "Assessing Risks Posed by Hazardous Ground Gases to Buildings." CIRIA C665.

Suites and Contaminants	No. Samples	Location and Depth	
Inert WAC Suite	6	BH101 2.10-2.20m BH102 1.70-1.80m DS101 0.00-0.30m	BH104 0.10-0.30m BH105 0.20-0.40m BH106 1.40-1.50m

Table 2-1. Summary of soil sample testing undertaken.
Notes:
If asbestos present during screen identification and quantification will be undertaken.
Metal/metalloids=arsenic, barium, beryllium, boron, cadmium, chromium, (total and hexavalent), copper, lead, mercury, nickel, selenium, vanadium, zinc; TPHCWG=carbon banded and aromatic/aliphatic split petroleum hydrocarbons; PAH=polycyclic aromatic hydrocarbons, sulphate suite=sulphide, water soluble sulphate, elemental sulphur, VOC=Volatile organic Compounds, SVOC= Semi Volatile Organic Compounds, PCB=polychlorinated biphenyls, FOC=Fraction Organic Carbon.

Leaching tests were also undertaken on selected soil samples, the results of which are displayed with the soil samples in the Certificate of Analysis presented in Appendix B. Table 2-2 shows the leaching testing undertaken.

It should be noted that the leaching test is an aggressive test and may not give results that are truly representative; particularly for organic contaminants.

Suites & Contaminants	No. of Samples	Location & Depth
Suite L-1 (Soil Leachate) Metals / metalloids, pH, sulphate suite, speciated PAHs, TPHCWG, phenols, ammoniacal nitrogen cyanide suite, chloride, electrical conductivity and nitrate. **Suite L-2 (Leachate Additional Suite)** PCBs, SVOCs, VOCs.	6	BH101 2.10-2.20m BH102 0.30-0.75m BH104 1.30-1.40m BH105 0.20-0.40m DS101 0.00-0.30m DS101 0.30-0.44m

Table 2-2: Summary of leaching testing undertaken.
Notes:
Metal/metalloids=arsenic, barium, beryllium, boron, cadmium, chromium, (total and hexavalent), copper, lead, mercury, nickel, selenium, vanadium, zinc; TPHCWG=carbon banded and aromatic/aliphatic split petroleum hydrocarbons; PAH=polycyclic aromatic hydrocarbons, sulphate suite=sulphide, water soluble sulphate, elemental sulphur, VOC=Volatile organic Compounds, SVOC= Semi Volatile Organic Compounds, PCB=polychlorinated biphenyls.

2.3.2 Water Sampling

To establish the condition of groundwater LKC undertook 6no. groundwater samples.

The groundwater samples were collected a minimum of 1 week after drilling had finished and following well development. Sample collection was undertaken using a low flow sampling pump using thin-walled tubing to encourage laminar flow and minimise the potential loss of volatiles during sampling. The borehole was purged of all standing water and the sample collected from the recharged water. The sample was collected in glass and plastic bottles and a glass vial. A water meter was used to test the pH, temperature and conductivity before sampling until equilibrium conditions were met, as per BS10175[6] guidelines.

All water samples were placed in glass bottles, plastic bottles and septum topped vials and stored in ice packed cool boxes. The samples were sent to Eurofins Chemtest for analysis. The sampling suite is presented in Table 2-3.

Sampling was carried out in accordance with BS5930[7] and BS5667-11[8].

[6] British Standard (2017). "Investigation of Potentially Contaminated Sites – Code of Practice." BS10175:2017.
[7] British Standard (2015). "Code of Practice for Ground Investigations". BS5930:2015.
[8] British Standard (2009). "Water Quality – Sampling. Part 11: Guidance on Sampling of Groundwaters". BS ISO 5667-11:2009.

Many of the tests are UKAS or MCERTS accredited and further details are given in the Certificate of Analysis presented in Appendix C. Table 2-3 shows the groundwater testing undertaken.

Suites and Contaminants	No. Samples	Location
Suite W-1 (Waters) Metals / metalloids, pH, sulphate suite, speciated PAHs, TPHCWG, phenols, ammoniacal nitrogen cyanide suite, chloride, electrical conductivity and nitrate. **Suite W-2 (Additional Waters)** PCBs, SVOCs, VOCs.	6	BH101 BH102 BH103 BH104 BH105 BH106

Table 2-3. Summary of groundwater sampling tests undertaken.

Notes:
Metal/metalloids=arsenic, barium, beryllium, boron, cadmium, chromium, (total and hexavalent), copper, lead, mercury, nickel, selenium, vanadium, zinc; TPHCWG=carbon banded and aromatic/aliphatic split petroleum hydrocarbons; PAH=polycyclic aromatic hydrocarbons, sulphate suite=sulphide, water soluble sulphate, elemental sulphur, VOC=Volatile organic Compounds, SVOC= Semi Volatile Organic Compounds, PCB=polychlorinated biphenyls.

2.4 Gas Monitoring

All the installed boreholes are currently being monitored for gas. To date, four gas monitoring visits have been undertaken. A further two visits are proposed.

Monitoring is being undertaken using a Geotechnical Instruments GA5000 in accordance with the monitoring protocol outlined in CIRIA C665[9] (flow rate measured first). The monitoring will aim to be undertaken over a range of weather conditions (including low and falling barometric pressure and heavy rain) to demonstrate worst-case conditions.

As per the recommended scope of works provided by AECOM Ltd, gas flow was recorded for 3 minutes and gas concentrations were recorded for 10 minutes.

The gas monitoring results (including PID results) to date, are reproduced in full in Appendix D.

2.5 Geotechnical Testing

2.5.1 In-situ Onsite Geotechnical Testing

In-situ geotechnical tests were performed in the hand dug starter pits and boreholes to further characterise the sub-soil conditions. The following tests were undertaken:

- Shear Vane tests (giving undrained shear strength) were performed in the hand dug inspection pits at 0.25m intervals (to a maximum depth of 0.75mbgl) within cohesive strata.
- Lightweight Deflectometer tests were performed in the hand dug inspection pits at depths of 0.3mbgl, 0.6mbgl and 0.9mbgl.
- Standard Penetration Tests (SPTs) were performed in the cable percussion and rotary core boreholes at approximately 1m intervals, generally within the natural strata.

The SPT and Shear Vane readings are provided within the profile logs (Appendix A).

The lightweight deflectometer was a Zorn ZFG 3.0 with a 300mm diameter plate. The test results (presented as equivalent CBR %) are summarised in Table 3-4.

[9] CIRIA (2007). "Assessing Risks Posed by Hazardous Ground Gases to Buildings." CIRIA C665.

2.5.2 *Laboratory Geotechnical Testing*

Soil samples taken during the investigation were collected in tubs, bulk bags and sealed UT100/U100 tubes and sent to Professional Soil Laboratories for geotechnical testing.

Many of the tests are UKAS accredited and further details will be given in the laboratory report. Table 2-4 shows the geotechnical testing scheduled. The results are outstanding and will be provided in the final report.

Testing Suites	No. Samples	Location	
BRE Suite D pH and water-soluble sulphate also included in contamination testing Suite S-1	19	BH101 1.50m BH101 4.50-5.50m BH101 5.50-7.00m BH101 8.50-10.00m BH101 19.00-20.50m BH102 2.00-2.45m BH102 8.00-9.50m BH103 0.75m BH103 2.00-2.45m BH103 4.00-4.45m	BH104 11.50-13.00m BH104 17.00-18.50m BH105 2.00-2.45m BH105 4.00-4.45m BH105 6.00-6.45m BH106 0.5m BH106 6.00-6.45m BH106 8.50-10.00m BH106 13.00-14.50m
Density Test and Moisture Content	9	BH101 2.00-2.45m BH102 1.20-1.65m BH102 3.00-3.45m BH103 1.20-1.65m BH103 3.00-3.45m	BH105 1.00-1.45m BH105 3.00-3.45m BH106 1.20-1.65m BH106 3.00-3.45m
Atterberg Limits (plasticity testing) and Moisture Content	22	BH101 1.50m BH101 3.00-3.45m BH101 4.00-4.45m BH101 4.50-4.95m BH102 2.00-2.45m BH102 4.00-4.45m BH103 1.20-1.65m BH103 3.00-3.45m BH103 4.00-4.45m BH103 5.00-5.45m BH104 1.20-1.65m	BH104 4.50m BH104 7.00-7.25m BH105 2.00-2.45m BH106 2.00-2.45m BH106 5.00-5.45m BH106 6.00-6.45m BH106 7.00-7.45m BH106 8.50-10.00m BH106 10.00-11.50m BH106 11.50-13.00m BH106 13.00-14.50m
Particle Size Distribution (PSD)	7	BH101 1.50m BH102 2.00-2.45m BH103 2.00-2.45m BH103 4.00-4.45m	BH105 2.00-2.45m BH105 4.00-4.45m BH106 2.00-2.45m
One-Dimensional Consolidation Test	7	BH102 1.20-1.65m BH102 3.00-3.45m BH103 1.20-1.65m BH103 3.00-3.45m	BH105 1.00-1.45m BH105 3.00-3.45m BH106 1.20-1.65m
Quick Undrained Triaxial	11	BH101 2.00-2.45m BH102 1.20-1.65m BH102 3.00-3.45m BH103 1.20-1.65m BH103 3.00-3.45m BH104 2.20-2.65m	BH104 4.00-4.45m BH105 1.00-1.45m BH105 3.00-3.45m BH106 1.20-1.65m BH106 3.00-3.45m

Table 2-4: Summary of geotechnical testing undertaken.

Testing Suites	No. Samples	Location	
Uniaxial Compressive Strength and Moisture Content	13	BH101 4.50-5.50m BH101 5.50-7.00m BH101 8.50-10.00m BH101 19.00-20.50m BH102 8.00-9.50m BH102 9.50-11.00m BH102 14.00-15.50m	BH104 10.00-11.50m BH104 17.00-18.50m BH106 8.50-10.00m BH106 10.00-11.50m BH106 11.50-13.00m BH106 13.00-14.50m
Point Load -Axial and Diametral and Moisture Content	17	BH101 4.50-5.50m BH101 5.50-7.00m BH101 8.50-10.00m BH101 19.00-20.50m BH102 8.00-9.50m BH102 9.50-11.00m BH102 14.00-15.50m BH102 18.50-20.00m BH104 10.00-11.50m	BH104 14.00-15.00m BH104 17.00-18.50m BH104 18.50-20.00m BH104 23.00-24.50m BH106 8.50-10.00m BH106 10.00-11.50m BH106 11.50-13.00m BH106 13.00-14.50m

Table 2-4(continued): Summary of geotechnical testing undertaken.

2.6 Falling Head Tests

LKC undertook falling head tests to assess the permeability of the ground. The tests were carried out in general accordance with guidance given in BS5930[10] and BS 22282[11].

The tests were carried out in within the cable percussive boreholes during drilling work.

Groundwater levels were measured prior to undertaking the tests. Water was added to the well to a known depth and falling water levels were measured over time.

The results are presented in Appendix F.

[10] British Standard (2015). "Code of Practice for Ground Investigations". BS5930:2015.
[11] British Standards (2012). 'Geotechnical investigation and testing – Geohydraulic testing. Part 2: Water permeability tests in a borehole using open systems'. BS EN ISO 22282-2:2012

3 Ground Conditions

3.1 Geology – Generalised Sequence

The ground conditions beneath the site comprised made ground underlain by natural slightly gravelly silty CLAY and further underlain by MUDSTONE bedrock. A summary section of the logs is provided in Plate 3-1, with additional comments below.

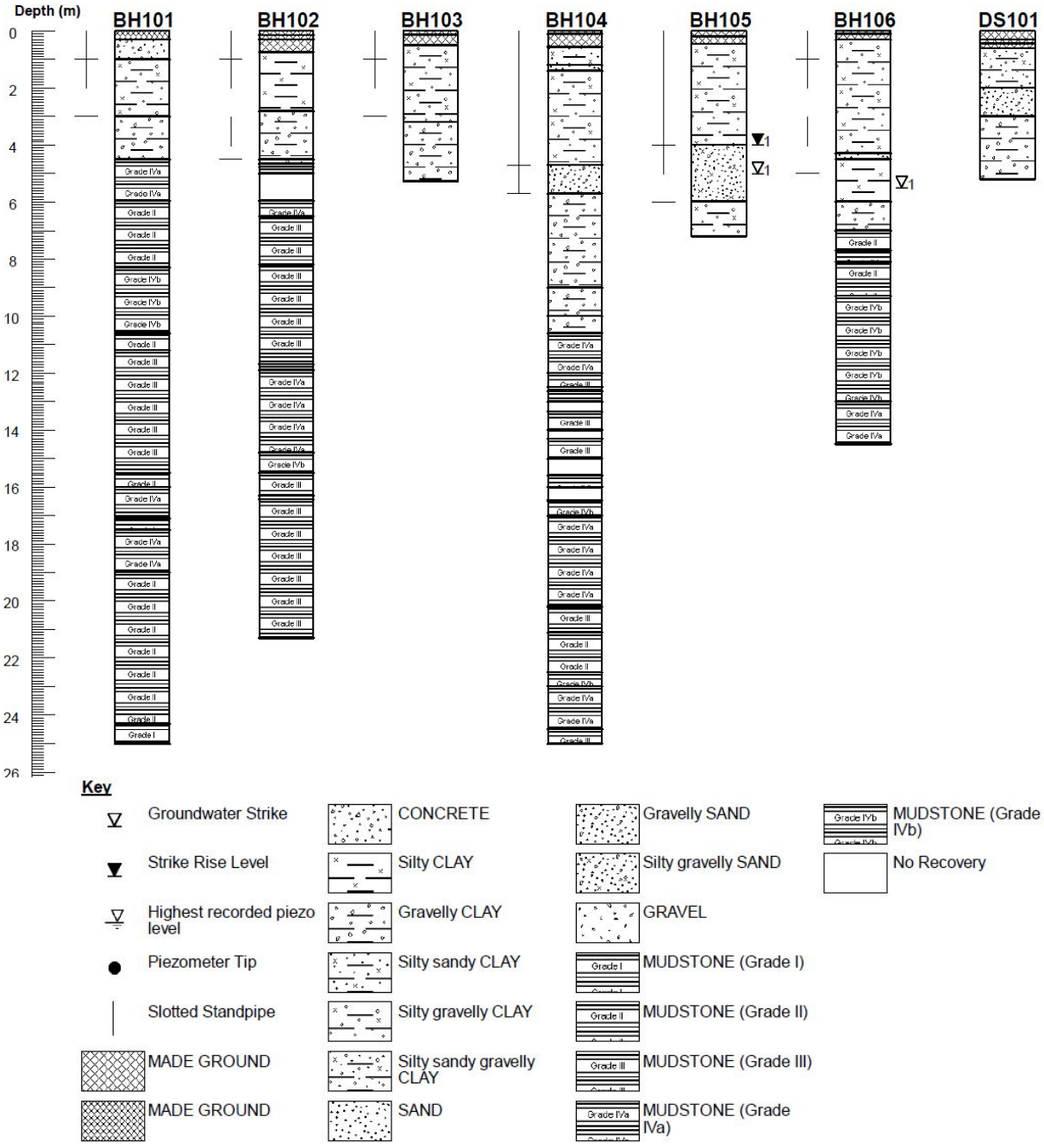


Plate 3-1: Summary of ground conditions.

Additional information on ground conditions:

Made Ground

Made ground was recorded in all boreholes to depths of 0.30 to 0.75mbgl and consists of tarmacadam over sandy gravel sub base material. The exceptions to this were in BH101 where tarmacadam and sub-base was recorded to 0.30mbgl underlain by concrete to 1.00mbgl and DS101 where gravelly sandy silt with brick, coal and ash was recorded to 0.30mbgl underlain by grey becoming orange sandy gravel sub-base to 0.6mbgl.

Natural Strata

Natural strata comprised horizons of firm to very stiff clay, interbedded in some locations with horizons of medium dense to dense, variably gravelly sand.

Weathered mudstone bedrock recovered as friable gravelly clay was encountered at the base all the boreholes locations from 2.80-9.00mbgl.

Mudstone bedrock was encountered in BH101, BH102 and BH106 to depths of >14.5->25mbgl. Bedrock in BH104 comprised of mudstone with bands recovered as clay or no recovery. The extent of weathering varied between destructured (Grade IVa) and Unweathered (Grade I).

3.2 Groundwater

3.2.1 Groundwater Levels

Groundwater strikes were recorded during the investigation in the boreholes. In addition, groundwater monitoring within the borehole wells has been undertaken on 4no. occasions to date. An oil-water interface probe (approximately 1cm detection limit) was used to detect the presence of free phase hydrocarbons within each borehole.

Results are summarised in Table 3-1.

BH/TP	Water Strike Depths (mbgl)	Well Response Zone (mbgl)	No. of Monitoring Visits	Monitoring Depths (mbgl)			Sample Taken?	Evidence of Contam?
				Min	Max	Base		
BH101	NR	1.00-3.00 (C)	4	1.43	1.70	3.03-3.08	Yes	No
BH102	NR	1.00-4.50 (C)	4	1.44	1.57	4.30-4.46	Yes	No
BH103	NR	1.00-3.00 (C)	4	2.35	2.49	3.05-3.08	Yes	No
BH104	NR	4.70-5.70 (S)	4	3.65	3.80	5.60-5.70	Yes	No
BH105	5.00	4.00-6.00 (S)	3	3.37	3.50	6.67-6.76	Yes	No
BH106	5.50	1.00-5.00 (C/S)	4	3.06	3.21	4.93-4.99	Yes	No
DS101	NR	Not installed					No	No

Table 3-1: Summary of water strike depths within boreholes.
Response Zones:
S=Sand; C=Clay
Notes: NR= None recorded.

3.2.2 Permeability Tests

The results of the falling head tests are presented in Appendix F and summarised in Table 3-2.

BS5930[12] indicates that if 'Ho' is taken as the groundwater 'Head' above baseline conditions following the addition of water at the start of the permeability test and 'H' is the measured groundwater 'Head' above baseline conditions at any given time during the test then the time taken to reach a head ratio (H/Ho) of 0.37 is used to calculate the permeability of the soils.

Where slow progress was observed and H/Ho of 0.37 was not reached, the permeability has not been calculated.

Due to slow draining, only one test was carried out in each borehole.

BH	Response Zone (mbgl) and Strata	Test No.	Initial water level (mbgl)	Basic Time Lag (where H/Ho=0.37)	Permeability (k) m/sec
BH101	2.00-3.00 (C)	1	Dry	N/A (0.37 not reached)	N/A
BH102	3.00-4.00 (WM)	1	Dry	N/A (0.37 not reached)	N/A
BH103	1.00-2.05 (C)	1	Dry	N/A (0.37 not reached)	N/A
BH104	1.05-2.05 (S/C)	1	Dry	N/A (0.37 not reached)	N/A
BH105	2.25-3.29 (C)	1	Dry	N/A (0.37 not reached)	N/A
BH106	2.60-3.85 (C)	1	Dry	N/A (0.37 not reached)	N/A

Table 3-2: Summary of falling head tests and permeability.
Notes
C=Clay; S=SAND; WM=weathered mudstone.

All 6no. falling head tests failed as they did not reach the H/Ho value.

3.3 In-Situ Geotechnical Testing

3.3.1 Standard Penetration Tests

In-situ standard penetration tests (SPTs) were undertaken, predominantly in the natural ground. The results are summarised in Table 3-3 and provided within the profile logs in Appendix A.

[12] BSI (1999). "Code of Practice for Site Investigations".

Approximate Depth (mbgl)	SPT 'N' Values			
	BH101	BH102	BH103	BH104
1-2	-	-	-	16
2-3	-	22	18	-
3-4	50	-	-	22
4-5	50/75mm 50/225mm	50/35mm 50/45mm	50/145mm	50/190mm
5-6	-	-	50/105mm	50/275mm
6-7	-	50/150mm	-	-
7-8	50/160mm	-	-	50/105mm
8-9	-	50/45mm	-	50/115mm
9-10	-	-	-	50/95mm
10-11	50/40mm	-	-	50/95mm
11-12	-	50/115mm	-	-
13-14	50/40mm	-	-	34
15-16		50/15mm		50/25mm
16-17	50/35mm	-	-	-
17-18	-	-	-	50/125mm
18-19	-	50/45mm	-	-
19-20	50/30mm	-	-	-
20-21	-	-	-	50/25mm
22-23	50/35mm	-	-	-
23-24	-	-	-	50/152mm
25-26	50/20mm	-	-	50/45mm
GW Level	-	-	-	-

Table 3-3: Summary of SPT (N) values.
Notes:
Groundwater level based on strikes during investigation.

Approximate Depth (mbgl)	SPT 'N' Values		
	BH105	BH106	DS101
2-3	15	16	23
3-4	-	-	50/290mm
4-5	39	40	50/25mm
5-6	26	37	50/30mm
6-7	50	49	-
7-8	50/225mm	50/75mm	-
GW Level	5.00m	5.50m	-

Table 3-3 (continued): Summary of SPT (N) values.
Notes:
Groundwater level based on strikes during investigation.

3.3.2 Lightweight Deflectometer Tests

Equivalent CBR values have been obtained from a Lightweight Deflectometer at 0.30m intervals within the hand dug inspection pits. Equivalent CBR results are presented in Table 3-4.

DS101		BH102		BH103	
Depth (m)	CBR (%)	Depth (m)	CBR (%)	Depth (m)	CBR (%)
0.30 (MG)	8	0.30 (MG)	33	0.30 (MG)	26
0.60 (C)	10	0.60 (MG)	23	0.60 (C)	3
0.90 (C)	6	0.90 (C)	11	0.90 (C)	5

Table 3-4: Summary of Equivalent CBR (%) values.
Notes: MG = Made Ground; C=Clay.

BH104		BH105		BH106	
Depth (m)	CBR (%)	Depth (m)	CBR (%)	Depth (m)	CBR (%)
0.30 (MG)	21	0.30 (MG)	11	0.30 (C)	6
0.60 (C)	9	0.60 (C)	4	0.60 (C)	15
0.90 (C)	4	0.90 (C)	7	0.90 (C)	4

Table 3-4 (continued): Summary of Equivalent CBR (%) values.
Notes
MG = Made Ground; C=Clay.

Equivalent CBR readings in the made ground varied between 8 and 33%. The made ground recorded in DS101 was a gravelly sandy silt unlike the other locations which were sandy gravels (sub-base). This is likely to have influenced the lower CBR values in DS101.

3.3.3 Shear Vanes

Hand shear vane readings, recording undrained shear strength (s_u), were taken within the clay strata at prescribed intervals. The results are summarised in Table 3-5 and provided within the profile logs in Appendix A.

Approximate Depth (mbgl)	Average Undrained Shear Strength (kPa)					
	DS101	BH102	BH103	BH104	BH105	BH106
0.25	-	-	-		-	-
0.50	-	-	P=87.33 R=20.33	P=73.00 R=13.00	P=61.67 R=15.67	P=38.00 R=28.00
0.75	P=83 R=11.67	-	P=53.67 R=9.67	P=96.00 R=38.00	P=72.67 R=15.33	P=48.00 R=6.00
0.80	-	P=78.00 R=24.00	-	-	-	-
GW Level	Dry	Dry	Dry	Dry	Dry	Dry

Table 3-5: Summary of average hand shear vane readings.
Notes:
Groundwater level based on strikes during investigation.
Shear vane readings can be influenced by coarse material including silt.

3.4 Geotechnical Laboratory Testing

3.4.1 Particle Size Distribution

Particle size distribution (PSDs) tests were scheduled on samples of granular strata to confirm the material type. The results will be provided in the final report.

3.4.2 Atterberg Limits

Representative samples of natural clay were subjected to Atterberg Limits (plasticity) and Moisture Content testing. Results will be provided in the final report.

3.4.3 One-Dimensional Consolidation Tests

One-Dimensional Consolidation test results will be provided in the final report.

3.4.4 Quick Undrained Triaxial Tests

Quick Undrained Triaxial test results will be provided in the final report.

3.4.5 Uniaxial Compressive Strength Tests

Uniaxial Compressive Strength test results will be provided in the final report.

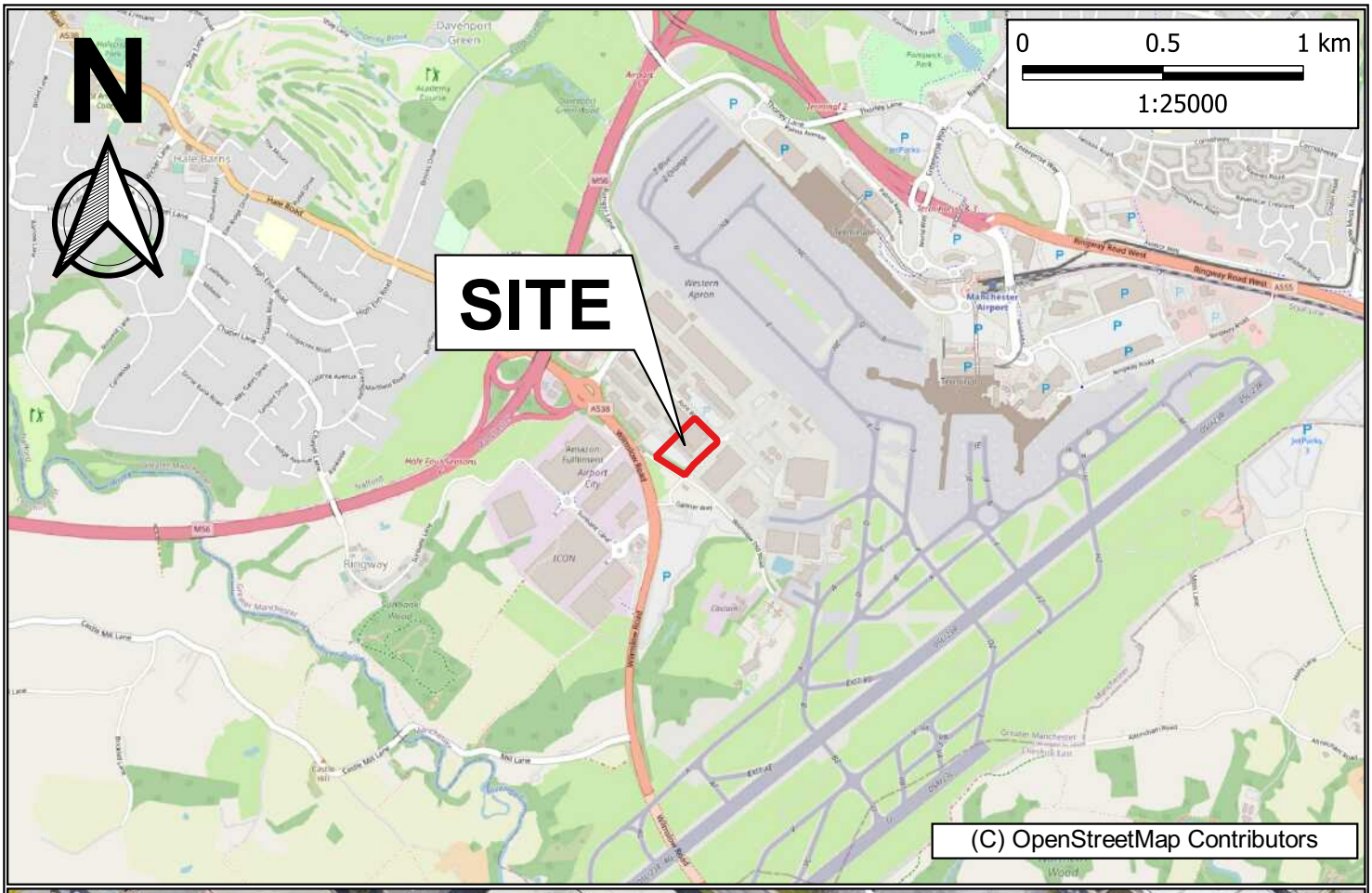
3.4.6 Point Load Tests – Axial and Diametral

Point Load Test results will be provided in the final report.

3.4.7 Sulphate and pH

Water soluble sulphate and pH tests were carried out on soil and groundwater samples. Results from the soil contamination are presented in Appendix B (soils) and Appendix C (groundwater). Results from the BRE Suite D tests will be provided in the final report.

Figures



Client: Threadneedle Curtis Ltd				Title: Site Location & Boundary Plan	LK CONSULT
Site: Building 401, Manchester Airport				Scale (see scale bar): 1:25,000 & 1:2,000 @ A4	Figure: 1	Revision:
Job No.: LKC 22 1225	Drawn By: HF	Checked By: CC	Drawn: May 2022		

Extract from: RPS Group
Drawing Ref: Proposed Block Plan, No.020598-RPS-SI-XX-DR-A-0110, Rev:P02 (30/09/2021)

KEY

Site Boundary

Proposed 2.4m high black weldmesh paladin fence

Existing building footprint

SCHEDULE OF ACCOMMODATION

Unit 1a (GIA)	m²	sq ft
Warehouse	: 2,945	31,700
Grd Floor Rec.+ FE	: 79	850
1st Floor Office	: 336	3,617
Total	**: 3,360**	**36,167**
Level Access	: 5	
HGV Parking	: 5 (inc.5 Loading)	
Car Parking	: 32 (inc 2 Accessible)	
Haunch Height	: 10m	

Unit 1b (GIA)	m²	sq ft
Warehouse	: 1,732	18,643
Grd Floor Rec.	: 60	646
1st Floor Office	: 203	2,185
Total	**: 1,995**	**21,474**
Level Access	: 2	
HGV Parking	: 2 (inc. 2 Loading)	
Car Parking	: 18 (inc 1 Accessible)	
Haunch Height	: 10m	

Unit 1c (GIA)	m²	sq ft
Warehouse	: 2,163	23,283
Grd Floor Rec.+ FE	: 77	829
1st Floor Office	: 250	2,691
Total	**: 2,490**	**26,803**
Level Access	: 3	
HGV Parking	: 3 (inc.3 Loading)	
Car Parking	: 22 (inc 1 Accessible)	
Haunch Height	: 10m	

TOTAL GIA	**: 7,845**	**84,444**

Indicative Site Area : 2.162Ha (5.34 acres)
Indicative Site Density : 36.28% GIA

Sampling Locations and features annotated by LK Consult Ltd are approximate and are based upon observed measurements unless otherwise stated. Do not scale from this drawing and work from marked dimensions only. All dimensions and features should be confirmed on site by the Contractor. Where this drawing includes information provided to LK Consult Ltd by others, LK Consult Ltd gives no warranty, representation or assurance as to the accuracy of such information.

LK CONSULT LIMITED

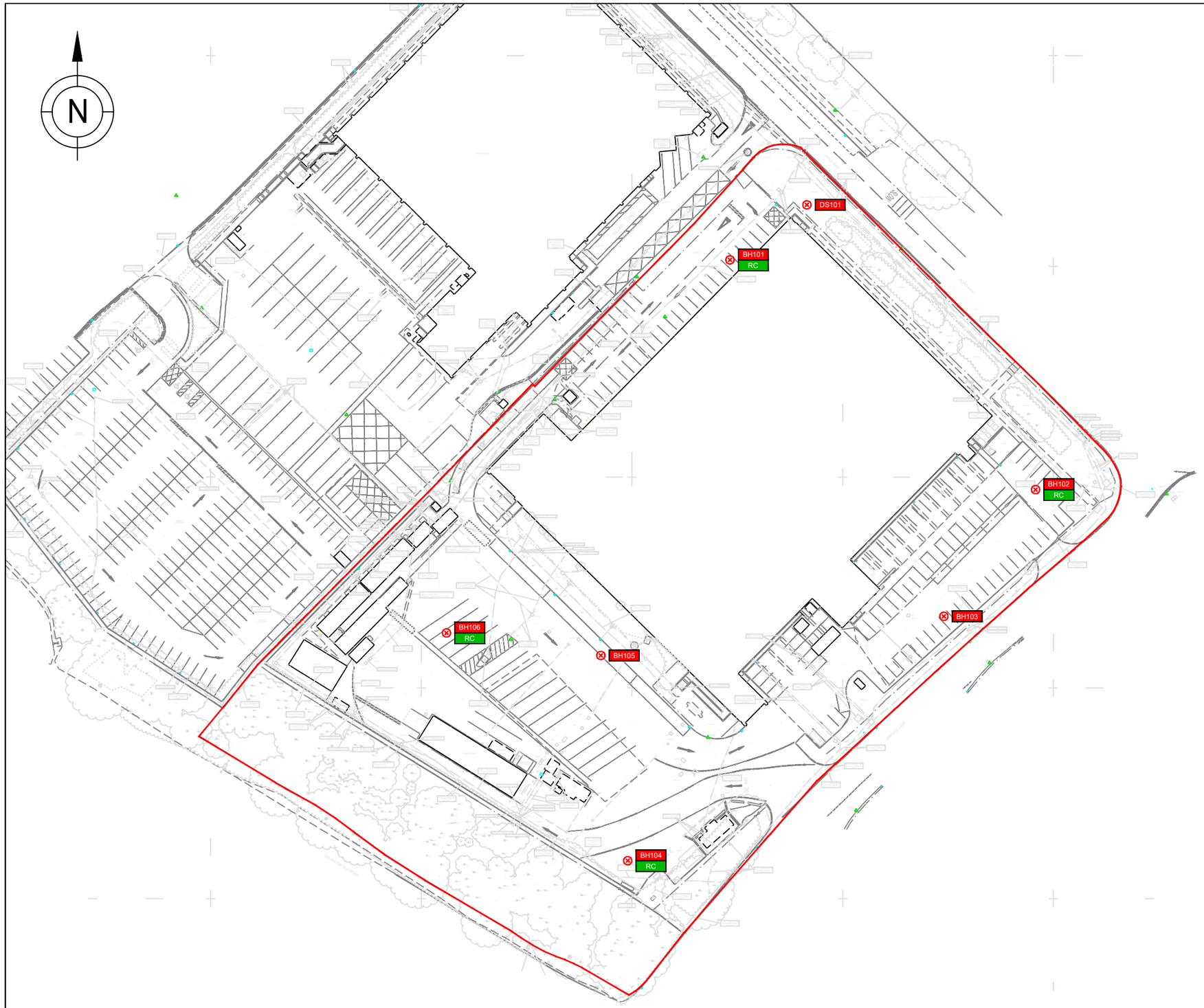
Client: Threadneedle Curtis Ltd

Site: Building 401, Manchester Airport

Title: Proposed Development Plan

Job No.:	Scale (See Scale Bar):	Figure:	Revision:
LKC 22 1225	1:1000 @ A3	2	

Drawn By:	Checked By:	Drawn:
AC	RP	Jun 2022



Extract from: Survey Operations
Drawing Ref: Utility Survey, No.22A231 (March 2022)

0 50
SCALE (Metres)

KEY

- Site Boundary
- Cable Percussive Borehole (CP/DS)
- RC — Rotary Core (RC)

Sampling Locations and features annotated by LK Consult Ltd are approximate and are based upon observed measurements unless otherwise stated. Do not scale from this drawing and work from marked dimensions only. All dimensions and features should be confirmed on site by the Contractor. Where this drawing includes information provided to LK Consult Ltd by others, LK Consult Ltd gives no warranty, representation or assurance as to the accuracy of such information.

LK CONSULT LIMITED

Client: Threadneedle Curtis Ltd

Site: Building 401, Manchester Airport

Title: As Built Borehole Location Plan

Job No.:	Scale (See Scale Bar):	Figure:	Revision:
LKC 22 1225	1:1000 @ A3	3	

Drawn By:	Checked By:	Drawn:
AC	RP	Jun 2022

Appendix A

Profile Logs

LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** B401 Manchester Airport	**Borehole Number** **BH103**
Machine : Dando 2000 **Method :** Cable Percussion	**Casing Diameter** 152mm to 5.00m	**Ground Level (mOD)** 68.21	**Client** Threadneedle Curtis Ltd	**Job Number** LKC 22 1225
	Location (dGPS) 380974 E 384847 N	**Dates** 30/05/2022	**Project Contractor** LK Consult	**Sheet** 1/1

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
					68.07	(0.14) 0.14	MADE GROUND: Tarmacadam.			
0.14-0.40	ES 0.1ppm					(0.36)	MADE GROUND: Orangish brown cobbley sandy GRAVEL with frequent tarmacadam fragments. Sand is fine to coarse. Gravel is fine to coarse subangular to angular of sandstone and limestone. Tarmacadam fragments fallen in from breaking out surface above.			
0.50	D				67.71	0.50				
0.50	SVP Av = 87.33kPa									
0.50	SVR Av = 20.33kPa									
0.75	D									
0.75	SVP Av = 53.67kPa									
0.75	SVR Av = 9.67kPa									
1.20-1.65	UT			32 blows			Firm to very stiff consistency medium to high strength brown with grey mottling slightly gravelly silty CLAY. Gravel is fine to medium subangular to subrounded of various lithologies.			
1.50-1.60	ES 0.1ppm									
						(2.70)				
2.00-2.45	SPT N=18			2,3/3,4,6,5						
2.00-2.45	BS									
3.00-3.45	UT			32 blows						
					65.01	3.20	Reddish brown friable gravelly CLAY / very weak weathered MUDSTONE. Gravel is fine to coarse subangular to angular of mudstone.			
4.00-4.30	SPT 50/145			11,14/20,30						
4.00-4.45	BS					(2.06)				
5.00-5.26	SPT 50/105			14,11/22,28						
5.00-5.26	BS									
					62.95	5.26	Terminated at 5.26m			

Remarks
Tarmacadam broken out by excavator.
Hand digging to 1.2mbgl.
Cable percussion to 5.26mbgl.
Falling Head Test carried out between 1.00-2.00mbgl.
No groundwater strikes recorded.
Chiselling from 4.00m to 5.26m for 1 hour.

Scale (approx)	**Logged By**
1:50	RP

Figure No.
LKC 22 1225.BH103

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LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** B401 Manchester Airport	**Borehole Number** **BH105**	
Machine : Dando 2000 **Method :** Cable Percussion	**Casing Diameter** 152mm cased to 7.00m	**Ground Level (mOD)** 67.23	**Client** Threadneedle Curtis Ltd	**Job Number** LKC 22 1225
	Location (dGPS) 380892.6 E 384807.7 N	**Dates** 25/05/2022-01/06/2022	**Project Contractor** LK Consult	**Sheet** 1/1

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
					67.03	(0.20) 0.20	MADE GROUND: Tarmacadam.			
0.20-0.40	ES 0.2ppm				66.77	(0.26) 0.46	MADE GROUND: Orangish brown gravelly SAND with occasional tarmacadam. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded of sandstone. Tarmacadam fragments fallen in from breaking out surface above. Membrane at base.			
0.50 0.50 0.50 0.70 0.75 0.75 0.75 1.00-1.45 1.50-1.60	D SVP Av = 61.67kPa SVR Av = 15.67kPa B D SVP Av = 72.67 SVR Av = 15.33kPa UT ES 0.3ppm			16 blows			Firm to very stiff consistency high strength slightly gravelly silty CLAY. Gravel is fine subangular to rounded of mixed lithologies.			
2.00-2.45 2.00-2.45	SPT N=15 BS			2,3/3,3,4,5		(3.54)				
3.00-3.45	UT			21 blows						
4.00-4.45 4.00-4.45	SPT N=39 BS			4,5/6,8,10,15	63.23	4.00	Dense brown slightly gravelly silty SAND with discrete bands of stiff consistency slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is fine to coarse subangular to rounded of mixed lithologies.		▼1	
5.00-5.45	BS			Water strike(1) at 5.00m, rose to 4.00m in 20 mins.		(2.00)			▽1	
5.00-5.45	SPT N=26			2,4/5,5,8,8						
6.00-6.45 6.00-6.45	SPT N=50 BS			6,7/10,10,17,13	61.23	6.00	Stiff to very stiff consistency high strength brown gravelly silty CLAY possible extremely weak weathered MUDSTONE. Gravel is fine to coarse subangular to angular of mudstone.			
						(1.20)				
7.00-7.38 7.00-7.45	SPT 50/225 BS			9,11/12,14,24	60.03	7.20				

Remarks
Tarmacadam broken out by excavator.
Hand digging to 1.2mbgl.
Cable percussion to 7.20mbgl.
Falling Head Test carried out between 2.00-3.00mbgl.
Chiselling from 6.20m to 7.00m for 1 hour. Water added from 6.00m to 7.00m.

Scale (approx)	Logged By
1:50	RP

Figure No.
LKC 22 1225.BH105

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** B401 Manchester Airport	**Borehole Number** **DS101**
Machine : Dando 2000 **Method :**	**Casing Diameter** 152mm to 3.00m	**Ground Level (mOD)** 64.40	**Client** Threadneedle Curtis Ltd	**Job Number** LKC 22 1225
	Location (dGPS) 380941.5 E 384914.6 N	**Dates** 30/05/2022-31/05/2022	**Project Contractor** LK Consult	**Sheet** 1/1

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.30	ES 0.5ppm					(0.30)	MADE GROUND: Dark brown gravelly sandy SILT with occasional brick, coal and ash. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded of various lithologies.		
0.30-0.44	ES 0.3ppm				64.10	0.30			
0.44-0.60	ES 0.2ppm				63.96	(0.14)			
0.75	D				63.80	(0.16) 0.60	MADE GROUND: Greyish brown sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse subangular to angular of limestone. MOT type material.		
0.75	SVP Av = 83kPa								
0.75	SVR Av = 11.67kPa						MADE GROUND: Orangish brown sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse subangular to angular of sandstone. MOT type material.		
1.20-1.65	UT					(1.40)			
1.60-2.00	B						Firm becoming stiff consistency high strength brown with orange and grey mottling slightly gravelly sandy silty CLAY with thin lenses of sand. Sand is fine to coarse. Gravel is fine to medium subangular to rounded of various lithologies.		
1.65-1.75	ES 0.1ppm								
1.70	D								
2.00-2.45	SPT N=23			4,4/8,5,5,5	62.40	2.00			
2.00-2.45	S								
2.00-2.50	B						Medium dense orangish brown slightly gravelly SAND with thin bands of slightly gravelly clay. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded of various lithologies.		
						(1.00)			
3.00-3.44	SPT 50/290			6,9/11,12,15,12	61.40	3.00			
3.00-3.45	S						Stiff to very stiff consistency very high strength reddish brown slightly gravelly CLAY. Gravel is fine to medium subangular to subrounded of mudstone. Possibly becoming extremely weak weathered MUDSTONE from 4.1mbgl.		
3.00-3.50	B								
4.00-4.15	SPT 25*/125 50/25			11,14/50		(2.20)			
4.00-4.20	S								
4.00-4.30	B								
5.00-5.11	SPT 25*/75 50/30			25/50	59.20	5.20			
5.00-5.10	S						Complete at 5.20m		
5.00-5.20	B								

Remarks
Ground levelled off with excavator and reduced by 0.25m prior to cable rig setting up.
Hand digging to 1.2mbgl.
Cable percussion to 5.2mbgl.
No groundwater strikes recorded.
Chiselling from 4.00m to 5.20m for 1 hour.

Scale (approx)	**Logged By**
1:50	RP

Figure No.
LKC 22 1225.DS101

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LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** B401 Manchester Airport		**Borehole Number** **BH101**
Machine : Dando 2000 / Teredo DC2.8 **Flush :** Water **Core Dia :** 90 mm **Method :** Rotary Cored	**Casing Diameter** 152mm to 4.50m 127mm to 25.00m	**Ground Level (mOD)** 67.35	**Client** Threadneedle Curtis Ltd	**Job Number** LKC 22 1225
	Location (dGPS) 380923.3 E 384901.5 N	**Dates** 25/05/2022-31/05/2022	**Project Contractor** LK Consult	**Sheet** 1/3

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I_f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
						67.05	(0.30) 0.30	MADE GROUND: Tarmacadam underlain by sandy gravel sub base.			
								MADE GROUND: Concrete (former loading dock).			
						66.35	(0.70) 1.00	Firm to stiff consistency brown with grey mottling slightly gravelly silty CLAY. Gravel is fine to medium subangular to subrounded of various lithologies.			
1.50					B						
2.00-2.45 2.10-2.20					UT 16 blows ES 0.0ppm		(2.00)				
3.00-3.45 3.00-3.45 3.00-3.45					4,5/8,12,12,18 SPT N=50 B S	64.35	3.00	Reddish brown friable gravelly CLAY / very weak weathered MUDSTONE. Gravel is fine to coarse subangular to angular of mudstone.			
4.00-4.23 4.00-4.45 4.00-4.45					13,12/50 SPT 50/75 B S		(1.50)				
4.50					14,11/12,15,23 Fractures very closely spaced 40 to 60degrees stepped rough open clean from 4.50m to 5.50mbgl.	62.85	4.50	Very weak structureless red MUDSTONE with medium spaced undulating bands of gypsum (<5mm thick). Destructured (Grade IVa).	Grade IVa		
4.50-4.88 4.50-4.95 4.50-4.95 5.50	89	89	12	Av:80 Min:50 Max:120	SPT 50/225 B S		(1.45)				
7.00 7.00-7.15	98	98	96	Av:340 Min:60 Max:360	Fractures medium spaced 10degrees planar rough open clean.	61.40	5.95	Weak to medium strong structureless grey MUDSTONE BRECCIA with very closely spaced undulating bands of gypsum (<5mm thick) angled at between 45 and 60degrees. Partially weathered (Grade II).	Grade II		
					13,12/50 SPT 25*/85 50/60		(2.35)	Red bands by 7.00mbgl.			
8.50	100	100	97	Av:290 Min:40 Max:370		59.05	8.30	Weak structureless red MUDSTONE with medium spaced subvertical bands of gypsum (<5mm thick). Increasingly clayey with depth. Destructured (Grade IVb).	Grade IVb		
10.00	100	100	100	Av:290 Min:120 Max:320			(2.30)				

Remarks
Tarmacadam broken out by excavator.
Hand digging to 0.3mbgl.
Concrete broken out by excavator to 1.00mbgl.
Cable percussion to 4.5mbgl.
Follow on rotary coring from 4.5mbgl to 25.00mbgl.
Falling Head Test carried out at 2.00-3.00mbgl.
No groundwater strikes recorded.

Scale (approx)	Logged By
1:50	CC/PW

Figure No.
LKC 22 1225.BH101

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** B401 Manchester Airport	**Borehole Number** **BH101**
Machine : Dando 2000 / Teredo DC2.8 **Flush :** Water **Core Dia :** 90 mm **Method :** Rotary Cored	**Casing Diameter** 152mm to 4.50m 127mm to 25.00m **Location** (dGPS) 380923.3 E 384901.5 N	**Ground Level (mOD)** 67.35 **Dates** 25/05/2022-31/05/2022	**Client** Threadneedle Curtis Ltd **Project Contractor** LK Consult	**Job Number** LKC 22 1225 **Sheet** 2/3

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I_f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
10.00-10.12					21,4/50						
	100	100	94	Av:150 Min:90 Max:550	SPT 25*/80 50/40	56.75	10.60	Weak to medium strong structureless red and grey MUDSTONE BRECCIA with very closely spaced undulating bands of gypsum (<5mm thick) angled at between 60 and 70degrees. Partially weathered (Grade II).	Grade II		
							(0.60)				
11.50						56.15	11.20	Weak structureless red and grey MUDSTONE BRECCIA with rare bands of gypsum (<5mm thick). Distinctly weathered (Grade III).	Grade III		
	100	100	90	Av:160 Min:50 Max:230							
13.00 13.00-13.12					25/50						
	95	95	90	Av:120 Min:30 Max:390	SPT 25*/75 50/40		(4.30)				
14.50											
	89	89	88	Av:240 Min:20 Max:500		51.85	15.50	Weak thickly laminated red MUDSTONE. Bedding 10degrees. Partially weathered (Grade II).	Grade II		
							(0.50)				
16.00 16.00-16.11					25/50	51.35	16.00	Very weak structureless red MUDSTONE. Destructured (Grade IVa).	Grade IVa		
	100	100	96	Av:120 Min:40 Max:210	SPT 25*/75 50/35		(1.10)				
						50.25	17.10	Weak to medium strong thickly laminated to very thinly bedded red MUDSTONE and SILTSTONE. Bedding 10 to 20degrees. Unweathered (Grade I).	Grade I		
							(0.40)				
17.50						49.85	17.50	Very weak structureless red MUDSTONE BRECCIA. Destructured (Grade IVa).	Grade IVa		
	100	95	80	Av:180 Min:NI Max:340			(1.50)				
19.00 19.00-19.06					25/50	48.35	19.00	Weak to medium strong thickly laminated to very thinly bedded red MUDSTONE and SILTSTONE. Bedding 10 to 20degrees. Partially weathered (Grade II). Grey bands and patches of distorted/slumped bedding roughly 10 to 20degrees present from 19.45mbgl. Band of gypsum (<10mm thick) undulating	Grade II		
	93	93	90	Av:290 Min:40 Max:320	SPT 25*/30 50/30						

Remarks
Tarmacadam broken out by excavator.
Hand digging to 0.3mbgl.
Concrete broken out by excavator to 1.00mbgl.
Cable percussion to 4.5mbgl.
Follow on rotary coring from 4.5mbgl to 25.00mbgl.
Falling Head Test carried out at 2.00-3.00mbgl.
No groundwater strikes recorded.

Scale (approx)	**Logged By**
1:50	CC/PW

Figure No.
LKC 22 1225.BH101

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** B401 Manchester Airport	**Borehole Number** **BH101**
Machine : Dando 2000 / Teredo DC2.8 **Flush :** Water **Core Dia :** 90 mm **Method :** Rotary Cored	**Casing Diameter** 152mm to 4.50m 127mm to 25.00m **Location** (dGPS) 380923.3 E 384901.5 N	**Ground Level (mOD)** 67.35 **Dates** 25/05/2022-31/05/2022	**Client** Threadneedle Curtis Ltd **Project Contractor** LK Consult	**Job Number** LKC 22 1225 **Sheet** 3/3

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I_f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
								subvertical from 19.50m to 20.10mbgl.	Grade II		
20.50	100	100	96	Av:180 Min:50 Max:420			(5.30)				
22.00	96	96	89	Av:200 Min:10 Max:350	25/50 Fractures close to medium spaced rough planar open clean bedding parallel (10degrees). Possibly drilling induced. SPT 25*/40 50/35						
22.00-22.08											
23.50	99	99	87	Av:160 Min:50 Max:320		43.05	24.30	Medium strong structureless red MUDSTONE with rare gypsum undulating subvertical (<2mm thick). Unweathered (Grade I).	Grade I		
							(0.70)				
25.00					25/50 SPT 25*/15 50/20	42.35	25.00	Complete at 25.00m			
25.00-25.04											

Remarks
Tarmacadam broken out by excavator.
Hand digging to 0.3mbgl.
Concrete broken out by excavator to 1.00mbgl.
Cable percussion to 4.5mbgl.
Follow on rotary coring from 4.5mbgl to 25.00mbgl.
Falling Head Test carried out at 2.00-3.00mbgl.
No groundwater strikes recorded.

Scale (approx)	**Logged By**
1:50	CC/PW

Figure No.
LKC 22 1225.BH101

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LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** B401 Manchester Airport	**Borehole Number** **BH102**	
Machine : Dando 2000 / Teredo DC2.8 **Flush :** Water **Core Dia :** 90 mm **Method :** Rotary Cored	**Casing Diameter** 152mm to 4.50m 127mm to 21.30m	**Ground Level (mOD)** 68.04	**Client** Threadneedle Curtis Ltd	**Job Number** LKC 22 1225
	Location (dGPS) 380995.8 E 384847 N	**Dates** 27/05/2022-07/06/2022	**Project Contractor** LK Consult	**Sheet** 1/3

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I_f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
							(0.15)				
0.15-0.30					ES 0.3ppm	67.89	0.15	MADE GROUND: Tarmacadam and sub base.			
0.30-0.75					ES 0.2ppm	67.74	(0.15) 0.30	MADE GROUND: Brown gravelly SAND with rare clinker gravel. Sand is fine to coarse. Gravel is fine to coarse subangular to angular of various lithologies.			
							(0.45)				
0.80					SVP Av = 78kPa	67.29	0.75	MADE GROUND: Orangish brown cobbley sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse subangular to angular of sandstone and limestone. Possible 6F5 type sub base material.			
0.80					SVR Av = 24kPa						
1.20-1.65					UT 36 blows			Firm to stiff consistency medium to high strength brownish grey silty CLAY.			
							(2.05)				
1.70-1.80					ES 0.0ppm						
2.00-2.45					3,4/6,5,5,6 SPT N=22						
2.00-2.45					B						
2.00-2.45					S						
						65.24	2.80	Reddish brown friable gravelly CLAY / very weak weathered MUDSTONE. Gravel is fine to coarse subangular to angular of mudstone.			
3.00-3.45					UT 40 blows						
							(1.70)				
					7,18/50						
4.00-4.19					SPT 50/35						
4.00-4.45					B						
4.00-4.45					S						
						63.54	4.50				
4.50					25/50		(0.15)				
4.50-4.60	100	70	24	Av:60 Min:NI Max:120	SPT 25*/55 50/45	63.39	4.65	Reddish grey coarse rounded GRAVEL of mudstone, sandstone and basalt.	Grade IVb		
4.50-4.95					B	63.27	4.77				
4.50-4.95					S		(0.23)				
5.00					Fractures closely spaced 20degrees stepped rough open clean. Possibly drilling induced.	63.04	5.00	Weak structureless red and grey MUDSTONE BRECCIA. Distinctly weathered (Grade III).			
								Extremely weak structureless red and grey MUDSTONE. Recovered as clay. Destructured (Grade IVb).			
							(0.96)				
	63	35	0	Av:60 Min:NI Max:90				POOR RECOVERY. Possibly gravel band.			
						62.08	5.96	Extremely weak very thinly laminated red MUDSTONE. Bedding 10degrees. Very soft and clayey in patches but bedding still visible. Distinctly weathered (Grade IVa).	Grade IVa		
							(0.54)		Grade IVa		
6.50					25/40,10	61.54	6.50	Gypsum band (<30mm) undulating at 15degrees at 6.47mbgl.	Grade IVa		
6.50-6.73					SPT 25*/75 50/150				Grade III		
								Extremely weak very thinly laminated red MUDSTONE with medium spaced undulating bands of gypsum (<5mm). Bedding 10degrees. Distinctly weathered (Grade III).	Grade III		
	98	98	93	Av:160 Min:60 Max:300					Grade III		
							(1.70)		Grade III		
									Grade III		
									Grade III		
									Grade III		
8.00					25/50				Grade III		
8.00-8.12					SPT 25*/75 50/45	59.84	8.20	Weak very thinly laminated red MUDSTONE. Bedding 10degrees. Distinctly weathered (Grade III).	Grade III		
					Fractures very closely spaced 10degrees planar rough open occasional fine gravel infill.				Grade III		
	86	62	28	Av:20 Min:NI Max:150					Grade III		
									Grade III		
									Grade III		
									Grade III		
					Fractures medium spaced subvertical stepped rough open clean.				Grade III		
9.50									Grade III		

Remarks
Tarmacadam broken out by excavator.
Hand digging to 1.2mbgl.
Cable percussion to 4.5mbgl.
Follow on rotary coring from 4.5mbgl to 21.3mbgl.
Falling Head Test carried out between 3.4mbgl.
Borehole terminated at 21.3mbgl due to pump failure on rotary rig.
No groundwater strikes recorded.
Chiselling from 3.70m to 4.50m for 1 hour. Water added from 4.00m to 4.50m.

Scale (approx)	Logged By
1:50	CC/PW

Figure No.
LKC 22 1225.BH102

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** B401 Manchester Airport	**Borehole Number** **BH102**
Machine : Dando 2000 / Teredo DC2.8 **Flush :** Water **Core Dia :** 90 mm **Method :** Rotary Cored	**Casing Diameter** 152mm to 4.50m 127mm to 21.30m **Location** (dGPS) 380995.8 E 384847 N	**Ground Level (mOD)** 68.04 **Dates** 27/05/2022-07/06/2022	**Client** Threadneedle Curtis Ltd **Project Contractor** LK Consult	**Job Number** LKC 22 1225 **Sheet** 2/3

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I_f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
	100	96	85	Av:260 Min:NI Max:400	Fractures closely to very closely spaced 10degrees to horizontal planar rough open clean.		(3.50)		Grade III		
11.00 11.00-11.19	96	91	60	Av:150 Min:NI Max:150	25/30,20 SPT 25*/75 50/115	56.34 56.14	11.70 (0.20) 11.90	Extremely weak structureless red and grey MUDSTONE. Recovered as clay. Destructured (Grade IVb).	Grade IVb		
12.50	100	97	80	Av:120 Min:40 Max:370			(2.90)	Extremely weak thinly laminated red MUDSTONE. Recovered as gravelly clay. Destructured (Grade IVa).	Grade IVa		
14.00	83	52	17	Av:NI Min:NI Max:140		53.24	14.80	Extremely weak structureless red and grey MUDSTONE. Recovered as clay. Destructured (Grade IVb).	Grade IVb		
15.50 15.50-15.59	77	67	56	Av:120 Min:NI Max:330	25/50 Fractures medium spaced 10degrees planar rough open clean. Possibly drilling induced. SPT 25*/75 50/15	52.54 51.74 51.60	(0.70) 15.50 (0.80) 16.30 (0.14) 16.44	Weak structureless red MUDSTONE BRECCIA. Distinctly weathered (Grade III). Weak very thinly laminated grey MUDSTONE. Bedding 10degrees. Partially weathered (Grade II).	Grade III Grade II		
17.00	96	94	80	Av:180 Min:NI Max:460				Weak structureless red and grey MUDSTONE BRECCIA. Distinctly weathered (Grade III).	Grade III		
18.50 18.50-18.62	99	99	84	Av:120 Min:50 Max:250	25/50 SPT 25*/75 50/45		(4.86)	Gypsum band (<10mm) planar horizontal at 19.55mbgl.	Grade III		
20.00								Gypsum band (<10mm) undulating at			

Remarks
Tarmacadam broken out by excavator.
Hand digging to 1.2mbgl.
Cable percussion to 4.5mbgl.
Follow on rotary coring from 4.5mbgl to 21.3mbgl.
Falling Head Test carried out between 3.4mbgl.
Borehole terminated at 21.3mbgl due to pump failure on rotary rig.
No groundwater strikes recorded.

Scale (approx)	**Logged By**
1:50	CC/PW

Figure No.
LKC 22 1225.BH102

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** B401 Manchester Airport	**Borehole Number** **BH102**
Machine : Dando 2000 / Teredo DC2.8 **Flush :** Water **Core Dia :** 90 mm **Method :** Rotary Cored	**Casing Diameter** 152mm to 4.50m 127mm to 21.30m **Location** (dGPS) 380995.8 E 384847 N	**Ground Level (mOD)** 68.04 **Dates** 27/05/2022-07/06/2022	**Client** Threadneedle Curtis Ltd **Project Contractor** LK Consult	**Job Number** LKC 22 1225 **Sheet** 3/3

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I_f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
	100	98	42	Av:60 Min:NI Max:220				60degrees at 19.85m to 19.95mbgl.	Grade III		
21.30						46.74	21.30	Terminated at 21.30m			

Remarks
Tarmacadam broken out by excavator.
Hand digging to 1.2mbgl.
Cable percussion to 4.5mbgl.
Follow on rotary coring from 4.5mbgl to 21.3mbgl.
Falling Head Test carried out between 3.4mbgl.
Borehole terminated at 21.3mbgl due to pump failure on rotary rig.
No groundwater strikes recorded.

Scale (approx)	Logged By
1:50	CC/PW

Figure No.
LKC 22 1225.BH102

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LK CONSULT LTD

Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS
Tel: 0161 763 7200 web: www.thelkgroup.com

Machine : Dando 2000 / Teredo DC2.8 **Flush :** Water **Core Dia :** 90 mm **Method :**	**Casing Diameter** 152mm to 10.25m 127mm to 18.00m **Location** (dGPS) 380899 E 384759 N	**Ground Level (mOD)** 67.58 **Dates** 25/05/2022-01/06/2022	**Site** B401 Manchester Airport **Client** Threadneedle Curtis Ltd **Project Contractor** LK Consult	**Borehole Number** BH104 **Job Number** LKC 22 1225 **Sheet** 1/3

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I_f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
						67.48	0.10	MADE GROUND: Tarmacadam.			
0.10-0.30					ESD 0.3ppm						
0.20					D		(0.45)	MADE GROUND: Brownish orange sandy GRAVEL with occasional tarmacadam fragments. Sand is fine to coarse. Gravel is fine to coarse subangular to angular of sandstone. Membrane noted at base.			
					2,2/2,4,5,5	67.03	0.55				
0.50					D						
0.50					SVP Av = 73kPa						
0.50					SVR Av = 13 kPa		(0.65)				
0.75					D			Firm to stiff consistency medium to high strength orangish brown slightly sandy silty CLAY with thin bands of fine grey sand. Sand is fine to medium.			
0.75					SVP Av = 96kPa						
0.75					SVR Av = 38kPa	66.38	1.20				
0.80					D		(0.20)				
1.20-1.65					SPT N=16	66.18	1.40	Loose brown SAND. Sand is fine to coarse.			
1.20-1.65					S						
1.30-1.40					ES 0.2ppm			Stiff consistency high to very high strength brown slightly gravelly silty CLAY. Gravel is fine subrounded to rounded of various lithologies.			
1.70-2.00					B						
2.20-2.65					UT						
2.70					D						
					4,4/5,5,6,6		(3.30)				
3.10-3.55					SPT N=22						
3.10-3.55					S						
4.00-4.45					U						
4.50					D NR						
					4,11/14,21,15	62.88	4.70	Very dense brown slightly gravelly SAND. Sand is fine to coarse. Gravel is fine to medium subangular to subrounded of various lithologies.			
4.70-5.04					SPT 50/190						
4.70-5.10					S		(1.00)				
					5,6/12,14,14,10	61.88	5.70	Very stiff consistency brown slightly gravelly CLAY. Gravel is fine to medium subangular to subrounded of various lithologies.			
5.70-6.13					SPT 50/275						
5.70-6.10					S						
6.10-6.40					B						
6.80-7.00					U						
					6,18/21,29						
7.00-7.26					SPT 50/105						
7.00-7.25					S		(3.30)				
					10,15/29,21						
8.00-8.27					SPT 50/115						
8.00-8.30					S						
					9,14/32,18	58.58	9.00	Very stiff consistency reddish brown gravelly CLAY. Gravel is fine to coarse subangular to subrounded of mudstone. Possibly weathered mudstone.			
9.00-9.25					SPT 50/95						
9.00-9.25					S		(1.00)				
10.00											

Remarks
Tarmacadam broken out by excavator.
Hand digging to 1.2mbgl.
Cable percussion to 10.25mbgl.
Follow on rotary coring from 10.25 to 25.00mbgl.
Falling Head Test carried out between 1.00-2.00mbgl.
No groundwater strikes recorded.
Chiselling from 4.70m to 10.00m for 2.5 hours.

Scale (approx)	Logged By
1:50	RP/PW

Figure No.
LKC 22 1225.BH104

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** B401 Manchester Airport	**Borehole Number** **BH104**
Machine : Dando 2000 / Teredo DC2.8 **Flush :** Water **Core Dia :** 90 mm **Method :**	**Casing Diameter** 152mm to 10.25m 127mm to 18.00m **Location** (dGPS) 380899 E 384759 N	**Ground Level (mOD)** 67.58 **Dates** 25/05/2022-01/06/2022	**Client** Threadneedle Curtis Ltd **Project Contractor** LK Consult	**Job Number** LKC 22 1225 **Sheet** 2/3

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I_f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
10.00-10.25 10.00-10.25					7,18/38,12 SPT 50/95 S	57.58	10.00	Stiff red CLAY with bands of rounded gravel of sandstone, siltstone and granite.			
							(0.60)				
	88	73	51	Av:370 Min:NI Max:370		56.98	10.60	Very weak red and grey structureless MUDSTONE with medium spaced undulating bands of gypsum (<10mm thick) angled at between 10 and 20degrees, possibly relict bedding. Destructured (Grade IVa).	Grade IVa		
							(1.40)				
11.50						55.58	12.00	Weak grey structureless very crystalline MUDSTONE BRECCIA with very closely spaced mass of gypsum growths. Partially weathered (Grade III).	Grade III		
	96	96	78	Av:320 Min:25 Max:600			(0.50)				
						55.08	12.50				
						54.93	(0.15) 12.65	Extremely weak grey destructured MUDSTONE. Recovered as clay. Residual. (Grade IVb).	Grade IVb		
							(0.35)				
13.00 13.00-13.45					6,4/7,9,9,9 SPT N=34	54.58	13.00	Extremely weak red MUDSTONE with medium spaced undulating bands of gypsum (<10mm thick) angled at between 10 and 20degrees, possibly relict bedding. Residual. (Grade IVb).			
	66	56	44	Av:35 Min:NI Max:390			(0.35)				
						54.23	13.35	NO RECOVERY.	Grade III		
							(0.65)				
14.00						53.58	14.00	Very weak thinly laminated red and grey MUDSTONE and SILTSTONE with very closely spaced undulating bands of gypsum. Bedding around 10degrees. Partially weathered (Grade III).			
	69	36	29	Av:70 Min:NI Max:440			(0.30)				
						53.28	14.30	NO RECOVERY.	Grade III		
							(0.70)				
15.00						52.58	15.00	Weak grey structureless very crystalline MUDSTONE BRECCIA with very closely spaced mass of gypsum growths. Partially weathered (Grade III).	Grade III		
15.25-15.35					25/28,22 SPT 25*/75 50/25		(0.59)	NO RECOVERY.			
	41	41	41	Av:410 Min:410 Max:410		51.99	15.59	Extremely weak structureless red MUDSTONE. Recovered as clay. Residual. (Grade IVb).	Grade IVb		
							(0.41)				
16.00						51.58	16.00	NO RECOVERY.			
	56	52	52	Av:160 Min:NI Max:360			(0.48)				
						51.10	16.48	Extremely weak structureless red MUDSTONE. Recovered as clay. Residual. (Grade IVb).	Grade IVb		
							(0.52)				
17.00					25/28,22 Fractures medium spaced 10degrees planar rough open clean. Possibly drilling induced. SPT(C) 25*/75 50/125	50.58	17.00	Extremely weak red structureless MUDSTONE with medium spaced 10degrees planar bands of gypsum (<5mm). Possible relict bedding. Destructured (Grade IVa).	Grade IVa		
17.00-17.20	98	98	98	Av:360 Min:130 Max:400							
18.50					Fractures closely to very closely spaced 10degrees planar rough open clean.		(3.20)				
	98	98	59	Av:160 Min:40 Max:180							
20.00											

Remarks
Tarmacadam broken out by excavator.
Hand digging to 1.2mbgl.
Cable percussion to 10.25mbgl.
Follow on rotary coring from 10.25 to 25.00mbgl.
Falling Head Test carried out between 1.00-2.00mbgl.
No groundwater strikes recorded.

Scale (approx)	**Logged By**
1:50	RP/PW

Figure No.
LKC 22 1225.BH104

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LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** B401 Manchester Airport		**Borehole Number** **BH104**
Machine : Dando 2000 / Teredo DC2.8 **Flush :** Water **Core Dia :** 90 mm **Method :**	**Casing Diameter** 152mm to 10.25m 127mm to 18.00m	**Ground Level (mOD)** 67.58	**Client** Threadneedle Curtis Ltd	**Job Number** LKC 22 1225
	Location (dGPS) 380899 E 384759 N	**Dates** 25/05/2022-01/06/2022	**Project Contractor** LK Consult	**Sheet** 3/3

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I_f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
20.00-20.10					25/50 SPT(C) 25*/75 50/25	47.38	20.20				
	98	92	62	Av:210 Min:NI Max:240			(0.90)	Very weak thinly laminated red MUDSTONE. Bedding 10degrees. Distinctly weathered (Grade III).	Grade IVa Grade III Grade III Grade III Grade III		
21.50						46.48	21.10				
	96	52	13	Av:40 Min:NI Max:200			(1.40)	Very weak to weak thinly laminated grey MUDSTONE with closely spaced bedding parallel planar bands of gypsum (<5mm). Partially weathered (GRADEII).	Grade II Grade II Grade II Grade II Grade II Grade II Grade II Grade II		
23.00 23.00-23.20					25/36,14 SPT(C) 25*/75 50/125	45.08	22.50				
	100	96	82	Av:250 Min:NI Max:310			(0.50)	Extremely weak structureless grey MUDSTONE. Recovered as clay. Residual. (Grade IVb).	Grade IVb Grade IVb		
						44.58	23.00				
							(1.50)	Extremely weak structureless red MUDSTONE. Residual. (Grade IVa).	Grade IVa Grade IVa Grade IVa Grade IVa Grade IVa Grade IVa Grade IVa		
24.50						43.08	24.50				
	84	30	30	Av:NI Min:NI Max:150			(0.50)	Very weak structureless grey MUDSTONE BRECCIA. Distinctly weathered (Grade III).	Grade III Grade III		
25.00 25.00-25.12					25/50 SPT 25*/75 50/45	42.58	25.00				

Remarks
Tarmacadam broken out by excavator.
Hand digging to 1.2mbgl.
Cable percussion to 10.25mbgl.
Follow on rotary coring from 10.25 to 25.00mbgl.
Falling Head Test carried out between 1.00-2.00mbgl.
No groundwater strikes recorded.

Scale (approx)	Logged By
1:50	RP/PW

Figure No.
LKC 22 1225.BH104

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LK CONSULT LTD

Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS
Tel: 0161 763 7200 web: www.thelkgroup.com

Site: B401 Manchester Airport

Borehole Number: BH106

Machine : Dando 2000 / Teredo DC2.8
Flush : Water
Core Dia : 90 mm
Method : Rotary Cored

Casing Diameter: 152mm to 7.00m, 127mm to 8.50m

Ground Level (mOD): 66.93

Client: Threadneedle Curtis Ltd

Job Number: LKC 22 1225

Location (dGPS): 380856 E 384813 N

Dates: 24/05/2022

Project Contractor: LK Consult

Sheet: 1/2

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I_f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
						66.83	0.10	MADE GROUND: Tarmacadam.			
0.10-0.30					ES 1.3ppm	66.63	(0.20) 0.30	MADE GROUND: Light grey sandy GRAVEL (sub base) Sand is fine to coarse. Gravel is fine to coarse subangular to angular of limestone. Underlain by membrane.			
0.50					BD			Firm to stiff consistency low to high strength orangish brown to brown slightly gravelly silty CLAY. Gravel is fine to medium subangular to subrounded of various lithologies.			
0.50					SVP Av = 38kPa						
0.50					SVR Av = 28kPa						
0.75					SVP Av = 48kPa						
0.75					SVR Av = 6kPa						
1.20-1.65					UT 17 blows						
1.40-1.50					ES 0.4ppm						
					2,3/2,5,5,4						
2.00-2.45					SPT N=16						
2.00-2.45					BS		(4.00)				
3.00-3.45					UT 19 blows						
					5,5/6,12,11,11						
4.00-4.45					SPT N=40						
4.00-4.45					BS	62.63	4.30				
						62.43	(0.20) 4.50	Orangish brown fine to medium SAND. Sand is fine to coarse.			
								Stiff to very stiff consistency very high strength reddish brown silty CLAY.			
					6,8/6,9,11,11						
5.00-5.45					SPT N=37						
5.00-5.45					BS		(1.50)			▽1	
					Water strike(1) at 5.50m.						
					3,6/8,9,16,16						
6.00-6.45					SPT N=49	60.93	6.00				
6.00-6.45					BS			Stiff to very stiff consistency very high strength gravelly CLAY becoming very weak weathered MUDSTONE. Gravel is fine to coarse subangular to subrounded of mudstone.			
							(1.00)				
					25/50	59.93	7.00				
7.00					Fractures closely to medium spaced horizontal planar rough open clean.			Weak red and grey structureless MUDSTONE BRECCIA with very closely spaced undulating bands of gypsum (<5mm thick) angled at between 10 and 20degrees, possibly relict bedding. Partially weathered (Grade II to III).	Grade II		
							(0.70)		Grade II		
7.00-7.15					SPT 25*/75				Grade II		
					50/75	59.23	7.70				
7.00-7.45	100	97	82	Av:120 Min:NI Max:420	BS			Extremely weak red MUDSTONE with very closely spaced undulating bands of gypsum. Recovered as clay with bands of gypsum. Destructured (Grade IVa).	Grade IVa		
							(0.40)		Grade IVa		
						58.83	8.10		Grade II		
8.50					Fractures closely to medium spaced 60degrees undulating rough open clean from 8.50m to 8.90mbgl.			Weak red and grey structureless MUDSTONE BRECCIA with very closely spaced undulating bands of gypsum (<5mm thick) angled at between 10 and 20degrees, possibly relict bedding. Partially weathered (Grade II to III).	Grade II		
							(1.20)		Grade II		
									Grade II		
	100	80	69	Av:260 Min:NI Max:260		57.63	9.30	Extremely weak red MUDSTONE with undulating subvertical band of gypsum (<10mm thick). Recovered as clay with gypsum. Residual. (Grade IVb).	Grade IVb		
									Grade IVb		
10.00									Grade IVb		

Remarks
Tarmacadam broken out by excavator.
Hand digging to 1.2mbgl.
Cable percussion to 7.2mbgl.
Follow on rotary coring from 7.2mbgl to 14.5mbgl.
Falling Head Test undertaken between 3.00-4.00mbgl.
Chiselling from 6.00m to 7.20m for 1 hour. Water added from 6.00m to 7.00m.

Scale (approx): 1:50

Logged By: RP/PW

Figure No.: LKC 22 1225.BH106

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** B401 Manchester Airport	**Borehole Number** **BH106**
Machine : Dando 2000 / Teredo DC2.8 **Flush :** Water **Core Dia :** 90 mm **Method :** Rotary Cored	**Casing Diameter** 152mm to 7.00m 127mm to 8.50m **Location** (dGPS) 380856 E 384813 N	**Ground Level (mOD)** 66.93 **Dates** 24/05/2022	**Client** Threadneedle Curtis Ltd **Project Contractor** LK Consult	**Job Number** LKC 22 1225 **Sheet** 2/2

Depth (m)	TCR (%)	SCR (%)	RQD (%)	I_f (mm)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
	98	98	98	Av:520 Min:330 Max:620			(3.70)		Grade IVb		
11.50	99	96	76	Av:60 Min:NI Max:640							
13.00	97	84	75	Av:110 Min:NI Max:280		53.93	13.00	Extremely weak red MUDSTONE with very closely spaced undulating bands of gypsum. Recovered as clay with bands of gypsum. Destructured (Grade IVa).	Grade IVa		
14.50						52.43	(1.50) 14.50				

Remarks
Tarmacadam broken out by excavator.
Hand digging to 1.2mbgl.
Cable percussion to 7.2mbgl.
Follow on rotary coring from 7.2mbgl to 14.5mbgl.
Falling Head Test undertaken between 3.00-4.00mbgl.

Scale (approx)	**Logged By**
1:50	RP/PW

Figure No.
LKC 22 1225.BH106

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Appendix B

Certificates of Analysis -

Soil and Leaching Tests

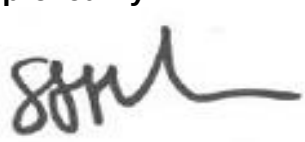
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	22-20268-1
Initial Date of Issue:	09-Jun-2022
Client	LK Consult
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS
Contact(s):	Colin Crompton Contaminated Land
Project	LKC 22 1225 B401 Manchester Airport

Quotation No.:	Q22-27796	**Date Received:**	31-May-2022
Order No.:	740327	**Date Instructed:**	01-Jun-2022
No. of Samples:	4		
Turnaround (Wkdays):	5	**Results Due:**	09-Jun-2022
Date Approved:	09-Jun-2022		

Approved By:



Details:	Stuart Henderson, Technical Manager

Results - Leachate

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult				**Chemtest Job No.:**		22-20268
Quotation No.: Q22-27796				**Chemtest Sample ID.:**		1439128
				Client Sample ID.:		BH104
				Sample Type:		SOIL
				Top Depth (m):		1.30
				Bottom Depth (m):		1.40
				Date Sampled:		25-May-2022
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**	
pH	U	1010	2:1		N/A	8.2
Electrical Conductivity	U	1020	2:1	µS/cm	1.0	140
Chloride	U	1220	2:1	mg/l	1.0	7.9
Ammoniacal Nitrogen	U	1220	2:1	mg/l	0.050	0.093
Nitrate	U	1220	2:1	mg/l	0.50	1.8
Sulphur	N	1220	2:1	mg/l	1.0	6.3
Sulphate	U	1220	2:1	mg/l	1.0	19
Cyanide (Total)	U	1300	2:1	mg/l	0.050	< 0.050
Cyanide (Free)	U	1300	2:1	mg/l	0.050	< 0.050
Sulphide	U	1325	2:1	mg/l	0.050	< 0.050
Arsenic (Dissolved)	U	1455	2:1	µg/l	0.20	2.5
Boron (Dissolved)	U	1455	2:1	µg/l	10.0	21
Barium (Dissolved)	U	1455	2:1	µg/l	5.00	140
Beryllium (Dissolved)	U	1455	2:1	µg/l	1.00	140
Cadmium (Dissolved)	U	1455	2:1	µg/l	0.11	130
Chromium (Dissolved)	U	1455	2:1	µg/l	0.50	170
Copper (Dissolved)	U	1455	2:1	µg/l	0.50	140
Mercury (Dissolved)	U	1455	2:1	µg/l	0.05	< 0.05
Nickel (Dissolved)	U	1455	2:1	µg/l	0.50	160
Lead (Dissolved)	U	1455	2:1	µg/l	0.50	81
Selenium (Dissolved)	U	1455	2:1	µg/l	0.50	130
Zinc (Dissolved)	U	1455	2:1	µg/l	2.5	230
Chromium (Hexavalent)	U	1490	2:1	µg/l	20	< 20
Low-Level Chromium (Hexavalent)	N	1495	2:1	µg/l	0.10	< 0.10
Aliphatic TPH >C5-C6	N	1675	2:1	µg/l	0.010	< 0.010
Aliphatic TPH >C6-C8	N	1675	2:1	µg/l	0.010	< 0.010
Aliphatic TPH >C8-C10	N	1675	2:1	µg/l	0.10	< 0.10
Aliphatic TPH >C10-C12	N	1675	2:1	µg/l	0.10	< 0.10
Aliphatic TPH >C12-C16	N	1675	2:1	µg/l	0.10	< 0.10
Aliphatic TPH >C16-C21	N	1675	2:1	µg/l	0.10	< 0.10
Aliphatic TPH >C21-C35	N	1675	2:1	µg/l	0.10	< 0.10
Aliphatic TPH >C35-C44	N	1675	2:1	µg/l	0.10	< 0.10
Total Aliphatic Hydrocarbons	N	1675	2:1	µg/l	1.0	< 1.0
Aromatic TPH >C5-C7	N	1675	2:1	µg/l	0.010	< 0.010
Aromatic TPH >C7-C8	N	1675	2:1	µg/l	0.010	< 0.010
Aromatic TPH >C8-C10	N	1675	2:1	µg/l	0.10	< 0.10
Aromatic TPH >C10-C12	N	1675	2:1	µg/l	0.10	< 0.10
Aromatic TPH >C12-C16	N	1675	2:1	µg/l	0.10	< 0.10
Aromatic TPH >C16-C21	N	1675	2:1	µg/l	0.10	< 0.10

Results - Leachate

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult				**Chemtest Job No.:**		22-20268
Quotation No.: Q22-27796				**Chemtest Sample ID.:**		1439128
				Client Sample ID.:		BH104
				Sample Type:		SOIL
				Top Depth (m):		1.30
				Bottom Depth (m):		1.40
				Date Sampled:		25-May-2022
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**	
Aromatic TPH >C21-C35	N	1675	2:1	µg/l	0.10	< 0.10
Aromatic TPH >C35-C44	N	1675	2:1	µg/l	0.10	< 0.10
Total Aromatic Hydrocarbons	N	1675	2:1	µg/l	1.0	< 1.0
Total Petroleum Hydrocarbons	N	1675	2:1	µg/l	2.0	< 2.0
Dichlorodifluoromethane	N	1760	2:1	µg/l	0.10	< 0.10
Chloromethane	N	1760	2:1	µg/l	0.10	< 0.10
Vinyl Chloride	N	1760	2:1	µg/l	0.10	< 0.10
Bromomethane	N	1760	2:1	µg/l	2.0	< 2.0
Chloroethane	N	1760	2:1	µg/l	0.20	< 0.20
Trichlorofluoromethane	N	1760	2:1	µg/l	0.10	< 0.10
1,1-Dichloroethene	N	1760	2:1	µg/l	0.10	< 0.10
Trans 1,2-Dichloroethene	N	1760	2:1	µg/l	0.10	< 0.10
1,1-Dichloroethane	N	1760	2:1	µg/l	0.10	< 0.10
cis 1,2-Dichloroethene	N	1760	2:1	µg/l	0.10	< 0.10
Bromochloromethane	N	1760	2:1	µg/l	0.50	< 0.50
Trichloromethane	N	1760	2:1	µg/l	0.10	< 0.10
1,1,1-Trichloroethane	N	1760	2:1	µg/l	0.10	< 0.10
Tetrachloromethane	N	1760	2:1	µg/l	0.10	< 0.10
1,1-Dichloropropene	N	1760	2:1	µg/l	0.10	< 0.10
Benzene	N	1760	2:1	µg/l	0.10	< 0.10
1,2-Dichloroethane	N	1760	2:1	µg/l	0.20	< 0.20
Trichloroethene	N	1760	2:1	µg/l	0.10	< 0.10
1,2-Dichloropropane	N	1760	2:1	µg/l	0.10	< 0.10
Dibromomethane	N	1760	2:1	µg/l	0.10	< 0.10
Bromodichloromethane	N	1760	2:1	µg/l	0.50	< 0.50
cis-1,3-Dichloropropene	N	1760	2:1	µg/l	1.0	< 1.0
Toluene	N	1760	2:1	µg/l	0.10	< 0.10
Trans-1,3-Dichloropropene	N	1760	2:1	µg/l	1.0	< 1.0
1,1,2-Trichloroethane	N	1760	2:1	µg/l	1.0	< 1.0
Tetrachloroethene	N	1760	2:1	µg/l	0.10	< 0.10
1,3-Dichloropropane	N	1760	2:1	µg/l	0.20	< 0.20
Dibromochloromethane	N	1760	2:1	µg/l	1.0	< 1.0
1,2-Dibromoethane	N	1760	2:1	µg/l	0.50	< 0.50
Chlorobenzene	N	1760	2:1	µg/l	0.10	< 0.10
1,1,1,2-Tetrachloroethane	N	1760	2:1	µg/l	0.20	< 0.20
Ethylbenzene	N	1760	2:1	µg/l	0.10	< 0.10
m & p-Xylene	N	1760	2:1	µg/l	0.10	< 0.10
o-Xylene	N	1760	2:1	µg/l	0.10	< 0.10
Styrene	N	1760	2:1	µg/l	0.10	< 0.10

Results - Leachate

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult				**Chemtest Job No.:**		22-20268
Quotation No.: Q22-27796				**Chemtest Sample ID.:**		1439128
				Client Sample ID.:		BH104
				Sample Type:		SOIL
				Top Depth (m):		1.30
				Bottom Depth (m):		1.40
				Date Sampled:		25-May-2022
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**	
Tribromomethane	N	1760	2:1	µg/l	1.0	< 1.0
Isopropylbenzene	N	1760	2:1	µg/l	0.10	< 0.10
Bromobenzene	N	1760	2:1	µg/l	0.10	< 0.10
1,2,3-Trichloropropane	N	1760	2:1	µg/l	5.0	< 5.0
N-Propylbenzene	N	1760	2:1	µg/l	0.10	< 0.10
2-Chlorotoluene	N	1760	2:1	µg/l	0.10	< 0.10
1,3,5-Trimethylbenzene	N	1760	2:1	µg/l	0.10	< 0.10
4-Chlorotoluene	N	1760	2:1	µg/l	0.10	< 0.10
Tert-Butylbenzene	N	1760	2:1	µg/l	0.10	< 0.10
1,2,4-Trimethylbenzene	N	1760	2:1	µg/l	0.10	< 0.10
Sec-Butylbenzene	N	1760	2:1	µg/l	0.10	< 0.10
1,3-Dichlorobenzene	N	1760	2:1	µg/l	0.10	< 0.10
4-Isopropyltoluene	N	1760	2:1	µg/l	0.10	< 0.10
1,4-Dichlorobenzene	N	1760	2:1	µg/l	0.10	< 0.10
N-Butylbenzene	N	1760	2:1	µg/l	0.10	< 0.10
1,2-Dichlorobenzene	N	1760	2:1	µg/l	0.10	< 0.10
1,2-Dibromo-3-Chloropropane	N	1760	2:1	µg/l	5.0	< 5.0
1,2,4-Trichlorobenzene	N	1760	2:1	µg/l	0.10	< 0.10
Hexachlorobutadiene	N	1760	2:1	µg/l	0.10	< 0.10
1,2,3-Trichlorobenzene	N	1760	2:1	µg/l	0.20	< 0.20
Methyl Tert-Butyl Ether	N	1760	2:1	µg/l	0.10	< 0.10
N-Nitrosodimethylamine	N	1790	2:1	µg/l	0.050	< 0.050
Phenol	N	1790	2:1	µg/l	0.050	< 0.050
2-Chlorophenol	N	1790	2:1	µg/l	0.050	< 0.050
Bis-(2-Chloroethyl)Ether	N	1790	2:1	µg/l	0.050	< 0.050
1,3-Dichlorobenzene	N	1790	2:1	µg/l	0.050	< 0.050
1,4-Dichlorobenzene	N	1790	2:1	µg/l	0.050	< 0.050
1,2-Dichlorobenzene	N	1790	2:1	µg/l	0.050	< 0.050
2-Methylphenol (o-Cresol)	N	1790	2:1	µg/l	0.050	< 0.050
Bis(2-Chloroisopropyl)Ether	N	1790	2:1	µg/l	0.050	< 0.050
Hexachloroethane	N	1790	2:1	µg/l	0.050	< 0.050
N-Nitrosodi-n-propylamine	N	1790	2:1	µg/l	0.050	< 0.050
4-Methylphenol	N	1790	2:1	µg/l	0.050	< 0.050
Nitrobenzene	N	1790	2:1	µg/l	0.050	< 0.050
Isophorone	N	1790	2:1	µg/l	0.050	< 0.050
2-Nitrophenol	N	1790	2:1	µg/l	0.050	< 0.050
2,4-Dimethylphenol	N	1790	2:1	µg/l	0.050	< 0.050
Bis(2-Chloroethoxy)Methane	N	1790	2:1	µg/l	0.050	< 0.050
2,4-Dichlorophenol	N	1790	2:1	µg/l	0.050	< 0.050

Results - Leachate

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult				**Chemtest Job No.:**		22-20268
Quotation No.: Q22-27796				**Chemtest Sample ID.:**		1439128
				Client Sample ID.:		BH104
				Sample Type:		SOIL
				Top Depth (m):		1.30
				Bottom Depth (m):		1.40
				Date Sampled:		25-May-2022
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**	
1,2,4-Trichlorobenzene	N	1790	2:1	µg/l	0.050	< 0.050
Naphthalene	N	1790	2:1	µg/l	0.050	< 0.050
4-Chloroaniline	N	1790	2:1	µg/l	0.050	< 0.050
Hexachlorobutadiene	N	1790	2:1	µg/l	0.050	< 0.050
4-Chloro-3-Methylphenol	N	1790	2:1	µg/l	0.050	< 0.050
2-Methylnaphthalene	N	1790	2:1	µg/l	0.050	< 0.050
Hexachlorocyclopentadiene	N	1790	2:1	µg/l	0.050	< 0.050
2,4,6-Trichlorophenol	N	1790	2:1	µg/l	0.050	< 0.050
2,4,5-Trichlorophenol	N	1790	2:1	µg/l	0.050	< 0.050
2-Chloronaphthalene	N	1790	2:1	µg/l	0.050	< 0.050
2-Nitroaniline	N	1790	2:1	µg/l	0.050	< 0.050
Acenaphthylene	N	1790	2:1	µg/l	0.050	< 0.050
Dimethylphthalate	N	1790	2:1	µg/l	0.050	< 0.050
2,6-Dinitrotoluene	N	1790	2:1	µg/l	0.050	< 0.050
Acenaphthene	N	1790	2:1	µg/l	0.050	< 0.050
3-Nitroaniline	N	1790	2:1	µg/l	0.050	< 0.050
Dibenzofuran	N	1790	2:1	µg/l	0.050	< 0.050
4-Chlorophenylphenylether	N	1790	2:1	µg/l	0.050	< 0.050
2,4-Dinitrotoluene	N	1790	2:1	µg/l	0.050	< 0.050
Fluorene	N	1790	2:1	µg/l	0.050	< 0.050
Diethyl Phthalate	N	1790	2:1	µg/l	0.050	< 0.050
4-Nitroaniline	N	1790	2:1	µg/l	0.050	< 0.050
2-Methyl-4,6-Dinitrophenol	N	1790	2:1	µg/l	0.050	< 0.050
Azobenzene	N	1790	2:1	µg/l	0.050	< 0.050
4-Bromophenylphenyl Ether	N	1790	2:1	µg/l	0.050	< 0.050
Hexachlorobenzene	N	1790	2:1	µg/l	0.050	< 0.050
Pentachlorophenol	N	1790	2:1	µg/l	0.050	< 0.050
Phenanthrene	N	1790	2:1	µg/l	0.050	< 0.050
Anthracene	N	1790	2:1	µg/l	0.050	< 0.050
Carbazole	N	1790	2:1	µg/l	0.050	< 0.050
Di-N-Butyl Phthalate	N	1790	2:1	µg/l	0.050	< 0.050
Fluoranthene	N	1790	2:1	µg/l	0.050	< 0.050
Pyrene	N	1790	2:1	µg/l	0.050	< 0.050
Butylbenzyl Phthalate	N	1790	2:1	µg/l	0.050	< 0.050
Benzo[a]anthracene	N	1790	2:1	µg/l	0.050	< 0.050
Chrysene	N	1790	2:1	µg/l	0.050	< 0.050
Bis(2-Ethylhexyl)Phthalate	N	1790	2:1	µg/l	0.050	< 0.050
Di-N-Octyl Phthalate	N	1790	2:1	µg/l	0.050	< 0.050
Benzo[b]fluoranthene	N	1790	2:1	µg/l	0.050	< 0.050

Results - Leachate

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult				**Chemtest Job No.:**		22-20268
Quotation No.: Q22-27796				**Chemtest Sample ID.:**		1439128
				Client Sample ID.:		BH104
				Sample Type:		SOIL
				Top Depth (m):		1.30
				Bottom Depth (m):		1.40
				Date Sampled:		25-May-2022
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**	
Benzo[k]fluoranthene	N	1790	2:1	µg/l	0.050	< 0.050
Benzo[a]pyrene	N	1790	2:1	µg/l	0.050	< 0.050
Indeno(1,2,3-c,d)Pyrene	N	1790	2:1	µg/l	0.050	< 0.050
Dibenz(a,h)Anthracene	N	1790	2:1	µg/l	0.050	< 0.050
Benzo[g,h,i]perylene	N	1790	2:1	µg/l	0.050	< 0.050
4-Nitrophenol	N	1790	2:1	µg/l	0.050	< 0.050
Naphthalene	N	1800	2:1	µg/l	0.010	< 0.010
Acenaphthylene	N	1800	2:1	µg/l	0.010	< 0.010
Acenaphthene	N	1800	2:1	µg/l	0.010	< 0.010
Fluorene	N	1800	2:1	µg/l	0.010	< 0.010
Phenanthrene	N	1800	2:1	µg/l	0.010	< 0.010
Anthracene	N	1800	2:1	µg/l	0.010	< 0.010
Fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010
Pyrene	N	1800	2:1	µg/l	0.010	< 0.010
Benzo[a]anthracene	N	1800	2:1	µg/l	0.010	< 0.010
Chrysene	N	1800	2:1	µg/l	0.010	< 0.010
Benzo[b]fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010
Benzo[k]fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010
Benzo[a]pyrene	N	1800	2:1	µg/l	0.010	< 0.010
Indeno(1,2,3-c,d)Pyrene	N	1800	2:1	µg/l	0.010	< 0.010
Dibenz(a,h)Anthracene	N	1800	2:1	µg/l	0.010	< 0.010
Benzo[g,h,i]perylene	N	1800	2:1	µg/l	0.010	< 0.010
Total Of 16 PAH's	N	1800	2:1	µg/l	0.20	< 0.20
PCB 28	N	1815	2:1	µg/l	0.010	< 0.010
PCB 52	N	1815	2:1	µg/l	0.010	< 0.010
PCB 90+101	N	1815	2:1	µg/l	0.010	< 0.010
PCB 118	N	1815	2:1	µg/l	0.010	< 0.010
PCB 153	N	1815	2:1	µg/l	0.010	< 0.010
PCB 138	N	1815	2:1	µg/l	0.010	< 0.010
PCB 180	N	1815	2:1	µg/l	0.010	< 0.010
Total PCBs (7 congeners)	N	1815	2:1	µg/l	0.010	< 0.010
Total Phenols	U	1920	2:1	mg/l	0.030	< 0.030

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult		**Chemtest Job No.:**			22-20268	22-20268	22-20268	22-20268
Quotation No.: Q22-27796		**Chemtest Sample ID.:**			1439127	1439128	1439129	1439130
		Client Sample ID.:			BH104	BH104	BH106	BH106
		Sample Type:			SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			0.10	1.30	0.10	1.40
		Bottom Depth (m):			0.30	1.40	0.40	1.50
		Date Sampled:			25-May-2022	25-May-2022	25-May-2022	25-May-2022
		Asbestos Lab:			DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
ACM Type	U	2192		N/A	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	11	35	14	21
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones	Stones	Stones
Soil Texture	N	2040		N/A	Sand	Sand	Sand	Clay
pH	U	2010		4.0	8.8	8.3	8.7	8.2
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	< 0.40	< 0.40	< 0.40	< 0.40
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	0.018	0.023	0.039	0.054
Sulphur (Elemental)	U	2180	mg/kg	1.0	< 1.0	< 1.0	2.7	3.7
Cyanide (Free)	U	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cyanide (Total)	U	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	25	25	5.7	31
Arsenic	U	2455	mg/kg	0.5	1.1	9.6	1.6	8.8
Barium	U	2455	mg/kg	0	18	45	80	130
Beryllium	U	2455	mg/kg	0.5	< 0.5	0.9	< 0.5	1.6
Cadmium	U	2455	mg/kg	0.10	0.13	0.10	0.35	0.13
Chromium	U	2455	mg/kg	0.5	3.1	16	4.5	33
Copper	U	2455	mg/kg	0.50	2.0	12	2.7	21
Mercury	U	2455	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel	U	2455	mg/kg	0.50	4.0	13	5.8	43
Lead	U	2455	mg/kg	0.50	7.6	6.6	16	11
Selenium	U	2455	mg/kg	0.25	0.40	0.76	0.35	1.2
Zinc	U	2455	mg/kg	0.50	16	18	23	49
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Fraction of Organic Carbon	U	2625		0.0010	0.0034	0.0035	0.045	0.0042
Aliphatic TPH >C5-C6	N	2680	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Aliphatic TPH >C6-C8	N	2680	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Aliphatic TPH >C8-C10	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C10-C12	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C12-C16	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C16-C21	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C21-C35	N	2680	mg/kg	0.10	82	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C35-C44	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aliphatic Hydrocarbons	N	2680	mg/kg	1.0	82	< 1.0	< 1.0	< 1.0
Aromatic TPH >C5-C7	N	2680	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Aromatic TPH >C7-C8	N	2680	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-20268	22-20268	22-20268	22-20268
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1439127	1439128	1439129	1439130
			Client Sample ID.:		BH104	BH104	BH106	BH106
			Sample Type:		SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.10	1.30	0.10	1.40
			Bottom Depth (m):		0.30	1.40	0.40	1.50
			Date Sampled:		25-May-2022	25-May-2022	25-May-2022	25-May-2022
			Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
Aromatic TPH >C8-C10	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C10-C12	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C12-C16	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C16-C21	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C21-C35	N	2680	mg/kg	0.10	320	< 0.10	< 0.10	< 0.10
Aromatic TPH >C35-C44	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aromatic Hydrocarbons	N	2680	mg/kg	1.0	320	< 1.0	< 1.0	< 1.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	2.0	400	< 2.0	< 2.0	< 2.0
Dichlorodifluoromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Chloromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Vinyl Chloride	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Bromomethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Chloroethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Trichlorofluoromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
1,1-Dichloroethene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Trans 1,2-Dichloroethene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
1,1-Dichloroethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
cis 1,2-Dichloroethene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Bromochloromethane	N	2760	µg/kg	0.50	< 0.50	< 0.50	< 0.50	
Trichloromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
1,1,1-Trichloroethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Tetrachloromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
1,1-Dichloropropene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Benzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
1,2-Dichloroethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Trichloroethene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
1,2-Dichloropropane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Dibromomethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Bromodichloromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
cis-1,3-Dichloropropene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Toluene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Trans-1,3-Dichloropropene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
1,1,2-Trichloroethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Tetrachloroethene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
1,3-Dichloropropane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Dibromochloromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
1,2-Dibromoethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Chlorobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-20268	22-20268	22-20268	22-20268
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1439127	1439128	1439129	1439130
			Client Sample ID.:		BH104	BH104	BH106	BH106
			Sample Type:		SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.10	1.30	0.10	1.40
			Bottom Depth (m):		0.30	1.40	0.40	1.50
			Date Sampled:		25-May-2022	25-May-2022	25-May-2022	25-May-2022
			Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
1,1,1,2-Tetrachloroethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Ethylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
m & p-Xylene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
o-Xylene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Styrene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Tribromomethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Isopropylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Bromobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
1,2,3-Trichloropropane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
N-Propylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
2-Chlorotoluene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
1,3,5-Trimethylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
4-Chlorotoluene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Tert-Butylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
1,2,4-Trimethylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Sec-Butylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
1,3-Dichlorobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
4-Isopropyltoluene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
1,4-Dichlorobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
N-Butylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
1,2-Dichlorobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
1,2-Dibromo-3-Chloropropane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
1,2,4-Trichlorobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Hexachlorobutadiene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
1,2,3-Trichlorobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
Methyl Tert-Butyl Ether	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	
N-Nitrosodimethylamine	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Phenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
2-Chlorophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Bis-(2-Chloroethyl)Ether	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
1,3-Dichlorobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
1,4-Dichlorobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
1,2-Dichlorobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
2-Methylphenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Bis(2-Chloroisopropyl)Ether	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Hexachloroethane	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
N-Nitrosodi-n-propylamine	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
4-Methylphenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult		**Chemtest Job No.:**			22-20268	22-20268	22-20268	22-20268
Quotation No.: Q22-27796		**Chemtest Sample ID.:**			1439127	1439128	1439129	1439130
			Client Sample ID.:		BH104	BH104	BH106	BH106
			Sample Type:		SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.10	1.30	0.10	1.40
			Bottom Depth (m):		0.30	1.40	0.40	1.50
			Date Sampled:		25-May-2022	25-May-2022	25-May-2022	25-May-2022
			Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
Nitrobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Isophorone	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
2-Nitrophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
2,4-Dimethylphenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Bis(2-Chloroethoxy)Methane	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
2,4-Dichlorophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
1,2,4-Trichlorobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Naphthalene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
4-Chloroaniline	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Hexachlorobutadiene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
4-Chloro-3-Methylphenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
2-Methylnaphthalene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Hexachlorocyclopentadiene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
2,4,6-Trichlorophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
2,4,5-Trichlorophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
2-Chloronaphthalene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
2-Nitroaniline	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Acenaphthylene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Dimethylphthalate	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
2,6-Dinitrotoluene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Acenaphthene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
3-Nitroaniline	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Dibenzofuran	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
4-Chlorophenylphenylether	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
2,4-Dinitrotoluene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Fluorene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Diethyl Phthalate	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
4-Nitroaniline	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
2-Methyl-4,6-Dinitrophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Azobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
4-Bromophenylphenyl Ether	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Hexachlorobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Pentachlorophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Phenanthrene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Anthracene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Carbazole	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Di-N-Butyl Phthalate	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Fluoranthene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-20268	22-20268	22-20268	22-20268
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1439127	1439128	1439129	1439130
			Client Sample ID.:		BH104	BH104	BH106	BH106
			Sample Type:		SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.10	1.30	0.10	1.40
			Bottom Depth (m):		0.30	1.40	0.40	1.50
			Date Sampled:		25-May-2022	25-May-2022	25-May-2022	25-May-2022
			Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
Pyrene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Butylbenzyl Phthalate	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Benzo[a]anthracene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Chrysene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Bis(2-Ethylhexyl)Phthalate	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Di-N-Octyl Phthalate	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Benzo[b]fluoranthene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Benzo[k]fluoranthene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Benzo[a]pyrene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Indeno(1,2,3-c,d)Pyrene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Dibenz(a,h)Anthracene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Benzo[g,h,i]perylene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
4-Nitrophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	
Naphthalene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Acenaphthylene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Acenaphthene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluorene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Phenanthrene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Anthracene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluoranthene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Pyrene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[a]anthracene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Chrysene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[b]fluoranthene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[k]fluoranthene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[a]pyrene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Indeno(1,2,3-c,d)Pyrene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[g,h,i]perylene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Of 16 PAH's	N	2800	mg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
PCB 28	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	
PCB 52	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	
PCB 90+101	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	
PCB 118	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	
PCB 153	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	
PCB 138	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	
PCB 180	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	
Total PCBs (7 Congeners)	U	2815	mg/kg	0.10	< 0.10	< 0.10	< 0.10	

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-20268	22-20268	22-20268	22-20268
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1439127	1439128	1439129	1439130
			Client Sample ID.:		BH104	BH104	BH106	BH106
			Sample Type:		SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.10	1.30	0.10	1.40
			Bottom Depth (m):		0.30	1.40	0.40	1.50
			Date Sampled:		25-May-2022	25-May-2022	25-May-2022	25-May-2022
			Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
Total Phenols	U	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - 2 Stage WAC

Project: LKC 22 1225 B401 Manchester Airport

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-20268								
Chemtest Sample ID:	1439128								
Sample Ref:									
Sample ID:	BH104								
Sample Location:									
Top Depth(m):	1.30								
Bottom Depth(m):	1.40								
Sampling Date:	25-May-2022								
Determinand	**SOP**	**Accred.**	**Units**				**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon							3	5	6
Loss on Ignition							--	--	10
Total BTEX							6	--	--
Total PCBs (7 congeners)							1	--	--
TPH Total WAC (Mineral Oil)							500	--	--
Total (of 17) PAHs							100	--	--
pH							--	>6	--
Acid Neutralisation Capacity							--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic							0.5	2	25
Barium							20	100	300
Cadmium							0.04	1	5
Chromium							0.5	10	70
Copper							2	50	100
Mercury							0.01	0.2	2
Molybdenum							0.5	10	30
Nickel							0.4	10	40
Lead							0.5	10	50
Antimony							0.06	0.7	5
Selenium							0.1	0.5	7
Zinc							4	50	200
Chloride							800	15000	25000
Fluoride							10	150	500
Sulphate							1000	20000	50000
Total Dissolved Solids							4000	60000	100000
Phenol Index							1	-	-
Dissolved Organic Carbon							500	800	1000

Solid Information	
Dry mass of test portion/kg	
Moisture (%)	

Leachate Test Information	
Leachant volume 1st extract/l	
Leachant volume 2nd extract/l	
Eluant recovered from 1st extract/l	

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1300	Cyanides & Thiocyanate in Waters	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Continuous Flow Analysis.
1325	Sulphide in Waters	Sulphides	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using N,N–dimethyl-pphenylenediamine.
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1490	Hexavalent Chromium in Waters	Chromium [VI]	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
1495	Low Level Hexavalent Chromium in Waters	Chromium [VI]	Colorimetric determination of hexavalent chromium expressed as Cr (VI) µg/l in water, using Ion Chromatography and UV-visible spectrophotometry.
1675	TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG)	Aliphatics: >C5–C6, >C6–C8, >C8– C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Pentane extraction / GCxGC FID detection
1760	Volatile Organic Compounds (VOCs) in Waters by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics. (cf. USEPA Method 8260)	Automated headspace gas chromatographic (GC) analysis of water samples with mass spectrometric (MS) detection of volatile organic compounds.
1790	Semi-Volatile Organic Compounds (SVOCs) in Waters by GC-MS	Semi-volatile organic compounds	Solvent extraction / GCMS detection
1800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-MS	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Pentane extraction / GCMS detection
1815	Polychlorinated Biphenyls (PCB) ICES7 Congeners in Waters by GC-MS	ICES7 PCB congeners	Solvent extraction / GCMS detection
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2180	Sulphur (Elemental) in Soils by HPLC	Sulphur	Dichloromethane extraction / HPLC with UV detection
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry

Test Methods

SOP	Title	Parameters included	Method summary
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N–dimethyl-p-phenylenediamine.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2790	Semi-Volatile Organic Compounds (SVOCs) in Soils by GC-MS	Semi-volatile organic compounds(cf. USEPA Method 8270)	Acetone/Hexane extraction / GC-MS
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge
650	Characterisation of Waste (Leaching WAC)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

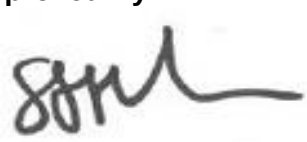
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	22-20272-1
Initial Date of Issue:	09-Jun-2022
Client	LK Consult
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS
Contact(s):	Colin Crompton Contaminated Land
Project	LKC 22 1225 B401 Manchester Airport

Quotation No.:	Q22-27796	**Date Received:**	31-May-2022
Order No.:	740328	**Date Instructed:**	01-Jun-2022
No. of Samples:	2		
Turnaround (Wkdays):	5	**Results Due:**	09-Jun-2022
Date Approved:	09-Jun-2022		

Approved By:



Details:	Stuart Henderson, Technical Manager

Results - Leachate

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult				**Chemtest Job No.:**		22-20272
Quotation No.: Q22-27796				**Chemtest Sample ID.:**		1439139
				Client Sample ID.:		BH105
				Sample Type:		SOIL
				Top Depth (m):		0.20
				Bottom Depth (m):		0.40
				Date Sampled:		26-May-2022
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**	
pH	U	1010	2:1		N/A	8.0
Electrical Conductivity	U	1020	2:1	µS/cm	1.0	290
Chloride	U	1220	2:1	mg/l	1.0	53
Ammoniacal Nitrogen	U	1220	2:1	mg/l	0.050	0.12
Nitrate	U	1220	2:1	mg/l	0.50	2.1
Sulphur	N	1220	2:1	mg/l	1.0	3.3
Sulphate	U	1220	2:1	mg/l	1.0	10
Cyanide (Total)	U	1300	2:1	mg/l	0.050	< 0.050
Cyanide (Free)	U	1300	2:1	mg/l	0.050	< 0.050
Sulphide	U	1325	2:1	mg/l	0.050	< 0.050
Arsenic (Dissolved)	U	1455	2:1	µg/l	0.20	0.43
Boron (Dissolved)	U	1455	2:1	µg/l	10.0	17
Barium (Dissolved)	U	1455	2:1	µg/l	5.00	14
Beryllium (Dissolved)	U	1455	2:1	µg/l	1.00	< 1.0
Cadmium (Dissolved)	U	1455	2:1	µg/l	0.11	0.38
Chromium (Dissolved)	U	1455	2:1	µg/l	0.50	2.8
Copper (Dissolved)	U	1455	2:1	µg/l	0.50	1.5
Mercury (Dissolved)	U	1455	2:1	µg/l	0.05	< 0.05
Nickel (Dissolved)	U	1455	2:1	µg/l	0.50	2.1
Lead (Dissolved)	U	1455	2:1	µg/l	0.50	< 0.50
Selenium (Dissolved)	U	1455	2:1	µg/l	0.50	1.0
Zinc (Dissolved)	U	1455	2:1	µg/l	2.5	< 2.5
Chromium (Hexavalent)	U	1490	2:1	µg/l	20	< 20
Low-Level Chromium (Hexavalent)	N	1495	2:1	µg/l	0.10	0.15
Aliphatic TPH >C5-C6	N	1675	2:1	µg/l	0.010	< 0.010
Aliphatic TPH >C6-C8	N	1675	2:1	µg/l	0.010	< 0.010
Aliphatic TPH >C8-C10	N	1675	2:1	µg/l	0.10	< 0.10
Aliphatic TPH >C10-C12	N	1675	2:1	µg/l	0.10	< 0.10
Aliphatic TPH >C12-C16	N	1675	2:1	µg/l	0.10	< 0.10
Aliphatic TPH >C16-C21	N	1675	2:1	µg/l	0.10	< 0.10
Aliphatic TPH >C21-C35	N	1675	2:1	µg/l	0.10	< 0.10
Aliphatic TPH >C35-C44	N	1675	2:1	µg/l	0.10	< 0.10
Total Aliphatic Hydrocarbons	N	1675	2:1	µg/l	1.0	< 1.0
Aromatic TPH >C5-C7	N	1675	2:1	µg/l	0.010	< 0.010
Aromatic TPH >C7-C8	N	1675	2:1	µg/l	0.010	< 0.010
Aromatic TPH >C8-C10	N	1675	2:1	µg/l	0.10	< 0.10
Aromatic TPH >C10-C12	N	1675	2:1	µg/l	0.10	< 0.10
Aromatic TPH >C12-C16	N	1675	2:1	µg/l	0.10	< 0.10
Aromatic TPH >C16-C21	N	1675	2:1	µg/l	0.10	< 0.10

Results - Leachate

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult				**Chemtest Job No.:**		22-20272
Quotation No.: Q22-27796				**Chemtest Sample ID.:**		1439139
				Client Sample ID.:		BH105
				Sample Type:		SOIL
				Top Depth (m):		0.20
				Bottom Depth (m):		0.40
				Date Sampled:		26-May-2022
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**	
Aromatic TPH >C21-C35	N	1675	2:1	µg/l	0.10	< 0.10
Aromatic TPH >C35-C44	N	1675	2:1	µg/l	0.10	< 0.10
Total Aromatic Hydrocarbons	N	1675	2:1	µg/l	1.0	< 1.0
Total Petroleum Hydrocarbons	N	1675	2:1	µg/l	2.0	< 2.0
Dichlorodifluoromethane	N	1760	2:1	µg/l	0.10	< 0.10
Chloromethane	N	1760	2:1	µg/l	0.10	< 0.10
Vinyl Chloride	N	1760	2:1	µg/l	0.10	< 0.10
Bromomethane	N	1760	2:1	µg/l	2.0	< 2.0
Chloroethane	N	1760	2:1	µg/l	0.20	< 0.20
Trichlorofluoromethane	N	1760	2:1	µg/l	0.10	< 0.10
1,1-Dichloroethene	N	1760	2:1	µg/l	0.10	< 0.10
Trans 1,2-Dichloroethene	N	1760	2:1	µg/l	0.10	< 0.10
1,1-Dichloroethane	N	1760	2:1	µg/l	0.10	< 0.10
cis 1,2-Dichloroethene	N	1760	2:1	µg/l	0.10	< 0.10
Bromochloromethane	N	1760	2:1	µg/l	0.50	< 0.50
Trichloromethane	N	1760	2:1	µg/l	0.10	< 0.10
1,1,1-Trichloroethane	N	1760	2:1	µg/l	0.10	< 0.10
Tetrachloromethane	N	1760	2:1	µg/l	0.10	< 0.10
1,1-Dichloropropene	N	1760	2:1	µg/l	0.10	< 0.10
Benzene	N	1760	2:1	µg/l	0.10	< 0.10
1,2-Dichloroethane	N	1760	2:1	µg/l	0.20	< 0.20
Trichloroethene	N	1760	2:1	µg/l	0.10	< 0.10
1,2-Dichloropropane	N	1760	2:1	µg/l	0.10	< 0.10
Dibromomethane	N	1760	2:1	µg/l	0.10	< 0.10
Bromodichloromethane	N	1760	2:1	µg/l	0.50	< 0.50
cis-1,3-Dichloropropene	N	1760	2:1	µg/l	1.0	< 1.0
Toluene	N	1760	2:1	µg/l	0.10	< 0.10
Trans-1,3-Dichloropropene	N	1760	2:1	µg/l	1.0	< 1.0
1,1,2-Trichloroethane	N	1760	2:1	µg/l	1.0	< 1.0
Tetrachloroethene	N	1760	2:1	µg/l	0.10	< 0.10
1,3-Dichloropropane	N	1760	2:1	µg/l	0.20	< 0.20
Dibromochloromethane	N	1760	2:1	µg/l	1.0	< 1.0
1,2-Dibromoethane	N	1760	2:1	µg/l	0.50	< 0.50
Chlorobenzene	N	1760	2:1	µg/l	0.10	< 0.10
1,1,1,2-Tetrachloroethane	N	1760	2:1	µg/l	0.20	< 0.20
Ethylbenzene	N	1760	2:1	µg/l	0.10	< 0.10
m & p-Xylene	N	1760	2:1	µg/l	0.10	< 0.10
o-Xylene	N	1760	2:1	µg/l	0.10	< 0.10
Styrene	N	1760	2:1	µg/l	0.10	< 0.10

Results - Leachate

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult				**Chemtest Job No.:**		22-20272
Quotation No.: Q22-27796				**Chemtest Sample ID.:**		1439139
				Client Sample ID.:		BH105
				Sample Type:		SOIL
				Top Depth (m):		0.20
				Bottom Depth (m):		0.40
				Date Sampled:		26-May-2022
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**	
Tribromomethane	N	1760	2:1	µg/l	1.0	< 1.0
Isopropylbenzene	N	1760	2:1	µg/l	0.10	< 0.10
Bromobenzene	N	1760	2:1	µg/l	0.10	< 0.10
1,2,3-Trichloropropane	N	1760	2:1	µg/l	5.0	< 5.0
N-Propylbenzene	N	1760	2:1	µg/l	0.10	< 0.10
2-Chlorotoluene	N	1760	2:1	µg/l	0.10	< 0.10
1,3,5-Trimethylbenzene	N	1760	2:1	µg/l	0.10	< 0.10
4-Chlorotoluene	N	1760	2:1	µg/l	0.10	< 0.10
Tert-Butylbenzene	N	1760	2:1	µg/l	0.10	< 0.10
1,2,4-Trimethylbenzene	N	1760	2:1	µg/l	0.10	< 0.10
Sec-Butylbenzene	N	1760	2:1	µg/l	0.10	< 0.10
1,3-Dichlorobenzene	N	1760	2:1	µg/l	0.10	< 0.10
4-Isopropyltoluene	N	1760	2:1	µg/l	0.10	< 0.10
1,4-Dichlorobenzene	N	1760	2:1	µg/l	0.10	< 0.10
N-Butylbenzene	N	1760	2:1	µg/l	0.10	< 0.10
1,2-Dichlorobenzene	N	1760	2:1	µg/l	0.10	< 0.10
1,2-Dibromo-3-Chloropropane	N	1760	2:1	µg/l	5.0	< 5.0
1,2,4-Trichlorobenzene	N	1760	2:1	µg/l	0.10	< 0.10
Hexachlorobutadiene	N	1760	2:1	µg/l	0.10	< 0.10
1,2,3-Trichlorobenzene	N	1760	2:1	µg/l	0.20	< 0.20
Methyl Tert-Butyl Ether	N	1760	2:1	µg/l	0.10	< 0.10
N-Nitrosodimethylamine	N	1790	2:1	µg/l	0.050	< 0.050
Phenol	N	1790	2:1	µg/l	0.050	< 0.050
2-Chlorophenol	N	1790	2:1	µg/l	0.050	< 0.050
Bis-(2-Chloroethyl)Ether	N	1790	2:1	µg/l	0.050	< 0.050
1,3-Dichlorobenzene	N	1790	2:1	µg/l	0.050	< 0.050
1,4-Dichlorobenzene	N	1790	2:1	µg/l	0.050	< 0.050
1,2-Dichlorobenzene	N	1790	2:1	µg/l	0.050	< 0.050
2-Methylphenol (o-Cresol)	N	1790	2:1	µg/l	0.050	< 0.050
Bis(2-Chloroisopropyl)Ether	N	1790	2:1	µg/l	0.050	< 0.050
Hexachloroethane	N	1790	2:1	µg/l	0.050	< 0.050
N-Nitrosodi-n-propylamine	N	1790	2:1	µg/l	0.050	< 0.050
4-Methylphenol	N	1790	2:1	µg/l	0.050	< 0.050
Nitrobenzene	N	1790	2:1	µg/l	0.050	< 0.050
Isophorone	N	1790	2:1	µg/l	0.050	< 0.050
2-Nitrophenol	N	1790	2:1	µg/l	0.050	< 0.050
2,4-Dimethylphenol	N	1790	2:1	µg/l	0.050	< 0.050
Bis(2-Chloroethoxy)Methane	N	1790	2:1	µg/l	0.050	< 0.050
2,4-Dichlorophenol	N	1790	2:1	µg/l	0.050	< 0.050

Results - Leachate

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult				**Chemtest Job No.:**		22-20272
Quotation No.: Q22-27796				**Chemtest Sample ID.:**		1439139
				Client Sample ID.:		BH105
				Sample Type:		SOIL
				Top Depth (m):		0.20
				Bottom Depth (m):		0.40
				Date Sampled:		26-May-2022
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**	
1,2,4-Trichlorobenzene	N	1790	2:1	µg/l	0.050	< 0.050
Naphthalene	N	1790	2:1	µg/l	0.050	< 0.050
4-Chloroaniline	N	1790	2:1	µg/l	0.050	< 0.050
Hexachlorobutadiene	N	1790	2:1	µg/l	0.050	< 0.050
4-Chloro-3-Methylphenol	N	1790	2:1	µg/l	0.050	< 0.050
2-Methylnaphthalene	N	1790	2:1	µg/l	0.050	< 0.050
Hexachlorocyclopentadiene	N	1790	2:1	µg/l	0.050	< 0.050
2,4,6-Trichlorophenol	N	1790	2:1	µg/l	0.050	< 0.050
2,4,5-Trichlorophenol	N	1790	2:1	µg/l	0.050	< 0.050
2-Chloronaphthalene	N	1790	2:1	µg/l	0.050	< 0.050
2-Nitroaniline	N	1790	2:1	µg/l	0.050	< 0.050
Acenaphthylene	N	1790	2:1	µg/l	0.050	< 0.050
Dimethylphthalate	N	1790	2:1	µg/l	0.050	< 0.050
2,6-Dinitrotoluene	N	1790	2:1	µg/l	0.050	< 0.050
Acenaphthene	N	1790	2:1	µg/l	0.050	< 0.050
3-Nitroaniline	N	1790	2:1	µg/l	0.050	< 0.050
Dibenzofuran	N	1790	2:1	µg/l	0.050	< 0.050
4-Chlorophenylphenylether	N	1790	2:1	µg/l	0.050	< 0.050
2,4-Dinitrotoluene	N	1790	2:1	µg/l	0.050	< 0.050
Fluorene	N	1790	2:1	µg/l	0.050	< 0.050
Diethyl Phthalate	N	1790	2:1	µg/l	0.050	< 0.050
4-Nitroaniline	N	1790	2:1	µg/l	0.050	< 0.050
2-Methyl-4,6-Dinitrophenol	N	1790	2:1	µg/l	0.050	< 0.050
Azobenzene	N	1790	2:1	µg/l	0.050	< 0.050
4-Bromophenylphenyl Ether	N	1790	2:1	µg/l	0.050	< 0.050
Hexachlorobenzene	N	1790	2:1	µg/l	0.050	< 0.050
Pentachlorophenol	N	1790	2:1	µg/l	0.050	< 0.050
Phenanthrene	N	1790	2:1	µg/l	0.050	< 0.050
Anthracene	N	1790	2:1	µg/l	0.050	< 0.050
Carbazole	N	1790	2:1	µg/l	0.050	< 0.050
Di-N-Butyl Phthalate	N	1790	2:1	µg/l	0.050	< 0.050
Fluoranthene	N	1790	2:1	µg/l	0.050	< 0.050
Pyrene	N	1790	2:1	µg/l	0.050	< 0.050
Butylbenzyl Phthalate	N	1790	2:1	µg/l	0.050	< 0.050
Benzo[a]anthracene	N	1790	2:1	µg/l	0.050	< 0.050
Chrysene	N	1790	2:1	µg/l	0.050	< 0.050
Bis(2-Ethylhexyl)Phthalate	N	1790	2:1	µg/l	0.050	< 0.050
Di-N-Octyl Phthalate	N	1790	2:1	µg/l	0.050	< 0.050
Benzo[b]fluoranthene	N	1790	2:1	µg/l	0.050	< 0.050

Results - Leachate

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult				**Chemtest Job No.:**		22-20272
Quotation No.: Q22-27796				**Chemtest Sample ID.:**		1439139
				Client Sample ID.:		BH105
				Sample Type:		SOIL
				Top Depth (m):		0.20
				Bottom Depth (m):		0.40
				Date Sampled:		26-May-2022
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**	
Benzo[k]fluoranthene	N	1790	2:1	µg/l	0.050	< 0.050
Benzo[a]pyrene	N	1790	2:1	µg/l	0.050	< 0.050
Indeno(1,2,3-c,d)Pyrene	N	1790	2:1	µg/l	0.050	< 0.050
Dibenz(a,h)Anthracene	N	1790	2:1	µg/l	0.050	< 0.050
Benzo[g,h,i]perylene	N	1790	2:1	µg/l	0.050	< 0.050
4-Nitrophenol	N	1790	2:1	µg/l	0.050	< 0.050
Naphthalene	N	1800	2:1	µg/l	0.010	< 0.010
Acenaphthylene	N	1800	2:1	µg/l	0.010	< 0.010
Acenaphthene	N	1800	2:1	µg/l	0.010	< 0.010
Fluorene	N	1800	2:1	µg/l	0.010	< 0.010
Phenanthrene	N	1800	2:1	µg/l	0.010	< 0.010
Anthracene	N	1800	2:1	µg/l	0.010	< 0.010
Fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010
Pyrene	N	1800	2:1	µg/l	0.010	< 0.010
Benzo[a]anthracene	N	1800	2:1	µg/l	0.010	< 0.010
Chrysene	N	1800	2:1	µg/l	0.010	< 0.010
Benzo[b]fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010
Benzo[k]fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010
Benzo[a]pyrene	N	1800	2:1	µg/l	0.010	< 0.010
Indeno(1,2,3-c,d)Pyrene	N	1800	2:1	µg/l	0.010	< 0.010
Dibenz(a,h)Anthracene	N	1800	2:1	µg/l	0.010	< 0.010
Benzo[g,h,i]perylene	N	1800	2:1	µg/l	0.010	< 0.010
Total Of 16 PAH's	N	1800	2:1	µg/l	0.20	< 0.20
PCB 28	N	1815	2:1	µg/l	0.010	< 0.010
PCB 52	N	1815	2:1	µg/l	0.010	< 0.010
PCB 90+101	N	1815	2:1	µg/l	0.010	< 0.010
PCB 118	N	1815	2:1	µg/l	0.010	< 0.010
PCB 153	N	1815	2:1	µg/l	0.010	< 0.010
PCB 138	N	1815	2:1	µg/l	0.010	< 0.010
PCB 180	N	1815	2:1	µg/l	0.010	< 0.010
Total PCBs (7 congeners)	N	1815	2:1	µg/l	0.010	< 0.010
Total Phenols	U	1920	2:1	mg/l	0.030	< 0.030

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-20272	22-20272
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1439139	1439140
			Client Sample ID.:		BH105	BH105
			Sample Type:		SOIL	SOIL
			Top Depth (m):		0.20	1.50
			Bottom Depth (m):		0.40	1.60
			Date Sampled:		26-May-2022	26-May-2022
			Asbestos Lab:		DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
ACM Type	U	2192		N/A	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	10	17
Soil Colour	N	2040		N/A	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones
Soil Texture	N	2040		N/A	Sand	Clay
pH	U	2010		4.0	9.1	7.8
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	< 0.40	< 0.40
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	0.059	0.72
Sulphur (Elemental)	U	2180	mg/kg	1.0	2.0	2.3
Cyanide (Free)	U	2300	mg/kg	0.50	< 0.50	< 0.50
Cyanide (Total)	U	2300	mg/kg	0.50	< 0.50	< 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	1.9	1.4
Arsenic	U	2455	mg/kg	0.5	1.2	7.5
Barium	U	2455	mg/kg	0	26	78
Beryllium	U	2455	mg/kg	0.5	< 0.5	1.0
Cadmium	U	2455	mg/kg	0.10	0.34	< 0.10
Chromium	U	2455	mg/kg	0.5	4.0	21
Copper	U	2455	mg/kg	0.50	2.5	16
Mercury	U	2455	mg/kg	0.05	< 0.05	< 0.05
Nickel	U	2455	mg/kg	0.50	6.0	25
Lead	U	2455	mg/kg	0.50	6.0	9.1
Selenium	U	2455	mg/kg	0.25	0.37	0.83
Zinc	U	2455	mg/kg	0.50	14	35
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50
Fraction of Organic Carbon	U	2625		0.0010	0.011	0.0049
Aliphatic TPH >C5-C6	N	2680	mg/kg	0.010	< 0.010	< 0.010
Aliphatic TPH >C6-C8	N	2680	mg/kg	0.010	< 0.010	< 0.010
Aliphatic TPH >C8-C10	N	2680	mg/kg	0.10	< 0.10	< 0.10
Aliphatic TPH >C10-C12	N	2680	mg/kg	0.10	< 0.10	< 0.10
Aliphatic TPH >C12-C16	N	2680	mg/kg	0.10	< 0.10	< 0.10
Aliphatic TPH >C16-C21	N	2680	mg/kg	0.10	< 0.10	< 0.10
Aliphatic TPH >C21-C35	N	2680	mg/kg	0.10	< 0.10	< 0.10
Aliphatic TPH >C35-C44	N	2680	mg/kg	0.10	< 0.10	< 0.10
Total Aliphatic Hydrocarbons	N	2680	mg/kg	1.0	< 1.0	< 1.0
Aromatic TPH >C5-C7	N	2680	mg/kg	0.010	< 0.010	< 0.010
Aromatic TPH >C7-C8	N	2680	mg/kg	0.010	< 0.010	< 0.010

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-20272	22-20272
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1439139	1439140
			Client Sample ID.:		BH105	BH105
			Sample Type:		SOIL	SOIL
			Top Depth (m):		0.20	1.50
			Bottom Depth (m):		0.40	1.60
			Date Sampled:		26-May-2022	26-May-2022
			Asbestos Lab:		DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
Aromatic TPH >C8-C10	N	2680	mg/kg	0.10	< 0.10	< 0.10
Aromatic TPH >C10-C12	N	2680	mg/kg	0.10	< 0.10	< 0.10
Aromatic TPH >C12-C16	N	2680	mg/kg	0.10	< 0.10	< 0.10
Aromatic TPH >C16-C21	N	2680	mg/kg	0.10	< 0.10	< 0.10
Aromatic TPH >C21-C35	N	2680	mg/kg	0.10	< 0.10	38
Aromatic TPH >C35-C44	N	2680	mg/kg	0.10	< 0.10	< 0.10
Total Aromatic Hydrocarbons	N	2680	mg/kg	1.0	< 1.0	38
Total Petroleum Hydrocarbons	N	2680	mg/kg	2.0	< 2.0	38
Dichlorodifluoromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20
Chloromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20
Vinyl Chloride	N	2760	µg/kg	0.20	< 0.20	< 0.20
Bromomethane	N	2760	µg/kg	0.20	< 0.20	< 0.20
Chloroethane	N	2760	µg/kg	0.20	< 0.20	< 0.20
Trichlorofluoromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20
1,1-Dichloroethene	N	2760	µg/kg	0.20	< 0.20	< 0.20
Trans 1,2-Dichloroethene	N	2760	µg/kg	0.20	< 0.20	< 0.20
1,1-Dichloroethane	N	2760	µg/kg	0.20	< 0.20	< 0.20
cis 1,2-Dichloroethene	N	2760	µg/kg	0.20	< 0.20	< 0.20
Bromochloromethane	N	2760	µg/kg	0.50	< 0.50	< 0.50
Trichloromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20
1,1,1-Trichloroethane	N	2760	µg/kg	0.20	< 0.20	< 0.20
Tetrachloromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20
1,1-Dichloropropene	N	2760	µg/kg	0.20	< 0.20	< 0.20
Benzene	N	2760	µg/kg	0.20	< 0.20	< 0.20
1,2-Dichloroethane	N	2760	µg/kg	0.20	< 0.20	< 0.20
Trichloroethene	N	2760	µg/kg	0.20	< 0.20	< 0.20
1,2-Dichloropropane	N	2760	µg/kg	0.20	< 0.20	< 0.20
Dibromomethane	N	2760	µg/kg	0.20	< 0.20	< 0.20
Bromodichloromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20
cis-1,3-Dichloropropene	N	2760	µg/kg	0.20	< 0.20	< 0.20
Toluene	N	2760	µg/kg	0.20	< 0.20	< 0.20
Trans-1,3-Dichloropropene	N	2760	µg/kg	0.20	< 0.20	< 0.20
1,1,2-Trichloroethane	N	2760	µg/kg	0.20	< 0.20	< 0.20
Tetrachloroethene	N	2760	µg/kg	0.20	< 0.20	< 0.20
1,3-Dichloropropane	N	2760	µg/kg	0.20	< 0.20	< 0.20
Dibromochloromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20
1,2-Dibromoethane	N	2760	µg/kg	0.20	< 0.20	< 0.20
Chlorobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-20272	22-20272
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1439139	1439140
			Client Sample ID.:		BH105	BH105
			Sample Type:		SOIL	SOIL
			Top Depth (m):		0.20	1.50
			Bottom Depth (m):		0.40	1.60
			Date Sampled:		26-May-2022	26-May-2022
			Asbestos Lab:		DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
1,1,1,2-Tetrachloroethane	N	2760	µg/kg	0.20	< 0.20	< 0.20
Ethylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20
m & p-Xylene	N	2760	µg/kg	0.20	< 0.20	< 0.20
o-Xylene	N	2760	µg/kg	0.20	< 0.20	< 0.20
Styrene	N	2760	µg/kg	0.20	< 0.20	< 0.20
Tribromomethane	N	2760	µg/kg	0.20	< 0.20	< 0.20
Isopropylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20
Bromobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20
1,2,3-Trichloropropane	N	2760	µg/kg	0.20	< 0.20	< 0.20
N-Propylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20
2-Chlorotoluene	N	2760	µg/kg	0.20	< 0.20	< 0.20
1,3,5-Trimethylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20
4-Chlorotoluene	N	2760	µg/kg	0.20	< 0.20	< 0.20
Tert-Butylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20
1,2,4-Trimethylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20
Sec-Butylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20
1,3-Dichlorobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20
4-Isopropyltoluene	N	2760	µg/kg	0.20	< 0.20	< 0.20
1,4-Dichlorobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20
N-Butylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20
1,2-Dichlorobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20
1,2-Dibromo-3-Chloropropane	N	2760	µg/kg	0.20	< 0.20	< 0.20
1,2,4-Trichlorobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20
Hexachlorobutadiene	N	2760	µg/kg	0.20	< 0.20	< 0.20
1,2,3-Trichlorobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20
Methyl Tert-Butyl Ether	N	2760	µg/kg	0.20	< 0.20	< 0.20
N-Nitrosodimethylamine	N	2790	mg/kg	0.050	< 0.050	< 0.050
Phenol	N	2790	mg/kg	0.050	< 0.050	< 0.050
2-Chlorophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050
Bis-(2-Chloroethyl)Ether	N	2790	mg/kg	0.050	< 0.050	< 0.050
1,3-Dichlorobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050
1,4-Dichlorobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050
1,2-Dichlorobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050
2-Methylphenol	N	2790	mg/kg	0.050	< 0.050	< 0.050
Bis(2-Chloroisopropyl)Ether	N	2790	mg/kg	0.050	< 0.050	< 0.050
Hexachloroethane	N	2790	mg/kg	0.050	< 0.050	< 0.050
N-Nitrosodi-n-propylamine	N	2790	mg/kg	0.050	< 0.050	< 0.050
4-Methylphenol	N	2790	mg/kg	0.050	< 0.050	< 0.050

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-20272	22-20272
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1439139	1439140
			Client Sample ID.:		BH105	BH105
			Sample Type:		SOIL	SOIL
			Top Depth (m):		0.20	1.50
			Bottom Depth (m):		0.40	1.60
			Date Sampled:		26-May-2022	26-May-2022
			Asbestos Lab:		DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
Nitrobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050
Isophorone	N	2790	mg/kg	0.050	< 0.050	< 0.050
2-Nitrophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050
2,4-Dimethylphenol	N	2790	mg/kg	0.050	< 0.050	< 0.050
Bis(2-Chloroethoxy)Methane	N	2790	mg/kg	0.050	< 0.050	< 0.050
2,4-Dichlorophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050
1,2,4-Trichlorobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050
Naphthalene	N	2790	mg/kg	0.050	< 0.050	< 0.050
4-Chloroaniline	N	2790	mg/kg	0.050	< 0.050	< 0.050
Hexachlorobutadiene	N	2790	mg/kg	0.050	< 0.050	< 0.050
4-Chloro-3-Methylphenol	N	2790	mg/kg	0.050	< 0.050	< 0.050
2-Methylnaphthalene	N	2790	mg/kg	0.050	< 0.050	< 0.050
Hexachlorocyclopentadiene	N	2790	mg/kg	0.050	< 0.050	< 0.050
2,4,6-Trichlorophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050
2,4,5-Trichlorophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050
2-Chloronaphthalene	N	2790	mg/kg	0.050	< 0.050	< 0.050
2-Nitroaniline	N	2790	mg/kg	0.050	< 0.050	< 0.050
Acenaphthylene	N	2790	mg/kg	0.050	< 0.050	< 0.050
Dimethylphthalate	N	2790	mg/kg	0.050	< 0.050	< 0.050
2,6-Dinitrotoluene	N	2790	mg/kg	0.050	< 0.050	< 0.050
Acenaphthene	N	2790	mg/kg	0.050	< 0.050	< 0.050
3-Nitroaniline	N	2790	mg/kg	0.050	< 0.050	< 0.050
Dibenzofuran	N	2790	mg/kg	0.050	< 0.050	< 0.050
4-Chlorophenylphenylether	N	2790	mg/kg	0.050	< 0.050	< 0.050
2,4-Dinitrotoluene	N	2790	mg/kg	0.050	< 0.050	< 0.050
Fluorene	N	2790	mg/kg	0.050	< 0.050	< 0.050
Diethyl Phthalate	N	2790	mg/kg	0.050	< 0.050	< 0.050
4-Nitroaniline	N	2790	mg/kg	0.050	< 0.050	< 0.050
2-Methyl-4,6-Dinitrophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050
Azobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050
4-Bromophenylphenyl Ether	N	2790	mg/kg	0.050	< 0.050	< 0.050
Hexachlorobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050
Pentachlorophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050
Phenanthrene	N	2790	mg/kg	0.050	< 0.050	< 0.050
Anthracene	N	2790	mg/kg	0.050	< 0.050	< 0.050
Carbazole	N	2790	mg/kg	0.050	< 0.050	< 0.050
Di-N-Butyl Phthalate	N	2790	mg/kg	0.050	< 0.050	< 0.050
Fluoranthene	N	2790	mg/kg	0.050	< 0.050	< 0.050

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-20272	22-20272
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1439139	1439140
			Client Sample ID.:		BH105	BH105
			Sample Type:		SOIL	SOIL
			Top Depth (m):		0.20	1.50
			Bottom Depth (m):		0.40	1.60
			Date Sampled:		26-May-2022	26-May-2022
			Asbestos Lab:		DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
Pyrene	N	2790	mg/kg	0.050	< 0.050	< 0.050
Butylbenzyl Phthalate	N	2790	mg/kg	0.050	< 0.050	< 0.050
Benzo[a]anthracene	N	2790	mg/kg	0.050	< 0.050	< 0.050
Chrysene	N	2790	mg/kg	0.050	< 0.050	< 0.050
Bis(2-Ethylhexyl)Phthalate	N	2790	mg/kg	0.050	< 0.050	< 0.050
Di-N-Octyl Phthalate	N	2790	mg/kg	0.050	< 0.050	< 0.050
Benzo[b]fluoranthene	N	2790	mg/kg	0.050	< 0.050	< 0.050
Benzo[k]fluoranthene	N	2790	mg/kg	0.050	< 0.050	< 0.050
Benzo[a]pyrene	N	2790	mg/kg	0.050	< 0.050	< 0.050
Indeno(1,2,3-c,d)Pyrene	N	2790	mg/kg	0.050	< 0.050	< 0.050
Dibenz(a,h)Anthracene	N	2790	mg/kg	0.050	< 0.050	< 0.050
Benzo[g,h,i]perylene	N	2790	mg/kg	0.050	< 0.050	< 0.050
4-Nitrophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050
Naphthalene	N	2800	mg/kg	0.010	< 0.010	< 0.010
Acenaphthylene	N	2800	mg/kg	0.010	< 0.010	< 0.010
Acenaphthene	N	2800	mg/kg	0.010	< 0.010	< 0.010
Fluorene	N	2800	mg/kg	0.010	< 0.010	< 0.010
Phenanthrene	N	2800	mg/kg	0.010	< 0.010	< 0.010
Anthracene	N	2800	mg/kg	0.010	< 0.010	< 0.010
Fluoranthene	N	2800	mg/kg	0.010	0.10	< 0.010
Pyrene	N	2800	mg/kg	0.010	0.14	< 0.010
Benzo[a]anthracene	N	2800	mg/kg	0.010	< 0.010	< 0.010
Chrysene	N	2800	mg/kg	0.010	< 0.010	< 0.010
Benzo[b]fluoranthene	N	2800	mg/kg	0.010	< 0.010	< 0.010
Benzo[k]fluoranthene	N	2800	mg/kg	0.010	< 0.010	< 0.010
Benzo[a]pyrene	N	2800	mg/kg	0.010	< 0.010	< 0.010
Indeno(1,2,3-c,d)Pyrene	N	2800	mg/kg	0.010	< 0.010	< 0.010
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.010	< 0.010	< 0.010
Benzo[g,h,i]perylene	N	2800	mg/kg	0.010	< 0.010	< 0.010
Total Of 16 PAH's	N	2800	mg/kg	0.20	0.24	< 0.20
PCB 28	U	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 52	U	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 90+101	U	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 118	U	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 153	U	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 138	U	2815	mg/kg	0.010	< 0.010	< 0.010
PCB 180	U	2815	mg/kg	0.010	< 0.010	< 0.010
Total PCBs (7 Congeners)	U	2815	mg/kg	0.10	< 0.10	< 0.10

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-20272	22-20272
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1439139	1439140
			Client Sample ID.:		BH105	BH105
			Sample Type:		SOIL	SOIL
			Top Depth (m):		0.20	1.50
			Bottom Depth (m):		0.40	1.60
			Date Sampled:		26-May-2022	26-May-2022
			Asbestos Lab:		DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
Total Phenols	U	2920	mg/kg	0.10	< 0.10	< 0.10

Results - 2 Stage WAC

Project: LKC 22 1225 B401 Manchester Airport

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-20272								
Chemtest Sample ID:	1439139								
Sample Ref:									
Sample ID:	BH105						**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Sample Location:									
Top Depth(m):	0.20								
Bottom Depth(m):	0.40								
Sampling Date:	26-May-2022								
Determinand	**SOP**	**Accred.**	**Units**						
Total Organic Carbon							3	5	6
Loss on Ignition							--	--	10
Total BTEX							6	--	--
Total PCBs (7 congeners)							1	--	--
TPH Total WAC (Mineral Oil)							500	--	--
Total (of 17) PAHs							100	--	--
pH							--	>6	--
Acid Neutralisation Capacity							--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic							0.5	2	25
Barium							20	100	300
Cadmium							0.04	1	5
Chromium							0.5	10	70
Copper							2	50	100
Mercury							0.01	0.2	2
Molybdenum							0.5	10	30
Nickel							0.4	10	40
Lead							0.5	10	50
Antimony							0.06	0.7	5
Selenium							0.1	0.5	7
Zinc							4	50	200
Chloride							800	15000	25000
Fluoride							10	150	500
Sulphate							1000	20000	50000
Total Dissolved Solids							4000	60000	100000
Phenol Index							1	-	-
Dissolved Organic Carbon							500	800	1000

Solid Information	
Dry mass of test portion/kg	
Moisture (%)	

Leachate Test Information	
Leachant volume 1st extract/l	
Leachant volume 2nd extract/l	
Eluant recovered from 1st extract/l	

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1300	Cyanides & Thiocyanate in Waters	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Continuous Flow Analysis.
1325	Sulphide in Waters	Sulphides	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using N,N–dimethyl-pphenylenediamine.
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1490	Hexavalent Chromium in Waters	Chromium [VI]	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
1495	Low Level Hexavalent Chromium in Waters	Chromium [VI]	Colorimetric determination of hexavalent chromium expressed as Cr (VI) µg/l in water, using Ion Chromatography and UV-visible spectrophotometry.
1675	TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG)	Aliphatics: >C5–C6, >C6–C8, >C8– C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Pentane extraction / GCxGC FID detection
1760	Volatile Organic Compounds (VOCs) in Waters by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics. (cf. USEPA Method 8260)	Automated headspace gas chromatographic (GC) analysis of water samples with mass spectrometric (MS) detection of volatile organic compounds.
1790	Semi-Volatile Organic Compounds (SVOCs) in Waters by GC-MS	Semi-volatile organic compounds	Solvent extraction / GCMS detection
1800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-MS	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Pentane extraction / GCMS detection
1815	Polychlorinated Biphenyls (PCB) ICES7 Congeners in Waters by GC-MS	ICES7 PCB congeners	Solvent extraction / GCMS detection
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2180	Sulphur (Elemental) in Soils by HPLC	Sulphur	Dichloromethane extraction / HPLC with UV detection
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry

Test Methods

SOP	Title	Parameters included	Method summary
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N–dimethyl-p-phenylenediamine.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2790	Semi-Volatile Organic Compounds (SVOCs) in Soils by GC-MS	Semi-volatile organic compounds(cf. USEPA Method 8270)	Acetone/Hexane extraction / GC-MS
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge
650	Characterisation of Waste (Leaching WAC)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

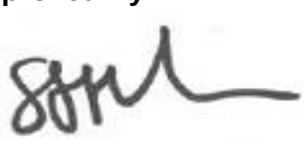
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	22-20490-1
Initial Date of Issue:	10-Jun-2022
Client	LK Consult
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS
Contact(s):	Colin Crompton Contaminated Land
Project	LKC 22 1225 B401 Manchester Airport

Quotation No.:	Q22-27796	**Date Received:**	01-Jun-2022
Order No.:	740328	**Date Instructed:**	01-Jun-2022
No. of Samples:	1		
Turnaround (Wkdays):	7	**Results Due:**	13-Jun-2022
Date Approved:	10-Jun-2022		

Approved By:



Details:	Stuart Henderson, Technical Manager

Results - 2 Stage WAC

Project: LKC 22 1225 B401 Manchester Airport

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-20490								
Chemtest Sample ID:	1440333								
Sample Ref:									
Sample ID:	BH105								
Sample Location:									
Top Depth(m):	0.20								
Bottom Depth(m):	0.40								
Sampling Date:	26-May-2022						**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Determinand	**SOP**	**Accred.**	**Units**						
Total Organic Carbon	2625	M	%			< 0.20	3	5	6
Loss On Ignition	2610	M	%			1.2	--	--	10
Total BTEX	2760	M	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg			< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg			130	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			< 2.0	100	--	--
pH	2010	M				9.0	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.024	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1455	U	0.0013	0.0015	0.0025	0.015	0.5	2	25
Barium	1455	U	0.016	0.007	0.031	0.077	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	0.0026	0.0028	0.0051	0.028	0.5	10	70
Copper	1455	U	0.0017	0.0023	0.0034	0.0017	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.0041	0.0012	0.0082	0.015	0.5	10	30
Nickel	1455	U	0.0022	0.0020	0.0044	0.020	0.4	10	40
Lead	1455	U	< 0.0005	0.0006	< 0.0005	0.0058	0.5	10	50
Antimony	1455	U	0.0008	< 0.0005	0.0017	0.0008	0.06	0.7	5
Selenium	1455	U	0.0007	0.0007	0.0014	0.0070	0.1	0.5	7
Zinc	1455	U	< 0.003	< 0.003	< 0.003	< 0.003	4	50	200
Chloride	1220	U	45	6.5	90	100	800	15000	25000
Fluoride	1220	U	0.41	0.14	< 1.0	1.7	10	150	500
Sulphate	1220	U	13	2.3	26	34	1000	20000	50000
Total Dissolved Solids	1020	N	180	65	360	770	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	4.0	3.3	< 50	< 50	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	6.5

Leachate Test Information	
Leachant volume 1st extract/l	0.338
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.172

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Test Methods

SOP	Title	Parameters included	Method summary
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2015	Acid Neutralisation Capacity	Acid Reserve	Titration
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge
650	Characterisation of Waste (Leaching WAC)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

Report Information

Key

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I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

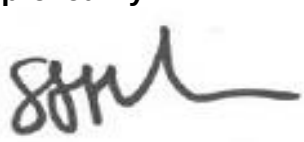
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	22-20520-1
Initial Date of Issue:	10-Jun-2022
Client	LK Consult
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS
Contact(s):	Colin Crompton Contaminated Land
Project	LKC 22 1225 B401 Manchester Airport

Quotation No.:	Q22-27796	**Date Received:**	01-Jun-2022
Order No.:	740327	**Date Instructed:**	01-Jun-2022
No. of Samples:	2		
Turnaround (Wkdays):	7	**Results Due:**	13-Jun-2022
Date Approved:	10-Jun-2022		

Approved By:



Details:	Stuart Henderson, Technical Manager

Results - 2 Stage WAC

Project: LKC 22 1225 B401 Manchester Airport

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-20520								
Chemtest Sample ID:	1440471								
Sample Ref:									
Sample ID:	BH104						**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Sample Location:									
Top Depth(m):	0.10								
Bottom Depth(m):	0.30								
Sampling Date:	25-May-2022								
Determinand	**SOP**	**Accred.**	**Units**						
Total Organic Carbon	2625	M	%			< 0.20	3	5	6
Loss On Ignition	2610	M	%			1.3	--	--	10
Total BTEX	2760	M	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg			< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg			65	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			< 2.0	100	--	--
pH	2010	M				9.0	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.016	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1455	U	0.0002	0.0004	0.0005	0.0035	0.5	2	25
Barium	1455	U	0.012	< 0.005	0.024	0.017	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	0.0023	0.0023	0.0046	0.023	0.5	10	70
Copper	1455	U	0.0009	0.0008	0.0018	0.0012	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.0024	0.0009	0.0047	0.011	0.5	10	30
Nickel	1455	U	0.0014	0.0015	0.0029	0.015	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.5	10	50
Antimony	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.06	0.7	5
Selenium	1455	U	0.0005	< 0.0005	0.0010	0.0007	0.1	0.5	7
Zinc	1455	U	< 0.003	< 0.003	< 0.003	< 0.003	4	50	200
Chloride	1220	U	13	1.4	26	30	800	15000	25000
Fluoride	1220	U	0.29	0.12	< 1.0	1.4	10	150	500
Sulphate	1220	U	5.1	< 1.0	10	< 10	1000	20000	50000
Total Dissolved Solids	1020	N	98	46	200	530	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	< 2.5	< 2.5	< 50	< 50	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	6.1

Leachate Test Information	
Leachant volume 1st extract/l	0.339
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.240

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - 2 Stage WAC

Project: LKC 22 1225 B401 Manchester Airport

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-20520								
Chemtest Sample ID:	1440472								
Sample Ref:									
Sample ID:	BH106						**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Sample Location:									
Top Depth(m):	1.40								
Bottom Depth(m):	1.50								
Sampling Date:	25-May-2022								
Determinand	**SOP**	**Accred.**	**Units**						
Total Organic Carbon	2625	M	%			0.62	3	5	6
Loss On Ignition	2610	M	%			6.6	--	--	10
Total BTEX	2760	M	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg			< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg			< 10	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			< 2.0	100	--	--
pH	2010	M				8.2	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.041	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1455	U	0.0003	0.0002	0.0005	0.0023	0.5	2	25
Barium	1455	U	0.013	< 0.005	0.026	0.0085	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	0.0023	0.0026	0.0045	0.025	0.5	10	70
Copper	1455	U	0.0006	< 0.0005	0.0011	< 0.0005	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.0004	0.0005	0.0009	0.0048	0.5	10	30
Nickel	1455	U	0.0019	0.0019	0.0037	0.019	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.5	10	50
Antimony	1455	U	0.0005	0.0022	0.0011	0.021	0.06	0.7	5
Selenium	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.1	0.5	7
Zinc	1455	U	< 0.003	< 0.003	< 0.003	< 0.003	4	50	200
Chloride	1220	U	10	< 1.0	19	< 10	800	15000	25000
Fluoride	1220	U	0.62	0.15	1.2	1.8	10	150	500
Sulphate	1220	U	25	< 1.0	48	16	1000	20000	50000
Total Dissolved Solids	1020	N	98	20	190	240	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	4.6	< 2.5	< 50	< 50	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	23

Leachate Test Information	
Leachant volume 1st extract/l	0.298
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.112

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Test Methods

SOP	Title	Parameters included	Method summary
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2015	Acid Neutralisation Capacity	Acid Reserve	Titration
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge
650	Characterisation of Waste (Leaching WAC)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

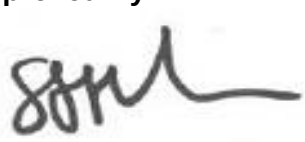
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	22-20636-1
Initial Date of Issue:	10-Jun-2022
Client	LK Consult
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS
Contact(s):	Colin Crompton Contaminated Land
Project	LKC 22 1225 B401 Manchester Airport

Quotation No.:	Q22-27796	**Date Received:**	06-Jun-2022
Order No.:	740327	**Date Instructed:**	06-Jun-2022
No. of Samples:	4		
Turnaround (Wkdays):	5	**Results Due:**	10-Jun-2022
Date Approved:	10-Jun-2022		

Approved By:



Details: Stuart Henderson, Technical Manager

Results - Leachate

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult				**Chemtest Job No.:**		22-20636	22-20636
Quotation No.: Q22-27796				**Chemtest Sample ID.:**		1440953	1440955
				Client Sample ID.:		BH101	BH102
				Sample Type:		SOIL	SOIL
				Top Depth (m):		2.10	0.30
				Bottom Depth (m):		2.20	0.75
				Date Sampled:		27-May-2022	27-May-2022
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**		
pH	U	1010	2:1		N/A	7.5	10.3
Electrical Conductivity	U	1020	2:1	µS/cm	1.0	1600	430
Chloride	U	1220	2:1	mg/l	1.0	1.7	1.5
Ammoniacal Nitrogen	U	1220	2:1	mg/l	0.050	0.12	0.72
Nitrate	U	1220	2:1	mg/l	0.50	< 0.50	< 0.50
Sulphur	N	1220	2:1	mg/l	1.0	330	12
Sulphate	U	1220	2:1	mg/l	1.0	990	37
Cyanide (Total)	U	1300	2:1	mg/l	0.050	< 0.050	< 0.050
Cyanide (Free)	U	1300	2:1	mg/l	0.050	< 0.050	< 0.050
Sulphide	U	1325	2:1	mg/l	0.050	< 0.050	< 0.050
Arsenic (Dissolved)	U	1455	2:1	µg/l	0.20	2.4	0.64
Boron (Dissolved)	U	1455	2:1	µg/l	10.0	41	16
Barium (Dissolved)	U	1455	2:1	µg/l	5.00	44	66
Beryllium (Dissolved)	U	1455	2:1	µg/l	1.00	< 1.0	< 1.0
Cadmium (Dissolved)	U	1455	2:1	µg/l	0.11	< 0.11	< 0.11
Chromium (Dissolved)	U	1455	2:1	µg/l	0.50	2.1	4.9
Copper (Dissolved)	U	1455	2:1	µg/l	0.50	1.2	2.4
Mercury (Dissolved)	U	1455	2:1	µg/l	0.05	< 0.05	< 0.05
Nickel (Dissolved)	U	1455	2:1	µg/l	0.50	1.6	2.2
Lead (Dissolved)	U	1455	2:1	µg/l	0.50	< 0.50	< 0.50
Selenium (Dissolved)	U	1455	2:1	µg/l	0.50	0.87	1.3
Zinc (Dissolved)	U	1455	2:1	µg/l	2.5	5.5	< 2.5
Chromium (Hexavalent)	U	1490	2:1	µg/l	20	< 20	< 20
Low-Level Chromium (Hexavalent)	N	1495	2:1	µg/l	0.10	< 0.10	1.2
Aliphatic TPH >C5-C6	N	1675	2:1	µg/l	0.010	< 0.010	< 0.010
Aliphatic TPH >C6-C8	N	1675	2:1	µg/l	0.010	< 0.010	< 0.010
Aliphatic TPH >C8-C10	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C10-C12	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C12-C16	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C16-C21	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C21-C35	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C35-C44	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Total Aliphatic Hydrocarbons	N	1675	2:1	µg/l	1.0	< 1.0	< 1.0
Aromatic TPH >C5-C7	N	1675	2:1	µg/l	0.010	< 0.010	< 0.010
Aromatic TPH >C7-C8	N	1675	2:1	µg/l	0.010	< 0.010	< 0.010
Aromatic TPH >C8-C10	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C10-C12	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C12-C16	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C16-C21	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10

Results - Leachate

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult				**Chemtest Job No.:**		22-20636	22-20636
Quotation No.: Q22-27796				**Chemtest Sample ID.:**		1440953	1440955
				Client Sample ID.:		BH101	BH102
				Sample Type:		SOIL	SOIL
				Top Depth (m):		2.10	0.30
				Bottom Depth (m):		2.20	0.75
				Date Sampled:		27-May-2022	27-May-2022
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**		
Aromatic TPH >C21-C35	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C35-C44	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Total Aromatic Hydrocarbons	N	1675	2:1	µg/l	1.0	< 1.0	< 1.0
Total Petroleum Hydrocarbons	N	1675	2:1	µg/l	2.0	< 2.0	< 2.0
Dichlorodifluoromethane	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Chloromethane	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Vinyl Chloride	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Bromomethane	N	1760	2:1	µg/l	2.0	< 2.0	< 2.0
Chloroethane	N	1760	2:1	µg/l	0.20	< 0.20	< 0.20
Trichlorofluoromethane	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,1-Dichloroethene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Trans 1,2-Dichloroethene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,1-Dichloroethane	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
cis 1,2-Dichloroethene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Bromochloromethane	N	1760	2:1	µg/l	0.50	< 0.50	< 0.50
Trichloromethane	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,1,1-Trichloroethane	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Tetrachloromethane	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,1-Dichloropropene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Benzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,2-Dichloroethane	N	1760	2:1	µg/l	0.20	< 0.20	< 0.20
Trichloroethene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,2-Dichloropropane	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Dibromomethane	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Bromodichloromethane	N	1760	2:1	µg/l	0.50	< 0.50	< 0.50
cis-1,3-Dichloropropene	N	1760	2:1	µg/l	1.0	< 1.0	< 1.0
Toluene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Trans-1,3-Dichloropropene	N	1760	2:1	µg/l	1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	N	1760	2:1	µg/l	1.0	< 1.0	< 1.0
Tetrachloroethene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,3-Dichloropropane	N	1760	2:1	µg/l	0.20	< 0.20	< 0.20
Dibromochloromethane	N	1760	2:1	µg/l	1.0	< 1.0	< 1.0
1,2-Dibromoethane	N	1760	2:1	µg/l	0.50	< 0.50	< 0.50
Chlorobenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,1,1,2-Tetrachloroethane	N	1760	2:1	µg/l	0.20	< 0.20	< 0.20
Ethylbenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
m & p-Xylene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
o-Xylene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Styrene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10

Results - Leachate

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult				**Chemtest Job No.:**		22-20636	22-20636
Quotation No.: Q22-27796				**Chemtest Sample ID.:**		1440953	1440955
				Client Sample ID.:		BH101	BH102
				Sample Type:		SOIL	SOIL
				Top Depth (m):		2.10	0.30
				Bottom Depth (m):		2.20	0.75
				Date Sampled:		27-May-2022	27-May-2022
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**		
Tribromomethane	N	1760	2:1	µg/l	1.0	< 1.0	< 1.0
Isopropylbenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Bromobenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,2,3-Trichloropropane	N	1760	2:1	µg/l	5.0	< 5.0	< 5.0
N-Propylbenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
2-Chlorotoluene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,3,5-Trimethylbenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
4-Chlorotoluene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Tert-Butylbenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,2,4-Trimethylbenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Sec-Butylbenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,3-Dichlorobenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
4-Isopropyltoluene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,4-Dichlorobenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
N-Butylbenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,2-Dichlorobenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,2-Dibromo-3-Chloropropane	N	1760	2:1	µg/l	5.0	< 5.0	< 5.0
1,2,4-Trichlorobenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Hexachlorobutadiene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,2,3-Trichlorobenzene	N	1760	2:1	µg/l	0.20	< 0.20	< 0.20
Methyl Tert-Butyl Ether	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
N-Nitrosodimethylamine	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Phenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2-Chlorophenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Bis-(2-Chloroethyl)Ether	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
1,3-Dichlorobenzene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
1,4-Dichlorobenzene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
1,2-Dichlorobenzene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2-Methylphenol (o-Cresol)	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Bis(2-Chloroisopropyl)Ether	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Hexachloroethane	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
N-Nitrosodi-n-propylamine	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
4-Methylphenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Nitrobenzene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Isophorone	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2-Nitrophenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2,4-Dimethylphenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Bis(2-Chloroethoxy)Methane	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2,4-Dichlorophenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050

Results - Leachate

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult				**Chemtest Job No.:**		22-20636	22-20636
Quotation No.: Q22-27796				**Chemtest Sample ID.:**		1440953	1440955
				Client Sample ID.:		BH101	BH102
				Sample Type:		SOIL	SOIL
				Top Depth (m):		2.10	0.30
				Bottom Depth (m):		2.20	0.75
				Date Sampled:		27-May-2022	27-May-2022
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**		
1,2,4-Trichlorobenzene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Naphthalene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
4-Chloroaniline	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Hexachlorobutadiene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
4-Chloro-3-Methylphenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2-Methylnaphthalene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Hexachlorocyclopentadiene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2,4,6-Trichlorophenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2,4,5-Trichlorophenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2-Chloronaphthalene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2-Nitroaniline	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Acenaphthylene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Dimethylphthalate	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2,6-Dinitrotoluene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Acenaphthene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
3-Nitroaniline	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Dibenzofuran	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
4-Chlorophenylphenylether	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2,4-Dinitrotoluene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Fluorene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Diethyl Phthalate	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
4-Nitroaniline	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2-Methyl-4,6-Dinitrophenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Azobenzene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
4-Bromophenylphenyl Ether	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Hexachlorobenzene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Pentachlorophenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Phenanthrene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Anthracene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Carbazole	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Di-N-Butyl Phthalate	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Fluoranthene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Pyrene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Butylbenzyl Phthalate	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Benzo[a]anthracene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Chrysene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Bis(2-Ethylhexyl)Phthalate	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Di-N-Octyl Phthalate	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Benzo[b]fluoranthene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050

Results - Leachate

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult				**Chemtest Job No.:**		22-20636	22-20636
Quotation No.: Q22-27796				**Chemtest Sample ID.:**		1440953	1440955
				Client Sample ID.:		BH101	BH102
				Sample Type:		SOIL	SOIL
				Top Depth (m):		2.10	0.30
				Bottom Depth (m):		2.20	0.75
				Date Sampled:		27-May-2022	27-May-2022
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**		
Benzo[k]fluoranthene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Benzo[a]pyrene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Indeno(1,2,3-c,d)Pyrene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Dibenz(a,h)Anthracene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Benzo[g,h,i]perylene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
4-Nitrophenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Naphthalene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Acenaphthylene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Acenaphthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Fluorene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Phenanthrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Anthracene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Pyrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Benzo[a]anthracene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Chrysene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Benzo[b]fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Benzo[k]fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Benzo[a]pyrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Indeno(1,2,3-c,d)Pyrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Dibenz(a,h)Anthracene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Benzo[g,h,i]perylene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Total Of 16 PAH's	N	1800	2:1	µg/l	0.20	< 0.20	< 0.20
PCB 28	N	1815	2:1	µg/l	0.010	< 0.010	< 0.010
PCB 52	N	1815	2:1	µg/l	0.010	< 0.010	< 0.010
PCB 90+101	N	1815	2:1	µg/l	0.010	< 0.010	< 0.010
PCB 118	N	1815	2:1	µg/l	0.010	< 0.010	< 0.010
PCB 153	N	1815	2:1	µg/l	0.010	< 0.010	< 0.010
PCB 138	N	1815	2:1	µg/l	0.010	< 0.010	< 0.010
PCB 180	N	1815	2:1	µg/l	0.010	< 0.010	< 0.010
Total PCBs (7 congeners)	N	1815	2:1	µg/l	0.010	< 0.010	< 0.010
Total Phenols	U	1920	2:1	mg/l	0.030	< 0.030	< 0.030

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult		**Chemtest Job No.:**			22-20636	22-20636	22-20636	22-20636
Quotation No.: Q22-27796		**Chemtest Sample ID.:**			1440953	1440954	1440955	1440956
		Client Sample ID.:			BH101	BH102	BH102	BH102
		Sample Type:			SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			2.10	0.15	0.30	1.70
		Bottom Depth (m):			2.20	0.30	0.75	1.80
		Date Sampled:			27-May-2022	27-May-2022	27-May-2022	27-May-2022
		Asbestos Lab:			COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
ACM Type	U	2192		N/A	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	14	5.6	4.4	12
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones	Stones	Stones
Soil Texture	N	2040		N/A	Clay	Sand	Sand	Clay
pH	M	2010		4.0	9.4	11.8	11.0	8.8
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	1.9	< 0.40	< 0.40	1.1
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	0.28	0.39	0.17	0.85
Sulphur (Elemental)	M	2180	mg/kg	1.0	2.8	1.3	< 1.0	< 1.0
Cyanide (Free)	M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cyanide (Total)	M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	20	3.7	1.4	1.6
Arsenic	M	2455	mg/kg	0.5	2.1	1.7	1.5	3.8
Barium	M	2455	mg/kg	0	64	78	120	33
Beryllium	U	2455	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5
Cadmium	M	2455	mg/kg	0.10	0.14	0.17	0.11	< 0.10
Chromium	M	2455	mg/kg	0.5	8.9	6.7	4.7	13
Copper	M	2455	mg/kg	0.50	15	5.2	3.0	9.2
Mercury	M	2455	mg/kg	0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel	M	2455	mg/kg	0.50	9.3	6.6	7.6	13
Lead	M	2455	mg/kg	0.50	16	9.1	4.7	4.0
Selenium	M	2455	mg/kg	0.25	0.25	< 0.25	< 0.25	0.33
Zinc	M	2455	mg/kg	0.50	20	16	9.4	24
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Fraction of Organic Carbon	M	2625		0.0010	0.012	0.012	0.0034	0.0029
Aliphatic TPH >C5-C6	N	2680	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Aliphatic TPH >C6-C8	N	2680	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Aliphatic TPH >C8-C10	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C10-C12	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C12-C16	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C16-C21	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C21-C35	N	2680	mg/kg	0.10	< 0.10	20	< 0.10	< 0.10
Aliphatic TPH >C35-C44	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aliphatic Hydrocarbons	N	2680	mg/kg	1.0	< 1.0	20	< 1.0	< 1.0
Aromatic TPH >C5-C7	N	2680	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Aromatic TPH >C7-C8	N	2680	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult		**Chemtest Job No.:**			22-20636	22-20636	22-20636	22-20636
Quotation No.: Q22-27796		**Chemtest Sample ID.:**			1440953	1440954	1440955	1440956
		Client Sample ID.:			BH101	BH102	BH102	BH102
		Sample Type:			SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			2.10	0.15	0.30	1.70
		Bottom Depth (m):			2.20	0.30	0.75	1.80
		Date Sampled:			27-May-2022	27-May-2022	27-May-2022	27-May-2022
		Asbestos Lab:			COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
Aromatic TPH >C8-C10	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C10-C12	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C12-C16	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C16-C21	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C21-C35	N	2680	mg/kg	0.10	< 0.10	1000	< 0.10	< 0.10
Aromatic TPH >C35-C44	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aromatic Hydrocarbons	N	2680	mg/kg	1.0	< 1.0	1000	< 1.0	< 1.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	2.0	< 2.0	1100	< 2.0	< 2.0
Dichlorodifluoromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Chloromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Vinyl Chloride	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Bromomethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Chloroethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Trichlorofluoromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,1-Dichloroethene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Trans 1,2-Dichloroethene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,1-Dichloroethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
cis 1,2-Dichloroethene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Bromochloromethane	N	2760	µg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Trichloromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,1,1-Trichloroethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Tetrachloromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,1-Dichloropropene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Benzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,2-Dichloroethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Trichloroethene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,2-Dichloropropane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Dibromomethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Bromodichloromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
cis-1,3-Dichloropropene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Toluene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Trans-1,3-Dichloropropene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,1,2-Trichloroethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Tetrachloroethene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,3-Dichloropropane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Dibromochloromethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,2-Dibromoethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Chlorobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-20636	22-20636	22-20636	22-20636
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1440953	1440954	1440955	1440956
			Client Sample ID.:		BH101	BH102	BH102	BH102
			Sample Type:		SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		2.10	0.15	0.30	1.70
			Bottom Depth (m):		2.20	0.30	0.75	1.80
			Date Sampled:		27-May-2022	27-May-2022	27-May-2022	27-May-2022
			Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
1,1,1,2-Tetrachloroethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Ethylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
m & p-Xylene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
o-Xylene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Styrene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Tribromomethane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Isopropylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Bromobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,2,3-Trichloropropane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
N-Propylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
2-Chlorotoluene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,3,5-Trimethylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
4-Chlorotoluene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Tert-Butylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,2,4-Trimethylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Sec-Butylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,3-Dichlorobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
4-Isopropyltoluene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,4-Dichlorobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
N-Butylbenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,2-Dichlorobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,2-Dibromo-3-Chloropropane	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,2,4-Trichlorobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Hexachlorobutadiene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
1,2,3-Trichlorobenzene	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Methyl Tert-Butyl Ether	N	2760	µg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
N-Nitrosodimethylamine	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Phenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Chlorophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Bis-(2-Chloroethyl)Ether	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,3-Dichlorobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,4-Dichlorobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,2-Dichlorobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Methylphenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Bis(2-Chloroisopropyl)Ether	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hexachloroethane	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
N-Nitrosodi-n-propylamine	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Methylphenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-20636	22-20636	22-20636	22-20636
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1440953	1440954	1440955	1440956
			Client Sample ID.:		BH101	BH102	BH102	BH102
			Sample Type:		SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		2.10	0.15	0.30	1.70
			Bottom Depth (m):		2.20	0.30	0.75	1.80
			Date Sampled:		27-May-2022	27-May-2022	27-May-2022	27-May-2022
			Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
Nitrobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Isophorone	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Nitrophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4-Dimethylphenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Bis(2-Chloroethoxy)Methane	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4-Dichlorophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,2,4-Trichlorobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Naphthalene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Chloroaniline	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hexachlorobutadiene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Chloro-3-Methylphenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Methylnaphthalene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hexachlorocyclopentadiene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4,6-Trichlorophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4,5-Trichlorophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Chloronaphthalene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Nitroaniline	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Acenaphthylene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Dimethylphthalate	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,6-Dinitrotoluene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Acenaphthene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
3-Nitroaniline	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Dibenzofuran	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Chlorophenylphenylether	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4-Dinitrotoluene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Fluorene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Diethyl Phthalate	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Nitroaniline	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Methyl-4,6-Dinitrophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Azobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Bromophenylphenyl Ether	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hexachlorobenzene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Pentachlorophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Phenanthrene	N	2790	mg/kg	0.050	< 0.050	0.14	< 0.050	< 0.050
Anthracene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Carbazole	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Di-N-Butyl Phthalate	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Fluoranthene	N	2790	mg/kg	0.050	< 0.050	0.35	< 0.050	< 0.050

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-20636	22-20636	22-20636	22-20636
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1440953	1440954	1440955	1440956
			Client Sample ID.:		BH101	BH102	BH102	BH102
			Sample Type:		SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		2.10	0.15	0.30	1.70
			Bottom Depth (m):		2.20	0.30	0.75	1.80
			Date Sampled:		27-May-2022	27-May-2022	27-May-2022	27-May-2022
			Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
Pyrene	N	2790	mg/kg	0.050	< 0.050	0.32	< 0.050	< 0.050
Butylbenzyl Phthalate	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo[a]anthracene	N	2790	mg/kg	0.050	< 0.050	0.20	< 0.050	< 0.050
Chrysene	N	2790	mg/kg	0.050	< 0.050	0.25	< 0.050	< 0.050
Bis(2-Ethylhexyl)Phthalate	N	2790	mg/kg	0.050	< 0.050	0.29	< 0.050	< 0.050
Di-N-Octyl Phthalate	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo[b]fluoranthene	N	2790	mg/kg	0.050	< 0.050	0.32	< 0.050	< 0.050
Benzo[k]fluoranthene	N	2790	mg/kg	0.050	< 0.050	0.12	< 0.050	< 0.050
Benzo[a]pyrene	N	2790	mg/kg	0.050	< 0.050	0.22	< 0.050	< 0.050
Indeno(1,2,3-c,d)Pyrene	N	2790	mg/kg	0.050	< 0.050	0.14	< 0.050	< 0.050
Dibenz(a,h)Anthracene	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo[g,h,i]perylene	N	2790	mg/kg	0.050	< 0.050	0.16	< 0.050	< 0.050
4-Nitrophenol	N	2790	mg/kg	0.050	< 0.050	< 0.050	< 0.050	< 0.050
Naphthalene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Acenaphthylene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Acenaphthene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluorene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Phenanthrene	N	2800	mg/kg	0.010	< 0.010	0.17	< 0.010	< 0.010
Anthracene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluoranthene	N	2800	mg/kg	0.010	< 0.010	0.13	< 0.010	< 0.010
Pyrene	N	2800	mg/kg	0.010	< 0.010	0.13	< 0.010	< 0.010
Benzo[a]anthracene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Chrysene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[b]fluoranthene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[k]fluoranthene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[a]pyrene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Indeno(1,2,3-c,d)Pyrene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[g,h,i]perylene	N	2800	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Of 16 PAH's	N	2800	mg/kg	0.20	< 0.20	0.43	< 0.20	< 0.20
PCB 28	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 52	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 90+101	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 118	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 153	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 138	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 180	U	2815	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total PCBs (7 Congeners)	U	2815	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-20636	22-20636	22-20636	22-20636
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1440953	1440954	1440955	1440956
			Client Sample ID.:		BH101	BH102	BH102	BH102
			Sample Type:		SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		2.10	0.15	0.30	1.70
			Bottom Depth (m):		2.20	0.30	0.75	1.80
			Date Sampled:		27-May-2022	27-May-2022	27-May-2022	27-May-2022
			Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	**Accred.**	**SOP**	**Units**	**LOD**				
Total Phenols	M	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - 2 Stage WAC

Project: LKC 22 1225 B401 Manchester Airport

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-20636								
Chemtest Sample ID:	1440953								
Sample Ref:									
Sample ID:	BH101								
Sample Location:									
Top Depth(m):	2.10								
Bottom Depth(m):	2.20								
Sampling Date:	27-May-2022								
Determinand	**SOP**	**Accred.**	**Units**				**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon							3	5	6
Loss on Ignition							--	--	10
Total BTEX							6	--	--
Total PCBs (7 congeners)							1	--	--
TPH Total WAC (Mineral Oil)							500	--	--
Total (of 17) PAHs							100	--	--
pH							--	>6	--
Acid Neutralisation Capacity							--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic							0.5	2	25
Barium							20	100	300
Cadmium							0.04	1	5
Chromium							0.5	10	70
Copper							2	50	100
Mercury							0.01	0.2	2
Molybdenum							0.5	10	30
Nickel							0.4	10	40
Lead							0.5	10	50
Antimony							0.06	0.7	5
Selenium							0.1	0.5	7
Zinc							4	50	200
Chloride							800	15000	25000
Fluoride							10	150	500
Sulphate							1000	20000	50000
Total Dissolved Solids							4000	60000	100000
Phenol Index							1	-	-
Dissolved Organic Carbon							500	800	1000

Solid Information	
Dry mass of test portion/kg	
Moisture (%)	

Leachate Test Information	
Leachant volume 1st extract/l	
Leachant volume 2nd extract/l	
Eluant recovered from 1st extract/l	

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - 2 Stage WAC

Project: LKC 22 1225 B401 Manchester Airport

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-20636								
Chemtest Sample ID:	1440955								
Sample Ref:									
Sample ID:	BH102								
Sample Location:									
Top Depth(m):	0.30								
Bottom Depth(m):	0.75								
Sampling Date:	27-May-2022								
Determinand	**SOP**	**Accred.**	**Units**				**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon							3	5	6
Loss on Ignition							--	--	10
Total BTEX							6	--	--
Total PCBs (7 congeners)							1	--	--
TPH Total WAC (Mineral Oil)							500	--	--
Total (of 17) PAHs							100	--	--
pH							--	>6	--
Acid Neutralisation Capacity							--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic							0.5	2	25
Barium							20	100	300
Cadmium							0.04	1	5
Chromium							0.5	10	70
Copper							2	50	100
Mercury							0.01	0.2	2
Molybdenum							0.5	10	30
Nickel							0.4	10	40
Lead							0.5	10	50
Antimony							0.06	0.7	5
Selenium							0.1	0.5	7
Zinc							4	50	200
Chloride							800	15000	25000
Fluoride							10	150	500
Sulphate							1000	20000	50000
Total Dissolved Solids							4000	60000	100000
Phenol Index							1	-	-
Dissolved Organic Carbon							500	800	1000

Solid Information	
Dry mass of test portion/kg	
Moisture (%)	

Leachate Test Information	
Leachant volume 1st extract/l	
Leachant volume 2nd extract/l	
Eluant recovered from 1st extract/l	

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1300	Cyanides & Thiocyanate in Waters	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Continuous Flow Analysis.
1325	Sulphide in Waters	Sulphides	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using N,N–dimethyl-pphenylenediamine.
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1490	Hexavalent Chromium in Waters	Chromium [VI]	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
1495	Low Level Hexavalent Chromium in Waters	Chromium [VI]	Colorimetric determination of hexavalent chromium expressed as Cr (VI) µg/l in water, using Ion Chromatography and UV-visible spectrophotometry.
1675	TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG)	Aliphatics: >C5–C6, >C6–C8, >C8– C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Pentane extraction / GCxGC FID detection
1760	Volatile Organic Compounds (VOCs) in Waters by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics. (cf. USEPA Method 8260)	Automated headspace gas chromatographic (GC) analysis of water samples with mass spectrometric (MS) detection of volatile organic compounds.
1790	Semi-Volatile Organic Compounds (SVOCs) in Waters by GC-MS	Semi-volatile organic compounds	Solvent extraction / GCMS detection
1800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-MS	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Pentane extraction / GCMS detection
1815	Polychlorinated Biphenyls (PCB) ICES7 Congeners in Waters by GC-MS	ICES7 PCB congeners	Solvent extraction / GCMS detection
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2180	Sulphur (Elemental) in Soils by HPLC	Sulphur	Dichloromethane extraction / HPLC with UV detection
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry

Test Methods

SOP	Title	Parameters included	Method summary
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N–dimethyl-p-phenylenediamine.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2790	Semi-Volatile Organic Compounds (SVOCs) in Soils by GC-MS	Semi-volatile organic compounds(cf. USEPA Method 8270)	Acetone/Hexane extraction / GC-MS
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge
650	Characterisation of Waste (Leaching WAC)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

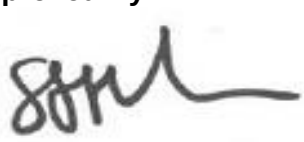
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	22-20639-1
Initial Date of Issue:	14-Jun-2022
Client	LK Consult
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS
Contact(s):	Colin Crompton Contaminated Land
Project	LKC 22 1225 B401 Manchester Airport

Quotation No.:	Q22-27796	**Date Received:**	06-Jun-2022
Order No.:	740327	**Date Instructed:**	06-Jun-2022
No. of Samples:	2		
Turnaround (Wkdays):	7	**Results Due:**	14-Jun-2022
Date Approved:	14-Jun-2022		

Approved By:



Details: Stuart Henderson, Technical Manager

Results - 2 Stage WAC

Project: LKC 22 1225 B401 Manchester Airport

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-20639								
Chemtest Sample ID:	1440962								
Sample Ref:									
Sample ID:	BH101								
Sample Location:									
Top Depth(m):	2.10								
Bottom Depth(m):	2.20								
Sampling Date:	27-May-2022								
Determinand	**SOP**	**Accred.**	**Units**				**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%			0.82	3	5	6
Loss On Ignition	2610	M	%			0.81	--	--	10
Total BTEX	2760	M	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg			< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg			< 10	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			< 2.0	100	--	--
pH	2010	M				8.4	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.014	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1455	U	0.0009	0.0009	0.0018	0.0091	0.5	2	25
Barium	1455	U	0.048	0.030	0.094	0.32	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.5	10	70
Copper	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.0058	0.0020	0.011	0.024	0.5	10	30
Nickel	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.5	10	50
Antimony	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.06	0.7	5
Selenium	1455	U	0.0005	< 0.0005	0.0010	0.0006	0.1	0.5	7
Zinc	1455	U	0.005	< 0.003	0.010	0.005	4	50	200
Chloride	1220	U	2.7	< 1.0	< 10	< 10	800	15000	25000
Fluoride	1220	U	0.48	0.25	< 1.0	2.7	10	150	500
Sulphate	1220	U	500	69	980	1100	1000	20000	50000
Total Dissolved Solids	1020	N	660	170	1300	2200	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	< 2.5	< 2.5	< 50	< 50	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	16

Leachate Test Information	
Leachant volume 1st extract/l	0.318
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.183

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - 2 Stage WAC

Project: LKC 22 1225 B401 Manchester Airport

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-20639								
Chemtest Sample ID:	1440963								
Sample Ref:									
Sample ID:	BH102						**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Sample Location:									
Top Depth(m):	1.70								
Bottom Depth(m):	1.80								
Sampling Date:	27-May-2022								
Determinand	**SOP**	**Accred.**	**Units**						
Total Organic Carbon	2625	M	%			0.33	3	5	6
Loss On Ignition	2610	M	%			8.4	--	--	10
Total BTEX	2760	M	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg			< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg			< 10	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			< 2.0	100	--	--
pH	2010	M				8.6	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.025	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1455	U	0.0003	0.0002	0.0005	0.0022	0.5	2	25
Barium	1455	U	0.023	0.019	0.047	0.20	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.5	10	70
Copper	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.0030	0.0015	0.0059	0.017	0.5	10	30
Nickel	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.4	10	40
Lead	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.5	10	50
Antimony	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.06	0.7	5
Selenium	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.1	0.5	7
Zinc	1455	U	0.005	< 0.003	0.009	0.005	4	50	200
Chloride	1220	U	1.9	< 1.0	< 10	< 10	800	15000	25000
Fluoride	1220	U	0.40	0.21	< 1.0	2.3	10	150	500
Sulphate	1220	U	500	61	980	1100	1000	20000	50000
Total Dissolved Solids	1020	N	560	160	1100	2000	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	< 2.5	< 2.5	< 50	< 50	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	13

Leachate Test Information	
Leachant volume 1st extract/l	0.324
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.182

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Test Methods

SOP	Title	Parameters included	Method summary
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2015	Acid Neutralisation Capacity	Acid Reserve	Titration
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge
650	Characterisation of Waste (Leaching WAC)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

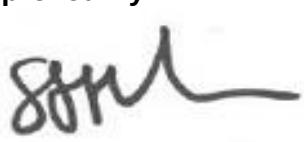
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	22-20643-1
Initial Date of Issue:	14-Jun-2022
Client	LK Consult
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS
Contact(s):	Colin Crompton Contaminated Land
Project	LKC 22 1225 B401 Manchester Airport

Quotation No.:	Q22-27796	**Date Received:**	06-Jun-2022
Order No.:	740327	**Date Instructed:**	08-Jun-2022
No. of Samples:	1		
Turnaround (Wkdays):	5	**Results Due:**	14-Jun-2022
Date Approved:	14-Jun-2022		

Approved By:



Details:	Stuart Henderson, Technical Manager

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-20643
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1440969
			Client Sample ID.:		DS101
			Sample Type:		SOIL
			Top Depth (m):		1.65
			Bottom Depth (m):		1.75
			Date Sampled:		31-May-2022
			Asbestos Lab:		DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
ACM Type	U	2192		N/A	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected
Moisture	N	2030	%	0.020	12
Soil Colour	N	2040		N/A	Brown
Other Material	N	2040		N/A	Stones
Soil Texture	N	2040		N/A	Clay
pH	U	2010		4.0	9.2
Boron (Hot Water Soluble)	U	2120	mg/kg	0.40	< 0.40
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	0.089
Sulphur (Elemental)	U	2180	mg/kg	1.0	4.6
Cyanide (Free)	U	2300	mg/kg	0.50	< 0.50
Cyanide (Total)	U	2300	mg/kg	0.50	< 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	5.7
Arsenic	U	2455	mg/kg	0.5	5.2
Barium	U	2455	mg/kg	0	160
Beryllium	U	2455	mg/kg	0.5	< 0.5
Cadmium	U	2455	mg/kg	0.10	2.1
Chromium	U	2455	mg/kg	0.5	7.0
Copper	U	2455	mg/kg	0.50	29
Mercury	U	2455	mg/kg	0.05	0.06
Nickel	U	2455	mg/kg	0.50	12
Lead	U	2455	mg/kg	0.50	280
Selenium	U	2455	mg/kg	0.25	0.29
Zinc	U	2455	mg/kg	0.50	440
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50
Fraction of Organic Carbon	U	2625		0.0010	0.0050
Aliphatic TPH >C5-C6	N	2680	mg/kg	0.010	< 0.010
Aliphatic TPH >C6-C8	N	2680	mg/kg	0.010	< 0.010
Aliphatic TPH >C8-C10	N	2680	mg/kg	0.10	< 0.10
Aliphatic TPH >C10-C12	N	2680	mg/kg	0.10	< 0.10
Aliphatic TPH >C12-C16	N	2680	mg/kg	0.10	< 0.10
Aliphatic TPH >C16-C21	N	2680	mg/kg	0.10	< 0.10
Aliphatic TPH >C21-C35	N	2680	mg/kg	0.10	< 0.10
Aliphatic TPH >C35-C44	N	2680	mg/kg	0.10	< 0.10
Total Aliphatic Hydrocarbons	N	2680	mg/kg	1.0	< 1.0
Aromatic TPH >C5-C7	N	2680	mg/kg	0.010	< 0.010
Aromatic TPH >C7-C8	N	2680	mg/kg	0.010	< 0.010

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-20643
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1440969
			Client Sample ID.:		DS101
			Sample Type:		SOIL
			Top Depth (m):		1.65
			Bottom Depth (m):		1.75
			Date Sampled:		31-May-2022
			Asbestos Lab:		DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
Aromatic TPH >C8-C10	N	2680	mg/kg	0.10	< 0.10
Aromatic TPH >C10-C12	N	2680	mg/kg	0.10	< 0.10
Aromatic TPH >C12-C16	N	2680	mg/kg	0.10	< 0.10
Aromatic TPH >C16-C21	N	2680	mg/kg	0.10	< 0.10
Aromatic TPH >C21-C35	N	2680	mg/kg	0.10	< 0.10
Aromatic TPH >C35-C44	N	2680	mg/kg	0.10	< 0.10
Total Aromatic Hydrocarbons	N	2680	mg/kg	1.0	< 1.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	2.0	< 2.0
Dichlorodifluoromethane	N	2760	µg/kg	0.20	< 0.20
Chloromethane	N	2760	µg/kg	0.20	< 0.20
Vinyl Chloride	N	2760	µg/kg	0.20	< 0.20
Bromomethane	N	2760	µg/kg	0.20	< 0.20
Chloroethane	N	2760	µg/kg	0.20	< 0.20
Trichlorofluoromethane	N	2760	µg/kg	0.20	< 0.20
1,1-Dichloroethene	N	2760	µg/kg	0.20	< 0.20
Trans 1,2-Dichloroethene	N	2760	µg/kg	0.20	< 0.20
1,1-Dichloroethane	N	2760	µg/kg	0.20	< 0.20
cis 1,2-Dichloroethene	N	2760	µg/kg	0.20	< 0.20
Bromochloromethane	N	2760	µg/kg	0.50	< 0.50
Trichloromethane	N	2760	µg/kg	0.20	< 0.20
1,1,1-Trichloroethane	N	2760	µg/kg	0.20	< 0.20
Tetrachloromethane	N	2760	µg/kg	0.20	< 0.20
1,1-Dichloropropene	N	2760	µg/kg	0.20	< 0.20
Benzene	N	2760	µg/kg	0.20	< 0.20
1,2-Dichloroethane	N	2760	µg/kg	0.20	< 0.20
Trichloroethene	N	2760	µg/kg	0.20	< 0.20
1,2-Dichloropropane	N	2760	µg/kg	0.20	< 0.20
Dibromomethane	N	2760	µg/kg	0.20	< 0.20
Bromodichloromethane	N	2760	µg/kg	0.20	< 0.20
cis-1,3-Dichloropropene	N	2760	µg/kg	0.20	< 0.20
Toluene	N	2760	µg/kg	0.20	< 0.20
Trans-1,3-Dichloropropene	N	2760	µg/kg	0.20	< 0.20
1,1,2-Trichloroethane	N	2760	µg/kg	0.20	< 0.20
Tetrachloroethene	N	2760	µg/kg	0.20	< 0.20
1,3-Dichloropropane	N	2760	µg/kg	0.20	< 0.20
Dibromochloromethane	N	2760	µg/kg	0.20	< 0.20
1,2-Dibromoethane	N	2760	µg/kg	0.20	< 0.20
Chlorobenzene	N	2760	µg/kg	0.20	< 0.20

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-20643
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1440969
			Client Sample ID.:		DS101
			Sample Type:		SOIL
			Top Depth (m):		1.65
			Bottom Depth (m):		1.75
			Date Sampled:		31-May-2022
			Asbestos Lab:		DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
1,1,1,2-Tetrachloroethane	N	2760	µg/kg	0.20	< 0.20
Ethylbenzene	N	2760	µg/kg	0.20	< 0.20
m & p-Xylene	N	2760	µg/kg	0.20	< 0.20
o-Xylene	N	2760	µg/kg	0.20	< 0.20
Styrene	N	2760	µg/kg	0.20	< 0.20
Tribromomethane	N	2760	µg/kg	0.20	< 0.20
Isopropylbenzene	N	2760	µg/kg	0.20	< 0.20
Bromobenzene	N	2760	µg/kg	0.20	< 0.20
1,2,3-Trichloropropane	N	2760	µg/kg	0.20	< 0.20
N-Propylbenzene	N	2760	µg/kg	0.20	< 0.20
2-Chlorotoluene	N	2760	µg/kg	0.20	< 0.20
1,3,5-Trimethylbenzene	N	2760	µg/kg	0.20	< 0.20
4-Chlorotoluene	N	2760	µg/kg	0.20	< 0.20
Tert-Butylbenzene	N	2760	µg/kg	0.20	< 0.20
1,2,4-Trimethylbenzene	N	2760	µg/kg	0.20	< 0.20
Sec-Butylbenzene	N	2760	µg/kg	0.20	< 0.20
1,3-Dichlorobenzene	N	2760	µg/kg	0.20	< 0.20
4-Isopropyltoluene	N	2760	µg/kg	0.20	< 0.20
1,4-Dichlorobenzene	N	2760	µg/kg	0.20	< 0.20
N-Butylbenzene	N	2760	µg/kg	0.20	< 0.20
1,2-Dichlorobenzene	N	2760	µg/kg	0.20	< 0.20
1,2-Dibromo-3-Chloropropane	N	2760	µg/kg	0.20	< 0.20
1,2,4-Trichlorobenzene	N	2760	µg/kg	0.20	< 0.20
Hexachlorobutadiene	N	2760	µg/kg	0.20	< 0.20
1,2,3-Trichlorobenzene	N	2760	µg/kg	0.20	< 0.20
Methyl Tert-Butyl Ether	N	2760	µg/kg	0.20	< 0.20
N-Nitrosodimethylamine	N	2790	mg/kg	0.050	< 0.050
Phenol	N	2790	mg/kg	0.050	< 0.050
2-Chlorophenol	N	2790	mg/kg	0.050	< 0.050
Bis-(2-Chloroethyl)Ether	N	2790	mg/kg	0.050	< 0.050
1,3-Dichlorobenzene	N	2790	mg/kg	0.050	< 0.050
1,4-Dichlorobenzene	N	2790	mg/kg	0.050	< 0.050
1,2-Dichlorobenzene	N	2790	mg/kg	0.050	< 0.050
2-Methylphenol	N	2790	mg/kg	0.050	< 0.050
Bis(2-Chloroisopropyl)Ether	N	2790	mg/kg	0.050	< 0.050
Hexachloroethane	N	2790	mg/kg	0.050	< 0.050
N-Nitrosodi-n-propylamine	N	2790	mg/kg	0.050	< 0.050
4-Methylphenol	N	2790	mg/kg	0.050	< 0.050

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-20643
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1440969
			Client Sample ID.:		DS101
			Sample Type:		SOIL
			Top Depth (m):		1.65
			Bottom Depth (m):		1.75
			Date Sampled:		31-May-2022
			Asbestos Lab:		DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
Nitrobenzene	N	2790	mg/kg	0.050	< 0.050
Isophorone	N	2790	mg/kg	0.050	< 0.050
2-Nitrophenol	N	2790	mg/kg	0.050	< 0.050
2,4-Dimethylphenol	N	2790	mg/kg	0.050	< 0.050
Bis(2-Chloroethoxy)Methane	N	2790	mg/kg	0.050	< 0.050
2,4-Dichlorophenol	N	2790	mg/kg	0.050	< 0.050
1,2,4-Trichlorobenzene	N	2790	mg/kg	0.050	< 0.050
Naphthalene	N	2790	mg/kg	0.050	< 0.050
4-Chloroaniline	N	2790	mg/kg	0.050	< 0.050
Hexachlorobutadiene	N	2790	mg/kg	0.050	< 0.050
4-Chloro-3-Methylphenol	N	2790	mg/kg	0.050	< 0.050
2-Methylnaphthalene	N	2790	mg/kg	0.050	< 0.050
Hexachlorocyclopentadiene	N	2790	mg/kg	0.050	< 0.050
2,4,6-Trichlorophenol	N	2790	mg/kg	0.050	< 0.050
2,4,5-Trichlorophenol	N	2790	mg/kg	0.050	< 0.050
2-Chloronaphthalene	N	2790	mg/kg	0.050	< 0.050
2-Nitroaniline	N	2790	mg/kg	0.050	< 0.050
Acenaphthylene	N	2790	mg/kg	0.050	< 0.050
Dimethylphthalate	N	2790	mg/kg	0.050	< 0.050
2,6-Dinitrotoluene	N	2790	mg/kg	0.050	< 0.050
Acenaphthene	N	2790	mg/kg	0.050	< 0.050
3-Nitroaniline	N	2790	mg/kg	0.050	< 0.050
Dibenzofuran	N	2790	mg/kg	0.050	< 0.050
4-Chlorophenylphenylether	N	2790	mg/kg	0.050	< 0.050
2,4-Dinitrotoluene	N	2790	mg/kg	0.050	< 0.050
Fluorene	N	2790	mg/kg	0.050	< 0.050
Diethyl Phthalate	N	2790	mg/kg	0.050	< 0.050
4-Nitroaniline	N	2790	mg/kg	0.050	< 0.050
2-Methyl-4,6-Dinitrophenol	N	2790	mg/kg	0.050	< 0.050
Azobenzene	N	2790	mg/kg	0.050	< 0.050
4-Bromophenylphenyl Ether	N	2790	mg/kg	0.050	< 0.050
Hexachlorobenzene	N	2790	mg/kg	0.050	< 0.050
Pentachlorophenol	N	2790	mg/kg	0.050	< 0.050
Phenanthrene	N	2790	mg/kg	0.050	< 0.050
Anthracene	N	2790	mg/kg	0.050	< 0.050
Carbazole	N	2790	mg/kg	0.050	< 0.050
Di-N-Butyl Phthalate	N	2790	mg/kg	0.050	< 0.050
Fluoranthene	N	2790	mg/kg	0.050	< 0.050

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-20643
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1440969
			Client Sample ID.:		DS101
			Sample Type:		SOIL
			Top Depth (m):		1.65
			Bottom Depth (m):		1.75
			Date Sampled:		31-May-2022
			Asbestos Lab:		DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
Pyrene	N	2790	mg/kg	0.050	< 0.050
Butylbenzyl Phthalate	N	2790	mg/kg	0.050	< 0.050
Benzo[a]anthracene	N	2790	mg/kg	0.050	< 0.050
Chrysene	N	2790	mg/kg	0.050	< 0.050
Bis(2-Ethylhexyl)Phthalate	N	2790	mg/kg	0.050	< 0.050
Di-N-Octyl Phthalate	N	2790	mg/kg	0.050	< 0.050
Benzo[b]fluoranthene	N	2790	mg/kg	0.050	< 0.050
Benzo[k]fluoranthene	N	2790	mg/kg	0.050	< 0.050
Benzo[a]pyrene	N	2790	mg/kg	0.050	< 0.050
Indeno(1,2,3-c,d)Pyrene	N	2790	mg/kg	0.050	< 0.050
Dibenz(a,h)Anthracene	N	2790	mg/kg	0.050	< 0.050
Benzo[g,h,i]perylene	N	2790	mg/kg	0.050	< 0.050
4-Nitrophenol	N	2790	mg/kg	0.050	< 0.050
Naphthalene	N	2800	mg/kg	0.010	< 0.010
Acenaphthylene	N	2800	mg/kg	0.010	< 0.010
Acenaphthene	N	2800	mg/kg	0.010	< 0.010
Fluorene	N	2800	mg/kg	0.010	< 0.010
Phenanthrene	N	2800	mg/kg	0.010	< 0.010
Anthracene	N	2800	mg/kg	0.010	< 0.010
Fluoranthene	N	2800	mg/kg	0.010	< 0.010
Pyrene	N	2800	mg/kg	0.010	< 0.010
Benzo[a]anthracene	N	2800	mg/kg	0.010	< 0.010
Chrysene	N	2800	mg/kg	0.010	< 0.010
Benzo[b]fluoranthene	N	2800	mg/kg	0.010	< 0.010
Benzo[k]fluoranthene	N	2800	mg/kg	0.010	< 0.010
Benzo[a]pyrene	N	2800	mg/kg	0.010	< 0.010
Indeno(1,2,3-c,d)Pyrene	N	2800	mg/kg	0.010	< 0.010
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.010	< 0.010
Benzo[g,h,i]perylene	N	2800	mg/kg	0.010	< 0.010
Total Of 16 PAH's	N	2800	mg/kg	0.20	< 0.20
PCB 28	U	2815	mg/kg	0.010	< 0.010
PCB 52	U	2815	mg/kg	0.010	< 0.010
PCB 90+101	U	2815	mg/kg	0.010	< 0.010
PCB 118	U	2815	mg/kg	0.010	< 0.010
PCB 153	U	2815	mg/kg	0.010	< 0.010
PCB 138	U	2815	mg/kg	0.010	< 0.010
PCB 180	U	2815	mg/kg	0.010	< 0.010
Total PCBs (7 Congeners)	U	2815	mg/kg	0.10	< 0.10

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-20643
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1440969
			Client Sample ID.:		DS101
			Sample Type:		SOIL
			Top Depth (m):		1.65
			Bottom Depth (m):		1.75
			Date Sampled:		31-May-2022
			Asbestos Lab:		DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**	
Total Phenols	U	2920	mg/kg	0.10	< 0.10

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2180	Sulphur (Elemental) in Soils by HPLC	Sulphur	Dichloromethane extraction / HPLC with UV detection
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N–dimethyl-p-phenylenediamine.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2790	Semi-Volatile Organic Compounds (SVOCs) in Soils by GC-MS	Semi-volatile organic compounds(cf. USEPA Method 8270)	Acetone/Hexane extraction / GC-MS
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

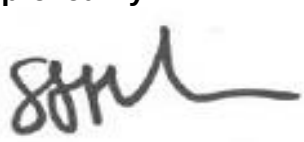
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	22-20671-1
Initial Date of Issue:	10-Jun-2022
Client	LK Consult
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS
Contact(s):	Colin Crompton Contaminated Land
Project	LKC 22 1225 B401 Manchester Airport

Quotation No.:	Q22-27796	**Date Received:**	06-Jun-2022
Order No.:	740327	**Date Instructed:**	06-Jun-2022
No. of Samples:	5		
Turnaround (Wkdays):	5	**Results Due:**	10-Jun-2022
Date Approved:	10-Jun-2022		

Approved By:



Details: Stuart Henderson, Technical Manager

Results - Leachate

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult				**Chemtest Job No.:**		22-20671	22-20671
Quotation No.: Q22-27796				**Chemtest Sample ID.:**		1441116	1441117
				Client Sample ID.:		DS101	DS101
				Sample Type:		SOIL	SOIL
				Top Depth (m):		0.00	0.30
				Bottom Depth (m):		0.30	0.44
				Date Sampled:		30-May-2022	30-May-2022
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**		
pH	U	1010	2:1		N/A	9.0	8.9
Electrical Conductivity	U	1020	2:1	µS/cm	1.0	210	150
Chloride	U	1220	2:1	mg/l	1.0	3.2	3.8
Ammoniacal Nitrogen	U	1220	2:1	mg/l	0.050	0.12	0.15
Nitrate	U	1220	2:1	mg/l	0.50	5.7	1.2
Sulphur	N	1220	2:1	mg/l	1.0	1.2	2.3
Sulphate	U	1220	2:1	mg/l	1.0	3.5	6.9
Cyanide (Total)	U	1300	2:1	mg/l	0.050	< 0.050	< 0.050
Cyanide (Free)	U	1300	2:1	mg/l	0.050	< 0.050	< 0.050
Sulphide	U	1325	2:1	mg/l	0.050	< 0.050	< 0.050
Arsenic (Dissolved)	U	1455	2:1	µg/l	0.20	1.4	13
Boron (Dissolved)	U	1455	2:1	µg/l	10.0	13	20
Barium (Dissolved)	U	1455	2:1	µg/l	5.00	74	43
Beryllium (Dissolved)	U	1455	2:1	µg/l	1.00	< 1.0	6.9
Cadmium (Dissolved)	U	1455	2:1	µg/l	0.11	< 0.11	6.6
Chromium (Dissolved)	U	1455	2:1	µg/l	0.50	5.6	14
Copper (Dissolved)	U	1455	2:1	µg/l	0.50	4.9	8.8
Mercury (Dissolved)	U	1455	2:1	µg/l	0.05	< 0.05	0.08
Nickel (Dissolved)	U	1455	2:1	µg/l	0.50	2.5	11
Lead (Dissolved)	U	1455	2:1	µg/l	0.50	2.0	9.9
Selenium (Dissolved)	U	1455	2:1	µg/l	0.50	< 0.50	6.8
Zinc (Dissolved)	U	1455	2:1	µg/l	2.5	< 2.5	28
Low-Level Chromium (Hexavalent)	N	1495	2:1	µg/l	0.10	1.3	0.51
Aliphatic TPH >C5-C6	N	1675	2:1	µg/l	0.010	< 0.010	< 0.010
Aliphatic TPH >C6-C8	N	1675	2:1	µg/l	0.010	< 0.010	< 0.010
Aliphatic TPH >C8-C10	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C10-C12	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C12-C16	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C16-C21	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Aliphatic TPH >C21-C35	N	1675	2:1	µg/l	0.10	480	360
Aliphatic TPH >C35-C44	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Total Aliphatic Hydrocarbons	N	1675	2:1	µg/l	1.0	480	360
Aromatic TPH >C5-C7	N	1675	2:1	µg/l	0.010	< 0.010	< 0.010
Aromatic TPH >C7-C8	N	1675	2:1	µg/l	0.010	< 0.010	< 0.010
Aromatic TPH >C8-C10	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C10-C12	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C12-C16	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C16-C21	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Aromatic TPH >C21-C35	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10

Results - Leachate

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult				**Chemtest Job No.:**		22-20671	22-20671
Quotation No.: Q22-27796				**Chemtest Sample ID.:**		1441116	1441117
				Client Sample ID.:		DS101	DS101
				Sample Type:		SOIL	SOIL
				Top Depth (m):		0.00	0.30
				Bottom Depth (m):		0.30	0.44
				Date Sampled:		30-May-2022	30-May-2022
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**		
Aromatic TPH >C35-C44	N	1675	2:1	µg/l	0.10	< 0.10	< 0.10
Total Aromatic Hydrocarbons	N	1675	2:1	µg/l	1.0	< 1.0	< 1.0
Total Petroleum Hydrocarbons	N	1675	2:1	µg/l	2.0	480	360
Dichlorodifluoromethane	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Chloromethane	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Vinyl Chloride	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Bromomethane	N	1760	2:1	µg/l	2.0	< 2.0	< 2.0
Chloroethane	N	1760	2:1	µg/l	0.20	< 0.20	< 0.20
Trichlorofluoromethane	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,1-Dichloroethene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Trans 1,2-Dichloroethene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,1-Dichloroethane	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
cis 1,2-Dichloroethene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Bromochloromethane	N	1760	2:1	µg/l	0.50	< 0.50	< 0.50
Trichloromethane	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,1,1-Trichloroethane	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Tetrachloromethane	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,1-Dichloropropene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Benzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,2-Dichloroethane	N	1760	2:1	µg/l	0.20	< 0.20	< 0.20
Trichloroethene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,2-Dichloropropane	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Dibromomethane	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Bromodichloromethane	N	1760	2:1	µg/l	0.50	< 0.50	< 0.50
cis-1,3-Dichloropropene	N	1760	2:1	µg/l	1.0	< 1.0	< 1.0
Toluene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Trans-1,3-Dichloropropene	N	1760	2:1	µg/l	1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	N	1760	2:1	µg/l	1.0	< 1.0	< 1.0
Tetrachloroethene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,3-Dichloropropane	N	1760	2:1	µg/l	0.20	< 0.20	< 0.20
Dibromochloromethane	N	1760	2:1	µg/l	1.0	< 1.0	< 1.0
1,2-Dibromoethane	N	1760	2:1	µg/l	0.50	< 0.50	< 0.50
Chlorobenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,1,1,2-Tetrachloroethane	N	1760	2:1	µg/l	0.20	< 0.20	< 0.20
Ethylbenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
m & p-Xylene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
o-Xylene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Styrene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Tribromomethane	N	1760	2:1	µg/l	1.0	< 1.0	< 1.0

Results - Leachate

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult				**Chemtest Job No.:**		22-20671	22-20671
Quotation No.: Q22-27796				**Chemtest Sample ID.:**		1441116	1441117
				Client Sample ID.:		DS101	DS101
				Sample Type:		SOIL	SOIL
				Top Depth (m):		0.00	0.30
				Bottom Depth (m):		0.30	0.44
				Date Sampled:		30-May-2022	30-May-2022
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**		
Isopropylbenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Bromobenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,2,3-Trichloropropane	N	1760	2:1	µg/l	5.0	< 5.0	< 5.0
N-Propylbenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
2-Chlorotoluene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,3,5-Trimethylbenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
4-Chlorotoluene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Tert-Butylbenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,2,4-Trimethylbenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Sec-Butylbenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,3-Dichlorobenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
4-Isopropyltoluene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,4-Dichlorobenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
N-Butylbenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,2-Dichlorobenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,2-Dibromo-3-Chloropropane	N	1760	2:1	µg/l	5.0	< 5.0	< 5.0
1,2,4-Trichlorobenzene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
Hexachlorobutadiene	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
1,2,3-Trichlorobenzene	N	1760	2:1	µg/l	0.20	< 0.20	< 0.20
Methyl Tert-Butyl Ether	N	1760	2:1	µg/l	0.10	< 0.10	< 0.10
N-Nitrosodimethylamine	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Phenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2-Chlorophenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Bis-(2-Chloroethyl)Ether	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
1,3-Dichlorobenzene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
1,4-Dichlorobenzene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
1,2-Dichlorobenzene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2-Methylphenol (o-Cresol)	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Bis(2-Chloroisopropyl)Ether	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Hexachloroethane	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
N-Nitrosodi-n-propylamine	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
4-Methylphenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Nitrobenzene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Isophorone	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2-Nitrophenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2,4-Dimethylphenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Bis(2-Chloroethoxy)Methane	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2,4-Dichlorophenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
1,2,4-Trichlorobenzene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050

Results - Leachate

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult				**Chemtest Job No.:**		22-20671	22-20671
Quotation No.: Q22-27796				**Chemtest Sample ID.:**		1441116	1441117
				Client Sample ID.:		DS101	DS101
				Sample Type:		SOIL	SOIL
				Top Depth (m):		0.00	0.30
				Bottom Depth (m):		0.30	0.44
				Date Sampled:		30-May-2022	30-May-2022
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**		
Naphthalene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
4-Chloroaniline	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Hexachlorobutadiene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
4-Chloro-3-Methylphenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2-Methylnaphthalene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Hexachlorocyclopentadiene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2,4,6-Trichlorophenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2,4,5-Trichlorophenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2-Chloronaphthalene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2-Nitroaniline	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Acenaphthylene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Dimethylphthalate	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2,6-Dinitrotoluene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Acenaphthene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
3-Nitroaniline	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Dibenzofuran	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
4-Chlorophenylphenylether	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2,4-Dinitrotoluene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Fluorene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Diethyl Phthalate	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
4-Nitroaniline	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
2-Methyl-4,6-Dinitrophenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Azobenzene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
4-Bromophenylphenyl Ether	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Hexachlorobenzene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Pentachlorophenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Phenanthrene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Anthracene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Carbazole	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Di-N-Butyl Phthalate	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Fluoranthene	N	1790	2:1	µg/l	0.050	< 0.050	0.52
Pyrene	N	1790	2:1	µg/l	0.050	< 0.050	0.89
Butylbenzyl Phthalate	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Benzo[a]anthracene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Chrysene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Bis(2-Ethylhexyl)Phthalate	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Di-N-Octyl Phthalate	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Benzo[b]fluoranthene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Benzo[k]fluoranthene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050

Results - Leachate

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult				**Chemtest Job No.:**		22-20671	22-20671
Quotation No.: Q22-27796				**Chemtest Sample ID.:**		1441116	1441117
				Client Sample ID.:		DS101	DS101
				Sample Type:		SOIL	SOIL
				Top Depth (m):		0.00	0.30
				Bottom Depth (m):		0.30	0.44
				Date Sampled:		30-May-2022	30-May-2022
Determinand	**Accred.**	**SOP**	**Type**	**Units**	**LOD**		
Benzo[a]pyrene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Indeno(1,2,3-c,d)Pyrene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Dibenz(a,h)Anthracene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Benzo[g,h,i]perylene	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
4-Nitrophenol	N	1790	2:1	µg/l	0.050	< 0.050	< 0.050
Naphthalene	N	1800	2:1	µg/l	0.010	0.56	0.51
Acenaphthylene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Acenaphthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Fluorene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Phenanthrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Anthracene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Pyrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Benzo[a]anthracene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Chrysene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Benzo[b]fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Benzo[k]fluoranthene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Benzo[a]pyrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Indeno(1,2,3-c,d)Pyrene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Dibenz(a,h)Anthracene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Benzo[g,h,i]perylene	N	1800	2:1	µg/l	0.010	< 0.010	< 0.010
Total Of 16 PAH's	N	1800	2:1	µg/l	0.20	0.56	0.51
PCB 28	N	1815	2:1	µg/l	0.010	< 0.010	< 0.010
PCB 52	N	1815	2:1	µg/l	0.010	< 0.010	< 0.010
PCB 90+101	N	1815	2:1	µg/l	0.010	< 0.010	< 0.010
PCB 118	N	1815	2:1	µg/l	0.010	< 0.010	< 0.010
PCB 153	N	1815	2:1	µg/l	0.010	< 0.010	< 0.010
PCB 138	N	1815	2:1	µg/l	0.010	< 0.010	< 0.010
PCB 180	N	1815	2:1	µg/l	0.010	< 0.010	< 0.010
Total PCBs (7 congeners)	N	1815	2:1	µg/l	0.010	< 0.010	< 0.010
Total Phenols	U	1920	2:1	mg/l	0.030	< 0.030	< 0.030

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult		**Chemtest Job No.:**			22-20671	22-20671	22-20671	22-20671	22-20671
Quotation No.: Q22-27796		**Chemtest Sample ID.:**			1441114	1441115	1441116	1441117	1441118
		Client Sample ID.:			BH103	BH103	DS101	DS101	DS101
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			0.14	1.50	0.00	0.30	0.44
		Bottom Depth (m):			0.40	1.60	0.30	0.44	0.60
		Date Sampled:			30-May-2022	30-May-2022	30-May-2022	30-May-2022	30-May-2022
		Asbestos Lab:			DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
ACM Type	U	2192		N/A	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	10	14	15	8.1	6.0
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones	None	Stones	Stones	Stones
Soil Texture	N	2040		N/A	Gravel	Clay	Loam	Clay	Gravel
pH	M	2010		4.0	11.2	8.9	9.0	9.2	9.5
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	0.58	< 0.40	0.41	< 0.40	< 0.40
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	0.70	0.092	0.045	0.029	0.029
Sulphur (Elemental)	M	2180	mg/kg	1.0	2.8	1.3	5.2	1.7	2.5
Cyanide (Free)	M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cyanide (Total)	M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	2.4	2.3	4.3	4.5	5.2
Arsenic	M	2455	mg/kg	0.5	1.6	5.6	13	5.5	2.0
Barium	M	2455	mg/kg	0	690	120	230	130	240
Beryllium	U	2455	mg/kg	0.5	< 0.5	0.6	0.7	< 0.5	< 0.5
Cadmium	M	2455	mg/kg	0.10	0.14	< 0.10	0.36	0.41	0.19
Chromium	M	2455	mg/kg	0.5	5.2	19	25	14	6.2
Copper	M	2455	mg/kg	0.50	4.2	13	59	21	3.9
Mercury	M	2455	mg/kg	0.05	< 0.05	< 0.05	0.29	0.13	0.05
Nickel	M	2455	mg/kg	0.50	7.6	22	52	21	6.0
Lead	M	2455	mg/kg	0.50	8.2	8.8	190	51	12
Selenium	M	2455	mg/kg	0.25	< 0.25	0.37	0.83	0.49	0.48
Zinc	M	2455	mg/kg	0.50	17	28	120	60	23
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Fraction of Organic Carbon	M	2625		0.0010	0.0094	0.0049	0.029	0.034	0.0048
Aliphatic TPH >C5-C6	N	2680	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Aliphatic TPH >C6-C8	N	2680	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Aliphatic TPH >C8-C10	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C10-C12	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C12-C16	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C16-C21	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C21-C35	N	2680	mg/kg	0.10	< 0.10	< 0.10	130	< 0.10	< 0.10
Aliphatic TPH >C35-C44	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aliphatic Hydrocarbons	N	2680	mg/kg	1.0	< 1.0	< 1.0	130	< 1.0	< 1.0
Aromatic TPH >C5-C7	N	2680	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Aromatic TPH >C7-C8	N	2680	mg/kg	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-20671	22-20671	22-20671	22-20671	22-20671
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1441114	1441115	1441116	1441117	1441118
			Client Sample ID.:		BH103	BH103	DS101	DS101	DS101
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.14	1.50	0.00	0.30	0.44
			Bottom Depth (m):		0.40	1.60	0.30	0.44	0.60
			Date Sampled:		30-May-2022	30-May-2022	30-May-2022	30-May-2022	30-May-2022
			Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
Aromatic TPH >C8-C10	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C10-C12	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C12-C16	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C16-C21	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C21-C35	N	2680	mg/kg	0.10	1800	< 0.10	350	< 0.10	< 0.10
Aromatic TPH >C35-C44	N	2680	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aromatic Hydrocarbons	N	2680	mg/kg	1.0	1800	< 1.0	350	< 1.0	< 1.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	2.0	1800	< 2.0	480	< 2.0	< 2.0
Dichlorodifluoromethane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Chloromethane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Vinyl Chloride	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Bromomethane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Chloroethane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Trichlorofluoromethane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
1,1-Dichloroethene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Trans 1,2-Dichloroethene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
1,1-Dichloroethane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
cis 1,2-Dichloroethene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Bromochloromethane	N	2760	µg/kg	0.50	< 0.50		< 0.50	< 0.50	< 0.50
Trichloromethane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
1,1,1-Trichloroethane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Tetrachloromethane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
1,1-Dichloropropene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Benzene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
1,2-Dichloroethane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Trichloroethene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
1,2-Dichloropropane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Dibromomethane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Bromodichloromethane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
cis-1,3-Dichloropropene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Toluene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Trans-1,3-Dichloropropene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
1,1,2-Trichloroethane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Tetrachloroethene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
1,3-Dichloropropane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Dibromochloromethane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
1,2-Dibromoethane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Chlorobenzene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult		**Chemtest Job No.:**			22-20671	22-20671	22-20671	22-20671	22-20671
Quotation No.: Q22-27796		**Chemtest Sample ID.:**			1441114	1441115	1441116	1441117	1441118
		Client Sample ID.:			BH103	BH103	DS101	DS101	DS101
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			0.14	1.50	0.00	0.30	0.44
		Bottom Depth (m):			0.40	1.60	0.30	0.44	0.60
		Date Sampled:			30-May-2022	30-May-2022	30-May-2022	30-May-2022	30-May-2022
		Asbestos Lab:			DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
1,1,1,2-Tetrachloroethane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Ethylbenzene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
m & p-Xylene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
o-Xylene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Styrene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Tribromomethane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Isopropylbenzene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Bromobenzene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
1,2,3-Trichloropropane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
N-Propylbenzene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
2-Chlorotoluene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
1,3,5-Trimethylbenzene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
4-Chlorotoluene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Tert-Butylbenzene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
1,2,4-Trimethylbenzene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Sec-Butylbenzene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
1,3-Dichlorobenzene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
4-Isopropyltoluene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
1,4-Dichlorobenzene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
N-Butylbenzene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
1,2-Dichlorobenzene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
1,2-Dibromo-3-Chloropropane	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
1,2,4-Trichlorobenzene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Hexachlorobutadiene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
1,2,3-Trichlorobenzene	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
Methyl Tert-Butyl Ether	N	2760	µg/kg	0.20	< 0.20		< 0.20	< 0.20	< 0.20
N-Nitrosodimethylamine	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Phenol	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
2-Chlorophenol	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Bis-(2-Chloroethyl)Ether	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
1,3-Dichlorobenzene	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
1,4-Dichlorobenzene	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
1,2-Dichlorobenzene	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
2-Methylphenol	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Bis(2-Chloroisopropyl)Ether	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Hexachloroethane	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
N-Nitrosodi-n-propylamine	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
4-Methylphenol	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult		**Chemtest Job No.:**			22-20671	22-20671	22-20671	22-20671	22-20671
Quotation No.: Q22-27796		**Chemtest Sample ID.:**			1441114	1441115	1441116	1441117	1441118
		Client Sample ID.:			BH103	BH103	DS101	DS101	DS101
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			0.14	1.50	0.00	0.30	0.44
		Bottom Depth (m):			0.40	1.60	0.30	0.44	0.60
		Date Sampled:			30-May-2022	30-May-2022	30-May-2022	30-May-2022	30-May-2022
		Asbestos Lab:			DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
Nitrobenzene	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Isophorone	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
2-Nitrophenol	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
2,4-Dimethylphenol	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Bis(2-Chloroethoxy)Methane	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
2,4-Dichlorophenol	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
1,2,4-Trichlorobenzene	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Naphthalene	N	2790	mg/kg	0.050	< 0.050		0.17	< 0.050	< 0.050
4-Chloroaniline	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Hexachlorobutadiene	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
4-Chloro-3-Methylphenol	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
2-Methylnaphthalene	N	2790	mg/kg	0.050	0.078		0.18	< 0.050	< 0.050
Hexachlorocyclopentadiene	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
2,4,6-Trichlorophenol	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
2,4,5-Trichlorophenol	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
2-Chloronaphthalene	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
2-Nitroaniline	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Acenaphthylene	N	2790	mg/kg	0.050	< 0.050		0.095	< 0.050	< 0.050
Dimethylphthalate	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
2,6-Dinitrotoluene	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Acenaphthene	N	2790	mg/kg	0.050	< 0.050		0.20	< 0.050	< 0.050
3-Nitroaniline	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Dibenzofuran	N	2790	mg/kg	0.050	< 0.050		0.13	< 0.050	< 0.050
4-Chlorophenylphenylether	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
2,4-Dinitrotoluene	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Fluorene	N	2790	mg/kg	0.050	< 0.050		0.15	< 0.050	< 0.050
Diethyl Phthalate	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
4-Nitroaniline	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
2-Methyl-4,6-Dinitrophenol	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Azobenzene	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
4-Bromophenylphenyl Ether	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Hexachlorobenzene	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Pentachlorophenol	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Phenanthrene	N	2790	mg/kg	0.050	0.10		1.9	0.25	< 0.050
Anthracene	N	2790	mg/kg	0.050	< 0.050		0.50	0.076	< 0.050
Carbazole	N	2790	mg/kg	0.050	< 0.050		0.14	< 0.050	< 0.050
Di-N-Butyl Phthalate	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Fluoranthene	N	2790	mg/kg	0.050	0.067		4.0	0.64	< 0.050

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult		**Chemtest Job No.:**			22-20671	22-20671	22-20671	22-20671	22-20671
Quotation No.: Q22-27796		**Chemtest Sample ID.:**			1441114	1441115	1441116	1441117	1441118
		Client Sample ID.:			BH103	BH103	DS101	DS101	DS101
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			0.14	1.50	0.00	0.30	0.44
		Bottom Depth (m):			0.40	1.60	0.30	0.44	0.60
		Date Sampled:			30-May-2022	30-May-2022	30-May-2022	30-May-2022	30-May-2022
		Asbestos Lab:			DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
Pyrene	N	2790	mg/kg	0.050	0.089		3.6	0.59	< 0.050
Butylbenzyl Phthalate	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Benzo[a]anthracene	N	2790	mg/kg	0.050	< 0.050		2.1	0.39	< 0.050
Chrysene	N	2790	mg/kg	0.050	0.078		2.1	0.37	< 0.050
Bis(2-Ethylhexyl)Phthalate	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Di-N-Octyl Phthalate	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Benzo[b]fluoranthene	N	2790	mg/kg	0.050	0.067		2.9	0.56	< 0.050
Benzo[k]fluoranthene	N	2790	mg/kg	0.050	< 0.050		1.1	0.19	< 0.050
Benzo[a]pyrene	N	2790	mg/kg	0.050	< 0.050		2.2	0.40	< 0.050
Indeno(1,2,3-c,d)Pyrene	N	2790	mg/kg	0.050	< 0.050		1.3	0.27	< 0.050
Dibenz(a,h)Anthracene	N	2790	mg/kg	0.050	< 0.050		0.32	0.076	< 0.050
Benzo[g,h,i]perylene	N	2790	mg/kg	0.050	< 0.050		1.5	0.29	< 0.050
4-Nitrophenol	N	2790	mg/kg	0.050	< 0.050		< 0.050	< 0.050	< 0.050
Naphthalene	N	2800	mg/kg	0.010	< 0.010	< 0.010	0.58	0.44	< 0.010
Acenaphthylene	N	2800	mg/kg	0.010	< 0.010	< 0.010	0.23	0.089	< 0.010
Acenaphthene	N	2800	mg/kg	0.010	< 0.010	< 0.010	0.40	0.42	< 0.010
Fluorene	N	2800	mg/kg	0.010	< 0.010	< 0.010	0.34	0.24	< 0.010
Phenanthrene	N	2800	mg/kg	0.010	0.19	< 0.010	4.6	1.9	0.19
Anthracene	N	2800	mg/kg	0.010	< 0.010	< 0.010	0.97	0.40	0.10
Fluoranthene	N	2800	mg/kg	0.010	0.18	< 0.010	9.6	2.9	0.20
Pyrene	N	2800	mg/kg	0.010	0.19	< 0.010	9.3	2.6	0.17
Benzo[a]anthracene	N	2800	mg/kg	0.010	0.18	< 0.010	5.1	1.4	< 0.010
Chrysene	N	2800	mg/kg	0.010	0.12	< 0.010	5.3	1.2	< 0.010
Benzo[b]fluoranthene	N	2800	mg/kg	0.010	< 0.010	< 0.010	6.1	1.9	< 0.010
Benzo[k]fluoranthene	N	2800	mg/kg	0.010	< 0.010	< 0.010	2.1	0.53	< 0.010
Benzo[a]pyrene	N	2800	mg/kg	0.010	< 0.010	< 0.010	5.9	1.6	< 0.010
Indeno(1,2,3-c,d)Pyrene	N	2800	mg/kg	0.010	< 0.010	< 0.010	3.2	0.98	< 0.010
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.010	< 0.010	< 0.010	0.50	0.18	< 0.010
Benzo[g,h,i]perylene	N	2800	mg/kg	0.010	< 0.010	< 0.010	3.1	0.98	< 0.010
Total Of 16 PAH's	N	2800	mg/kg	0.20	0.86	< 0.20	57	18	0.66
PCB 28	U	2815	mg/kg	0.010	< 0.010		< 0.010	< 0.010	< 0.010
PCB 52	U	2815	mg/kg	0.010	< 0.010		< 0.010	< 0.010	< 0.010
PCB 90+101	U	2815	mg/kg	0.010	< 0.010		< 0.010	< 0.010	< 0.010
PCB 118	U	2815	mg/kg	0.010	< 0.010		< 0.010	< 0.010	< 0.010
PCB 153	U	2815	mg/kg	0.010	< 0.010		< 0.010	< 0.010	< 0.010
PCB 138	U	2815	mg/kg	0.010	< 0.010		< 0.010	< 0.010	< 0.010
PCB 180	U	2815	mg/kg	0.010	< 0.010		< 0.010	< 0.010	< 0.010
Total PCBs (7 Congeners)	U	2815	mg/kg	0.10	< 0.10		< 0.10	< 0.10	< 0.10

Results - Soil

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-20671	22-20671	22-20671	22-20671	22-20671
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1441114	1441115	1441116	1441117	1441118
			Client Sample ID.:		BH103	BH103	DS101	DS101	DS101
			Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL
			Top Depth (m):		0.14	1.50	0.00	0.30	0.44
			Bottom Depth (m):		0.40	1.60	0.30	0.44	0.60
			Date Sampled:		30-May-2022	30-May-2022	30-May-2022	30-May-2022	30-May-2022
			Asbestos Lab:		DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**					
Total Phenols	M	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - 2 Stage WAC

Project: LKC 22 1225 B401 Manchester Airport

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-20671								
Chemtest Sample ID:	1441116								
Sample Ref:									
Sample ID:	DS101								
Sample Location:									
Top Depth(m):	0.00								
Bottom Depth(m):	0.30								
Sampling Date:	30-May-2022								
Determinand	**SOP**	**Accred.**	**Units**				**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon							3	5	6
Loss on Ignition							--	--	10
Total BTEX							6	--	--
Total PCBs (7 congeners)							1	--	--
TPH Total WAC (Mineral Oil)							500	--	--
Total (of 17) PAHs							100	--	--
pH							--	>6	--
Acid Neutralisation Capacity							--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic							0.5	2	25
Barium							20	100	300
Cadmium							0.04	1	5
Chromium							0.5	10	70
Copper							2	50	100
Mercury							0.01	0.2	2
Molybdenum							0.5	10	30
Nickel							0.4	10	40
Lead							0.5	10	50
Antimony							0.06	0.7	5
Selenium							0.1	0.5	7
Zinc							4	50	200
Chloride							800	15000	25000
Fluoride							10	150	500
Sulphate							1000	20000	50000
Total Dissolved Solids							4000	60000	100000
Phenol Index							1	-	-
Dissolved Organic Carbon							500	800	1000

Solid Information	
Dry mass of test portion/kg	
Moisture (%)	

Leachate Test Information	
Leachant volume 1st extract/l	
Leachant volume 2nd extract/l	
Eluant recovered from 1st extract/l	

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - 2 Stage WAC

Project: LKC 22 1225 B401 Manchester Airport

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-20671								
Chemtest Sample ID:	1441117								
Sample Ref:									
Sample ID:	DS101								
Sample Location:									
Top Depth(m):	0.30								
Bottom Depth(m):	0.44								
Sampling Date:	30-May-2022								
Determinand	**SOP**	**Accred.**	**Units**				**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon							3	5	6
Loss on Ignition							--	--	10
Total BTEX							6	--	--
Total PCBs (7 congeners)							1	--	--
TPH Total WAC (Mineral Oil)							500	--	--
Total (of 17) PAHs							100	--	--
pH							--	>6	--
Acid Neutralisation Capacity							--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic							0.5	2	25
Barium							20	100	300
Cadmium							0.04	1	5
Chromium							0.5	10	70
Copper							2	50	100
Mercury							0.01	0.2	2
Molybdenum							0.5	10	30
Nickel							0.4	10	40
Lead							0.5	10	50
Antimony							0.06	0.7	5
Selenium							0.1	0.5	7
Zinc							4	50	200
Chloride							800	15000	25000
Fluoride							10	150	500
Sulphate							1000	20000	50000
Total Dissolved Solids							4000	60000	100000
Phenol Index							1	-	-
Dissolved Organic Carbon							500	800	1000

Solid Information	
Dry mass of test portion/kg	
Moisture (%)	

Leachate Test Information	
Leachant volume 1st extract/l	
Leachant volume 2nd extract/l	
Eluant recovered from 1st extract/l	

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1300	Cyanides & Thiocyanate in Waters	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Continuous Flow Analysis.
1325	Sulphide in Waters	Sulphides	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using N,N–dimethyl-pphenylenediamine.
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1490	Hexavalent Chromium in Waters	Chromium [VI]	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
1495	Low Level Hexavalent Chromium in Waters	Chromium [VI]	Colorimetric determination of hexavalent chromium expressed as Cr (VI) µg/l in water, using Ion Chromatography and UV-visible spectrophotometry.
1675	TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG)	Aliphatics: >C5–C6, >C6–C8, >C8– C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Pentane extraction / GCxGC FID detection
1760	Volatile Organic Compounds (VOCs) in Waters by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics. (cf. USEPA Method 8260)	Automated headspace gas chromatographic (GC) analysis of water samples with mass spectrometric (MS) detection of volatile organic compounds.
1790	Semi-Volatile Organic Compounds (SVOCs) in Waters by GC-MS	Semi-volatile organic compounds	Solvent extraction / GCMS detection
1800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-MS	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Pentane extraction / GCMS detection
1815	Polychlorinated Biphenyls (PCB) ICES7 Congeners in Waters by GC-MS	ICES7 PCB congeners	Solvent extraction / GCMS detection
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2180	Sulphur (Elemental) in Soils by HPLC	Sulphur	Dichloromethane extraction / HPLC with UV detection
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry

Test Methods

SOP	Title	Parameters included	Method summary
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Allkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N–dimethyl-p-phenylenediamine.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2790	Semi-Volatile Organic Compounds (SVOCs) in Soils by GC-MS	Semi-volatile organic compounds(cf. USEPA Method 8270)	Acetone/Hexane extraction / GC-MS
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.
640	Characterisation of Waste (Leaching C10)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge
650	Characterisation of Waste (Leaching WAC)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

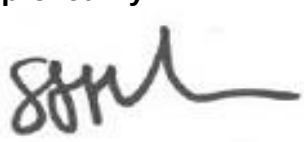
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	22-20674-1
Initial Date of Issue:	14-Jun-2022
Client	LK Consult
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS
Contact(s):	Colin Crompton Contaminated Land
Project	LKC 22 1225 B401 Manchester Airport

Quotation No.:	Q22-27796	**Date Received:**	06-Jun-2022
Order No.:	740327	**Date Instructed:**	06-Jun-2022
No. of Samples:	1		
Turnaround (Wkdays):	7	**Results Due:**	14-Jun-2022
Date Approved:	14-Jun-2022		

Approved By:



Details: Stuart Henderson, Technical Manager

Results - 2 Stage WAC

Project: LKC 22 1225 B401 Manchester Airport

							Landfill Waste Acceptance Criteria Limits		
Chemtest Job No:	22-20674								
Chemtest Sample ID:	1441133								
Sample Ref:									
Sample ID:	DS101								
Sample Location:									
Top Depth(m):	0.00								
Bottom Depth(m):	0.30								
Sampling Date:	30-May-2022								
Determinand	**SOP**	**Accred.**	**Units**				**Inert Waste Landfill**	**Stable, Non-reactive hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Total Organic Carbon	2625	M	%			1.5	3	5	6
Loss On Ignition	2610	M	%			29	--	--	10
Total BTEX	2760	M	mg/kg			< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	M	mg/kg			< 0.10	1	--	--
TPH Total WAC	2670	M	mg/kg			58	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg			18	100	--	--
pH	2010	M				8.7	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg			0.015	--	To evaluate	To evaluate
Eluate Analysis			**2:1 mg/l**	**8:1 mg/l**	**2:1 mg/kg**	**Cumulative mg/kg 10:1**	**Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg**		
Arsenic	1455	U	0.0008	0.0021	0.0016	0.020	0.5	2	25
Barium	1455	U	0.077	0.054	0.15	0.55	20	100	300
Cadmium	1455	U	< 0.00011	< 0.00011	< 0.00011	< 0.00011	0.04	1	5
Chromium	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.5	10	70
Copper	1455	U	0.0033	0.0036	0.0066	0.0021	2	50	100
Mercury	1455	U	< 0.00005	< 0.00005	< 0.00005	< 0.00005	0.01	0.2	2
Molybdenum	1455	U	0.012	0.0064	0.025	0.068	0.5	10	30
Nickel	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.4	10	40
Lead	1455	U	< 0.0005	0.0030	< 0.0005	0.028	0.5	10	50
Antimony	1455	U	0.0022	0.0013	0.0043	0.014	0.06	0.7	5
Selenium	1455	U	< 0.0005	< 0.0005	< 0.0005	< 0.0005	0.1	0.5	7
Zinc	1455	U	< 0.003	0.003	< 0.003	0.028	4	50	200
Chloride	1220	U	2.1	1.2	< 10	13	800	15000	25000
Fluoride	1220	U	1.3	0.86	2.6	8.9	10	150	500
Sulphate	1220	U	5.7	1.8	11	20	1000	20000	50000
Total Dissolved Solids	1020	N	140	91	270	940	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.030	< 0.30	< 0.50	1	-	-
Dissolved Organic Carbon	1610	U	5.8	10	< 50	98	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.175
Moisture (%)	14

Leachate Test Information	
Leachant volume 1st extract/l	0.321
Leachant volume 2nd extract/l	1.400
Eluant recovered from 1st extract/l	0.111

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Test Methods

SOP	Title	Parameters included	Method summary
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2015	Acid Neutralisation Capacity	Acid Reserve	Titration
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
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Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

Appendix C

Certificates of Analysis – Groundwater

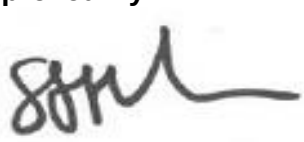
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

Final Report

Report No.:	22-23896-1
Initial Date of Issue:	06-Jul-2022
Client	LK Consult
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS
Contact(s):	Colin Crompton Contaminated Land
Project	LKC 22 1225 B401 Manchester Airport

Quotation No.:	Q22-27796	**Date Received:**	27-Jun-2022
Order No.:	740400	**Date Instructed:**	30-Jun-2022
No. of Samples:	6		
Turnaround (Wkdays):	5	**Results Due:**	06-Jul-2022
Date Approved:	06-Jul-2022		

Approved By:



Details:	Stuart Henderson, Technical Manager

Results - Water

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-23896	22-23896	22-23896	22-23896	22-23896	22-23896
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1455758	1455759	1455760	1455761	1455762	1455763
			Client Sample ID.:		BH101	BH102	BH103	BH104	BH105	BH106
			Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER
			Date Sampled:		23-Jun-2022	23-Jun-2022	23-Jun-2022	23-Jun-2022	23-Jun-2022	23-Jun-2022
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
pH	U	1010		N/A	7.9	7.6	7.5	7.3	7.6	7.7
Electrical Conductivity	U	1020	µS/cm	1.0	320	460	700	320	610	390
Chloride	U	1220	mg/l	1.0	69	31	69	710	290	430
Ammoniacal Nitrogen	U	1220	mg/l	0.050	0.41	0.40	1.2	1.6	1.2	2.8
Nitrate	U	1220	mg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphur	N	1220	mg/l	1.0	83	320	280	300	100	430
Sulphate	U	1220	mg/l	1.0	250	970	840	890	300	1300
Cyanide (Total) Low-Level	N	1300	mg/l	0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Cyanide (Free) Low-Level	N	1300	mg/l	0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Sulphide	U	1325	mg/l	0.050	[B] < 0.050	[B] < 0.050	[B] < 0.050	[B] < 0.050	[B] < 0.050	[B] < 0.050
Calcium	U	1455	mg/l	2.00	150	410	280	460	180	420
Magnesium	U	1455	mg/l	0.20	32	57	5.6	41	62	76
Sodium	U	1455	mg/l	1.50	30	40	85	330	160	210
Total Potassium	N	1455	mg/l	0.50	5.0	6.9	8.5	11	3.6	4.0
Total Hardness as CaCO3	U	1270	mg/l	15	500	1300	720	1300	700	1400
Arsenic (Dissolved)	U	1455	µg/l	0.20	1.3	3.3	2.3	1.2	1.2	3.1
Boron (Dissolved)	U	1455	µg/l	10.0	140	93	13	88	72	150
Barium (Dissolved)	U	1455	µg/l	5.00	77	79	79	110	98	55
Beryllium (Dissolved)	U	1455	µg/l	1.00	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Cadmium (Dissolved)	U	1455	µg/l	0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11
Chromium (Dissolved)	U	1455	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	0.62	< 0.50
Copper (Dissolved)	U	1455	µg/l	0.50	< 0.50	< 0.50	3.5	< 0.50	< 0.50	< 0.50
Mercury (Dissolved)	U	1455	µg/l	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel (Dissolved)	U	1455	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	5.1
Lead (Dissolved)	U	1455	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Selenium (Dissolved)	U	1455	µg/l	0.50	< 0.50	0.67	2.9	< 0.50	1.5	0.69
Vanadium (Dissolved)	U	1455	µg/l	0.50	< 0.50	< 0.50	3.4	< 0.50	< 0.50	< 0.50
Zinc (Dissolved)	U	1455	µg/l	2.5	< 2.5	3.5	< 2.5	< 2.5	< 2.5	< 2.5
Low-Level Chromium (Hexavalent)	U	1495	µg/l	0.10	[B] 2.5	[B] < 0.10	[B] 0.78	[B] 0.35	[B] 3.7	[B] < 0.10
Aliphatic TPH >C5-C6	N	1675	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Aliphatic TPH >C6-C8	N	1675	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Aliphatic TPH >C8-C10	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C10-C12	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C12-C16	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C16-C21	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C21-C35	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C35-C44	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aliphatic Hydrocarbons	N	1675	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic TPH >C5-C7	N	1675	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Aromatic TPH >C7-C8	N	1675	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Aromatic TPH >C8-C10	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - Water

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-23896	22-23896	22-23896	22-23896	22-23896	22-23896
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1455758	1455759	1455760	1455761	1455762	1455763
			Client Sample ID.:		BH101	BH102	BH103	BH104	BH105	BH106
			Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER
			Date Sampled:		23-Jun-2022	23-Jun-2022	23-Jun-2022	23-Jun-2022	23-Jun-2022	23-Jun-2022
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
Aromatic TPH >C10-C12	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C12-C16	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C16-C21	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C21-C35	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C35-C44	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aromatic Hydrocarbons	N	1675	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Petroleum Hydrocarbons	N	1675	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Dichlorodifluoromethane	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chloromethane	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Vinyl Chloride	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Bromomethane	N	1760	µg/l	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloroethane	N	1760	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Trichlorofluoromethane	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,1-Dichloroethene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dichloromethane	N	1760	µg/l	50	< 50	< 50	< 50	< 50	< 50	< 50
Trans 1,2-Dichloroethene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,1-Dichloroethane	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
cis 1,2-Dichloroethene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Bromochloromethane	N	1760	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Trichloromethane	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,1,1-Trichloroethane	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Tetrachloromethane	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,1-Dichloropropene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,2-Dichloroethane	N	1760	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Trichloroethene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,2-Dichloropropane	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibromomethane	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Bromodichloromethane	N	1760	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
cis-1,3-Dichloropropene	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Trans-1,3-Dichloropropene	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2-Trichloroethane	N	1760	µg/l	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Tetrachloroethene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,3-Dichloropropane	N	1760	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Dibromochloromethane	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromoethane	N	1760	µg/l	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Chlorobenzene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,1,1,2-Tetrachloroethane	N	1760	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Ethylbenzene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
m & p-Xylene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - Water

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-23896	22-23896	22-23896	22-23896	22-23896	22-23896
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1455758	1455759	1455760	1455761	1455762	1455763
			Client Sample ID.:		BH101	BH102	BH103	BH104	BH105	BH106
			Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER
			Date Sampled:		23-Jun-2022	23-Jun-2022	23-Jun-2022	23-Jun-2022	23-Jun-2022	23-Jun-2022
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
o-Xylene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Styrene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Tribromomethane	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Bromobenzene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,2,3-Trichloropropane	N	1760	µg/l	5	< 5	< 5	< 5	< 5	< 5	< 5
N-Propylbenzene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
2-Chlorotoluene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,3,5-Trimethylbenzene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
4-Chlorotoluene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Tert-Butylbenzene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,2,4-Trimethylbenzene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Sec-Butylbenzene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,3-Dichlorobenzene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
4-Isopropyltoluene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,4-Dichlorobenzene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
N-Butylbenzene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,2-Dichlorobenzene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,2-Dibromo-3-Chloropropane	N	1760	µg/l	5	< 5	< 5	< 5	< 5	< 5	< 5
1,2,4-Trichlorobenzene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Hexachlorobutadiene	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
1,2,3-Trichlorobenzene	N	1760	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Methyl Tert-Butyl Ether	N	1760	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
N-Nitrosodimethylamine	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Phenol	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Chlorophenol	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Bis-(2-Chloroethyl)Ether	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,3-Dichlorobenzene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,4-Dichlorobenzene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,2-Dichlorobenzene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Methylphenol (o-Cresol)	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Bis(2-Chloroisopropyl)Ether	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hexachloroethane	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
N-Nitrosodi-n-propylamine	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Methylphenol	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Nitrobenzene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Isophorone	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Nitrophenol	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4-Dimethylphenol	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Bis(2-Chloroethoxy)Methane	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4-Dichlorophenol	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050

Results - Water

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-23896	22-23896	22-23896	22-23896	22-23896	22-23896
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1455758	1455759	1455760	1455761	1455762	1455763
			Client Sample ID.:		BH101	BH102	BH103	BH104	BH105	BH106
			Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER
			Date Sampled:		23-Jun-2022	23-Jun-2022	23-Jun-2022	23-Jun-2022	23-Jun-2022	23-Jun-2022
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
1,2,4-Trichlorobenzene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Naphthalene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Chloroaniline	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hexachlorobutadiene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Chloro-3-Methylphenol	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Methylnaphthalene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hexachlorocyclopentadiene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4,6-Trichlorophenol	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4,5-Trichlorophenol	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Chloronaphthalene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Nitroaniline	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Acenaphthylene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Dimethylphthalate	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,6-Dinitrotoluene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Acenaphthene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
3-Nitroaniline	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Dibenzofuran	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Chlorophenylphenylether	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2,4-Dinitrotoluene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Fluorene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Diethyl Phthalate	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Nitroaniline	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
2-Methyl-4,6-Dinitrophenol	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Azobenzene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Bromophenylphenyl Ether	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Hexachlorobenzene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Pentachlorophenol	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Phenanthrene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Anthracene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Carbazole	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Di-N-Butyl Phthalate	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Fluoranthene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Pyrene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Butylbenzyl Phthalate	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo[a]anthracene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Chrysene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Bis(2-Ethylhexyl)Phthalate	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Di-N-Octyl Phthalate	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo[b]fluoranthene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo[k]fluoranthene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo[a]pyrene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050

Results - Water

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult			**Chemtest Job No.:**		22-23896	22-23896	22-23896	22-23896	22-23896	22-23896
Quotation No.: Q22-27796			**Chemtest Sample ID.:**		1455758	1455759	1455760	1455761	1455762	1455763
			Client Sample ID.:		BH101	BH102	BH103	BH104	BH105	BH106
			Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER
			Date Sampled:		23-Jun-2022	23-Jun-2022	23-Jun-2022	23-Jun-2022	23-Jun-2022	23-Jun-2022
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
Indeno(1,2,3-c,d)Pyrene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Dibenz(a,h)Anthracene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Benzo[g,h,i]perylene	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
4-Nitrophenol	N	1790	µg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Naphthalene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Acenaphthylene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Acenaphthene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluorene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Phenanthrene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Anthracene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluoranthene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Pyrene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[a]anthracene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Chrysene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[b]fluoranthene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[k]fluoranthene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[a]pyrene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Indeno(1,2,3-c,d)Pyrene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Dibenz(a,h)Anthracene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[g,h,i]perylene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Of 16 PAH's	N	1800	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
PCB 28	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 52	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 90+101	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 118	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 153	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 138	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
PCB 180	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total PCBs (7 congeners)	N	1815	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Phenol	N	1900	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
2-Chlorophenol	N	1900	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
2-Methylphenol (o-Cresol)	N	1900	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
3-Methylphenol	N	1900	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
4-Methylphenol	N	1900	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
2-Nitrophenol	N	1900	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
2,4-Dimethylphenol	N	1900	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
2,4-Dichlorophenol	N	1900	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
2,6-Dichlorophenol	N	1900	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
4-Chloro-3-Methylphenol	N	1900	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
2,3,4-Trichlorophenol	N	1900	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
2,3,5-Trichlorophenol	N	1900	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20

Results - Water

Project: LKC 22 1225 B401 Manchester Airport

Client: LK Consult					**Chemtest Job No.:**	22-23896	22-23896	22-23896	22-23896	22-23896
Quotation No.: Q22-27796					**Chemtest Sample ID.:**	1455758	1455759	1455760	1455761	1455762	1455763
					Client Sample ID.:	BH101	BH102	BH103	BH104	BH105	BH106
					Sample Type:	WATER	WATER	WATER	WATER	WATER	WATER
					Date Sampled:	23-Jun-2022	23-Jun-2022	23-Jun-2022	23-Jun-2022	23-Jun-2022	23-Jun-2022
Determinand	**Accred.**	**SOP**	**Units**	**LOD**							
2,3,6-Trichlorophenol	N	1900	µg/l	0.20		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
2,4,6-Trichlorophenol	N	1900	µg/l	0.20		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
2,4,5-Trichlorophenol	N	1900	µg/l	0.20		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
4-Nitrophenol	N	1900	µg/l	0.20		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
2,3,4,5-Tetrachlorophenol	N	1900	µg/l	0.20		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
2,3,4,6-Tetrachlorophenol	N	1900	µg/l	0.20		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
2,3,5,6-Tetrachlorophenol	N	1900	µg/l	0.20		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
3,4,5-Trichlorophenol	N	1900	µg/l	0.20		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
2-Methyl-4,6-Dinitrophenol	N	1900	µg/l	0.20		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Pentachlorophenol	N	1900	µg/l	0.20		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
2-Sec-Butyl-4,6-Dinitrophenol	N	1900	µg/l	0.20		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Total Phenols	N	1900	µg/l	5.00		< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request.The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1455758		BH101		23-Jun-2022	B	Coloured Winchester 1000ml
1455758		BH101		23-Jun-2022	B	EPA Vial 40ml
1455758		BH101		23-Jun-2022	B	Plastic Bottle 1000ml
1455759		BH102		23-Jun-2022	B	Coloured Winchester 1000ml
1455759		BH102		23-Jun-2022	B	EPA Vial 40ml
1455759		BH102		23-Jun-2022	B	Plastic Bottle 1000ml
1455760		BH103		23-Jun-2022	B	Coloured Winchester 1000ml
1455760		BH103		23-Jun-2022	B	EPA Vial 40ml
1455760		BH103		23-Jun-2022	B	Plastic Bottle 1000ml
1455761		BH104		23-Jun-2022	B	Coloured Winchester 1000ml
1455761		BH104		23-Jun-2022	B	EPA Vial 40ml
1455761		BH104		23-Jun-2022	B	Plastic Bottle 1000ml
1455762		BH105		23-Jun-2022	B	Coloured Winchester 1000ml
1455762		BH105		23-Jun-2022	B	EPA Vial 40ml
1455762		BH105		23-Jun-2022	B	Plastic Bottle 1000ml
1455763		BH106		23-Jun-2022	B	Coloured Winchester 1000ml
1455763		BH106		23-Jun-2022	B	EPA Vial 40ml
1455763		BH106		23-Jun-2022	B	Plastic Bottle 1000ml

Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1270	Total Hardness of Waters	Total hardness	Calculation applied to calcium and magnesium results, expressed as mg l-1 CaCO3 equivalent.
1300	Cyanides & Thiocyanate in Waters	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Continuous Flow Analysis.
1325	Sulphide in Waters	Sulphides	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using N,N–dimethyl-pphenylenediamine.
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1490	Hexavalent Chromium in Waters	Chromium [VI]	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
1495	Low Level Hexavalent Chromium in Waters	Chromium [VI]	Colorimetric determination of hexavalent chromium expressed as Cr (VI) µg/l in water, using Ion Chromatography and UV-visible spectrophotometry.
1675	TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG)	Aliphatics: >C5–C6, >C6–C8, >C8– C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Pentane extraction / GCxGC FID detection
1760	Volatile Organic Compounds (VOCs) in Waters by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics. (cf. USEPA Method 8260)	Automated headspace gas chromatographic (GC) analysis of water samples with mass spectrometric (MS) detection of volatile organic compounds.
1790	Semi-Volatile Organic Compounds (SVOCs) in Waters by GC-MS	Semi-volatile organic compounds	Solvent extraction / GCMS detection
1800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-MS	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Pentane extraction / GCMS detection
1815	Polychlorinated Biphenyls (PCB) ICES7 Congeners in Waters by GC-MS	ICES7 PCB congeners	Solvent extraction / GCMS detection
1900	Phenols in Waters by GC-MS	Approximately 24 substituted Phenols, including Chlorophenols	Solvent extraction / GCMS detection

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

Appendix D

Gas Monitoring Results

LK CONSULT LTD

GAS MONITORING RECORD

Site	Building 401, Manchester Airport
Job Number	LKC 22 1225
Date	16/06/2022
Engineer	RP
Visit	1 of 6

Equipment[1]		
Instrument	**Serial Number**	**Comments**
Gas Analyser GA5000	G502417	Serviced, calibrated, gas checked.
Geotech Oil-in-Water Interface Meter	81454-14	Operating normally.
Pho-Check Tiger	T-111324	Serviced, calibrated.

Atmospheric / Ground Conditions	
Atmospheric pressure trend onsite	Steady
Atmospheric pressure (prev 24hrs)	Steady
Weather Conditions	Dry, sunny, warm
Ground Conditions	Dry

Borehole ID	Date & Time	CH_4 (%v/v)	CO_2 (%v/v)	O_2 (%v/v)	Peak CH_4 (%v/v)	Peak CO_2 (%v/v)	Min O_2 (%v/v)	% LEL[2]	Peak CO (ppm)	Peak H_2S (ppm)	Balance (%)	Barometric Pressure (mb)	Relative Pressure (mb)	Internal Flow[3] (l/hr)	PID (ppm)	Standing water level (mbgl)	Installation base depth (mbgl)	Notes
BH101	16/06/2022 11:26	0.0	0.0	16.7	0.0	0.2	16.7	0	1	0	83.3	1011	2.99	0.0	3.2	1.66	3.07	
BH102	16/06/2022 11:47	0.0	0.0	12.6	0.0	0.0	12.6	0	1	0	87.4	1011	2.02	0.0	2.2	1.45	4.46	
BH103	16/06/2022 10:24	0.0	0.1	18.8	0.0	0.1	18.8	0	0	0	81.1	1011	3.06	0.0	1.2	2.48	3.05	
BH104	16/06/2022 00:00	UR - borehole damaged and bung not in top of standpipe														3.79	5.60	Repairs effected
BH105	16/06/2022 12:07	0.0	0.5	20.2	0.0	0.9	19.6	0	1	0	79.3	1011	3.95	0.0	2.0	UR	UR	Unable to GW monitor - borehole driven over and bung stuck
BH106	16/06/2022 11:04	0.0	2.2	11.8	0.6	6.2	1.8	0	1	0	86.0	1011	0.01	0.0	0.9	3.06	4.99	

ABBREVIATIONS	
ND	Not detected
NR	Not recorded
UR	Unable to record
OS	Off recordable scale
N/A	Not applicable
ppm	Parts per million
mb	Millibars
l/hr	Litres per hour
mbgl	Metres below ground level
LEL	Lower explosive limit in air

NOTES

All monitoring is carried out in line with LK Consult Ltd procedures, with reference to CIRIA C665.

[1]Equipment is serviced and checked as recommended by the manufacturer. Refer to calibration records and service certificates.

[2]CH4 is explosive between the range of 5-15%v/v. 100% lower explosive limit is equal to 5%v/v CH4.

[3]Flow readings are based on a 1 minute average value where flow is detected (equipment range of +/- 12 ltr/hr).

LK CONSULT LTD

GAS MONITORING RECORD

Site	Building 401, Manchester Airport
Job Number	LKC 22 1225
Date	23/06/2022
Engineer	RP
Visit	2 of 6

Equipment[1]		
Instrument	**Serial Number**	**Comments**
Gas Analyser GA5000	G502417	Serviced, calibrated, gas checked.
Geotech Oil-in-Water Interface Meter	81454-14	Operating normally.
Pho-Check Tiger	T-111324	Serviced, calibrated.

Atmospheric / Ground Conditions	
Atmospheric pressure trend onsite	Variable
Atmospheric pressure (prev 24hrs)	Falling
Weather Conditions	Dry, sunny, slight breeze
Ground Conditions	Dry

Borehole ID	Date & Time	CH_4 (%v/v)	CO_2 (%v/v)	O_2 (%v/v)	Peak CH_4 (%v/v)	Peak CO_2 (%v/v)	Min O_2 (%v/v)	% LEL[2]	Peak CO (ppm)	Peak H_2S (ppm)	Balance (%)	Barometric Pressure (mb)	Relative Pressure (mb)	Internal Flow[3] (l/hr)	PID (ppm)	Standing water level (mbgl)	Installation base depth (mbgl)	Notes
BH101	23/06/2022 11:12	0.0	0.0	16.1	0.2	0.7	15.9	0	5	0	83.9	1004	-1.96	0.0	3.4	1.70	3.08	Steady CO = 1ppm.
BH102	23/06/2022 09:26	0.0	0.1	17.3	0.0	0.2	17.3	0	2	0	82.6	1004	0.09	-0.1	3.0	1.44	4.30	Steady CO = 1ppm.
BH103	23/06/2022 09:47	0.0	0.2	18.9	0.0	0.2	18.8	0	3	0	80.9	1005	-12.13	0.0	1.6	2.35	3.08	Steady CO = 0ppm.
BH104	23/06/2022 10:08	0.0	0.1	20.2	0.0	0.1	19.7	0	4	0	79.7	1005	-11.92	0.0	1.6	3.80	5.70	Steady CO = 1ppm.
BH105	23/06/2022 10:31	0.0	0.4	20.3	0.0	0.9	19.9	0	6	0	79.3	1005	-12.16	0.0	3.3	3.37	6.76	Extracted bung and replaced with new bung. Steady CO = 1ppm.
BH106	23/06/2022 10:50	0.7	4.8	10.1	2.5	10.4	0.8	14	6	0	84.4	1004	-7.36	0.0	1.5	3.14	4.94	Steady CO = 1ppm.

ABBREVIATIONS	
ND	Not detected
NR	Not recorded
UR	Unable to record
OS	Off recordable scale
N/A	Not applicable
ppm	Parts per million
mb	Millibars
l/hr	Litres per hour
mbgl	Metres below ground level
LEL	Lower explosive limit in air

NOTES

All monitoring is carried out in line with LK Consult Ltd procedures, with reference to CIRIA C665.

[1]Equipment is serviced and checked as recommended by the manufacturer. Refer to calibration records and service certificates.

[2]CH4 is explosive between the range of 5-15%v/v. 100% lower explosive limit is equal to 5%v/v CH4.

[3]Flow readings are based on a 1 minute average value where flow is detected (equipment range of +/- 12 ltr/hr).

LK CONSULT LTD

GAS MONITORING RECORD

Site	Building 401, Manchester Airport
Job Number	LKC 22 1225
Date	23/06/2022
Engineer	RP
Visit	2 of 6

Equipment[1]		
Instrument	**Serial Number**	**Comments**
Gas Analyser GA5000	G502417	Serviced, calibrated, gas checked.
Geotech Oil-in-Water Interface Meter	81454-14	Operating normally.
Pho-Check Tiger	T-111324	Serviced, calibrated.

Atmospheric / Ground Conditions	
Atmospheric pressure trend onsite	Variable
Atmospheric pressure (prev 24hrs)	Falling
Weather Conditions	Dry, sunny, slight breeze
Ground Conditions	Dry

Borehole ID	Date & Time	CH_4 (%v/v)	CO_2 (%v/v)	O_2 (%v/v)	Peak CH_4 (%v/v)	Peak CO_2 (%v/v)	Min O_2 (%v/v)	% LEL[2]	Peak CO (ppm)	Peak H_2S (ppm)	Balance (%)	Barometric Pressure (mb)	Relative Pressure (mb)	Internal Flow[3] (l/hr)	PID (ppm)	Standing water level (mbgl)	Installation base depth (mbgl)	Notes
BH101	23/06/2022 11:12	0.0	0.0	16.1	0.2	0.7	15.9	0	5	0	83.9	1004	-1.96	0.0	3.4	1.70	3.08	Steady CO = 1ppm.
BH102	23/06/2022 09:26	0.0	0.1	17.3	0.0	0.2	17.3	0	2	0	82.6	1004	0.09	-0.1	3.0	1.44	4.30	Steady CO = 1ppm.
BH103	23/06/2022 09:47	0.0	0.2	18.9	0.0	0.2	18.8	0	3	0	80.9	1005	-12.13	0.0	1.6	2.35	3.08	Steady CO = 0ppm.
BH104	23/06/2022 10:08	0.0	0.1	20.2	0.0	0.1	19.7	0	4	0	79.7	1005	-11.92	0.0	1.6	3.80	5.70	Steady CO = 1ppm.
BH105	23/06/2022 10:31	0.0	0.4	20.3	0.0	0.9	19.9	0	6	0	79.3	1005	-12.16	0.0	3.3	3.37	6.76	Extracted bung and replaced with new bung. Steady CO = 1ppm.
BH106	23/06/2022 10:50	0.7	4.8	10.1	2.5	10.4	0.8	14	6	0	84.4	1004	-7.36	0.0	1.5	3.14	4.94	Steady CO = 1ppm.

ABBREVIATIONS	
ND	Not detected
NR	Not recorded
UR	Unable to record
OS	Off recordable scale
N/A	Not applicable
ppm	Parts per million
mb	Millibars
l/hr	Litres per hour
mbgl	Metres below ground level
LEL	Lower explosive limit in air

NOTES

All monitoring is carried out in line with LK Consult Ltd procedures, with reference to CIRIA C665.

[1]Equipment is serviced and checked as recommended by the manufacturer. Refer to calibration records and service certificates.

[2]CH4 is explosive between the range of 5-15%v/v. 100% lower explosive limit is equal to 5%v/v CH4.

[3]Flow readings are based on a 1 minute average value where flow is detected (equipment range of +/- 12 ltr/hr).

LK CONSULT LTD

GAS MONITORING RECORD

Site	Building 401, Manchester Airport
Job Number	LKC 22 1225
Date	30/06/2022
Engineer	RP
Visit	3 of 6

Equipment[1]		
Instrument	**Serial Number**	**Comments**
Gas Analyser GA5000	G502417	Serviced, calibrated, gas checked.
Geotech Oil-in-Water Interface Meter	81454-14	Operating normally.
Pho-Check Tiger	T-111324	Serviced, calibrated.

Atmospheric / Ground Conditions	
Atmospheric pressure trend onsite	Rising
Atmospheric pressure (prev 24hrs)	Falling then rising
Weather Conditions	Showery, breezy, partly cloudy
Ground Conditions	Damp

Borehole ID	Date & Time	CH_4 (%v/v)	CO_2 (%v/v)	O_2 (%v/v)	Peak CH_4 (%v/v)	Peak CO_2 (%v/v)	Min O_2 (%v/v)	% LEL[2]	Peak CO (ppm)	Peak H_2S (ppm)	Balance (%)	Barometric Pressure (mb)	Relative Pressure (mb)	Internal Flow[3] (l/hr)	PID (ppm)	Standing water level (mbgl)	Installation base depth (mbgl)	Notes
BH101	30/06/2022 10:34	0.0	0.0	16.6	0.0	0.1	16.6	0	1	0	83.4	1004	-5.00	0.0	2.5	1.70	3.05	Steady CO = 0ppm.
BH102	30/06/2022 09:03	0.0	0.1	18.0	0.0	0.2	18.0	0	3	0	81.9	1004	-0.16	0.0	1.8	1.57	4.36	Steady CO = 2ppm.
BH103	30/06/2022 09:20	0.0	0.1	19.4	0.0	0.2	19.4	0	2	0	80.5	1004	-0.05	-0.1	1.1	2.49	3.06	Steady CO = 0ppm.
BH104	30/06/2022 09:51	0.0	1.7	17.2	0.0	1.7	17.2	0	1	0	81.1	1004	-1.31	0.4	1.6	3.66	5.68	Flow initially 7.5, gradually falling to 1.8 after 3 mins, steady at 0.4 after 10 mins
BH105	30/06/2022 10:12	0.0	0.2	21.0	0.0	0.7	20.4	0	3	0	78.8	1004	-7.64	0.0	1.7	3.39	6.67	Steady CO = 0ppm.
BH106	30/06/2022 10:59	0.8	4.3	10.8	2.9	12.1	0.5	16	2	0	84.1	1005	-5.30	0.9	1.4	3.14	4.94	Peak flow = 1.2l/hr. Steady CO = 0ppm.

ABBREVIATIONS	
ND	Not detected
NR	Not recorded
UR	Unable to record
OS	Off recordable scale
N/A	Not applicable
ppm	Parts per million
mb	Millibars
l/hr	Litres per hour
mbgl	Metres below ground level
LEL	Lower explosive limit in air

NOTES

All monitoring is carried out in line with LK Consult Ltd procedures, with reference to CIRIA C665.

[1]Equipment is serviced and checked as recommended by the manufacturer. Refer to calibration records and service certificates.

[2]CH4 is explosive between the range of 5-15%v/v. 100% lower explosive limit is equal to 5%v/v CH4.

[3]Flow readings are based on a 1 minute average value where flow is detected (equipment range of +/- 12 ltr/hr).

LK CONSULT LTD

GAS MONITORING RECORD

Site	Building 401, Manchester Airport
Job Number	LKC 22 1225
Date	07/07/2022
Engineer	RP
Visit	4 of 6

Equipment[1]		
Instrument	**Serial Number**	**Comments**
Gas Analyser GA5000	G502417	Serviced, calibrated, gas checked.
Geotech Oil-in-Water Interface Meter	81454-14	Operating normally.
Pho-Check Tiger	T-111324	Serviced, calibrated.

Atmospheric / Ground Conditions	
Atmospheric pressure trend onsite	Rising
Atmospheric pressure (prev 24hrs)	Falling then rising
Weather Conditions	Overcast, breezy, dry
Ground Conditions	Dry

Borehole ID	**Date & Time**	**CH_4 (%v/v)**	**CO_2 (%v/v)**	**O_2 (%v/v)**	**Peak CH_4 (%v/v)**	**Peak CO_2 (%v/v)**	**Min O_2 (%v/v)**	**% LEL[2]**	**Peak CO (ppm)**	**Peak H_2S (ppm)**	**Balance (%)**	**Barometric Pressure (mb)**	**Relative Pressure (mb)**	**Internal Flow[3] (l/hr)**	**PID (ppm)**	**Standing water level (mbgl)**	**Installation base depth (mbgl)**	**Notes**
BH101	07/07/2022 10:45	0.0	0.0	17.8	0.0	0.3	17.4	0	1	0	82.2	1024	-6.20	0.0	3.0	1.43	3.03	Steady CO = 0ppm.
BH102	07/07/2022 08:57	0.0	0.1	19.3	0.0	0.2	18.8	0	1	0	80.6	1023	-4.18	0.0	1.6	1.55	4.36	
BH103	07/07/2022 09:15	0.0	0.1	18.4	0.0	0.2	18.4	0	0	0	81.5	1023	-5.31	0.0	0.8	2.39	3.06	
BH104	07/07/2022 09:36	0.0	3.9	12.8	0.0	3.9	12.8	0	2	0	83.3	1023	-8.90	-0.1	2.2	3.65	5.68	Steady CO = 1ppm.
BH105	07/07/2022 09:56	0.0	0.2	20.7	0.0	0.7	20.4	0	3	0	79.1	1024	-7.84	-0.1	2.1	3.50	6.73	Steady CO = 0ppm.
BH106	07/07/2022 10:22	0.4	1.5	17.2	2.4	3.8	4.1	8	1	0	80.9	1024	-6.76	-1.0	0.9	3.21	4.93	Flow initially -3.3, -1.7 after 3 mins, -1.3 after 5 mins, steady at -1.0 at 10 mins. Steady CO = 1ppm.

ABBREVIATIONS	
ND	Not detected
NR	Not recorded
UR	Unable to record
OS	Off recordable scale
N/A	Not applicable
ppm	Parts per million
mb	Millibars
l/hr	Litres per hour
mbgl	Metres below ground level
LEL	Lower explosive limit in air

NOTES

All monitoring is carried out in line with LK Consult Ltd procedures, with reference to CIRIA C665.

[1]Equipment is serviced and checked as recommended by the manufacturer. Refer to calibration records and service certificates.

[2]CH4 is explosive between the range of 5-15%v/v. 100% lower explosive limit is equal to 5%v/v CH4.

[3]Flow readings are based on a 1 minute average value where flow is detected (equipment range of +/- 12 ltr/hr).

Appendix E

Certificate of Analysis – Geotechnical

Appendix F

Falling Head Tests

LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** B401 Manchester Airport	**Borehole Number** **BH101**

In Situ Permeability Type	**Test No.**	**Ground Level (mOD)**	**Client**	**Job Number**
Falling Head	1	67.35	Threadneedle Curtis Ltd	LKC 22 1225
	Location	**Dates**	**Project Contractor**	**Sheet**
	380923.3 E 384901.5 N	25/05/2022- 31/05/2022	LK Consult	1/6

Height of casing above ground level:	0.00	**m**
Depth to Base of Borehole:	3.03	**m bgl**
Depth to Base of Casing:	2.00	**m bgl**
Depth to equilibrium water level:	3.03	**m btoc**
Test Length L:	1.03	**m**
Diameter of Test Length D:	0.15	**m**
Area of Test Section:	0.0177	**m2**
Intake Factor F: (after condition D,figure 6,BS5930:1990+A2:2010)	2.4653	

PERMEABILITY (after Hvorslev, 1951)

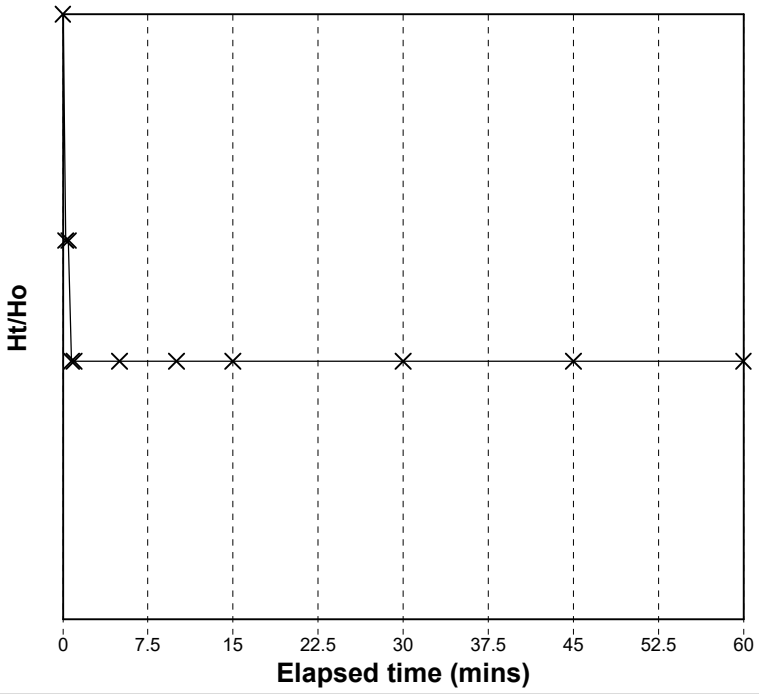
Basic Time Lag Analysis

The value T when Ht/Ho = 0.37 is the basic time lag, T

T =

k = **ms-1**

Elapsed time (mins)	Depth to water (m btoc)	Head of Water, H (m)	Ht / Ho
0.00	1.990	1.040	1.000
0.25	2.010	1.020	0.981
0.50	2.010	1.020	0.981
0.75	2.020	1.010	0.971
1.00	2.020	1.010	0.971
5.00	2.020	1.010	0.971
10.00	2.020	1.010	0.971
15.00	2.020	1.010	0.971
30.00	2.020	1.010	0.971
45.00	2.020	1.010	0.971
60.00	2.020	1.010	0.971



Remarks

Key: bgl = Below Ground Level btoc = Below Top of Casing

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** B401 Manchester Airport	**Borehole Number** **BH102**

In Situ Permeability Type	**Test No.**	**Ground Level (mOD)**	**Client**	**Job Number**
Falling Head	1	68.04	Threadneedle Curtis Ltd	LKC 22 1225
	Location	**Dates**	**Project Contractor**	**Sheet**
	380995.8 E 384847 N	27/05/2022- 07/06/2022	LK Consult	2/6

Height of casing above ground level:	0.00	**m**
Depth to Base of Borehole:	4.09	**m bgl**
Depth to Base of Casing:	3.00	**m bgl**
Depth to equilibrium water level:	4.09	**m btoc**
Test Length L:	1.09	**m**
Diameter of Test Length D:	0.15	**m**
Area of Test Section:	0.0177	**m2**
Intake Factor F: (after condition D,figure 6,BS5930:1990+A2:2010)	2.5544	

PERMEABILITY (after Hvorslev, 1951)

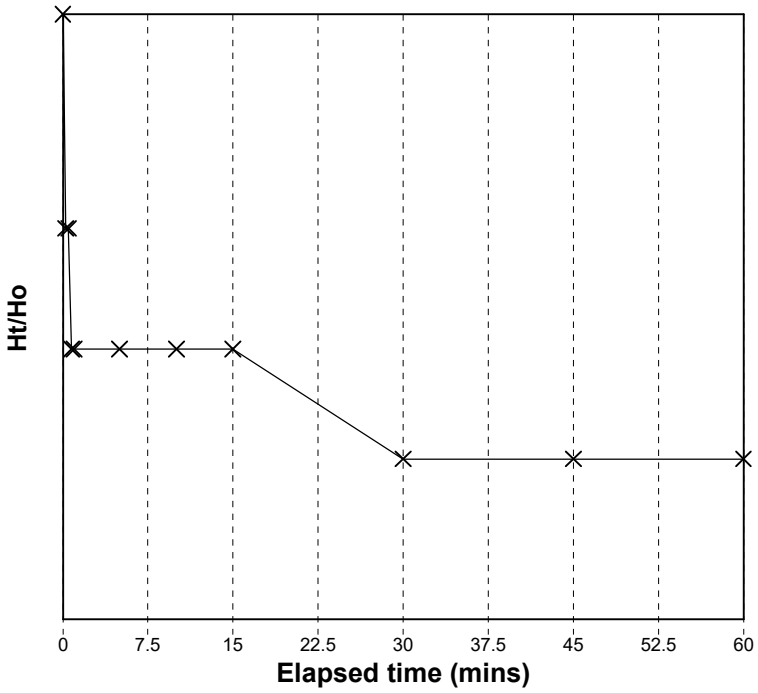
Basic Time Lag Analysis

The value T when Ht/Ho = 0.37 is the basic time lag, T

T =

k = **ms-1**

Elapsed time (mins)	Depth to water (m btoc)	Head of Water, H (m)	Ht / Ho
0.00	3.000	1.090	1.000
0.25	3.020	1.070	0.982
0.50	3.020	1.070	0.982
0.75	3.030	1.060	0.972
1.00	3.030	1.060	0.972
5.00	3.030	1.060	0.972
10.00	3.030	1.060	0.972
15.00	3.030	1.060	0.972
30.00	3.040	1.050	0.963
45.00	3.040	1.050	0.963
60.00	3.040	1.050	0.963



Remarks

Key: bgl = Below Ground Level btoc = Below Top of Casing

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In Situ Permeability Type	**Test No.**	**Ground Level (mOD)**	**Client**	**Job Number**
Falling Head	1	68.21	Threadneedle Curtis Ltd	LKC 22 1225
	Location	**Dates**	**Project Contractor**	**Sheet**
	380974 E 384847 N	30/05/2022	LK Consult	3/6

Height of casing above ground level:	0.00	**m**
Depth to Base of Borehole:	2.05	**m bgl**
Depth to Base of Casing:	1.00	**m bgl**
Depth to equilibrium water level:	2.05	**m btoc**
Test Length L:	1.05	**m**
Diameter of Test Length D:	0.15	**m**
Area of Test Section:	0.0177	**m2**
Intake Factor F: (after condition D,figure 6,BS5930:1990+A2:2010)	2.4951	

PERMEABILITY (after Hvorslev, 1951)

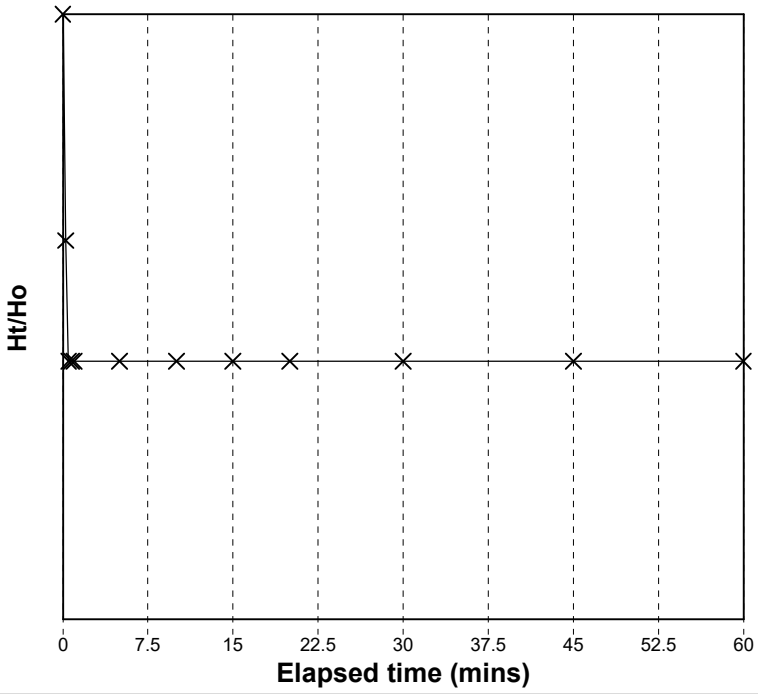
Basic Time Lag Analysis

The value T when Ht/Ho = 0.37 is the basic time lag, T

T =

k = **ms-1**

Elapsed time (mins)	Depth to water (m btoc)	Head of Water, H (m)	Ht / Ho
0.00	1.000	1.050	1.000
0.25	1.020	1.030	0.981
0.50	1.030	1.020	0.971
0.75	1.030	1.020	0.971
1.00	1.030	1.020	0.971
5.00	1.030	1.020	0.971
10.00	1.030	1.020	0.971
15.00	1.030	1.020	0.971
20.00	1.030	1.020	0.971
30.00	1.030	1.020	0.971
45.00	1.030	1.020	0.971
60.00	1.030	1.020	0.971



Remarks

Key: bgl = Below Ground Level btoc = Below Top of Casing

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** B401 Manchester Airport	**Borehole Number** **BH104**

In Situ Permeability Type	**Test No.**	**Ground Level (mOD)**	**Client**	**Job Number**
Falling Head	1	67.58	Threadneedle Curtis Ltd	LKC 22 1225
	Location	**Dates**	**Project Contractor**	**Sheet**
	380899 E 384759 N	25/05/2022- 01/06/2022	LK Consult	4/6

Height of casing above ground level:	0.00 **m**
Depth to Base of Borehole:	2.05 **m bgl**
Depth to Base of Casing:	1.05 **m bgl**
Depth to equilibrium water level:	2.05 **m btoc**
Test Length L:	1.00 **m**
Diameter of Test Length D:	0.15 **m**
Area of Test Section:	0.0177 **m2**
Intake Factor F: (after condition D,figure 6,BS5930:1990+A2:2010)	2.4205

PERMEABILITY (after Hvorslev, 1951)

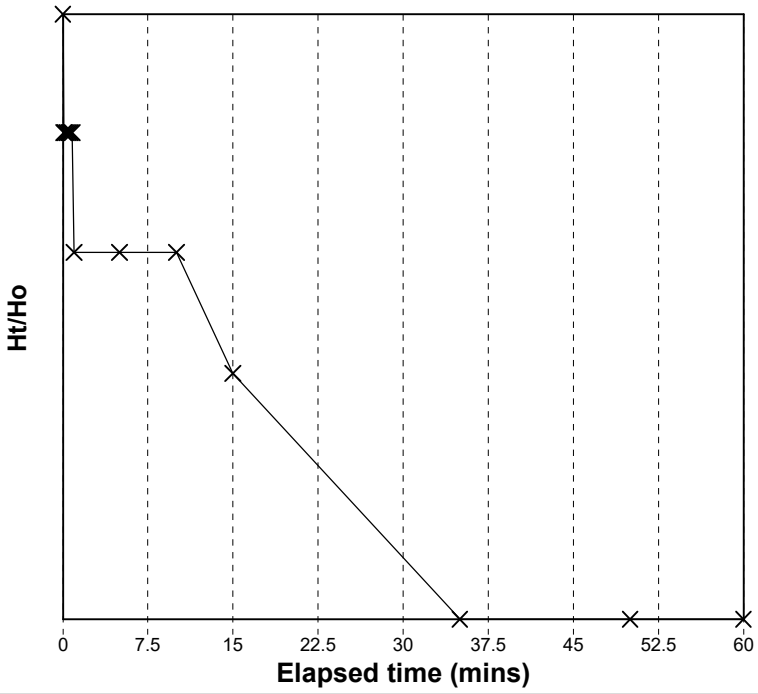
Basic Time Lag Analysis

The value T when Ht/Ho = 0.37 is the basic time lag, T

T =

k = **ms-1**

Elapsed time (mins)	Depth to water (m btoc)	Head of Water, H (m)	Ht / Ho
0.00	1.050	1.000	1.000
0.08	1.060	0.990	0.990
0.16	1.060	0.990	0.990
0.33	1.060	0.990	0.990
0.50	1.060	0.990	0.990
0.66	1.060	0.990	0.990
0.83	1.060	0.990	0.990
1.00	1.070	0.980	0.980
5.00	1.070	0.980	0.980
10.00	1.070	0.980	0.980
15.00	1.080	0.970	0.970
35.00	1.100	0.950	0.950
50.00	1.100	0.950	0.950
60.00	1.100	0.950	0.950



Remarks

Key: bgl = Below Ground Level btoc = Below Top of Casing

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In Situ Permeability Type	**Test No.**	**Ground Level (mOD)**	**Client**	**Job Number**
Falling Head	1	67.23	Threadneedle Curtis Ltd	LKC 22 1225
	Location	**Dates**	**Project Contractor**	**Sheet**
	380892.6 E 384807.7 N	25/05/2022-01/06/2022	LK Consult	5/6

Height of casing above ground level:	0.00	**m**
Depth to Base of Borehole:	3.29	**m bgl**
Depth to Base of Casing:	2.25	**m bgl**
Depth to equilibrium water level:	3.29	**m btoc**
Test Length L:	1.04	**m**
Diameter of Test Length D:	0.15	**m**
Area of Test Section:	0.0177	**m2**
Intake Factor F: (after condition D,figure 6,BS5930:1990+A2:2010)	2.4802	

PERMEABILITY (after Hvorslev, 1951)

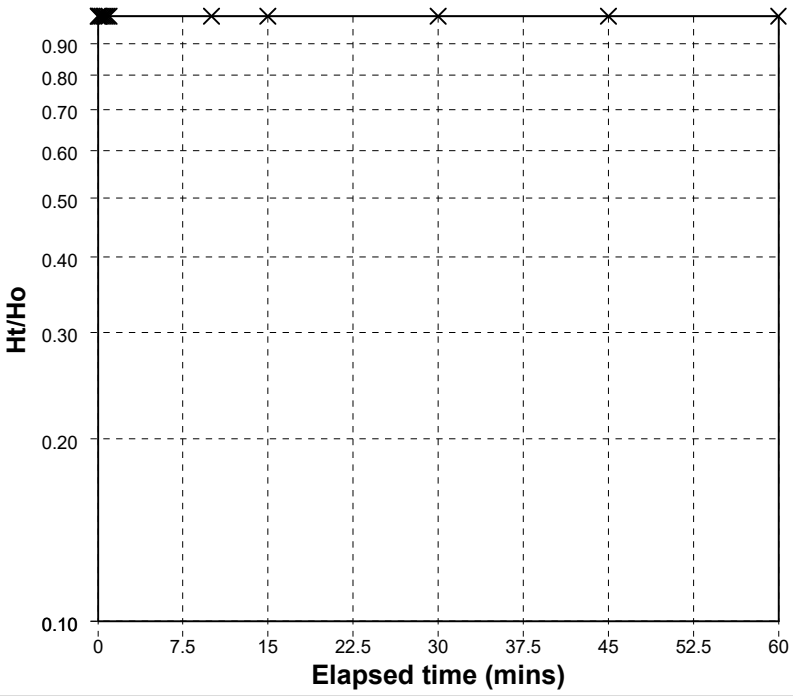
Basic Time Lag Analysis

The value T when Ht/Ho = 0.37 is the basic time lag, T

T =

k = **ms-1**

Elapsed time (mins)	Depth to water (m btoc)	Head of Water, H (m)	Ht / Ho
0.00	2.240	1.050	1.000
0.08	2.240	1.050	1.000
0.16	2.240	1.050	1.000
0.33	2.240	1.050	1.000
0.50	2.240	1.050	1.000
0.66	2.240	1.050	1.000
0.83	2.240	1.050	1.000
1.00	2.240	1.050	1.000
10.00	2.240	1.050	1.000
15.00	2.240	1.050	1.000
30.00	2.240	1.050	1.000
45.00	2.240	1.050	1.000
60.00	2.240	1.050	1.000



Remarks

Key: bgl = Below Ground Level btoc = Below Top of Casing

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LK GROUP	**LK CONSULT LTD** Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com	**Site** B401 Manchester Airport	**Borehole Number** **BH106**

In Situ Permeability Type	**Test No.**	**Ground Level (mOD)**	**Client**	**Job Number**
Falling Head	1	66.93	Threadneedle Curtis Ltd	LKC 22 1225
	Location	**Dates**	**Project Contractor**	**Sheet**
	380856 E 384813 N	24/05/2022	LK Consult	6/6

Height of casing above ground level:	0.00	**m**
Depth to Base of Borehole:	3.85	**m bgl**
Depth to Base of Casing:	2.60	**m bgl**
Depth to equilibrium water level:	3.85	**m btoc**
Test Length L:	1.25	**m**
Diameter of Test Length D:	0.15	**m**
Area of Test Section:	0.0177	**m2**
Intake Factor F: (after condition D,figure 6,BS5930:1990+A2:2010)	2.7881	

PERMEABILITY (after Hvorslev, 1951)

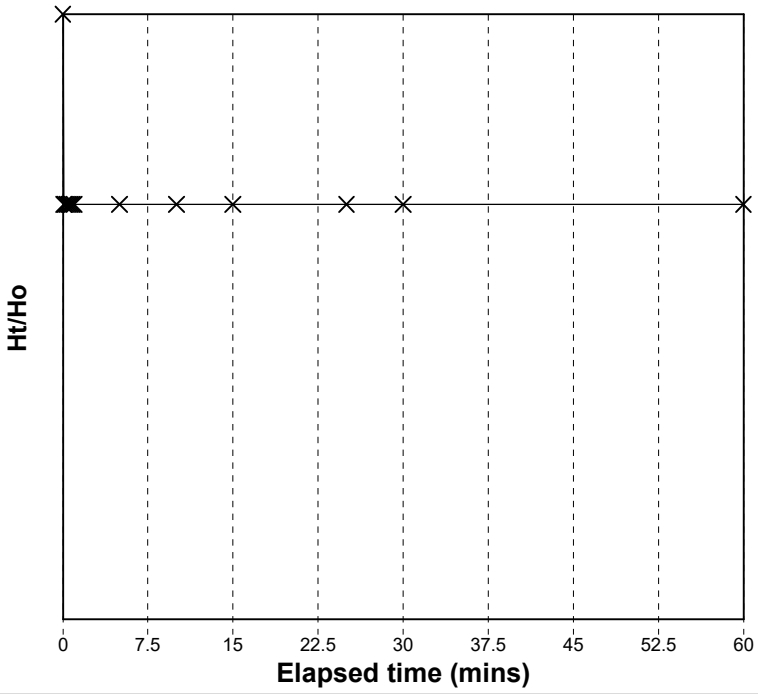
Basic Time Lag Analysis

The value T when Ht/Ho = 0.37 is the basic time lag, T

T =

k = **ms-1**

Elapsed time (mins)	Depth to water (m btoc)	Head of Water, H (m)	Ht / Ho
0.00	2.600	1.250	1.000
0.08	2.620	1.230	0.984
0.16	2.620	1.230	0.984
0.33	2.620	1.230	0.984
0.50	2.620	1.230	0.984
0.66	2.620	1.230	0.984
0.83	2.620	1.230	0.984
1.00	2.620	1.230	0.984
5.00	2.620	1.230	0.984
10.00	2.620	1.230	0.984
15.00	2.620	1.230	0.984
25.00	2.620	1.230	0.984
30.00	2.620	1.230	0.984
60.00	2.620	1.230	0.984



Remarks

Key: bgl = Below Ground Level btoc = Below Top of Casing

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LK GROUP

- Geotechnical
- Contaminated Land
- Flood Risk and Drainage
- Asbestos
- Invasive Species
- Land Remediation
- Project Management
- Land Drilling

Appendix D – Subgrade and Subbase Test Results (Various)

TESTCRETE
CONSTRUCTION TESTING LIMITED
Carlton Station, Goole, DN14 9NT Tel 01405 860905 Fax 01405 860149
Also at: Unit 14 Monde Trading Estate, Trafford Park, Manchester, M17 1LP
Website www.testcrete.co.uk email: info@testcrete.co.uk

Report No. 11032

R&M Developments Ltd.

Building 401 Demolition

Manchester Airport

PARTICLE SIZE DISTRIBUTION OF 6F2 FILL

Sampled by: MH Testcrete Sample date: 04.11.22

Location: Stockpile F

Description: Crushed concrete

Results

Sieve size (mm)	% passing	Highways Specification
125	100	100
90	100	80-100
75	100	65-100
37.5	55.0	45-100
20	35.5	
10	25.5	15-60
5	18.1	10-45
0.600	7.3	0-25
0.063	1.6	0-12

Moisture content as received (% by weight):

7.6

This material COMPLIES with the Highways Specification grading requirements for 6F2 fill.

Signed on behalf of Testcrete

Graham G. Rose

03.11.22

TESTCRETE
CONSTRUCTION TESTING LIMITED
Carlton Station, Goole, DN14 9NT Tel 01405 860905 Fax 01405 860149
Also at: Unit 14 Monde Trading Estate, Trafford Park, Manchester, M17 1LP
Website www.testcrete.co.uk email: info@testcrete.co.uk

Plate Bearing Tests - Summary of Results

Client	R & M Developments Ltd
Site	Building 401
Report No.	10905
Test Location	Attenuation tank as directed
Test Qty	4
Conditions	Dry
Operator	MH
Date	06.07.22
Kentledge	13T
Plate size (mm)	457
Materials	MoT sub base

Test No.	Location	K762 Value (kN/m²/m)	CBR (%)
1		101948	29.2
2		90552	23.7
3		93878	25.3
4		161700	64.9

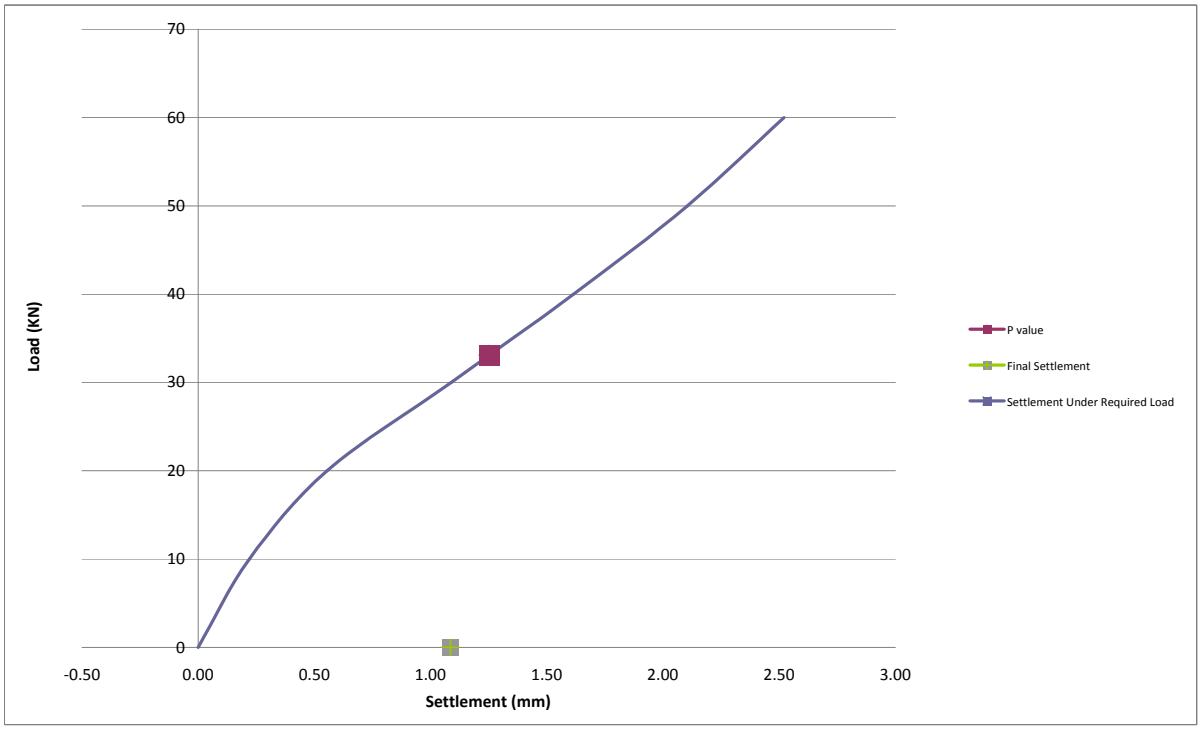
Signed: Graham Rose **Date:** 07.07.22
on behalf of Testcrete Construction Testing Ltd

TESTCRETE

Plate Bearing Test

Client	R & M Developments Ltd
Site	Building 401
Test Location	As directed
Test No	1
Conditions	Dry
Operator	MH
Date	06.07.22
Kentledge	13T
Materials	MoT sub base
Plate Size (mm)	457
Settlement	1.25
Interpolation point	33.10
Value	3.08
K762	101948
Required Pressure (kN/m²) 1	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	29.2

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	24	20	0.22
20	61	50	0.56
30	118	100	1.09
40	175	148	1.62
50	215	206	2.11
60	254	250	2.52
Final Settlement	122	95	1.09

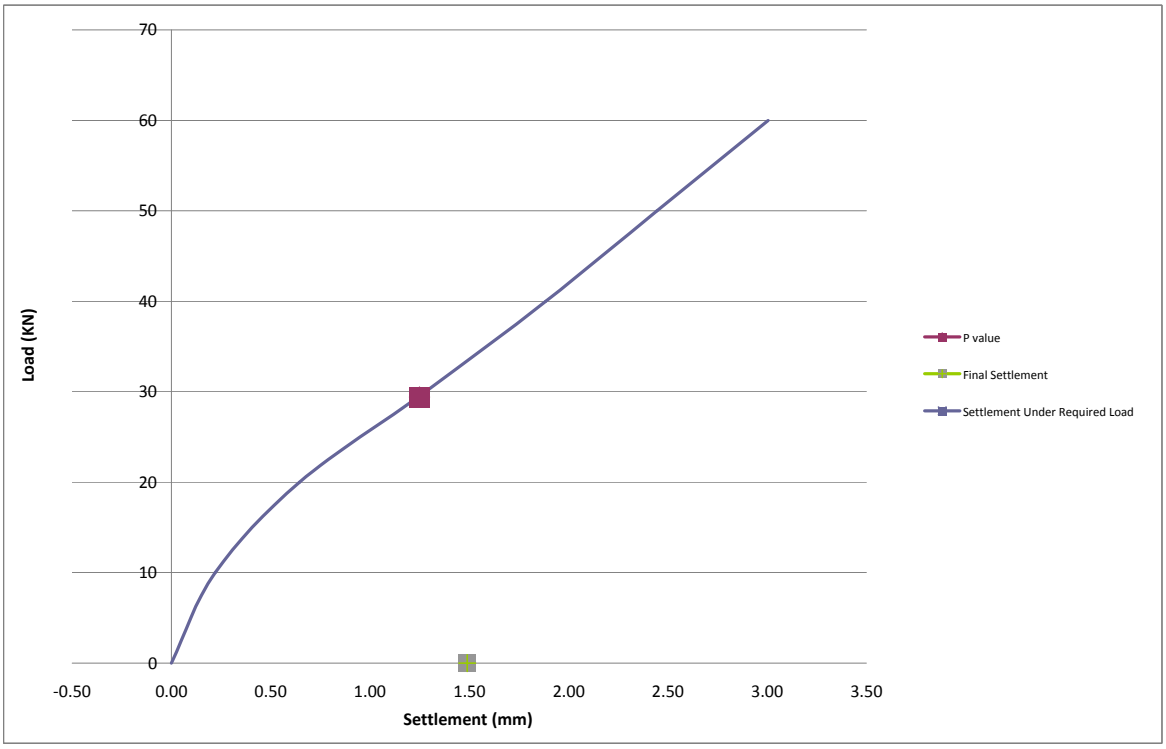


TESTCRETE

Plate Bearing Test

Client	R & M Developments Ltd
Site	Building 401
Test Location	
Test No	2
Conditions	Dry
Operator	MH
Date	06.07.22
Kentledge	13T
Materials	MoT sub base
Plate Size (mm)	457
Settlement	1.25
Interpolation point	29.40
Value	3.08
K762	90552
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	23.7

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	26	18	0.22
20	69	60	0.65
30	126	130	1.28
40	192	185	1.89
50	248	241	2.45
60	306	295	3.01
Final Settlement			
	160	138	1.49

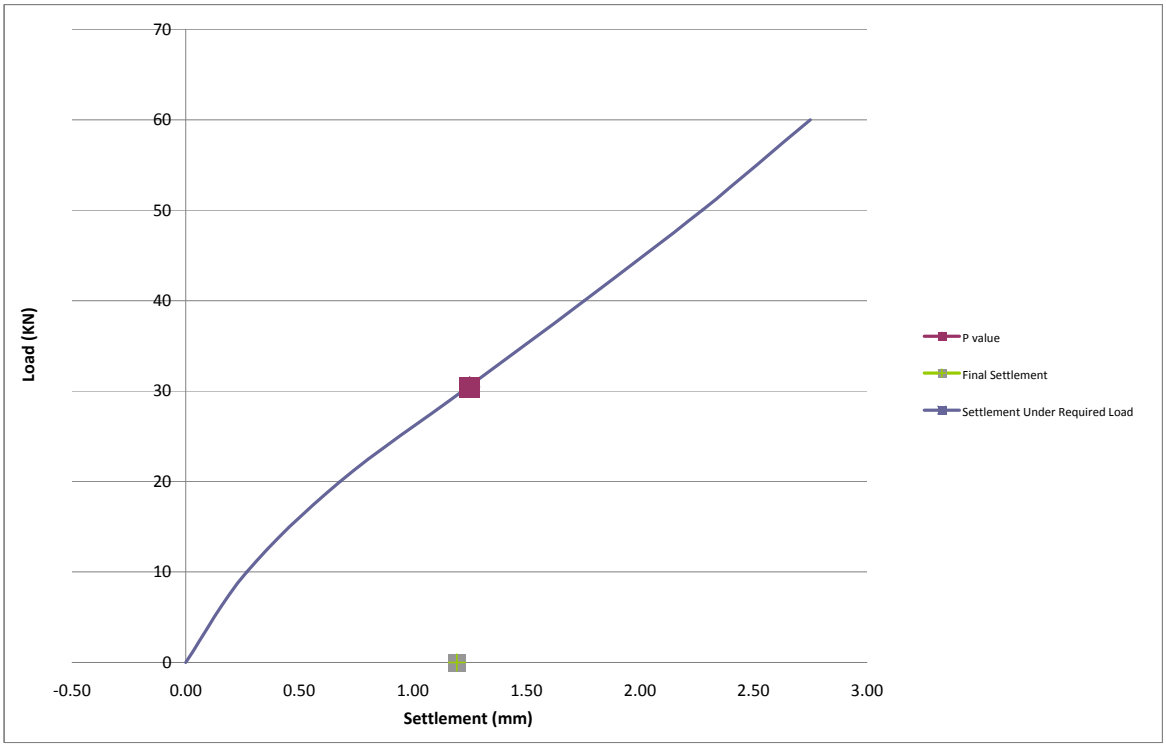


TESTCRETE

Plate Bearing Test

Client	R & M Developments Ltd
Site	Building 401
Test Location	
Test No	3
Conditions	Dry
Operator	MH
Date	06.07.22
Kentledge	13T
Materials	MoT sub base
Plate Size (mm)	457
Settlement	1.25
Interpolation point	30.48
Value	3.08
K762	93878
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	25.3

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	28	26	0.27
20	71	65	0.68
30	134	110	1.22
40	186	165	1.76
50	230	225	2.28
60	282	268	2.75
Final Settlement			
	129	110	1.20

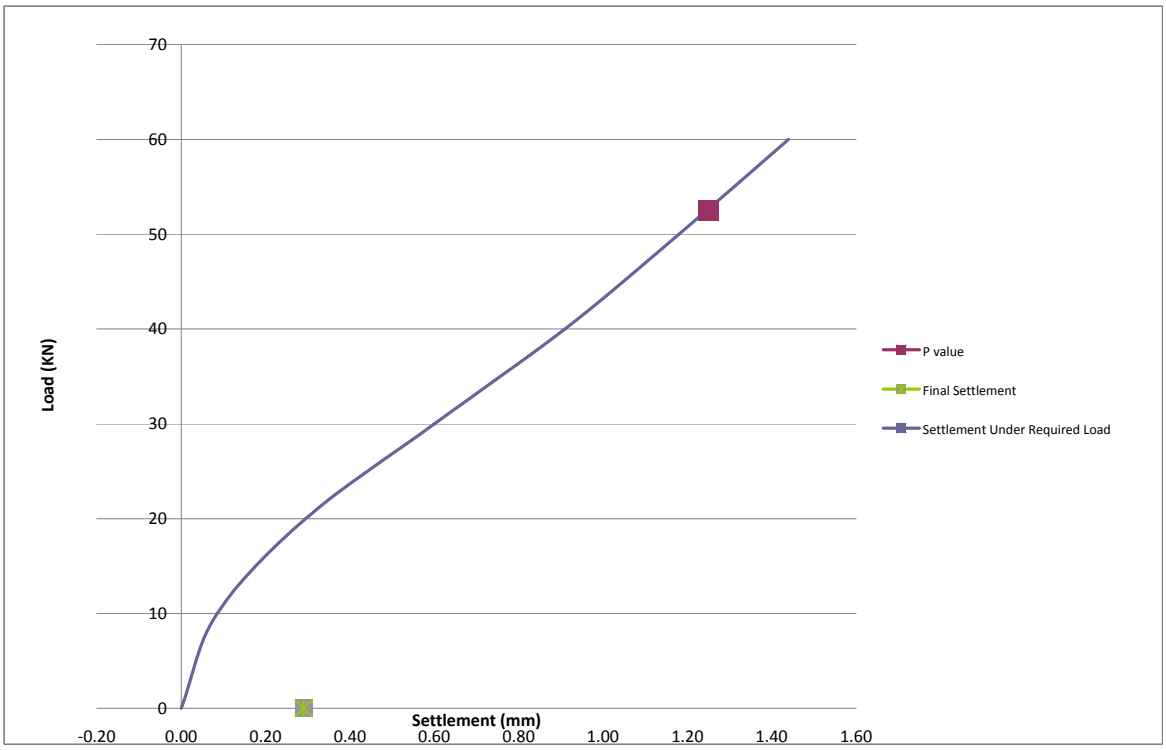


TESTCRETE

Plate Bearing Test

Client	R & M Developments Ltd
Site	Building 401
Test Location	
Test No	4
Conditions	Dry
Operator	MH
Date	06.07.22
Kentledge	13T
Materials	MoT sub base
Plate Size (mm)	457
Settlement	1.25
Interpolation point	52.50
Value	3.08
K762	161700
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	64.9

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	7	10	0.09
20	31	28	0.30
30	59	61	0.60
40	92	90	0.91
50	116	120	1.18
60	142	146	1.44
Final Settlement			
	30	28	0.29



TESTCRETE
CONSTRUCTION TESTING LIMITED
Carlton Station, Goole, DN14 9NT Tel 01405 860905 Fax 01405 860149
Also at: Unit 14 Monde Trading Estate, Trafford Park, Manchester, M17 1LP
Website www.testcrete.co.uk email: info@testcrete.co.uk

Plate Bearing Tests - Summary of Results

Client	R&M Developments Ltd.
Site	Building 401, Manchester Airport
Report No.	10932
Test Location	Formation area
Test Qty	10
Conditions	Mostly dry
Operator	MH
Date	03.08.22
Kentledge	9T
Plate size (mm)	457
Materials	Various rubble and soil

Test No.	Location	K762 Value (kN/m²/m)	CBR (%)
1		52052	9.1
2		37052	5.0
3		35112	4.6
4		43490	6.7
5		70039	15.2
6		32371	4.0
7		35420	4.7
8		28952	3.3
9		32802	4.1
10		29260	3.4

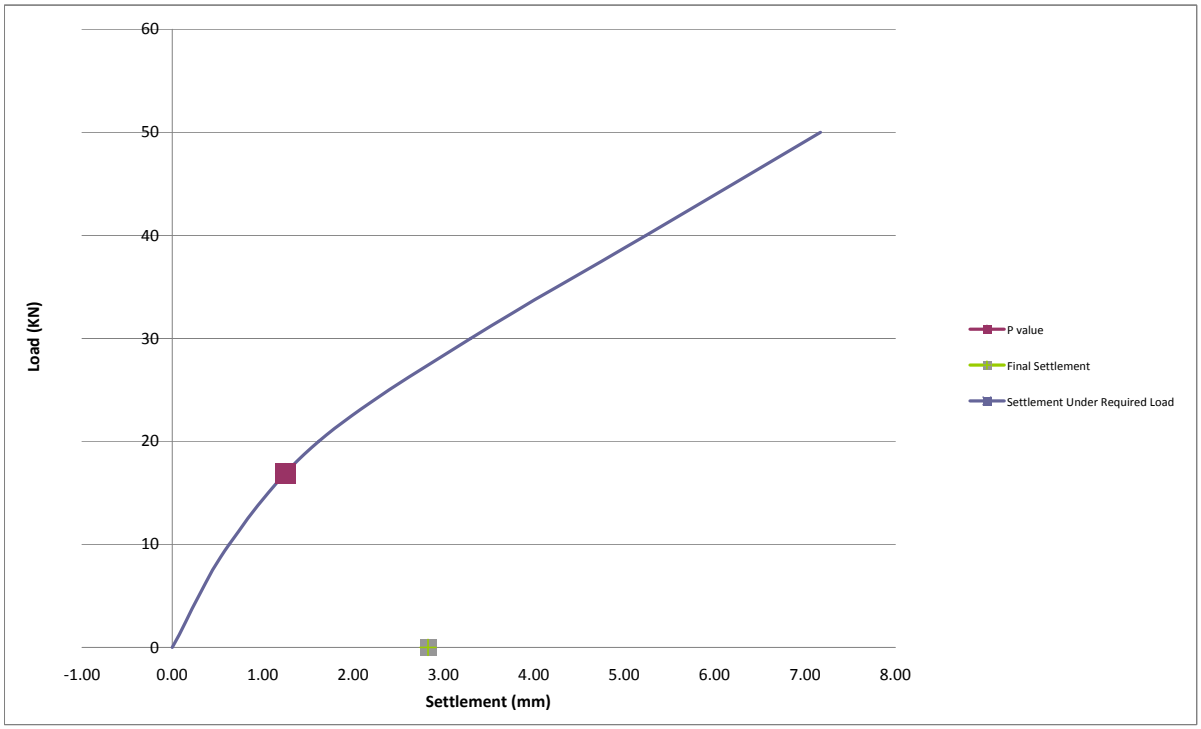
Signed: Graham Rose **Date:** 03.08.22
on behalf of Testcrete Construction Testing Ltd

TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401, Manchester Airport
Test Location	As directed
Test No	1
Conditions	Mostly dry
Operator	MH
Date	03.08.22
Kentledge	9T
Materials	Various rubble and soil
Plate Size (mm)	457
Settlement	1.25
Interpolation point	16.90
Value	3.08
K762	52052
Required Pressure (kN/m²) 1	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	9.1

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	66	60	0.63
20	159	165	1.62
30	325	335	3.30
40	513	535	5.24
50	818	616	7.17
Final Settlement	265	301	2.83

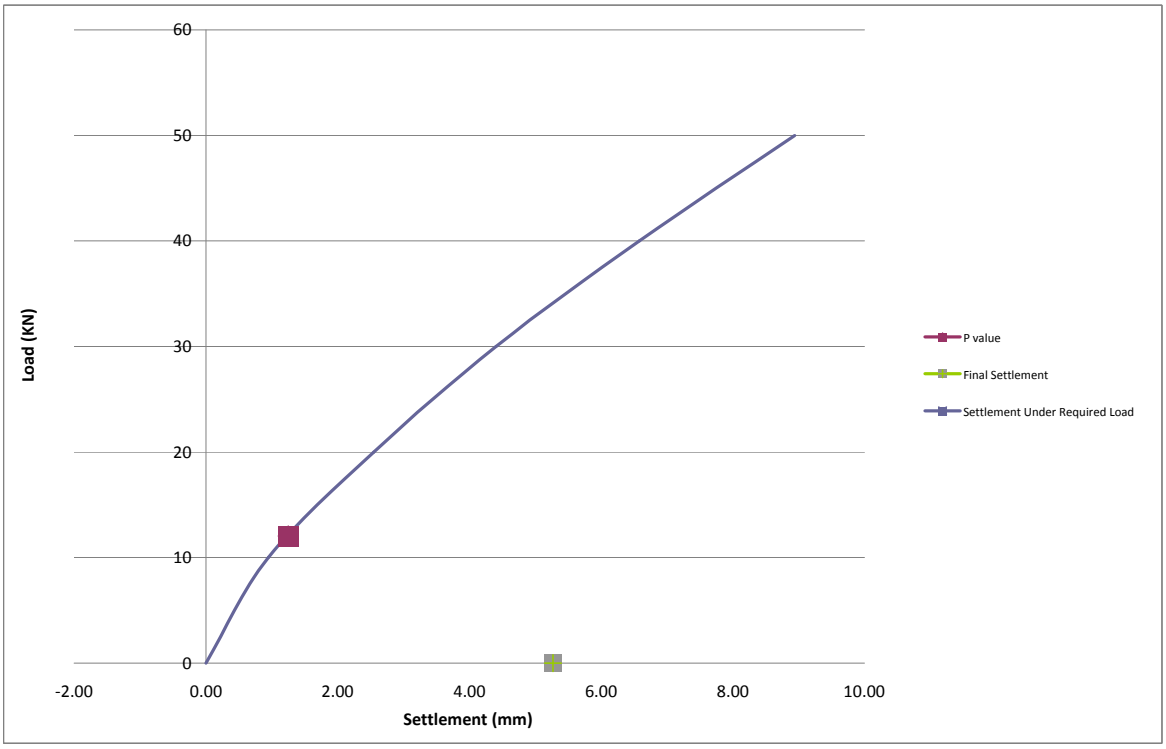


TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401, Manchester Airport
Test Location	
Test No	2
Conditions	Mostly dry
Operator	MH
Date	03.08.22
Kentledge	9T
Materials	Various rubble and soil
Plate Size (mm)	457
Settlement	1.25
Interpolation point	12.03
Value	3.08
K762	37052
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	5.0

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	107	83	0.95
20	285	225	2.55
30	545	336	4.41
40	775	542	6.59
50	1008	780	8.94
Final Settlement			
	626	428	5.27

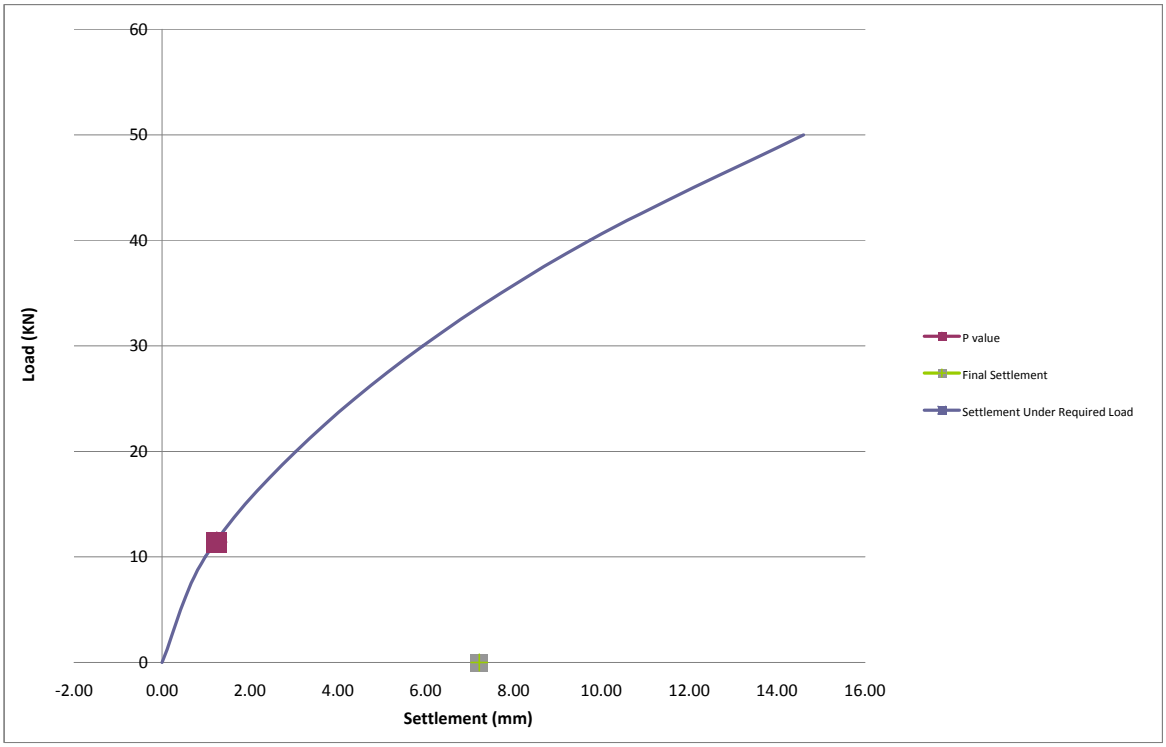


TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401, Manchester Airport
Test Location	
Test No	3
Conditions	Mostly dry
Operator	MH
Date	03.08.22
Kentledge	9T
Materials	Various rubble and soil
Plate Size (mm)	457
Settlement	1.25
Interpolation point	11.40
Value	3.08
K762	35112
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	4.6

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	101	97	0.99
20	318	291	3.05
30	621	567	5.94
40	1055	893	9.74
50	1625	1295	14.60
Final Settlement			
	755	690	7.23

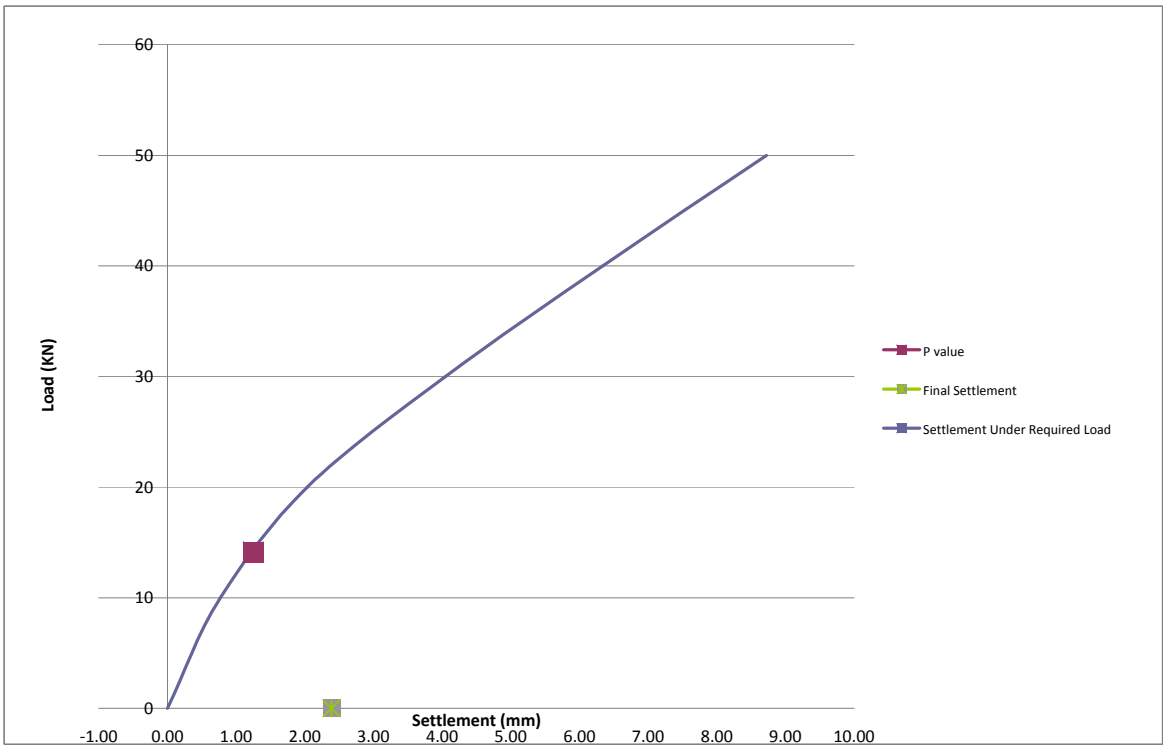


TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401, Manchester Airport
Test Location	
Test No	4
Conditions	Mostly dry
Operator	MH
Date	03.08.22
Kentledge	9T
Materials	Various rubble and soil
Plate Size (mm)	457
Settlement	1.25
Interpolation point	14.12
Value	3.08
K762	43490
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	6.7

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	83	71	0.77
20	220	188	2.04
30	436	374	4.05
40	678	590	6.34
50	925	820	8.73
Final Settlement			
	337	141	2.39

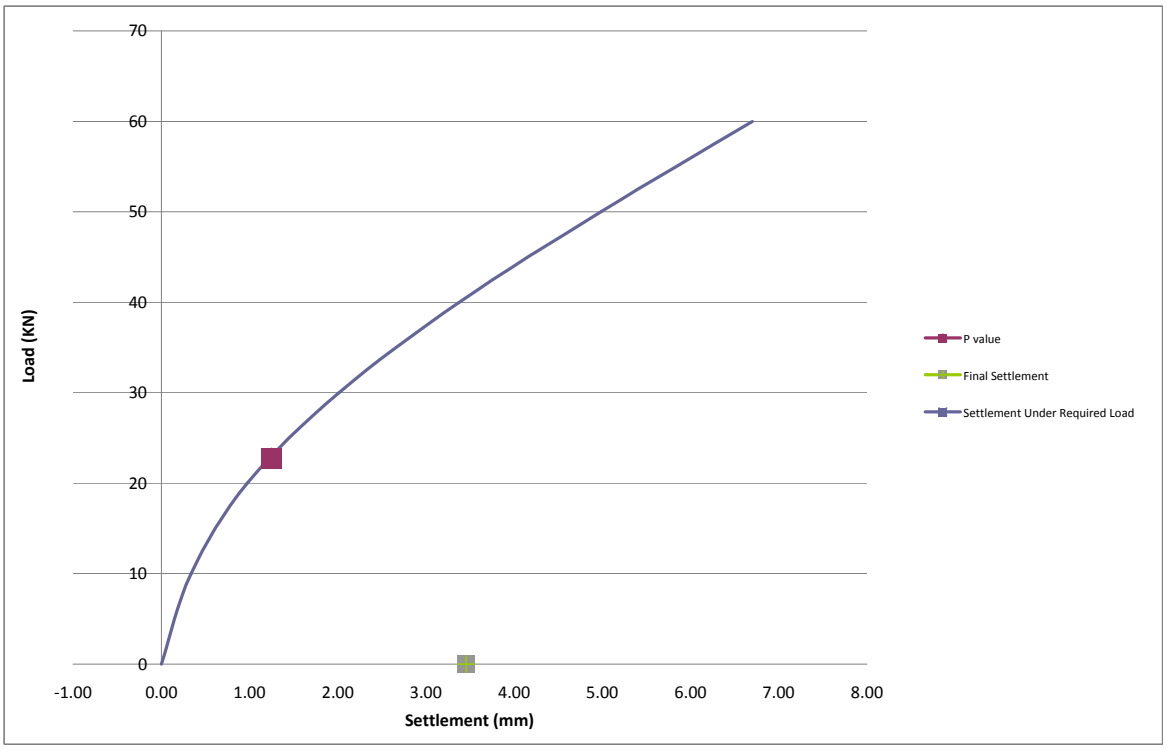


TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401, Manchester Airport
Test Location	
Test No	5
Conditions	Mostly dry
Operator	MH
Date	03.08.22
Kentledge	9T
Materials	Various rubble and soil
Plate Size (mm)	457
Settlement	1.25
Interpolation point	22.74
Value	3.08
K762	70039
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	15.2

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	38	30	0.34
20	100	95	0.98
30	228	175	2.02
40	390	285	3.38
50	579	418	4.99
60	760	580	6.70
Final Settlement			
	387	304	3.46



TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401, Manchester Airport
Test Location	
Test No	6
Conditions	Mostly dry
Operator	MH
Date	03.08.22
Kentledge	9T
Materials	Various rubble and soil
Plate Size (mm)	457
Settlement	1.25
Interpolation point	10.51
Value	3.08
K762	32371
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	4.0

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	112	114	1.13
20	338	345	3.42
30	705	700	7.03
40	1160	1076	11.18
50	1645	1640	16.43
Final Settlement			
	881	765	8.23

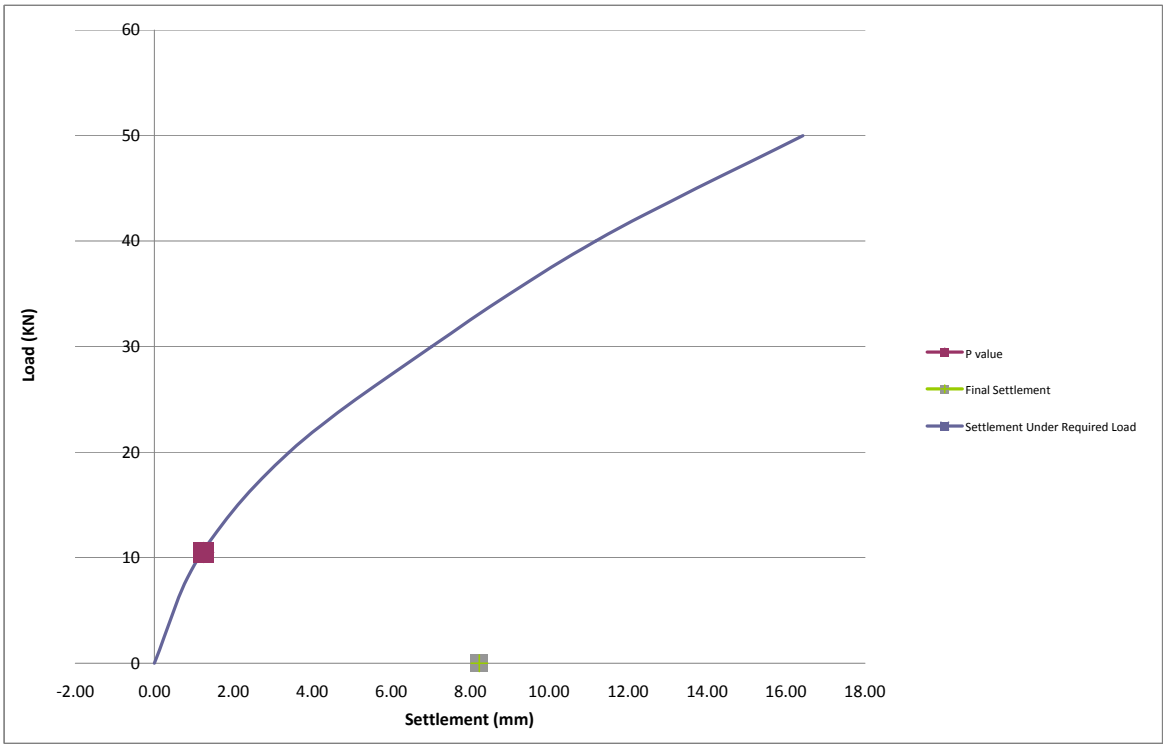


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Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401, Manchester Airport
Test Location	
Test No	7
Conditions	Mostly dry
Operator	MH
Date	03.08.22
Kentledge	9T
Materials	Various rubble and soil
Plate Size (mm)	457
Settlement	1.25
Interpolation point	11.50
Value	3.08
K762	35420
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	4.7

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	101	98	1.00
20	298	288	2.93
30	536	550	5.43
40	836	820	8.28
50	1150	1175	11.63
Final Settlement			
	644	585	6.15

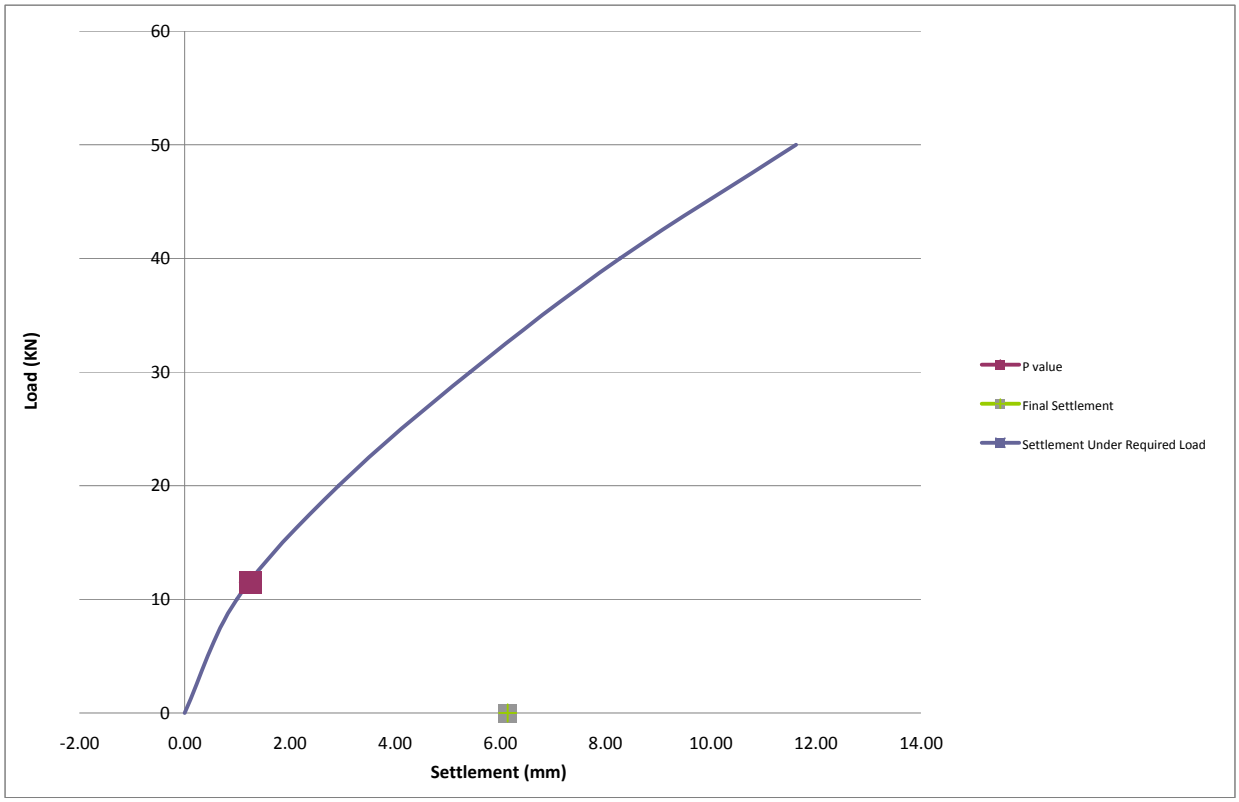

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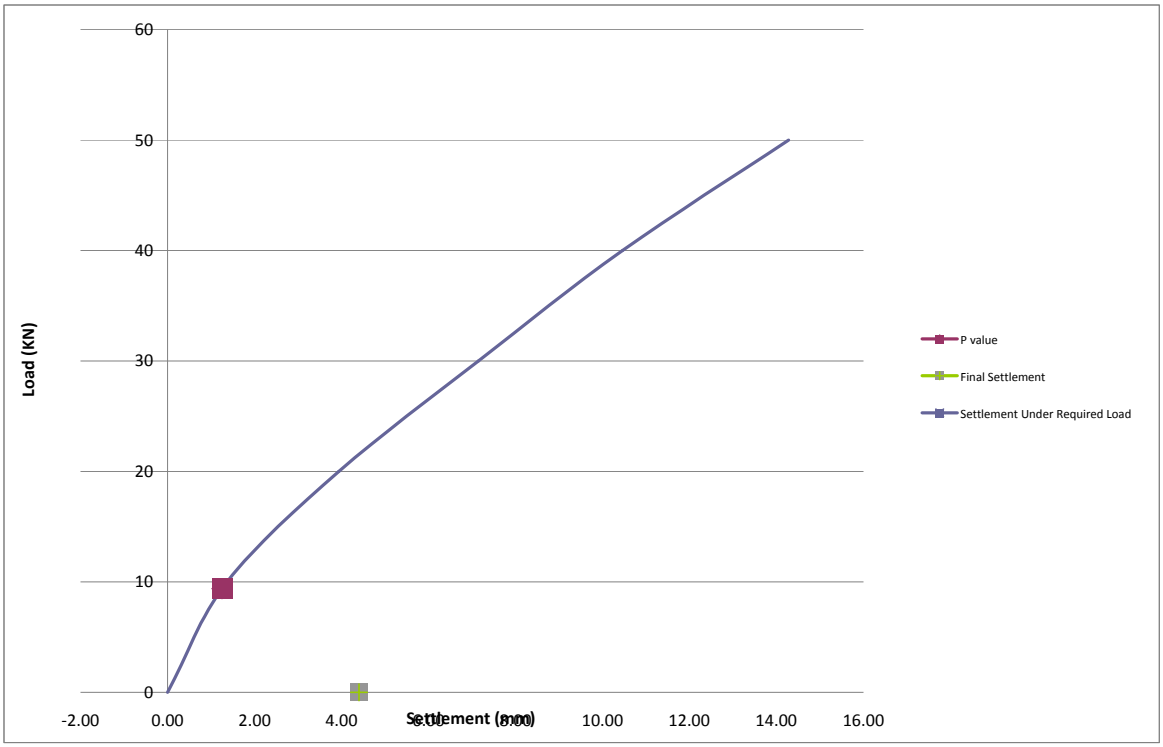
Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401, Manchester Airport
Test Location	
Test No	8
Conditions	Mostly dry
Operator	MH
Date	03.08.22
Kentledge	9T
Materials	Various rubble and soil
Plate Size (mm)	457
Settlement	1.25
Interpolation point	9.40
Value	3.08
K762	28952
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	3.3

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	135	139	1.37
20	352	436	3.94
30	625	805	7.15
40	912	1180	10.46
50	1245	1611	14.28
Final Settlement			
	220	660	4.40



Remarks

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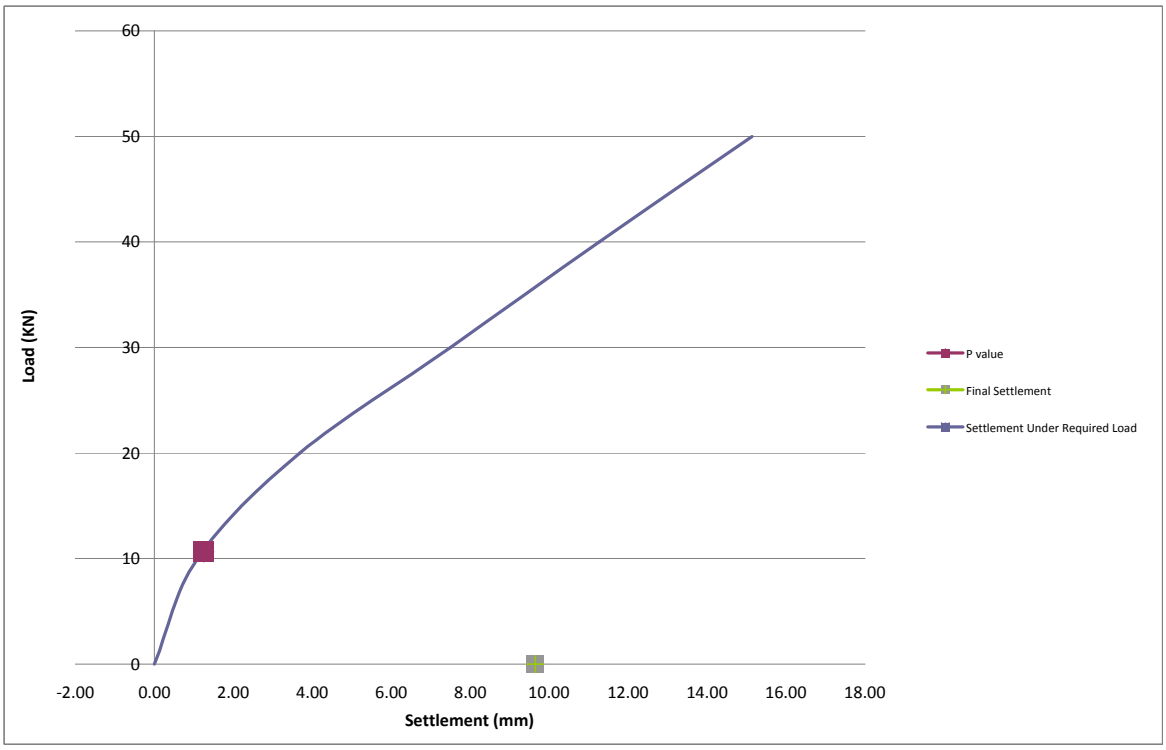
Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401, Manchester Airport
Test Location	
Test No	9
Conditions	Mostly dry
Operator	MH
Date	03.08.22
Kentledge	9T
Materials	Various rubble and soil
Plate Size (mm)	457
Settlement	1.25
Interpolation point	10.65
Value	3.08
K762	32802
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	4.1

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	119	101	1.10
20	395	341	3.68
30	846	655	7.51
40	1310	945	11.28
50	1716	1312	15.14
Final Settlement			
	1190	740	9.65

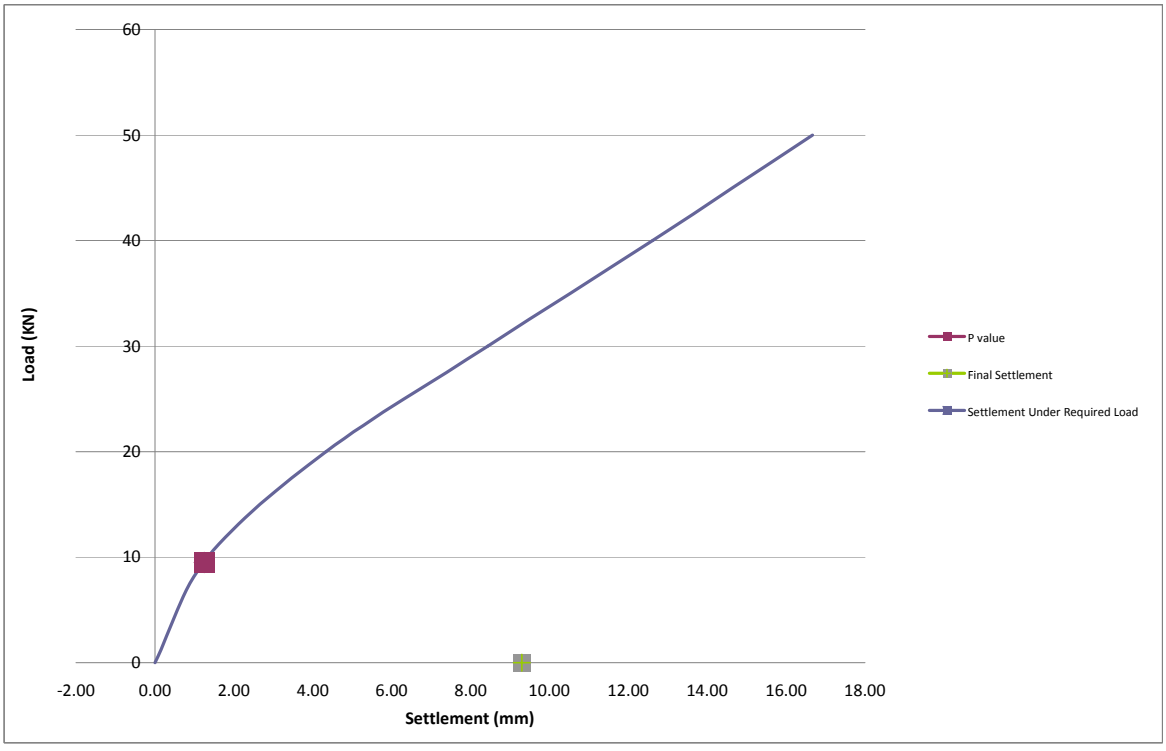


TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401, Manchester Airport
Test Location	
Test No	10
Conditions	Mostly dry
Operator	MH
Date	03.08.22
Kentledge	9T
Materials	Various rubble and soil
Plate Size (mm)	457
Settlement	1.25
Interpolation point	9.50
Value	3.08
K762	29260
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	3.4

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	127	141	1.34
20	455	413	4.34
30	830	858	8.44
40	1270	1254	12.62
50	1810	1524	16.67
Final Settlement			
	1020	840	9.30



TESTCRETE
CONSTRUCTION TESTING LIMITED
Carlton Station, Goole, DN14 9NT Tel 01405 860905 Fax 01405 860149
Also at: Unit 14 Monde Trading Estate, Trafford Park, Manchester, M17 1LP
Website www.testcrete.co.uk email: info@testcrete.co.uk

Plate Bearing Tests - Summary of Results

Client	R&M Developments Ltd.
Site	Substation Road, Avro Way, Manchester Airport
Report No.	10976
Test Location	As directed
Test Qty	3
Conditions	Damp
Operator	MH
Date	26.09.22
Kentledge	9T
Plate size (mm)	457
Materials	MoT sub base

Test No.	Location	K762 Value (kN/m²/m)	CBR (%)
1		161577	64.8
2		160653	64.1
3		126588	42.4

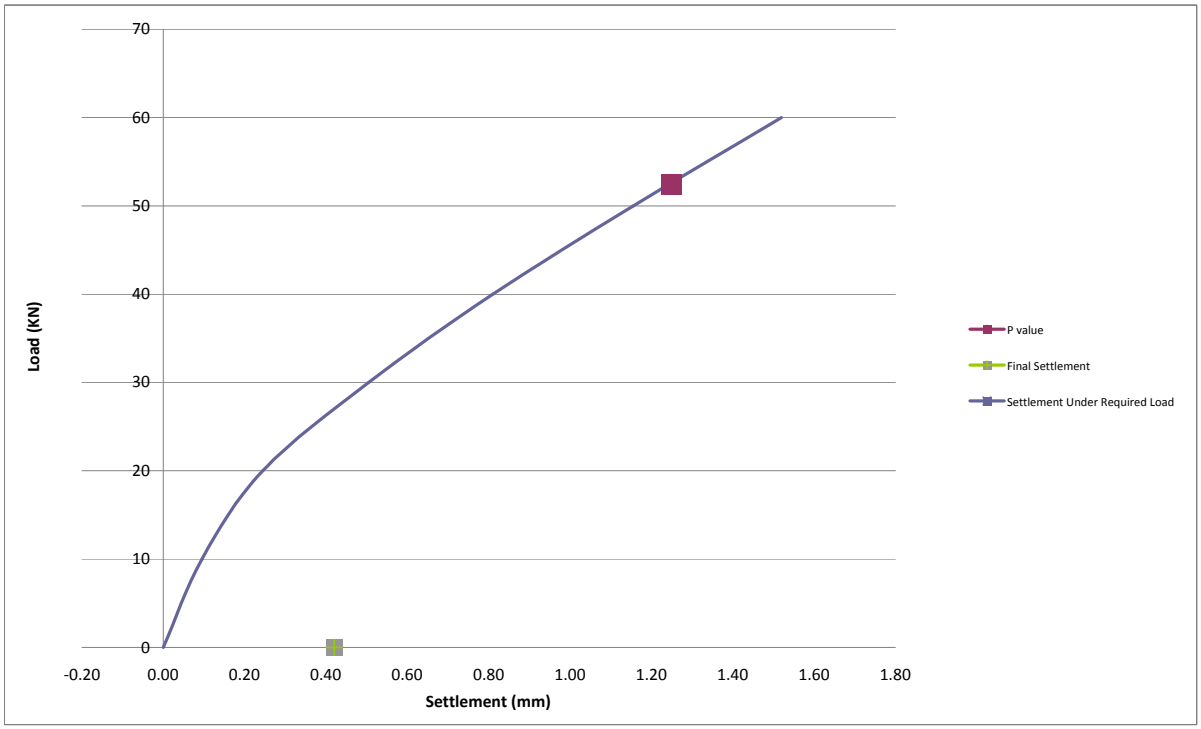
Signed: Graham Rose **Date:** 26.09.22
on behalf of Testcrete Construction Testing Ltd

TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd.
Site	Substation Road, Avro Way,
Test Location	As directed
Test No	1
Conditions	Damp
Operator	MH
Date	26.09.22
Kentledge	9T
Materials	MoT sub base
Plate Size (mm)	457
Settlement	1.25
Interpolation point	52.46
Value	3.08
K762	161577
Required Pressure (kN/m²) 1	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	64.8

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	7	12	0.10
20	25	24	0.25
30	55	46	0.51
40	85	77	0.81
50	115	116	1.16
60	145	159	1.52
Final Settlement	15	69	0.42

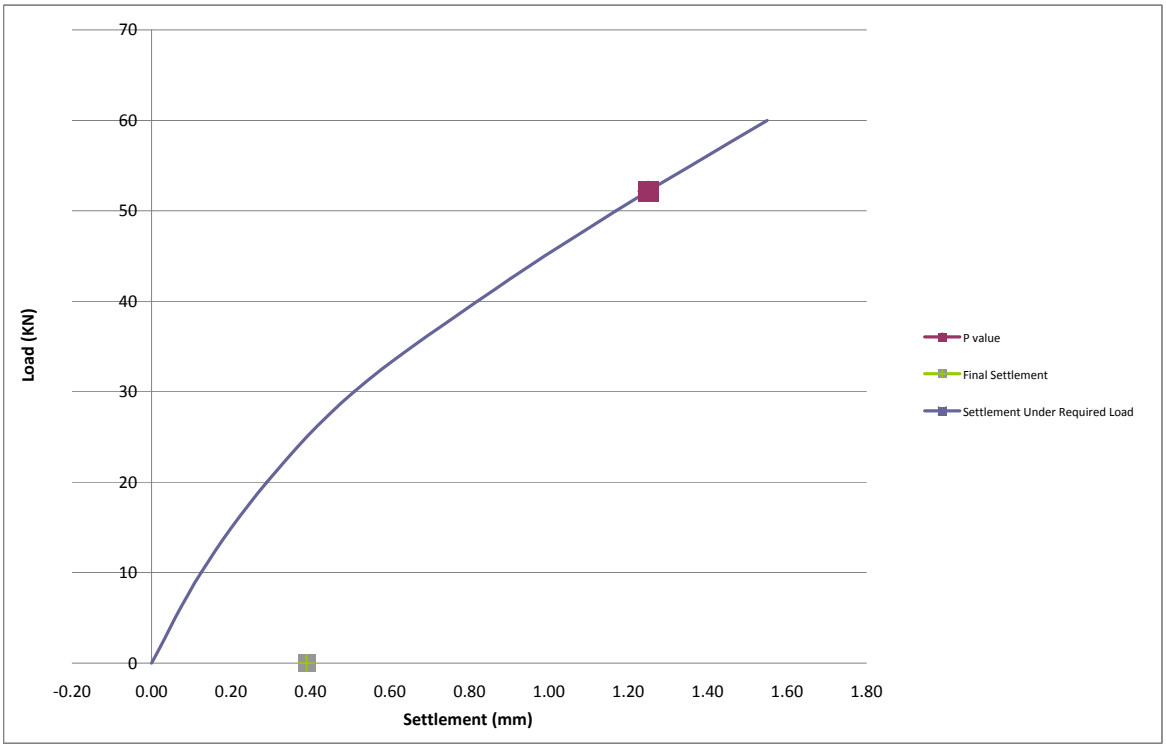


TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd.
Site	Substation Road, Avro Way,
Test Location	
Test No	2
Conditions	Damp
Operator	MH
Date	26.09.22
Kentledge	9T
Materials	MoT sub base
Plate Size (mm)	457
Settlement	1.25
Interpolation point	52.16
Value	3.08
K762	160653
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	64.1

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	13	12	0.13
20	30	28	0.29
30	54	48	0.51
40	86	78	0.82
50	120	114	1.17
60	152	158	1.55
Final Settlement			
	34	44	0.39

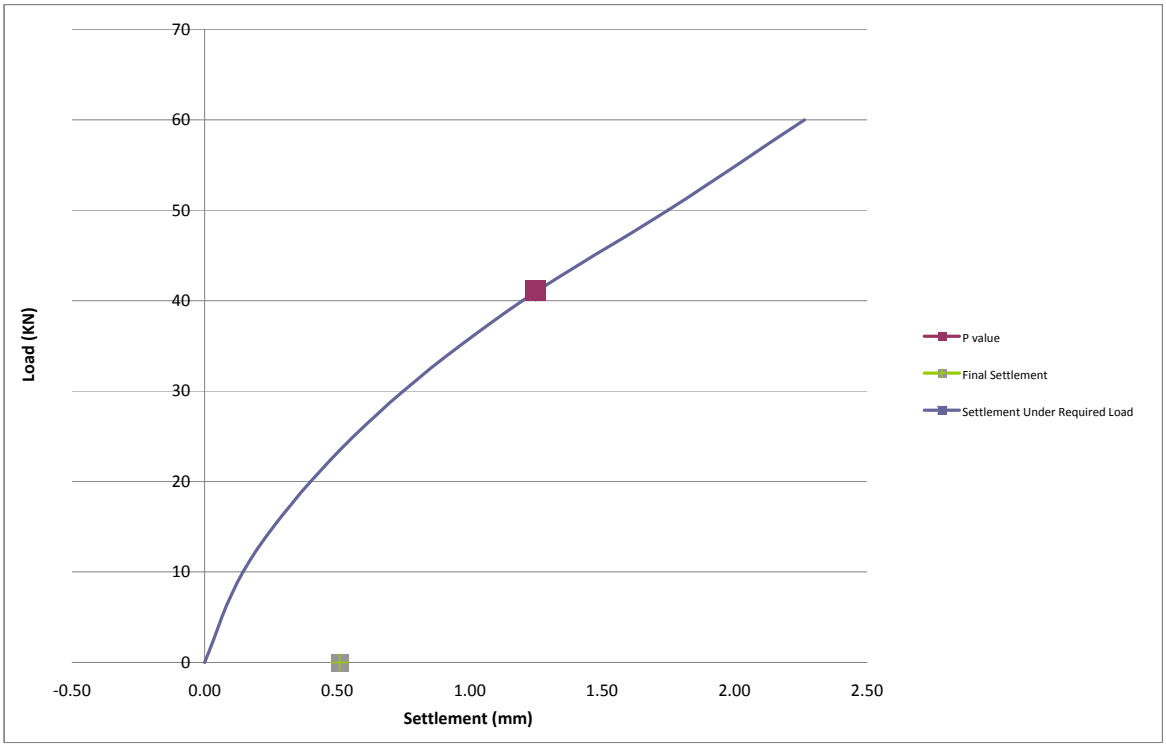


TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd.
Site	Substation Road, Avro Way,
Test Location	
Test No	3
Conditions	Damp
Operator	MH
Date	26.09.22
Kentledge	9T
Materials	MoT sub base
Plate Size (mm)	457
Settlement	1.25
Interpolation point	41.10
Value	3.08
K762	126588
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	42.4

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	15	14	0.15
20	41	39	0.40
30	77	73	0.75
40	119	121	1.20
50	180	170	1.75
60	235	218	2.27
Final Settlement			
	58	44	0.51



TESTCRETE
CONSTRUCTION TESTING LIMITED
Carlton Station, Goole, DN14 9NT Tel 01405 860905 Fax 01405 860149
Also at: Unit 14 Monde Trading Estate, Trafford Park, Manchester, M17 1LP
Website www.testcrete.co.uk email: info@testcrete.co.uk

Plate Bearing Tests - Summary of Results

Client	R&M Developments Ltd.
Site	Building 401
Report No.	11017
Test Location	As directed
Test Qty	12
Conditions	Wet
Operator	MH
Date	01.11.22
Kentledge	9T
Plate size (mm)	457
Materials	6F2

Test No.	Location	K762 Value (kN/m²/m)	CBR (%)
1		100747	28.6
2		72996	16.3
3		94556	25.6
4		133764	46.7
5		91784	24.3
6		116578	36.8
7		139832	50.4
8		83006	20.4
9		144914	53.6
10		125972	42.1
11		38839	5.5
12		46508	7.5

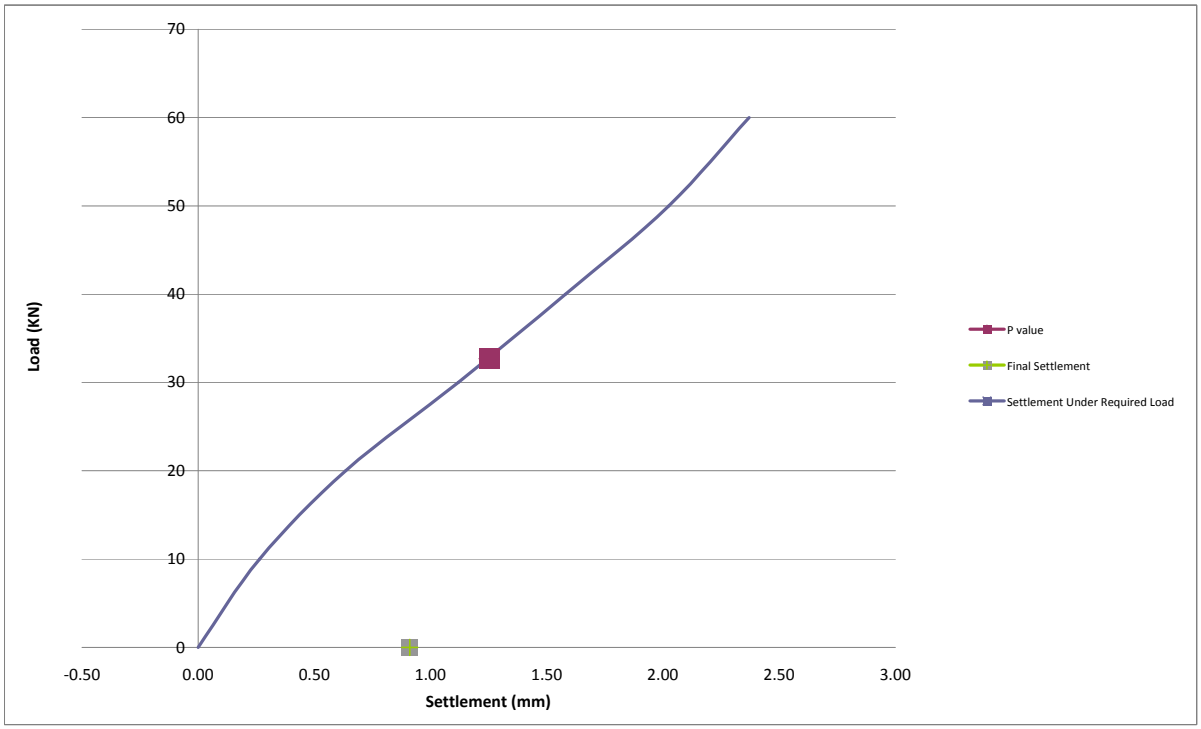
Signed: Graham Rose **Date:** 03.11.22
on behalf of Testcrete Construction Testing Ltd

TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401
Test Location	As directed
Test No	1
Conditions	Wet
Operator	MH
Date	01.11.22
Kentledge	9T
Materials	6F2
Plate Size (mm)	457
Settlement	1.25
Interpolation point	32.71
Value	3.08
K762	100747
Required Pressure (kN/m²) 1	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	28.6

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	23	30	0.27
20	59	68	0.64
30	93	131	1.12
40	130	186	1.58
50	165	240	2.03
60	198	276	2.37
Final Settlement	63	119	0.91

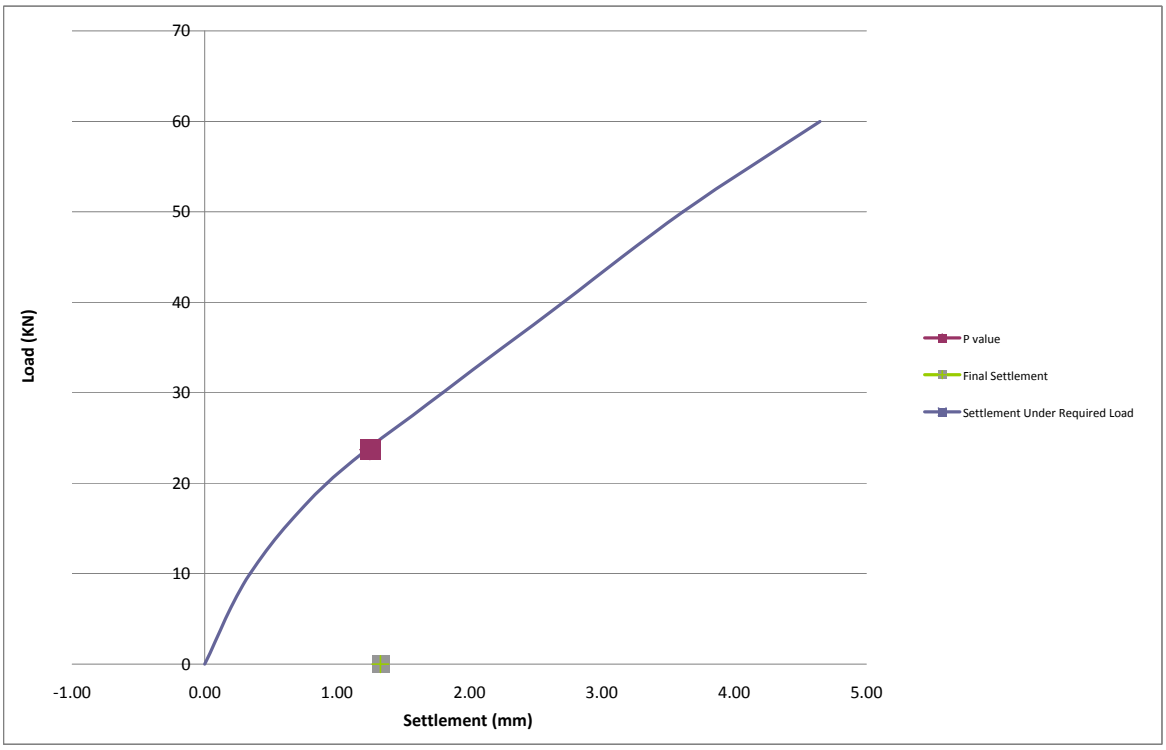


TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401
Test Location	
Test No	2
Conditions	Wet
Operator	MH
Date	01.11.22
Kentledge	9T
Materials	6F2
Plate Size (mm)	457
Settlement	1.25
Interpolation point	23.70
Value	3.08
K762	72996
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	16.3

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	34	35	0.35
20	94	91	0.93
30	181	179	1.80
40	270	272	2.71
50	350	373	3.62
60	450	480	4.65
Final Settlement			
	136	130	1.33

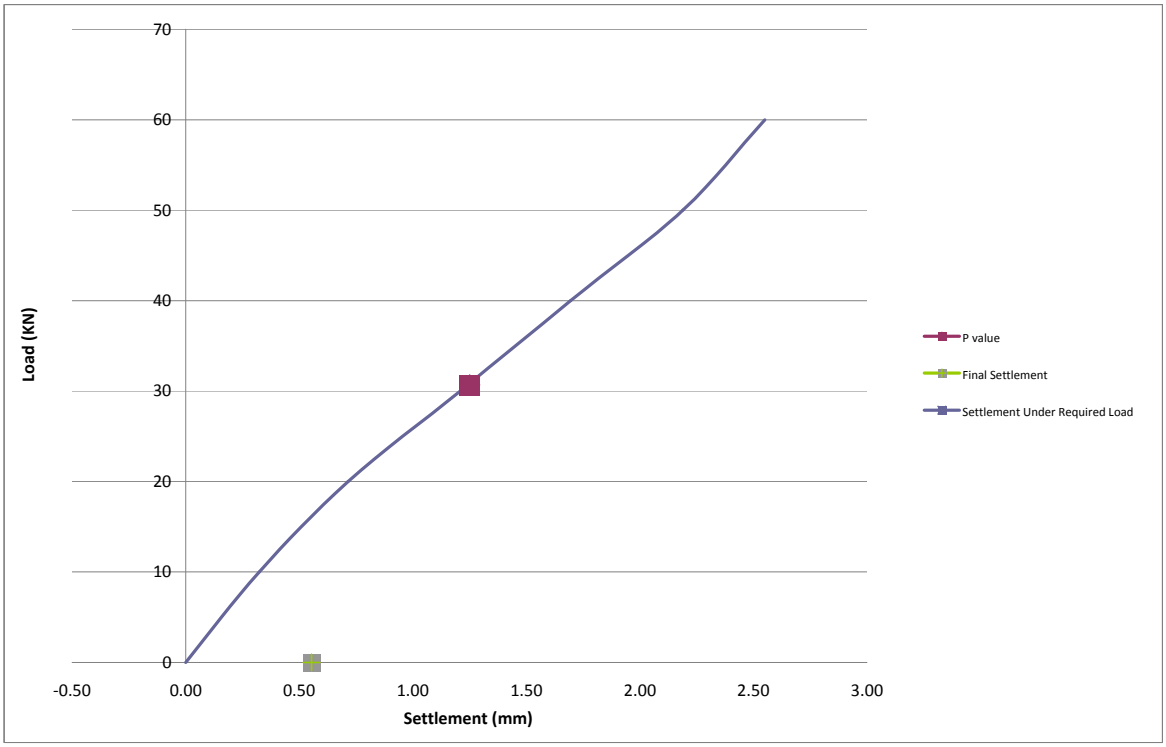


TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401
Test Location	
Test No	3
Conditions	Wet
Operator	MH
Date	01.11.22
Kentledge	9T
Materials	6F2
Plate Size (mm)	457
Settlement	1.25
Interpolation point	30.70
Value	3.08
K762	94556
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	25.6

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	35	30	0.33
20	79	64	0.72
30	128	114	1.21
40	170	169	1.70
50	228	210	2.19
60	256	254	2.55
Final Settlement			
	56	55	0.56

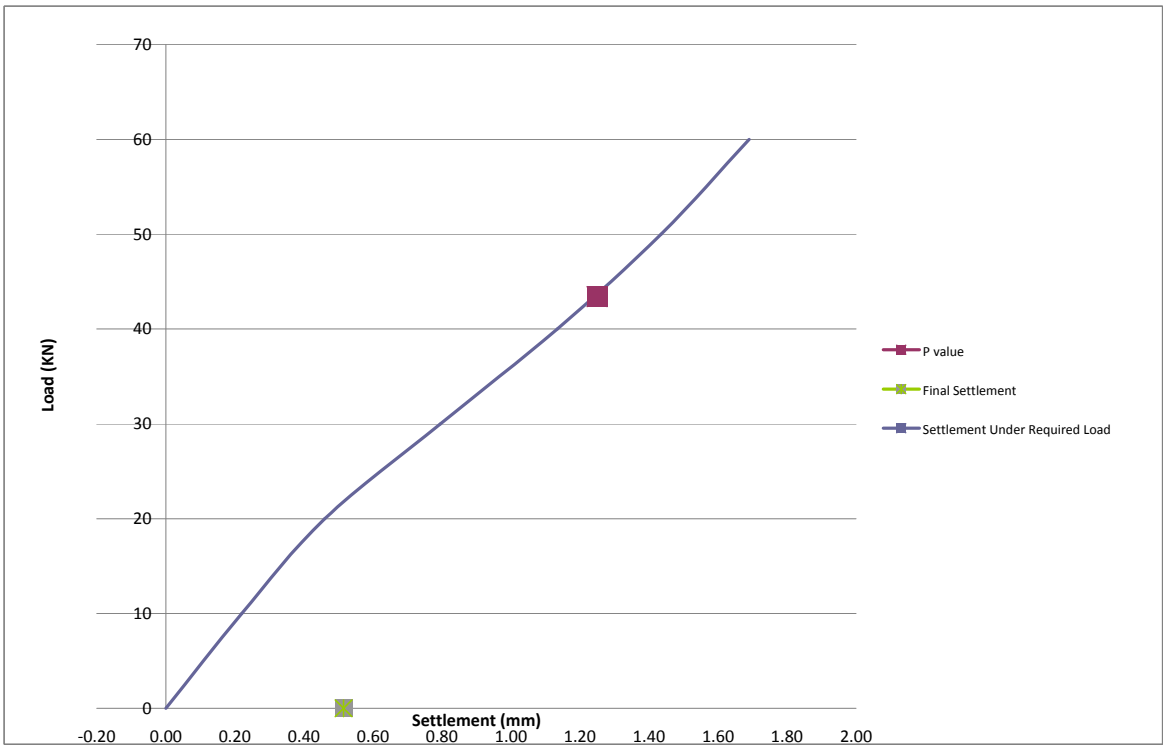


TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401
Test Location	
Test No	4
Conditions	Wet
Operator	MH
Date	01.11.22
Kentledge	9T
Materials	6F2
Plate Size (mm)	457
Settlement	1.25
Interpolation point	43.43
Value	3.08
K762	133764
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	46.7

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	26	18	0.22
20	51	41	0.46
30	86	73	0.80
40	132	95	1.14
50	177	110	1.44
60	202	136	1.69
Final Settlement			
	76	27	0.52

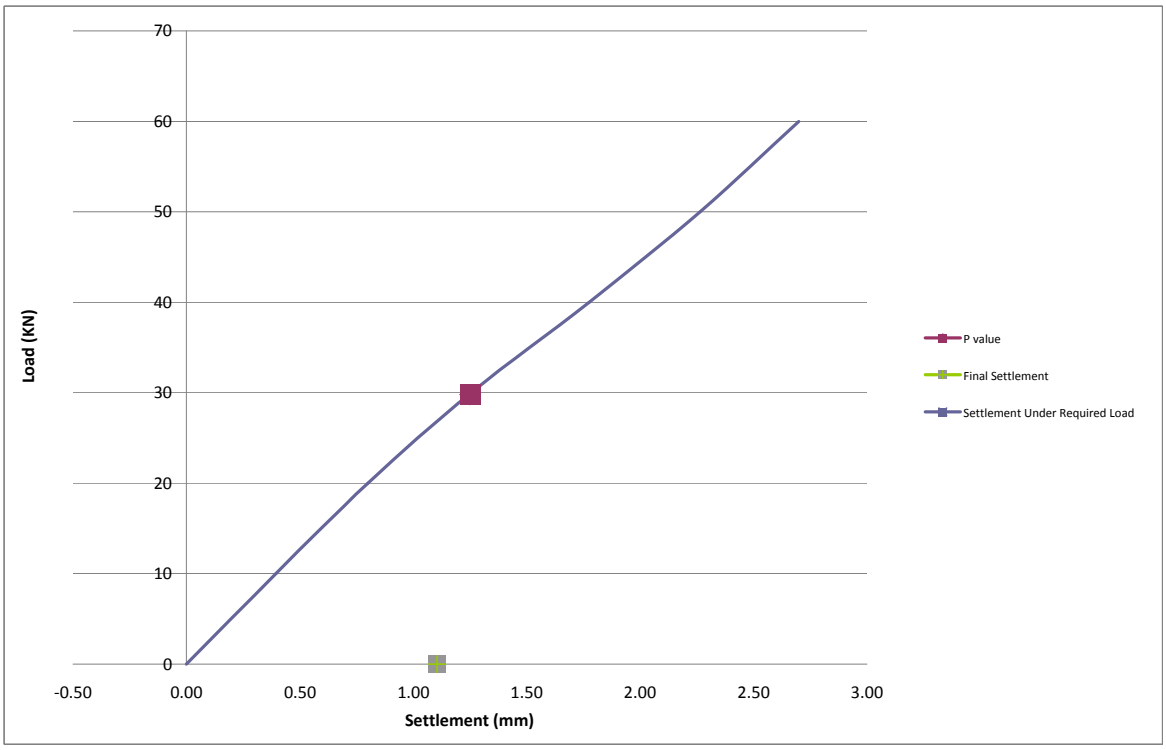


TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401
Test Location	
Test No	5
Conditions	Wet
Operator	MH
Date	01.11.22
Kentledge	9T
Materials	6F2
Plate Size (mm)	457
Settlement	1.25
Interpolation point	29.80
Value	3.08
K762	91784
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	24.3

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	28	51	0.40
20	60	100	0.80
30	108	143	1.26
40	155	200	1.78
50	200	253	2.27
60	230	310	2.70
Final Settlement			
	88	133	1.11

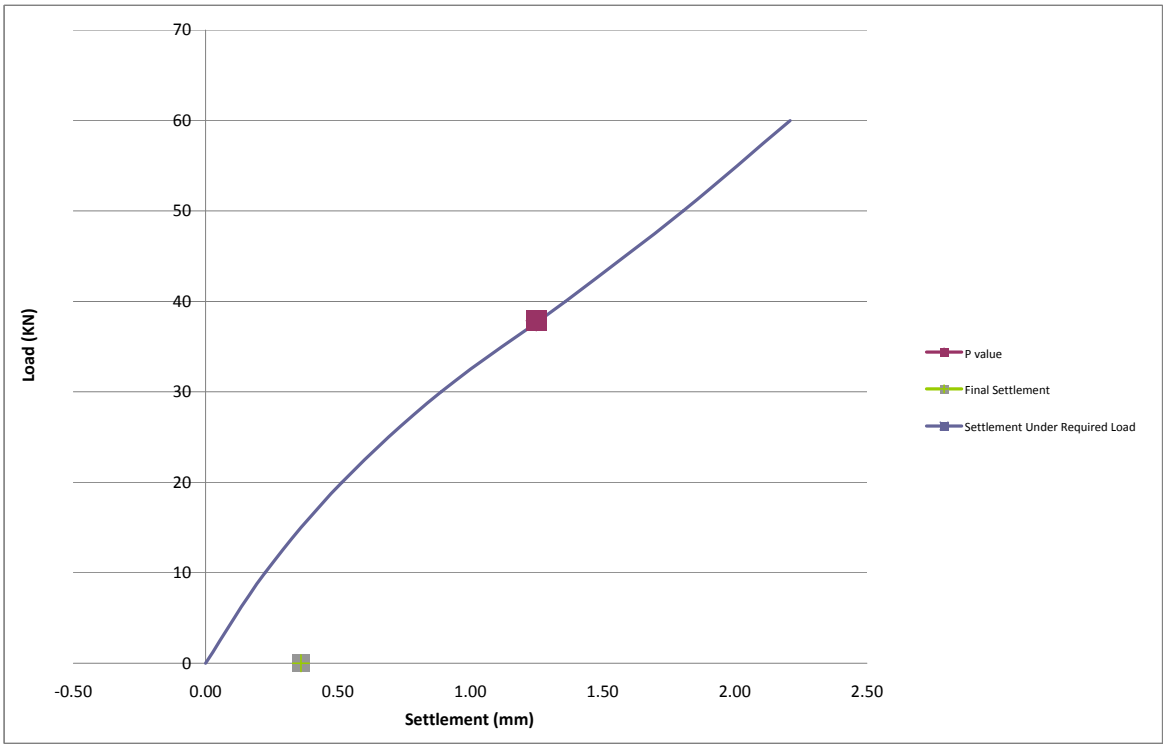


TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401
Test Location	
Test No	6
Conditions	Wet
Operator	MH
Date	01.11.22
Kentledge	9T
Materials	6F2
Plate Size (mm)	457
Settlement	1.25
Interpolation point	37.85
Value	3.08
K762	116578
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	36.8

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	17	28	0.23
20	62	41	0.52
30	111	67	0.89
40	168	104	1.36
50	213	148	1.81
60	252	190	2.21
Final Settlement			
	41	31	0.36

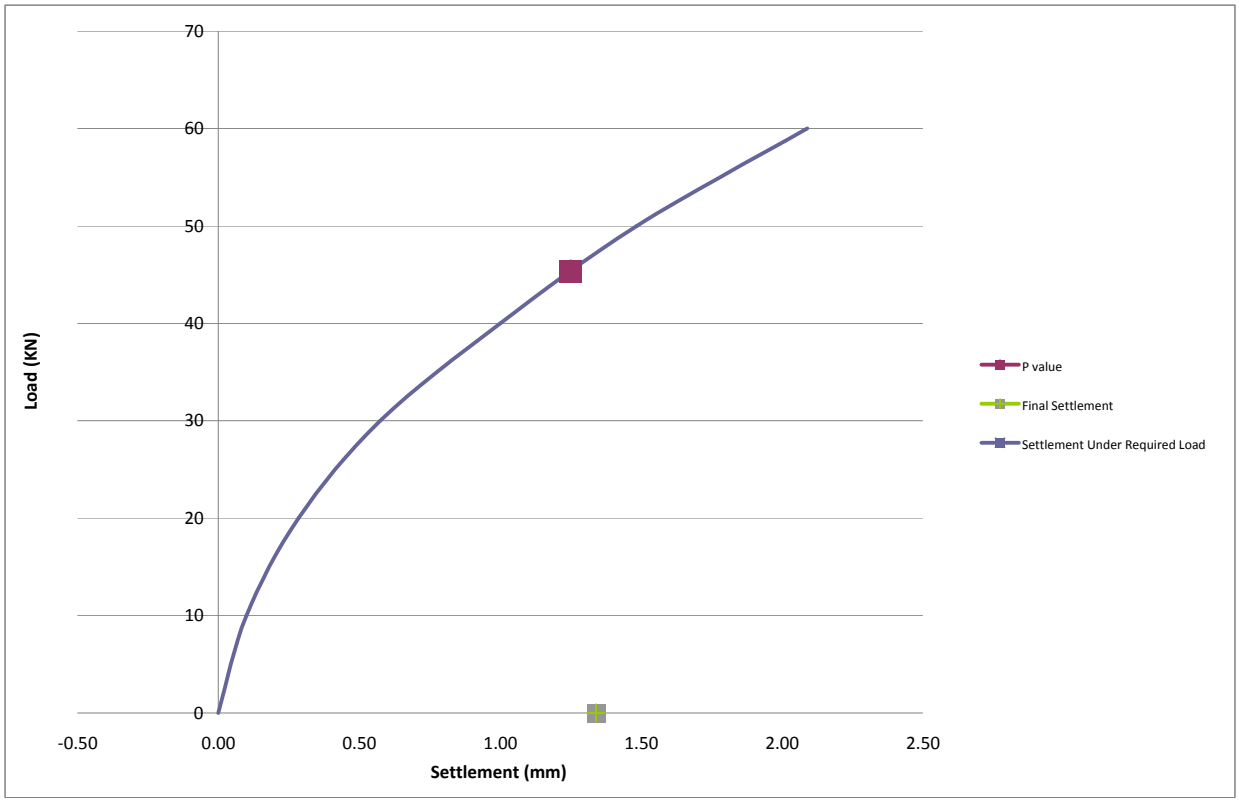


TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401
Test Location	
Test No	7
Conditions	Wet
Operator	MH
Date	01.11.22
Kentledge	9T
Materials	6F2
Plate Size (mm)	457
Settlement	1.25
Interpolation point	45.40
Value	3.08
K762	139832
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	50.4

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	20		0.10
20	42	15	0.29
30	71	44	0.58
40	100	100	1.00
50	150	147	1.49
60	200	218	2.09
Final Settlement			
	127	141	1.34

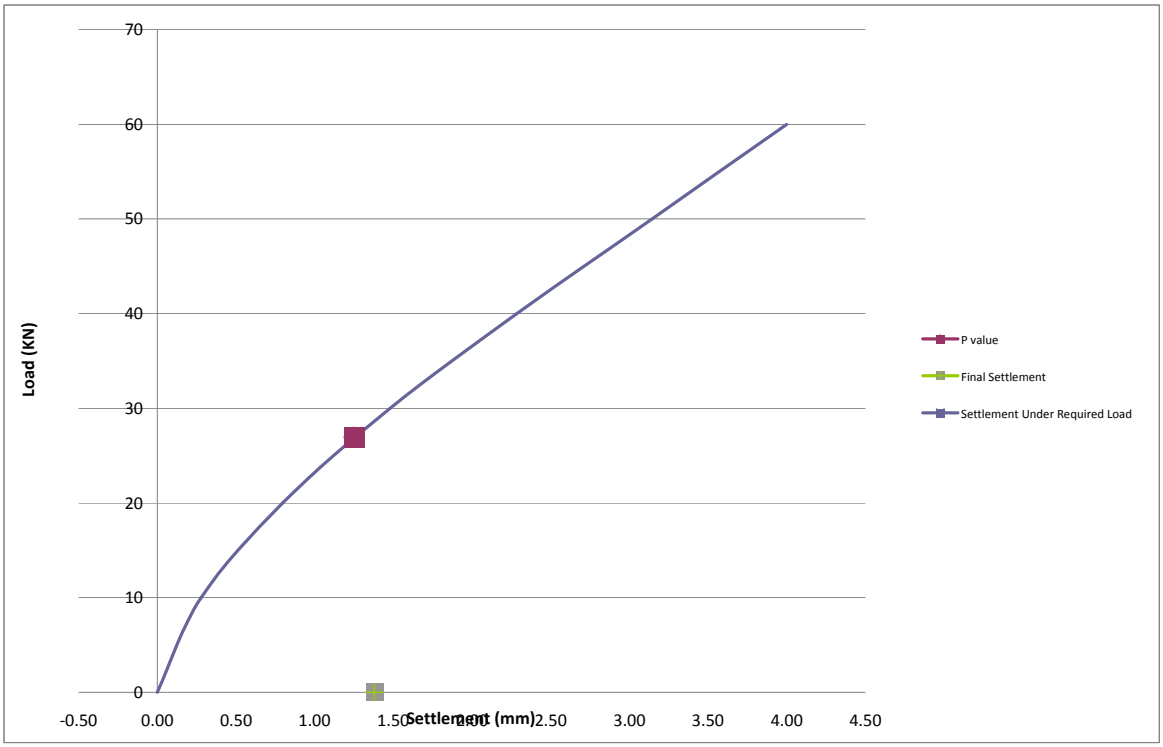


TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401
Test Location	
Test No	8
Conditions	Wet
Operator	MH
Date	01.11.22
Kentledge	9T
Materials	6F2
Plate Size (mm)	457
Settlement	1.25
Interpolation point	26.95
Value	3.08
K762	83006
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	20.4

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	23	33	0.28
20	66	93	0.80
30	134	162	1.48
40	215	242	2.29
50	306	323	3.15
60	394	406	4.00
Final Settlement			
	132	144	1.38



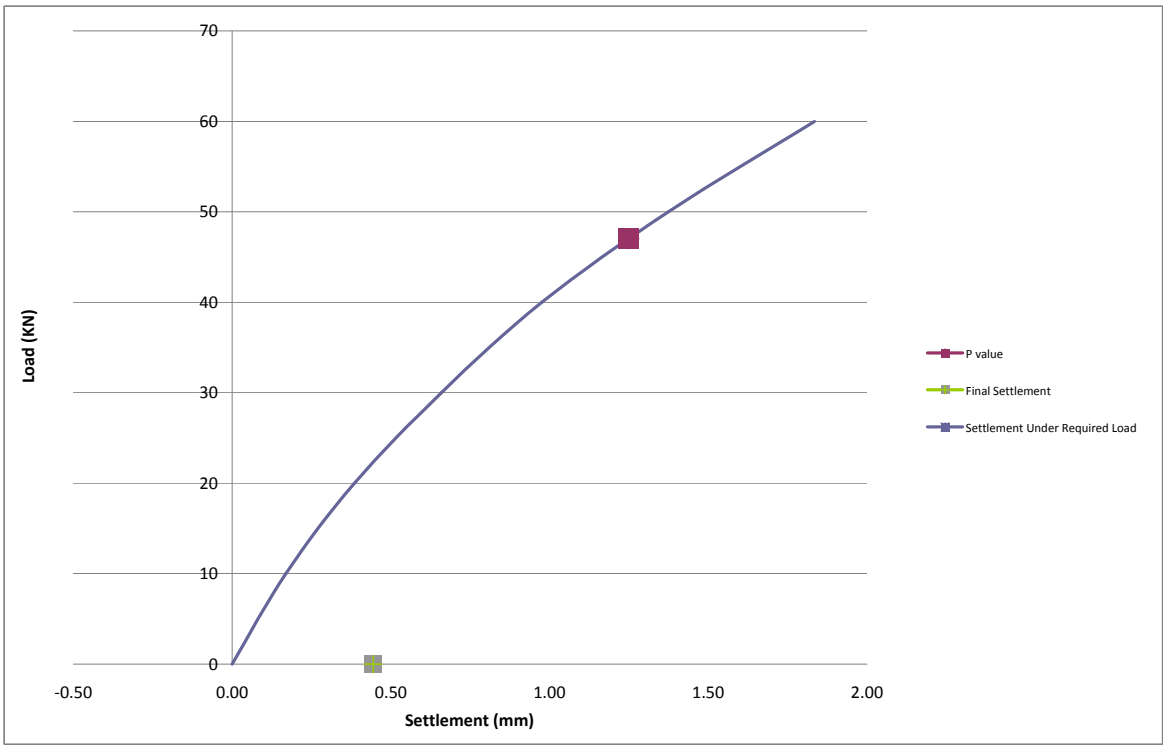
Remarks

TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401
Test Location	
Test No	9
Conditions	Wet
Operator	MH
Date	01.11.22
Kentledge	9T
Materials	6F2
Plate Size (mm)	457
Settlement	1.25
Interpolation point	47.05
Value	3.08
K762	144914
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	53.6

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	10	24	0.17
20	30	47	0.39
30	61	71	0.66
40	95	100	0.98
50	140	135	1.38
60	185	182	1.84
Final Settlement			
	9	80	0.45

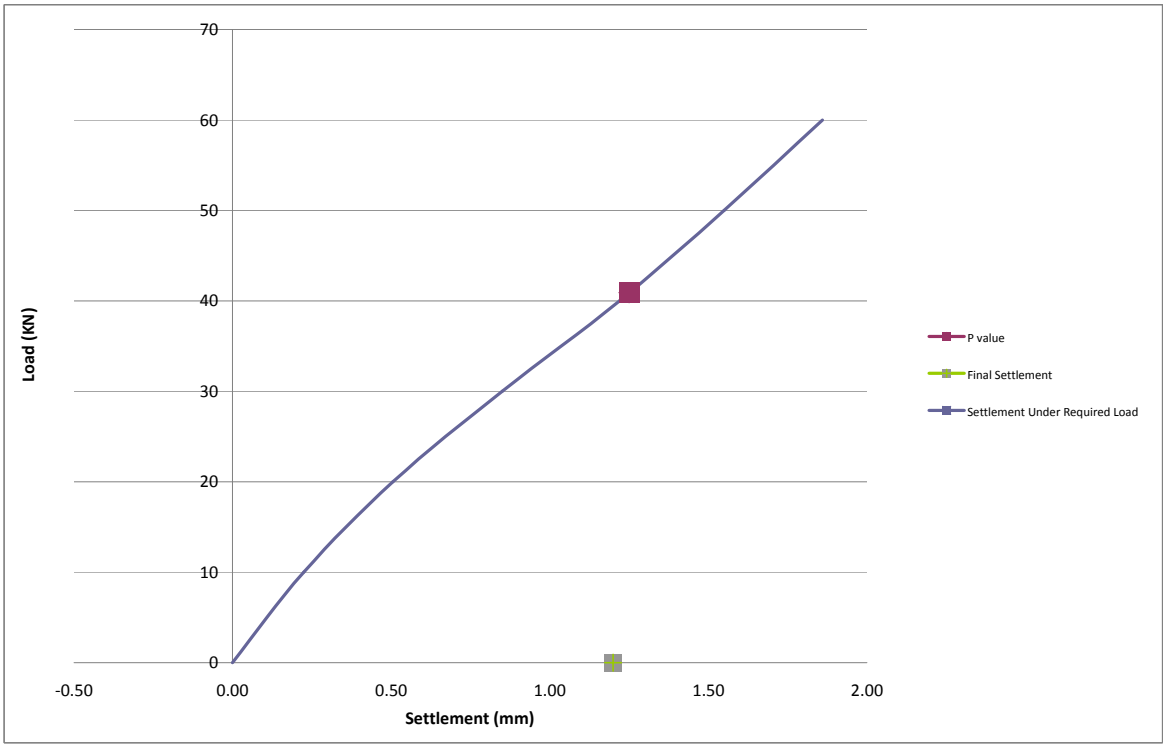


TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401
Test Location	
Test No	10
Conditions	Wet
Operator	MH
Date	01.11.22
Kentledge	9T
Materials	6F2
Plate Size (mm)	457
Settlement	1.25
Interpolation point	40.90
Value	3.08
K762	125972
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	42.1

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	24	21	0.23
20	56	45	0.51
30	86	84	0.85
40	122	122	1.22
50	150	160	1.55
60	182	190	1.86
Final Settlement			
	110	130	1.20

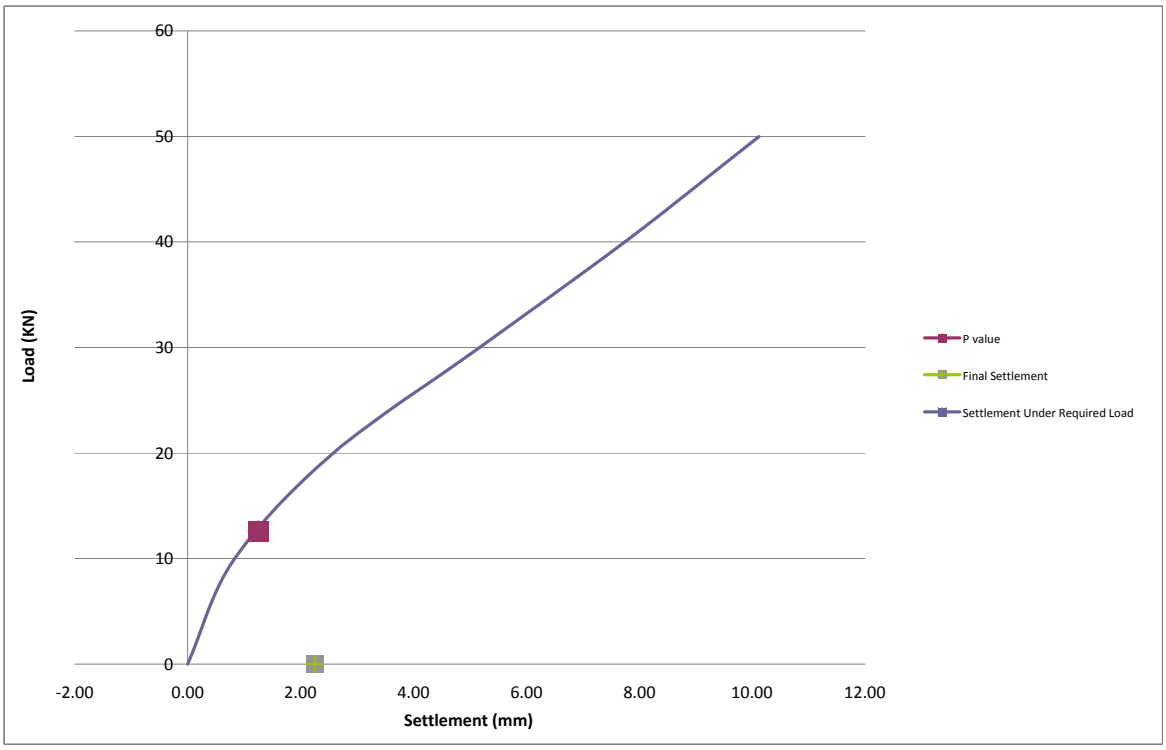


TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401
Test Location	
Test No	11
Conditions	Wet
Operator	MH
Date	01.11.22
Kentledge	9T
Materials	6F2
Plate Size (mm)	457
Settlement	1.25
Interpolation point	12.61
Value	3.08
K762	38839
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	5.5

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	87	80	0.84
20	242	274	2.58
30	530	505	5.18
40	760	790	7.75
50	985	1040	10.13
Final Settlement			
	210	240	2.25

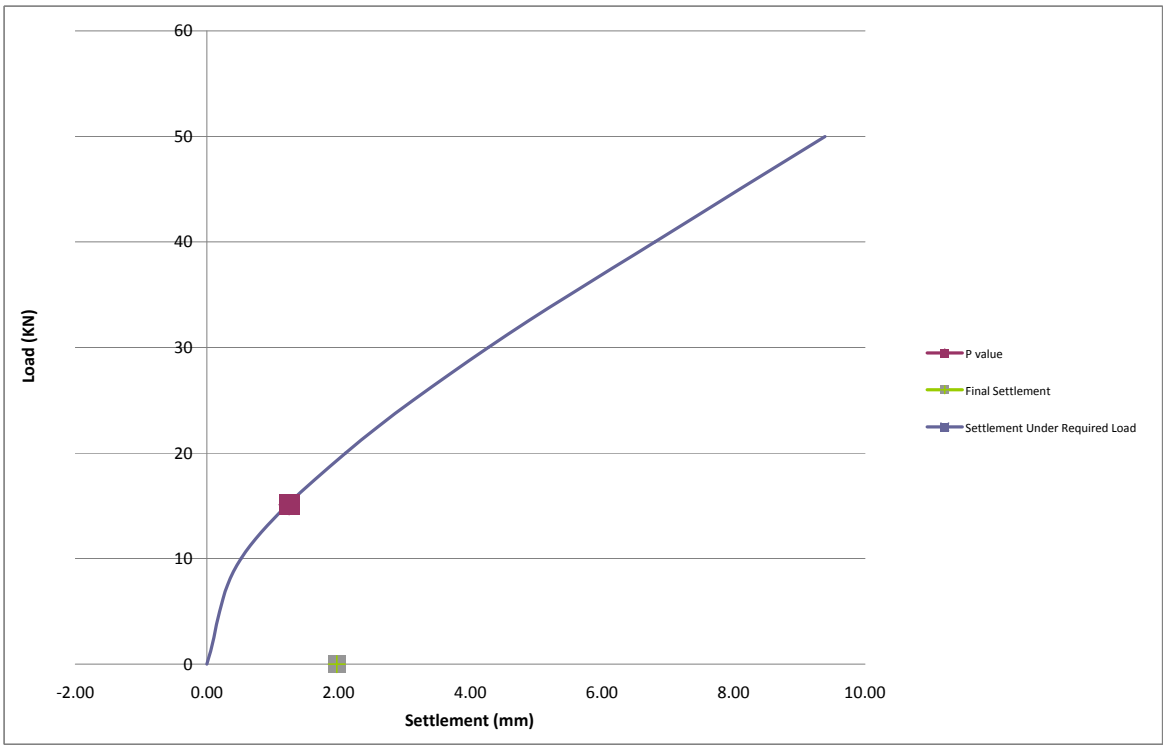


TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401
Test Location	
Test No	12
Conditions	Wet
Operator	MH
Date	01.11.22
Kentledge	9T
Materials	6F2
Plate Size (mm)	457
Settlement	1.25
Interpolation point	15.10
Value	3.08
K762	46508
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	7.5

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	46	58	0.52
20	206	215	2.11
30	395	460	4.28
40	650	712	6.81
50	910	968	9.39
Final Settlement			
	185	210	1.98



TESTCRETE
CONSTRUCTION TESTING LIMITED
Carlton Station, Goole, DN14 9NT Tel 01405 860905 Fax 01405 860149
Also at: Unit 14 Monde Trading Estate, Trafford Park, Manchester, M17 1LP
Website www.testcrete.co.uk email: info@testcrete.co.uk

Report No. 11031

R&M Developments Ltd.

Building 401 Demolition

Manchester Airport

PARTICLE SIZE DISTRIBUTION OF 6F2 FILL

Sampled by: MH Testcrete Sample date: 04.11.22

Location: Stockpile C

Description: Crushed stone

Results

Sieve size		% passing		Highways
(mm)	Sample C1	Sample C2	Average	Specification
125	100	100	100	100
90	100	100	100	80-100
75	100	100	100	65-100
37.5	50.8	83.0	66.9	45-100
20	38.2	41.8	40.0	
10	23.4	25.4	24.4	15-60
5	13.8	15.7	14.8	10-45
0.600	6.1	6.3	6.2	0-25
0.063	1.5	1.4	1.5	0-12

Moisture content as received (% by weight):

2.5 2.4 2.5

This material COMPLIES with the Highways Specification grading requirements for 6F2 fill.

Signed on behalf of Testcrete

Graham G. Rose

03.11.22

SURVEY STATIONS			
Name	Easting	Northing	Height
S01	380948.22	384937.07	68.36
S02	380907.82	384888.07	67.43
S03	380881.67	384868.62	67.47
S04	380856.96	384849.15	67.11
S05	380871.21	384811.47	67.10
S06	380918.01	384788.29	67.54
S07	380953.17	384770.96	68.30
S08	380984.86	384805.96	68.66
S09	381026.85	384846.04	69.09
S010	380963.87	384904.15	68.69

STOCKPILE 'A' = 125m3 CLAY

STOCKPILE 'B' = 1,695m3 6F2

STOCKPILE 'C' = 859m3 6F2

STOCKPILE 'D' = 5,309m3 6F2

STOCKPILE 'E' = 1,590m3 6F2

STOCKPILE 'F' = 3,227m3 6F2

STOCKPILE 'G' = 149m3 CLAY (GAS TRENCH BACKFILL)

STOCKPILE 'H' = 260m3 CLAY

DEMOLISHED BUILDING

PROPOSED BUILDING

CBR10 (1st) CBR TAKEN ON VISIT 1

CBR10 (2nd) CBR TAKEN ON VISIT 2

SL18 67.305m SPOT LEVEL TAKEN ON STONE (6F5)

SLC18 67.305m SPOT LEVEL TAKEN ON CLAY

R&M DEVELOPMENTS

Client
MAG/WORKMAN LLP

Drawing Title
Stockpile Survey at:
Building 401
Manchester Airport
Sheet 1 of 1

Scale(s) 1:200	Surveyor MD
Date NOV 22	Drawn MD
Job Number	Checked SD

Sheet Size & Drg Number & Revision
A0 100424/004/B

TESTCRETE
CONSTRUCTION TESTING LIMITED
Carlton Station, Goole, DN14 9NT Tel 01405 860905 Fax 01405 860149
Also at: Unit 14 Monde Trading Estate, Trafford Park, Manchester, M17 1LP
Website www.testcrete.co.uk email: info@testcrete.co.uk

Report No. 11013

R&M Developments Ltd.

Building 401 Demolition

Manchester Airport

PARTICLE SIZE DISTRIBUTION OF 6F2 FILL

Sampled by: MH Testcrete Sample date: 26.10.22

Location: Stockpile 1

Results

Sieve size		% passing		Highways
(mm)	Sample 1	Sample2	Average	Specification
125	100	100	100	100
90	100	100	100	80-100
75	100	100	100	65-100
37.5	54.1	55.2	54.7	45-100
20	34.8	40.4	37.6	
10	24.5	29.8	27.2	15-60
5	19.6	25.4	22.5	10-45
0.600	10.6	15.6	13.1	0-25
0.063	2.2	2.9	2.6	0-12

Moisture content as received (% by weight):

5.1	5.5	5.3

This material COMPLIES with the Highways Specification grading requirements for 6F2 fill

Signed on behalf of Testcrete

Graham G. Rose

03.11.22

TESTCRETE
CONSTRUCTION TESTING LIMITED
Carlton Station, Goole, DN14 9NT Tel 01405 860905 Fax 01405 860149
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Website www.testcrete.co.uk email: info@testcrete.co.uk

Report No. 11031

R&M Developments Ltd.

Building 401 Demolition

Manchester Airport

PARTICLE SIZE DISTRIBUTION OF 6F2 FILL

Sampled by: MH Testcrete Sample date: 04.11.22

Location: Stockpile C

Description: Crushed stone

Results

Sieve size		% passing		Highways
(mm)	Sample C1	Sample C2	Average	Specification
125	100	100	100	100
90	100	100	100	80-100
75	100	100	100	65-100
37.5	50.8	83.0	66.9	45-100
20	38.2	41.8	40.0	
10	23.4	25.4	24.4	15-60
5	13.8	15.7	14.8	10-45
0.600	6.1	6.3	6.2	0-25
0.063	1.5	1.4	1.5	0-12

Moisture content as received (% by weight):

2.5 2.4 2.5

This material COMPLIES with the Highways Specification grading requirements for 6F2 fill.

Signed on behalf of Testcrete

Graham G. Rose

03.11.22

TESTCRETE
CONSTRUCTION TESTING LIMITED
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Report No. 11014

R&M Developments Ltd.

Building 401 Demolition

Manchester Airport

PARTICLE SIZE DISTRIBUTION OF 6F2 FILL

Sampled by: MH Testcrete Sample date: 26.10.22

Location: Stockpile 2

Results

Sieve size		% passing		Highways
(mm)	Sample 1	Sample2	Average	Specification
125	100	100	100	100
90	100	100	100	80-100
75	84.3	74.5	79.4	65-100
37.5	54.8	46.8	50.8	45-100
20	43.1	34.3	38.7	
10	27.8	23.1	25.5	15-60
5	19.5	16.9	18.2	10-45
0.600	11.3	9.5	10.4	0-25
0.063	1.8	1.6	1.7	0-12

Moisture content as received (% by weight):

6.5 6.7 6.6

This material COMPLIES with the Highways Specification grading requirements for 6F2 fill

Signed on behalf of Testcrete

Graham G. Rose

03.11.22

TESTCRETE
CONSTRUCTION TESTING LIMITED
Carlton Station, Goole, DN14 9NT Tel 01405 860905 Fax 01405 860149
Also at: Unit 14 Monde Trading Estate, Trafford Park, Manchester, M17 1LP
Website www.testcrete.co.uk email: info@testcrete.co.uk

Report No. 11015

R&M Developments Ltd.

Building 401 Demolition

Manchester Airport

PARTICLE SIZE DISTRIBUTION OF 6F2 FILL

Sampled by: MH Testcrete Sample date: 26.10.22

Location: Stockpile 3

Results

Sieve size		% passing		Highways
(mm)	Sample 1	Sample2	Average	Specification
125	100	100	100	100
90	100	100	100	80-100
75	70.5	100	85.3	65-100
37.5	49.2	49.7	49.5	45-100
20	29.1	29.5	29.3	
10	23.8	17.5	20.7	15-60
5	19.5	12.9	16.2	10-45
0.600	17.2	9.2	13.2	0-25
0.063	2.2	1.6	1.9	0-12

Moisture content as received (% by weight):

4.8	5.0	4.9

This material COMPLIES with the Highways Specification grading requirements for 6F2 fill

Signed on behalf of Testcrete

Graham G. Rose

03.11.22

TESTCRETE
CONSTRUCTION TESTING LIMITED
Carlton Station, Goole, DN14 9NT Tel 01405 860905 Fax 01405 860149
Also at: Unit 14 Monde Trading Estate, Trafford Park, Manchester, M17 1LP
Website www.testcrete.co.uk email: info@testcrete.co.uk

Report No. 11032

R&M Developments Ltd.

Building 401 Demolition

Manchester Airport

PARTICLE SIZE DISTRIBUTION OF 6F2 FILL

Sampled by: MH Testcrete Sample date: 04.11.22

Location: Stockpile F

Description: Crushed concrete

Results

Sieve size (mm)	% passing	Highways Specification
125	100	100
90	100	80-100
75	100	65-100
37.5	55.0	45-100
20	35.5	
10	25.5	15-60
5	18.1	10-45
0.600	7.3	0-25
0.063	1.6	0-12

Moisture content as received (% by weight):

7.6

This material COMPLIES with the Highways Specification grading requirements for 6F2 fill.

Signed on behalf of Testcrete

Graham G. Rose

03.11.22

TESTCRETE
CONSTRUCTION TESTING LIMITED
Carlton Station, Goole, DN14 9NT Tel 01405 860905 Fax 01405 860149
Also at: Unit 14 Monde Trading Estate, Trafford Park, Manchester, M17 1LP
Website www.testcrete.co.uk email: info@testcrete.co.uk

Plate Bearing Tests - Summary of Results

Client	R&M Developments Ltd.
Site	Building 401, Manchester Airport
Report No.	11306
Test Location	External slab area
Test Qty	12
Conditions	Dry
Operator	MH
Date	17.06.23
Kentledge	9T
Plate size (mm)	457
Materials	6F2

Test No.	Location	K762 Value (kN/m²/m)	CBR (%)
1	CBR 5	74105	16.8
2	CBR 12	109402	33.0
3	CBR 18	138692	49.7
4	CBR 24	159298	63.2
5	CBR 25	113282	35.0
6	CBR 19	133364	46.5
7	CBR 13	159482	63.3
8	CBR 6	112851	34.8
9	CBR 7	171648	71.9
10	CBR 14	159667	63.5
11	CBR 20	169400	70.3
12	CBR 26	145376	53.9

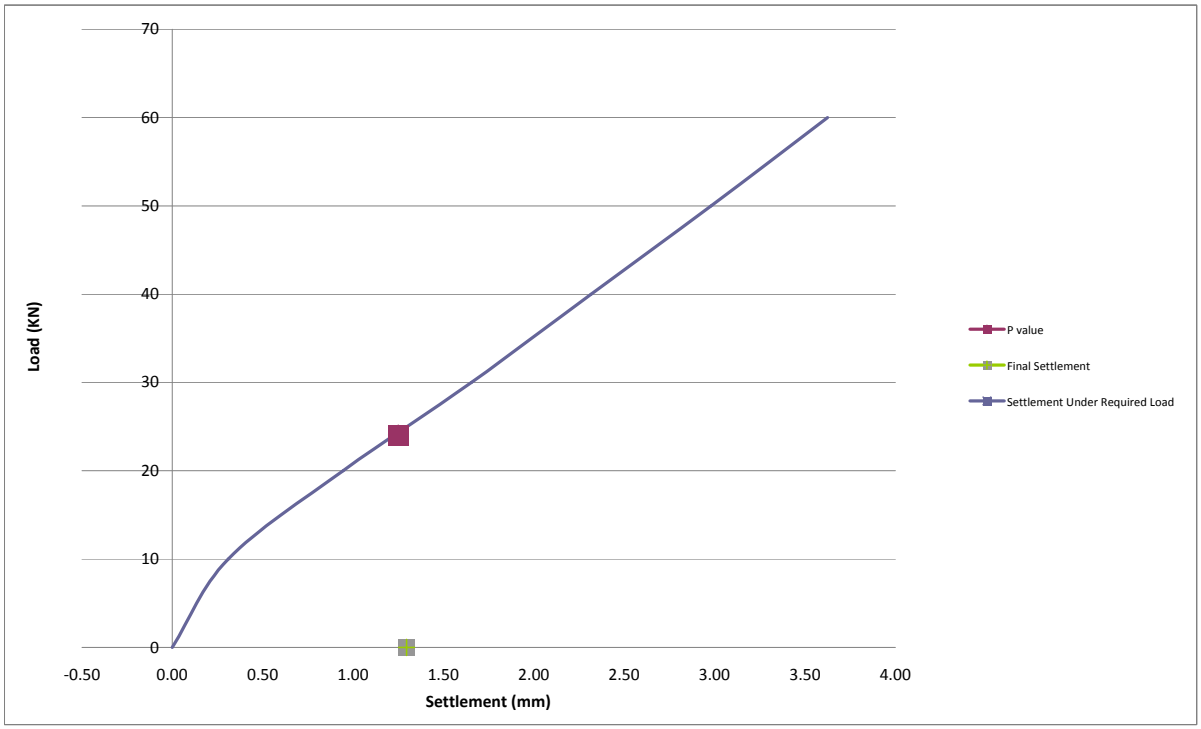
Signed: Graham Rose **Date:** 19.06.23
on behalf of Testcrete Construction Testing Ltd

TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401, Manchester Airport
Test Location	CBR 5
Test No	1
Conditions	Dry
Operator	MH
Date	17.06.23
Kentledge	9T
Materials	6F2
Plate Size (mm)	457
Settlement	1.25
Interpolation point	24.06
Value	3.08
K762	74105
Required Pressure (kN/m²) 1	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	16.8

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	22	40	0.31
20	69	120	0.95
30	150	181	1.66
40	196	267	2.32
50	225	371	2.98
60	265	460	3.63
Final Settlement	107	152	1.30

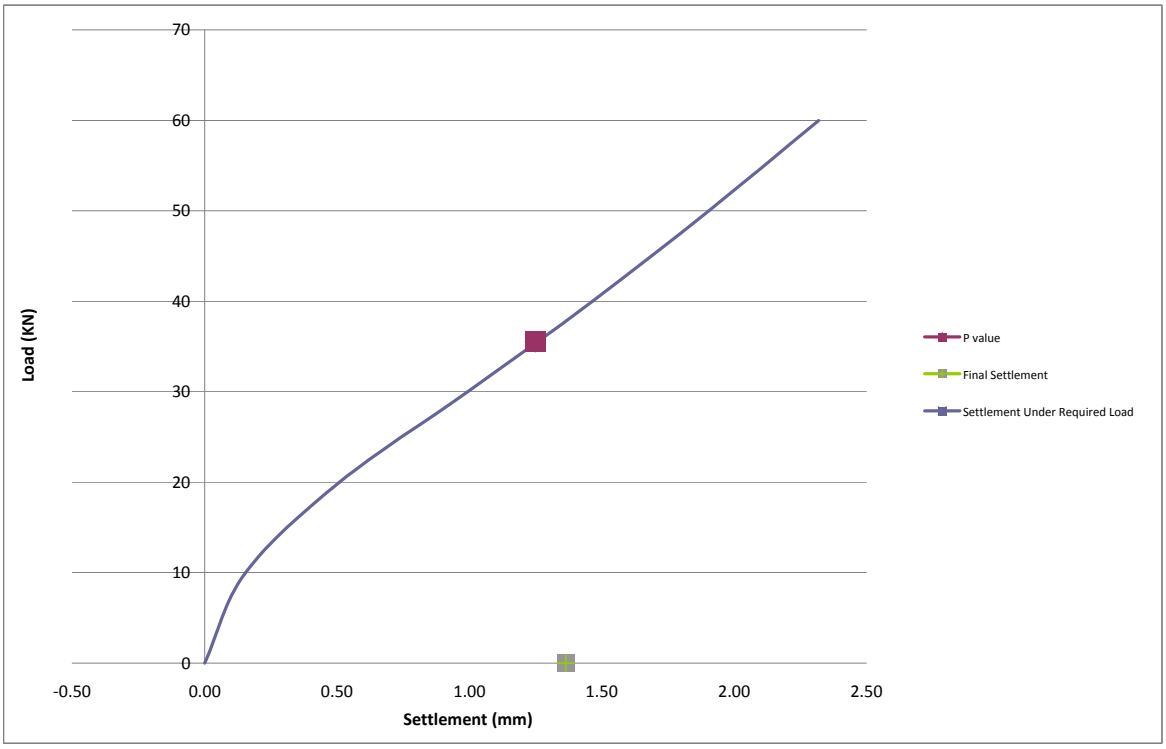


TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401, Manchester Airport
Test Location	CBR 12
Test No	2
Conditions	Dry
Operator	MH
Date	17.06.23
Kentledge	9T
Materials	6F2
Plate Size (mm)	457
Settlement	1.25
Interpolation point	35.52
Value	3.08
K762	109402
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	33.0

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	16	15	0.16
20	55	47	0.51
30	113	86	1.00
40	163	130	1.47
50	226	155	1.91
60	279	185	2.32
Final Settlement			
	216	57	1.37

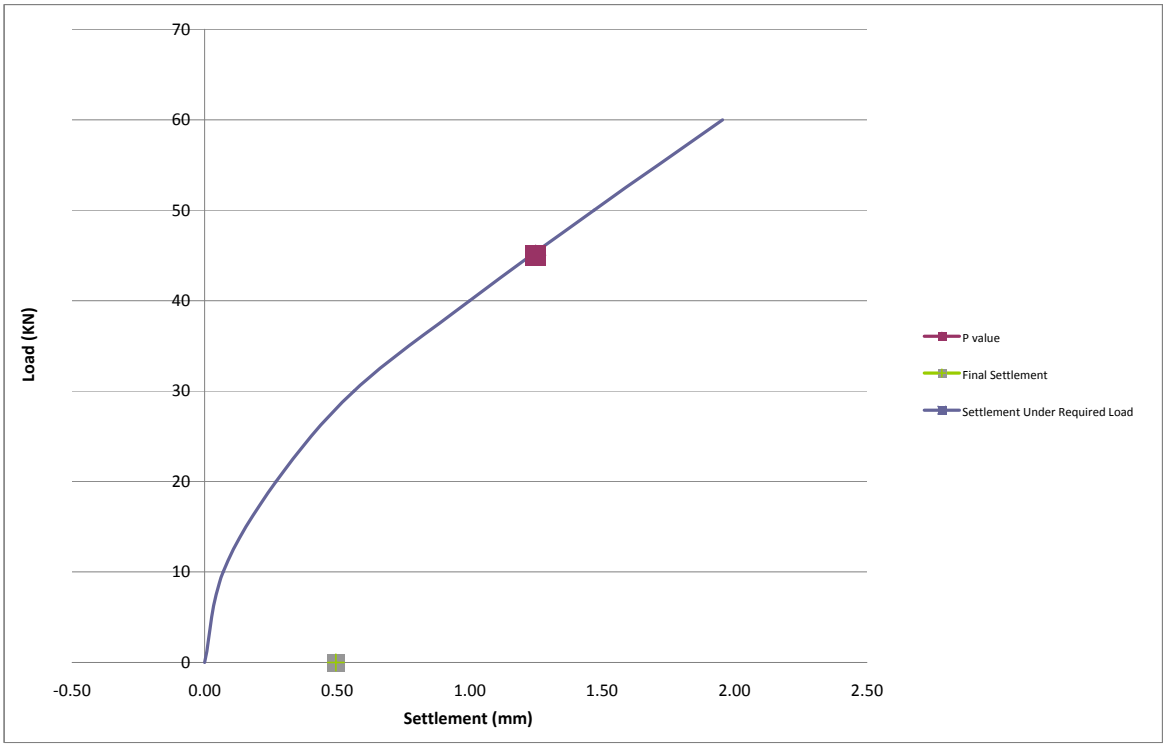


TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401, Manchester Airport
Test Location	CBR 18
Test No	3
Conditions	Dry
Operator	MH
Date	17.06.23
Kentledge	9T
Materials	6F2
Plate Size (mm)	457
Settlement	1.25
Interpolation point	45.03
Value	3.08
K762	138692
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	49.7

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	7	7	0.07
20	32	22	0.27
30	68	45	0.57
40	115	85	1.00
50	169	125	1.47
60	225	166	1.96
Final Settlement			
	65	34	0.50

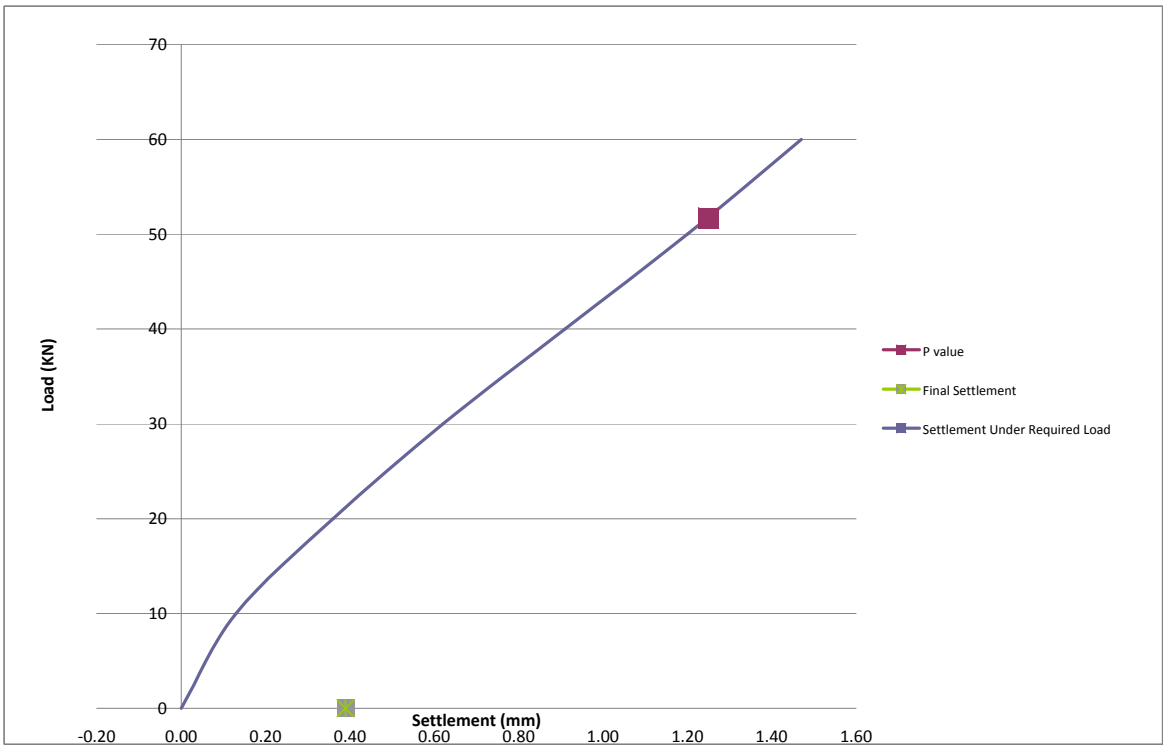


TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401, Manchester Airport
Test Location	CBR 24
Test No	4
Conditions	Dry
Operator	MH
Date	17.06.23
Kentledge	9T
Materials	6F2
Plate Size (mm)	457
Settlement	1.25
Interpolation point	51.72
Value	3.08
K762	159298
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	63.2

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	10	16	0.13
20	32	40	0.36
30	52	72	0.62
40	72	110	0.91
50	109	131	1.20
60	134	160	1.47
Final Settlement			
	41	37	0.39



TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401, Manchester Airport
Test Location	CBR 25
Test No	5
Conditions	Dry
Operator	MH
Date	17.06.23
Kentledge	9T
Materials	6F2
Plate Size (mm)	457
Settlement	1.25
Interpolation point	36.78
Value	3.08
K762	113282
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	35.0

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	28	24	0.26
20	61	70	0.66
30	102	102	1.02
40	139	136	1.38
50	176	170	1.73
60	206	199	2.03
Final Settlement			
	102	110	1.06

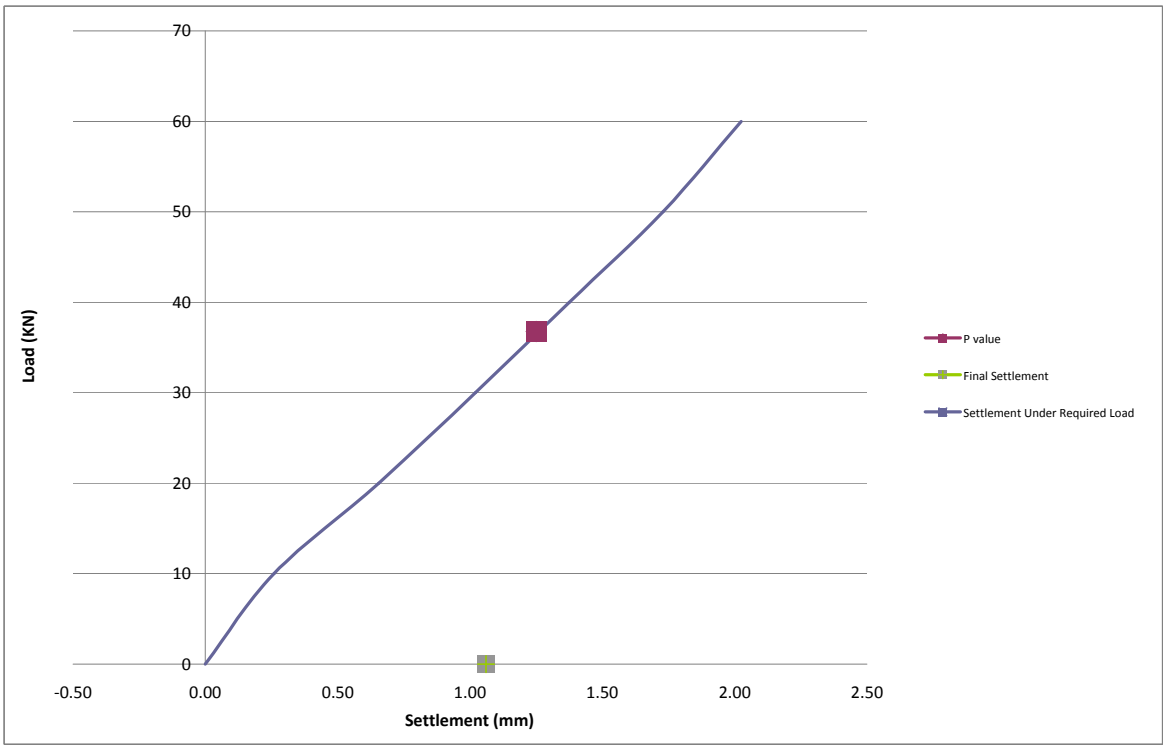


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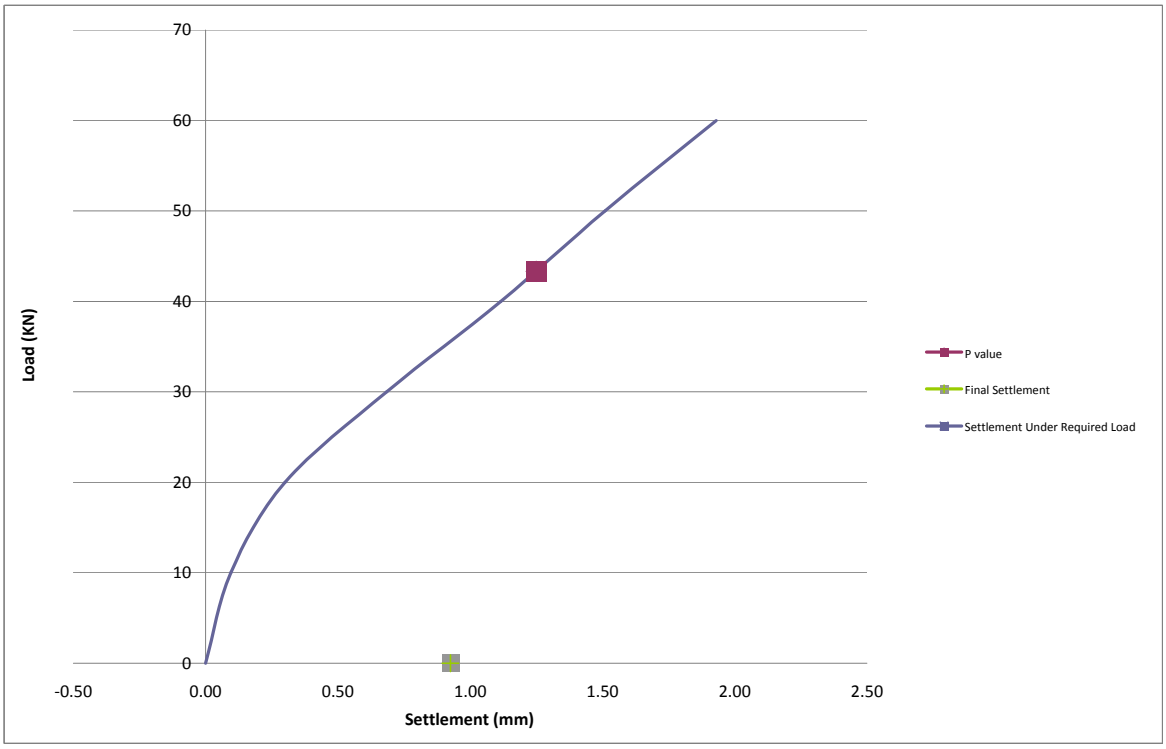
Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401, Manchester Airport
Test Location	CBR 19
Test No	6
Conditions	Dry
Operator	MH
Date	17.06.23
Kentledge	9T
Materials	6F2
Plate Size (mm)	457
Settlement	1.25
Interpolation point	43.30
Value	3.08
K762	133364
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	46.5

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	9	10	0.10
20	25	35	0.30
30	63	74	0.69
40	111	112	1.12
50	143	159	1.51
60	184	202	1.93
Final Settlement			
	103	82	0.93

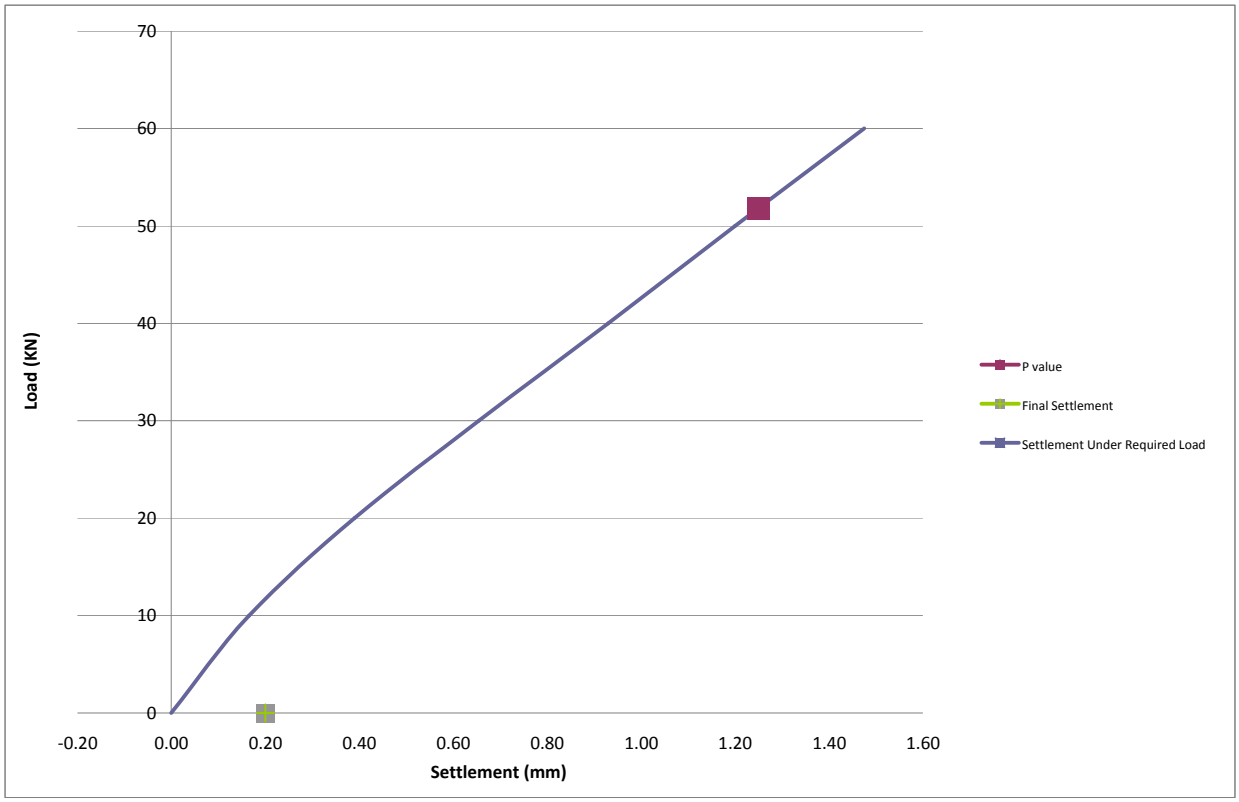


TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401, Manchester Airport
Test Location	CBR 13
Test No	7
Conditions	Dry
Operator	MH
Date	17.06.23
Kentledge	9T
Materials	6F2
Plate Size (mm)	457
Settlement	1.25
Interpolation point	51.78
Value	3.08
K762	159482
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	63.3

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	22	11	0.17
20	50	28	0.39
30	75	56	0.66
40	102	84	0.93
50	126	114	1.20
60	152	143	1.48
Final Settlement			
	29	11	0.20

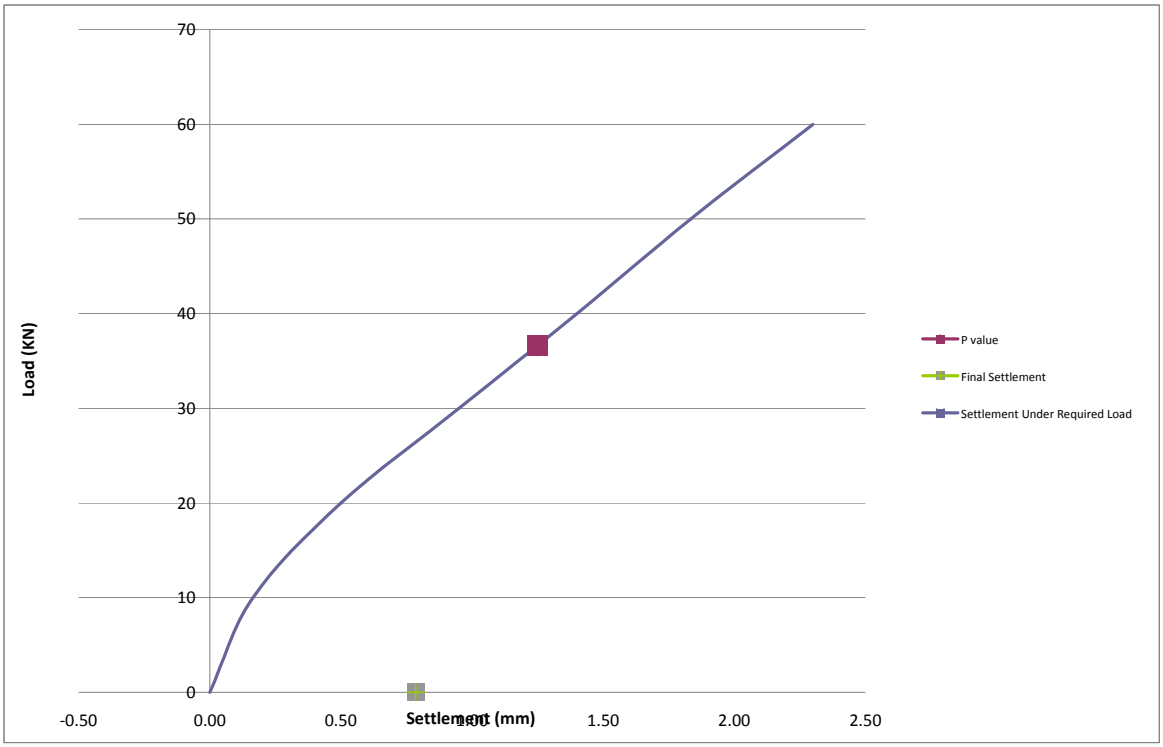


TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401, Manchester Airport
Test Location	CBR 6
Test No	8
Conditions	Dry
Operator	MH
Date	17.06.23
Kentledge	9T
Materials	6F2
Plate Size (mm)	457
Settlement	1.25
Interpolation point	36.64
Value	3.08
K762	112851
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	34.8

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	16	17	0.17
20	48	52	0.50
30	92	98	0.95
40	136	144	1.40
50	173	194	1.84
60	216	244	2.30
Final Settlement			
	80	77	0.79



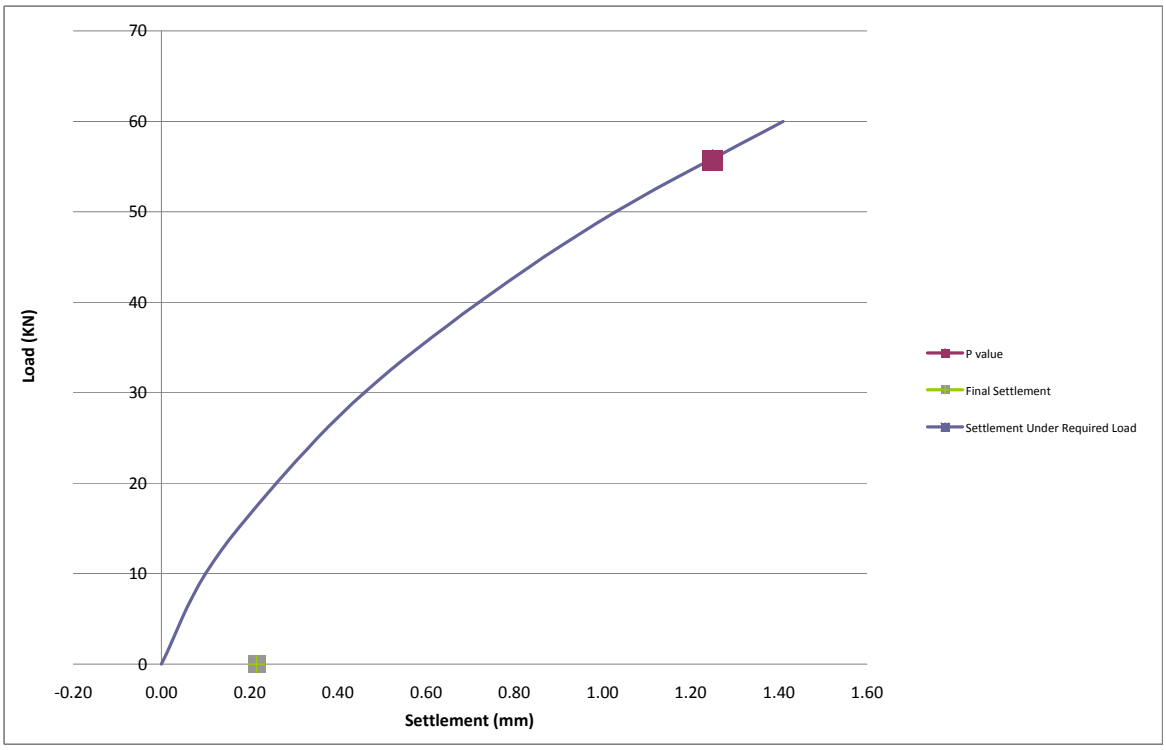
Remarks

TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401, Manchester Airport
Test Location	CBR 7
Test No	9
Conditions	Dry
Operator	MH
Date	17.06.23
Kentledge	9T
Materials	6F2
Plate Size (mm)	457
Settlement	1.25
Interpolation point	55.73
Value	3.08
K762	171648
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	71.9

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	10	10	0.10
20	27	25	0.26
30	45	47	0.46
40	68	76	0.72
50	100	106	1.03
60	130	152	1.41
Final Settlement			
	30	13	0.22



TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401, Manchester Airport
Test Location	CBR 14
Test No	10
Conditions	Dry
Operator	MH
Date	17.06.23
Kentledge	9T
Materials	6F2
Plate Size (mm)	457
Settlement	1.25
Interpolation point	51.84
Value	3.08
K762	159667
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	63.5

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	13	10	0.12
20	41	32	0.37
30	74	56	0.65
40	111	77	0.94
50	133	107	1.20
60	163	132	1.48
Final Settlement			
	67	47	0.57

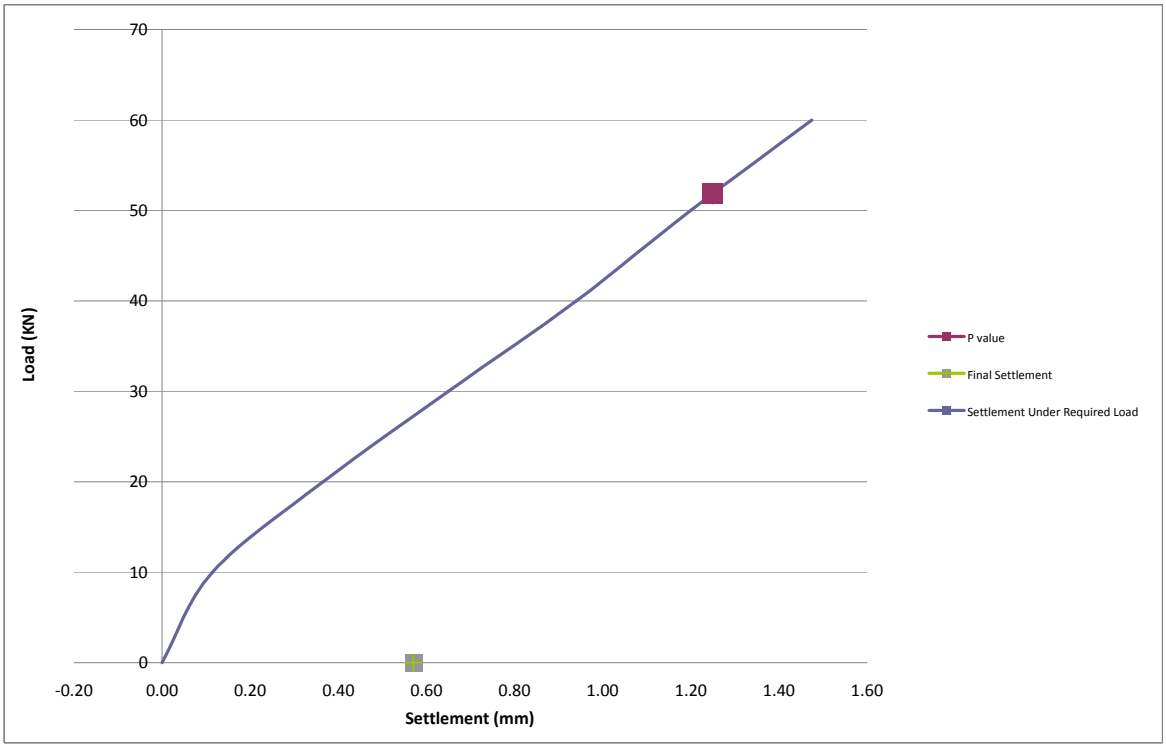


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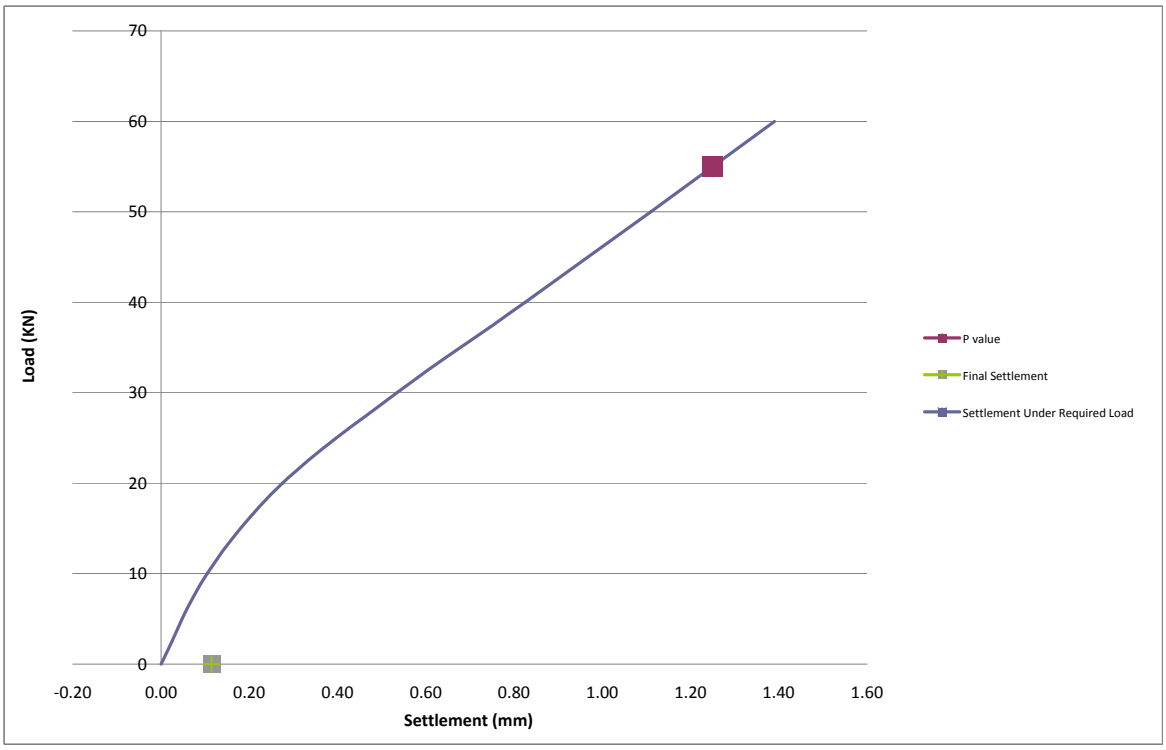
Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401, Manchester Airport
Test Location	CBR 20
Test No	11
Conditions	Dry
Operator	MH
Date	17.06.23
Kentledge	9T
Materials	6F2
Plate Size (mm)	457
Settlement	1.25
Interpolation point	55.00
Value	3.08
K762	169400
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	70.3

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	14	7	0.11
20	30	25	0.28
30	60	47	0.54
40	85	80	0.83
50	116	106	1.11
60	146	132	1.39
Final Settlement			
	15	8	0.12

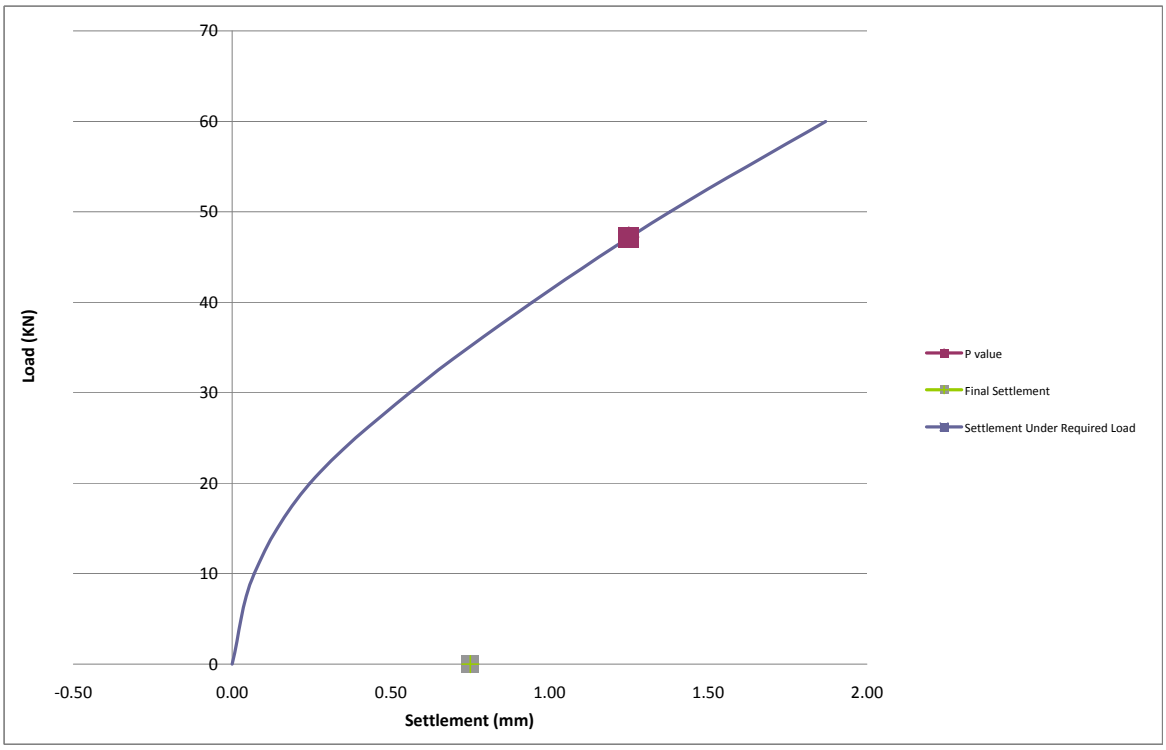


TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401, Manchester Airport
Test Location	CBR 26
Test No	12
Conditions	Dry
Operator	MH
Date	17.06.23
Kentledge	9T
Materials	6F2
Plate Size (mm)	457
Settlement	1.25
Interpolation point	47.20
Value	3.08
K762	145376
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	53.9

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	5	9	0.07
20	22	27	0.25
30	55	57	0.56
40	78	111	0.95
50	116	160	1.38
60	154	220	1.87
Final Settlement			
	39	111	0.75



TESTCRETE
CONSTRUCTION TESTING LIMITED
Carlton Station, Goole, DN14 9NT Tel 01405 860905 Fax 01405 860149
Also at: Unit 14 Monde Trading Estate, Trafford Park, Manchester, M17 1LP
Website www.testcrete.co.uk email: info@testcrete.co.uk

Plate Bearing Tests - Summary of Results

Client	R&M Developments Ltd.
Site	Building 401, Manchester Airport
Report No.	11281
Test Location	Car Park as directed
Test Qty	11
Conditions	Dry
Operator	MH
Date	31.05.23
Kentledge	8T
Plate size (mm)	457
Materials	6F2

Test No.	Location	K762 Value (kN/m²/m)	CBR (%)
1	32	46816	7.6
2	38	60984	12.0
3	44	63140	12.7
4	31	137183	48.8
5	37	167244	68.8
6	43	126896	42.6
7	49	102256	29.3
8	30	113313	35.0
9	36	146608	54.7
10	42	167552	69.0
11	48	145438	54.0

Note:

Signed: Graham Rose **Date:** 31.05.23
on behalf of Testcrete Construction Testing Ltd

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Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401, Manchester Airport
Test Location	32
Test No	1
Conditions	Dry
Operator	MH
Date	31.05.23
Kentledge	8T
Materials	6F2
Plate Size (mm)	457
Settlement	1.25
Interpolation point	15.20
Value	3.08
K762	46816
Required Pressure (kN/m²) 1	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	7.6

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	62	60	0.61
20	218	202	2.10
30	499	467	4.83
40	810	742	7.76
50	1048	971	10.10
60	1240	1182	12.11
Final Settlement	625	552	5.89

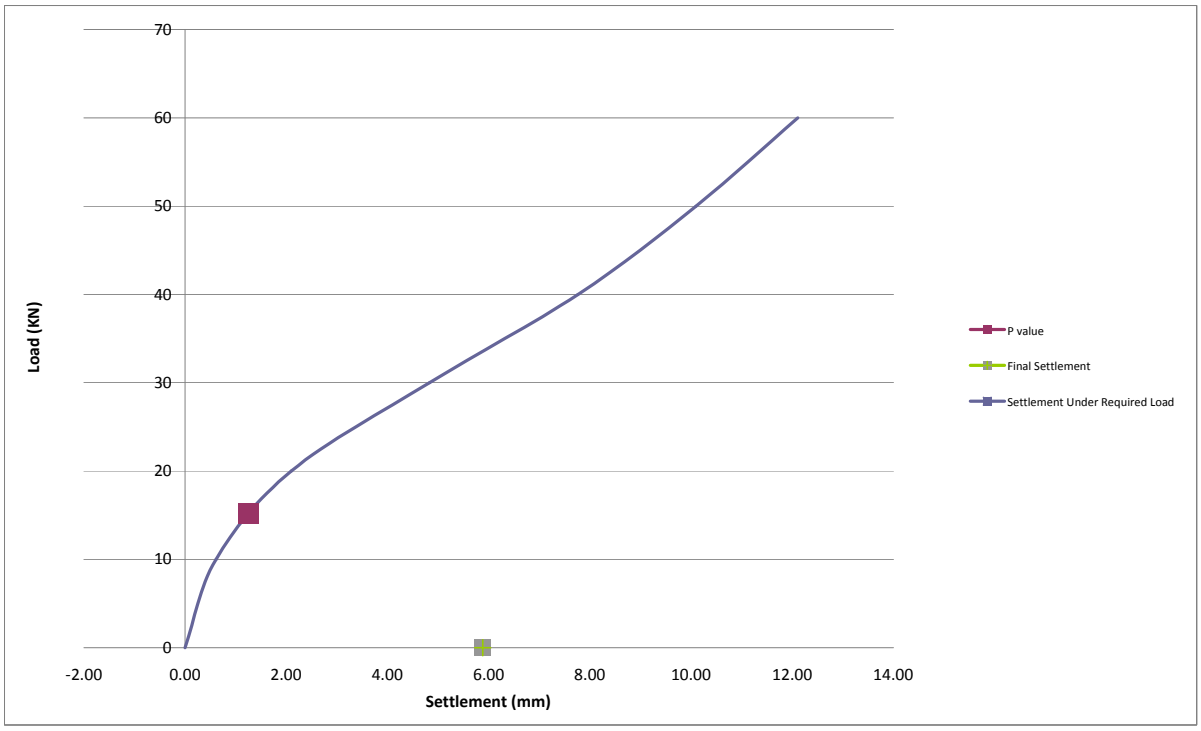

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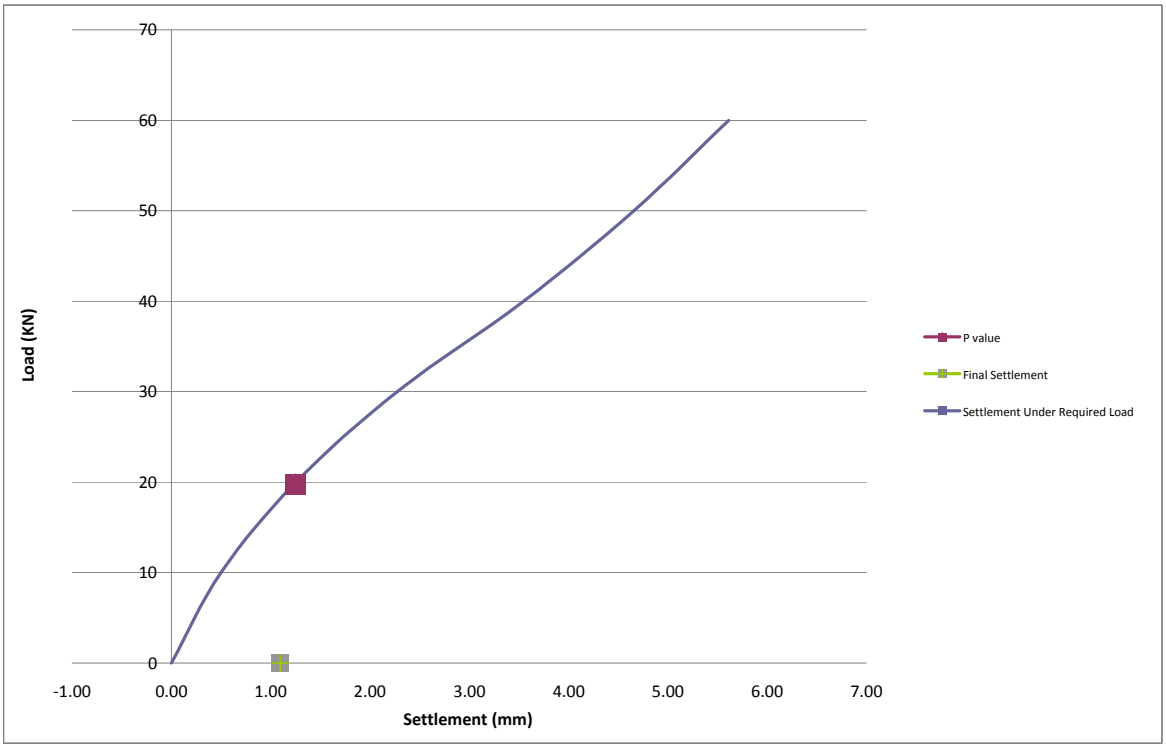
Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401, Manchester Airport
Test Location	38
Test No	2
Conditions	Dry
Operator	MH
Date	31.05.23
Kentledge	8T
Materials	6F2
Plate Size (mm)	457
Settlement	1.25
Interpolation point	19.80
Value	3.08
K762	60984
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	12.0

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	53	47	0.50
20	129	122	1.26
30	234	221	2.28
40	365	344	3.55
50	450	482	4.66
60	541	582	5.62
Final Settlement			
	88	131	1.10

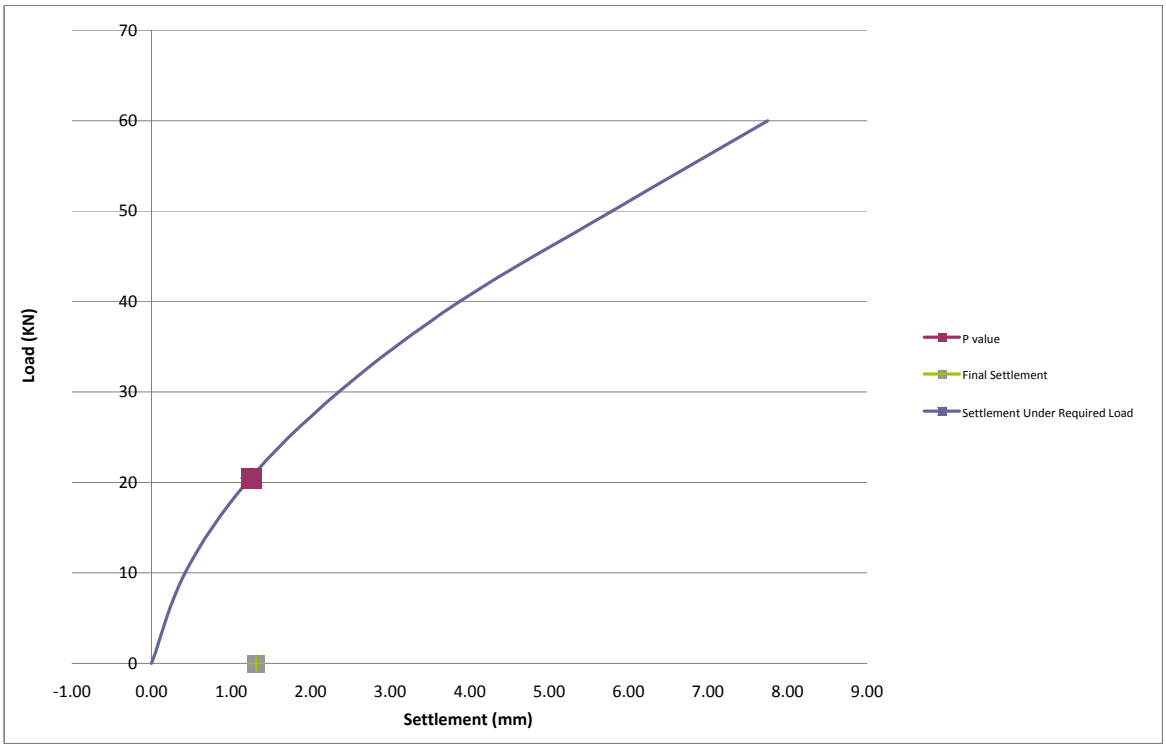


TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401, Manchester Airport
Test Location	44
Test No	3
Conditions	Dry
Operator	MH
Date	31.05.23
Kentledge	8T
Materials	6F2
Plate Size (mm)	457
Settlement	1.25
Interpolation point	20.50
Value	3.08
K762	63140
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	12.7

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	44	40	0.42
20	122	117	1.20
30	236	235	2.36
40	387	388	3.88
50	569	590	5.80
60	755	795	7.75
Final Settlement			
	121	142	1.32

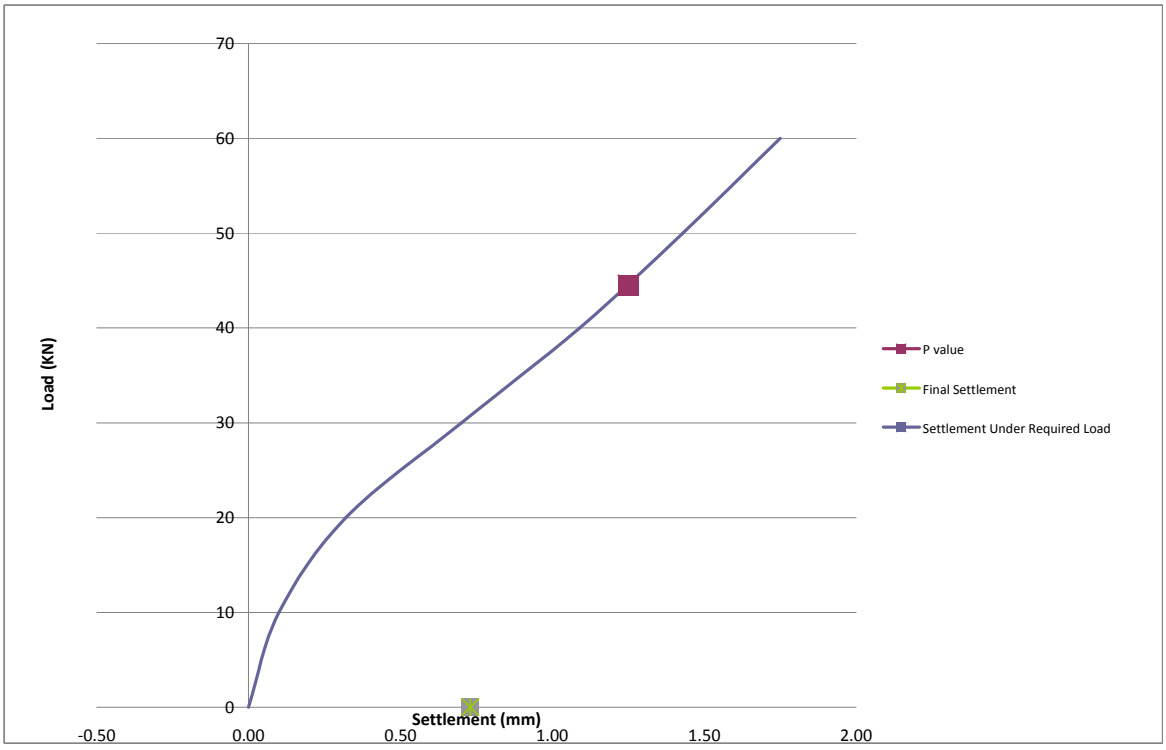


TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401, Manchester Airport
Test Location	31
Test No	4
Conditions	Dry
Operator	MH
Date	31.05.23
Kentledge	8T
Materials	6F2
Plate Size (mm)	457
Settlement	1.25
Interpolation point	44.54
Value	3.08
K762	137183
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	48.8

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	10	10	0.10
20	36	28	0.32
30	78	62	0.70
40	105	113	1.09
50	144	142	1.43
60	168	182	1.75
Final Settlement			
	64	82	0.73



TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401, Manchester Airport
Test Location	37
Test No	5
Conditions	Dry
Operator	MH
Date	31.05.23
Kentledge	8T
Materials	6F2
Plate Size (mm)	457
Settlement	1.25
Interpolation point	54.30
Value	3.08
K762	167244
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	68.8

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	6	12	0.09
20	22	33	0.28
30	48	63	0.56
40	78	92	0.85
50	106	121	1.14
60	136	139	1.38
Final Settlement			
	48	60	0.54

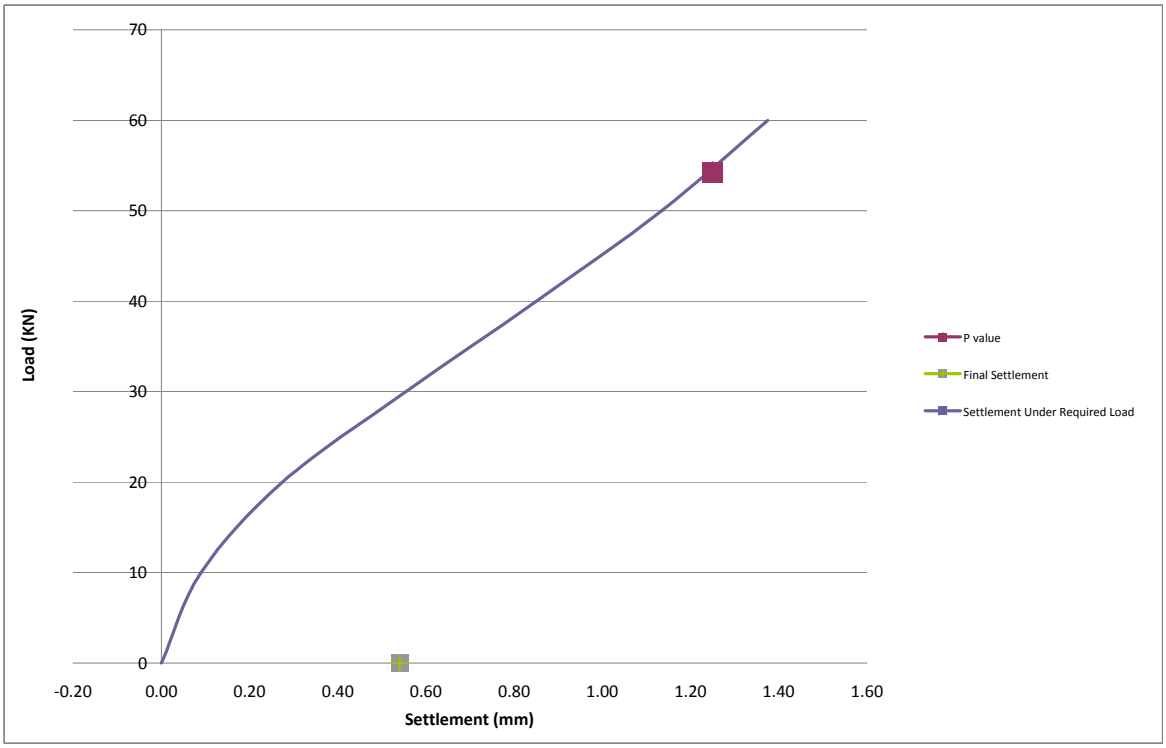


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Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401, Manchester Airport
Test Location	43
Test No	6
Conditions	Dry
Operator	MH
Date	31.05.23
Kentledge	8T
Materials	6F2
Plate Size (mm)	457
Settlement	1.25
Interpolation point	41.20
Value	3.08
K762	126896
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	42.6

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	15	10	0.13
20	37	39	0.38
30	82	74	0.78
40	116	124	1.20
50	151	162	1.57
60	185	190	1.88
Final Settlement			
	50	62	0.56

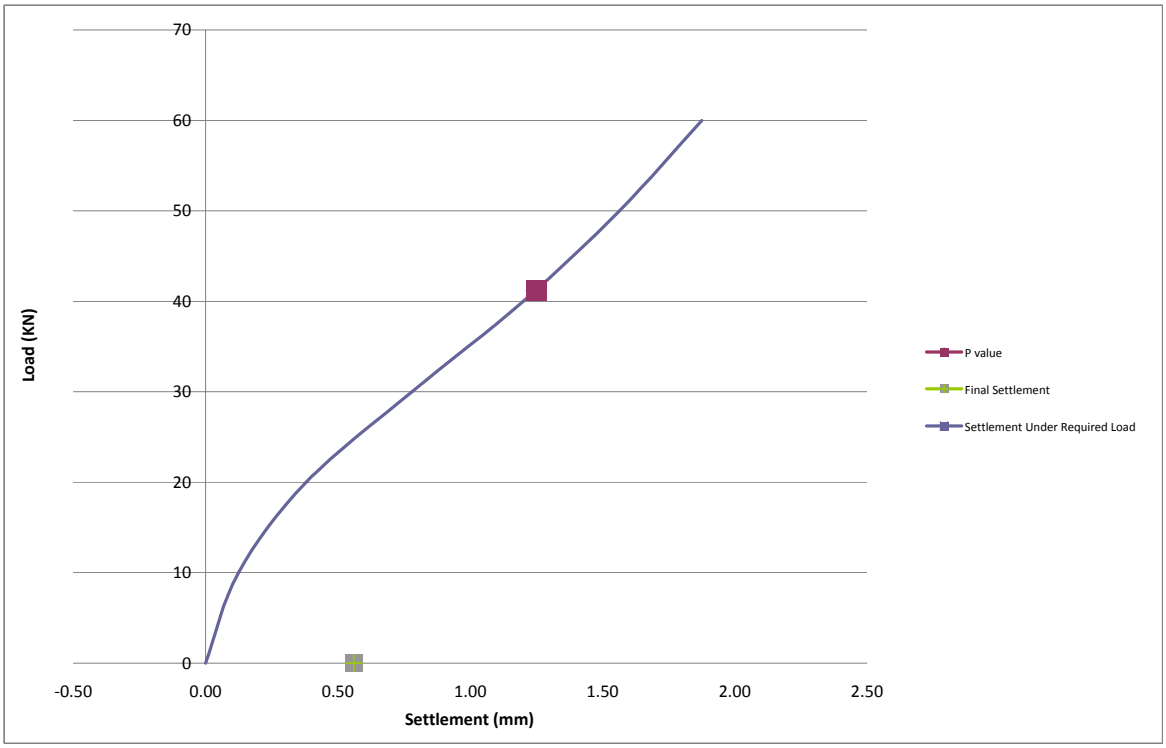

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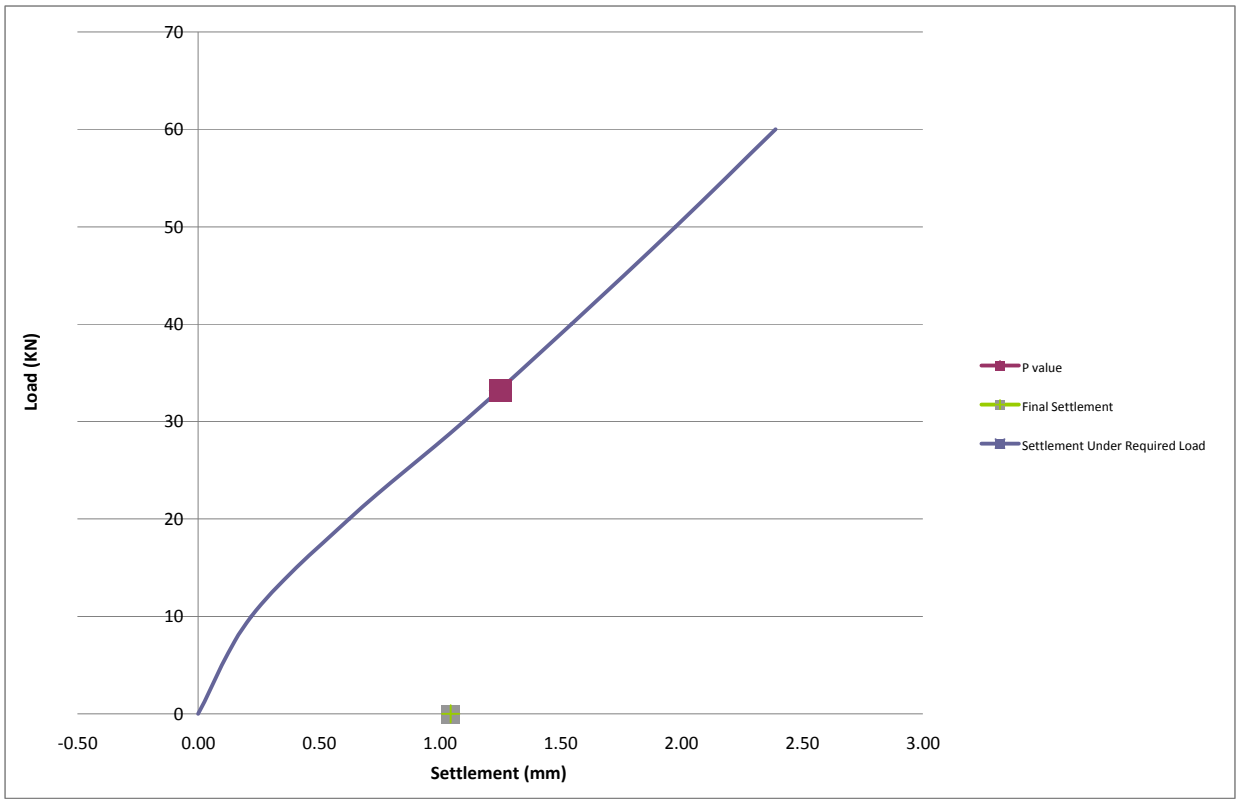
Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401, Manchester Airport
Test Location	49
Test No	7
Conditions	Dry
Operator	MH
Date	31.05.23
Kentledge	8T
Materials	6F2
Plate Size (mm)	457
Settlement	1.25
Interpolation point	33.20
Value	3.08
K762	102256
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	29.3

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	20	24	0.22
20	64	61	0.63
30	102	118	1.10
40	142	167	1.55
50	173	222	1.98
60	206	272	2.39
Final Settlement			
	88	121	1.05

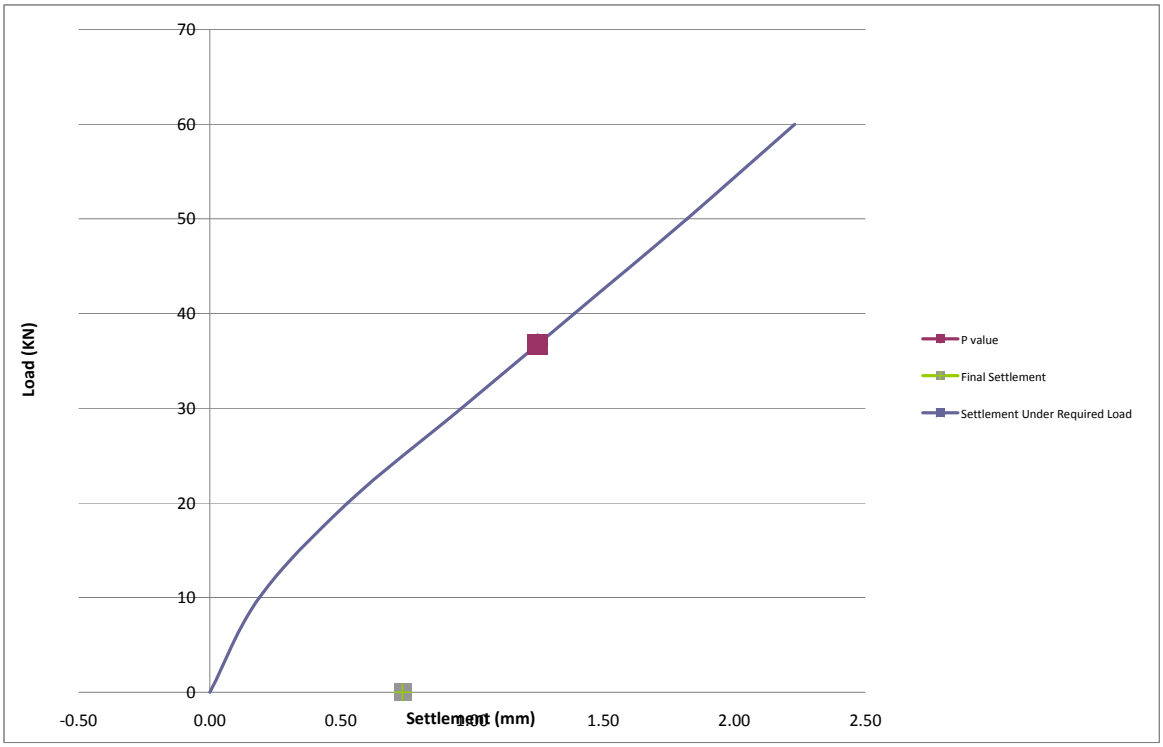


TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401, Manchester Airport
Test Location	30
Test No	8
Conditions	Dry
Operator	MH
Date	31.05.23
Kentledge	8T
Materials	6F2
Plate Size (mm)	457
Settlement	1.25
Interpolation point	36.79
Value	3.08
K762	113313
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	35.0

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	18	20	0.19
20	55	50	0.53
30	97	95	0.96
40	138	140	1.39
50	163	201	1.82
60	196	250	2.23
Final Settlement			
	60	87	0.74



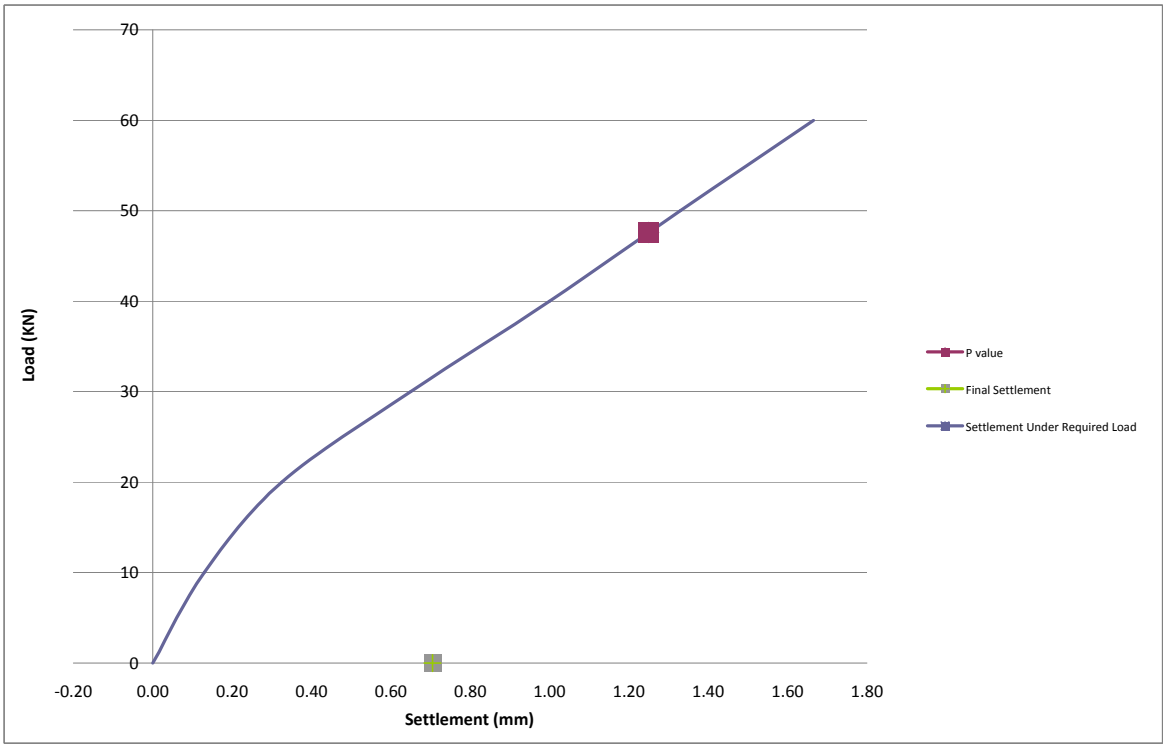
Remarks

TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401, Manchester Airport
Test Location	36
Test No	9
Conditions	Dry
Operator	MH
Date	31.05.23
Kentledge	8T
Materials	6F2
Plate Size (mm)	457
Settlement	1.25
Interpolation point	47.60
Value	3.08
K762	146608
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	54.7

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	14	12	0.13
20	32	33	0.33
30	65	65	0.65
40	104	96	1.00
50	134	132	1.33
60	168	165	1.67
Final Settlement			
	75	66	0.71

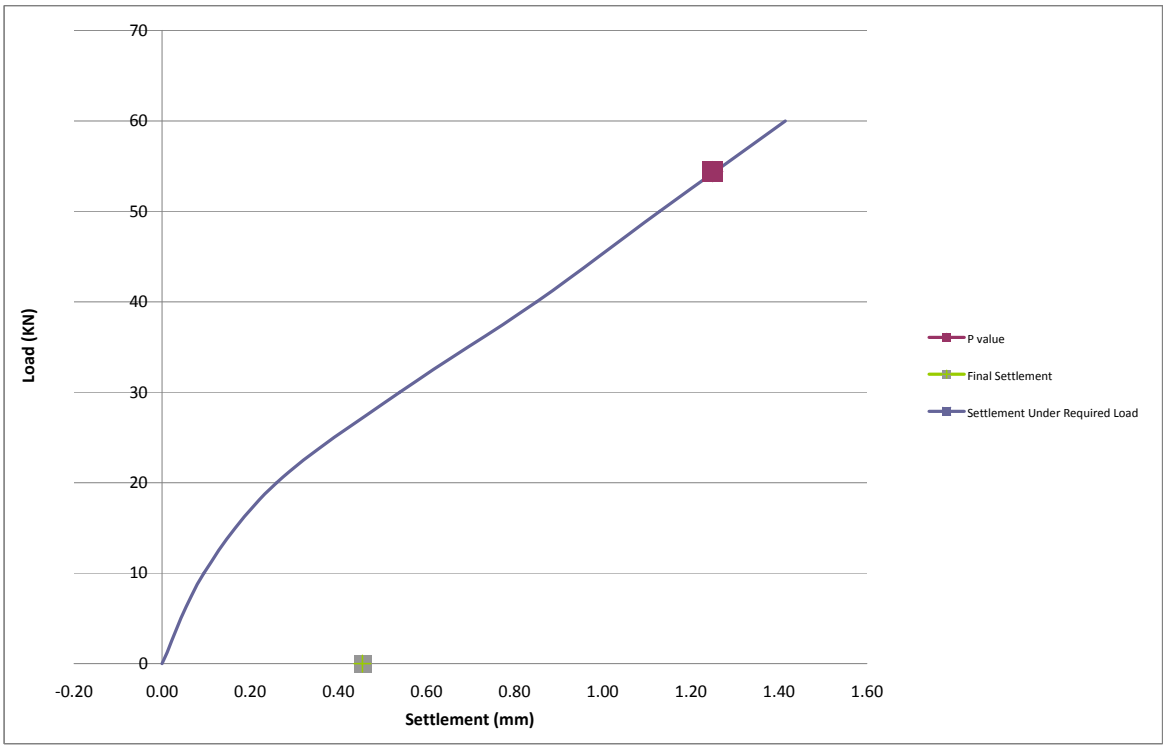


TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401, Manchester Airport
Test Location	42
Test No	10
Conditions	Dry
Operator	MH
Date	31.05.23
Kentledge	8T
Materials	6F2
Plate Size (mm)	457
Settlement	1.25
Interpolation point	54.40
Value	3.08
K762	167552
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	69.0

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	10	9	0.10
20	26	26	0.26
30	64	44	0.54
40	91	79	0.85
50	120	106	1.13
60	145	138	1.42
Final Settlement			
	70	21	0.46

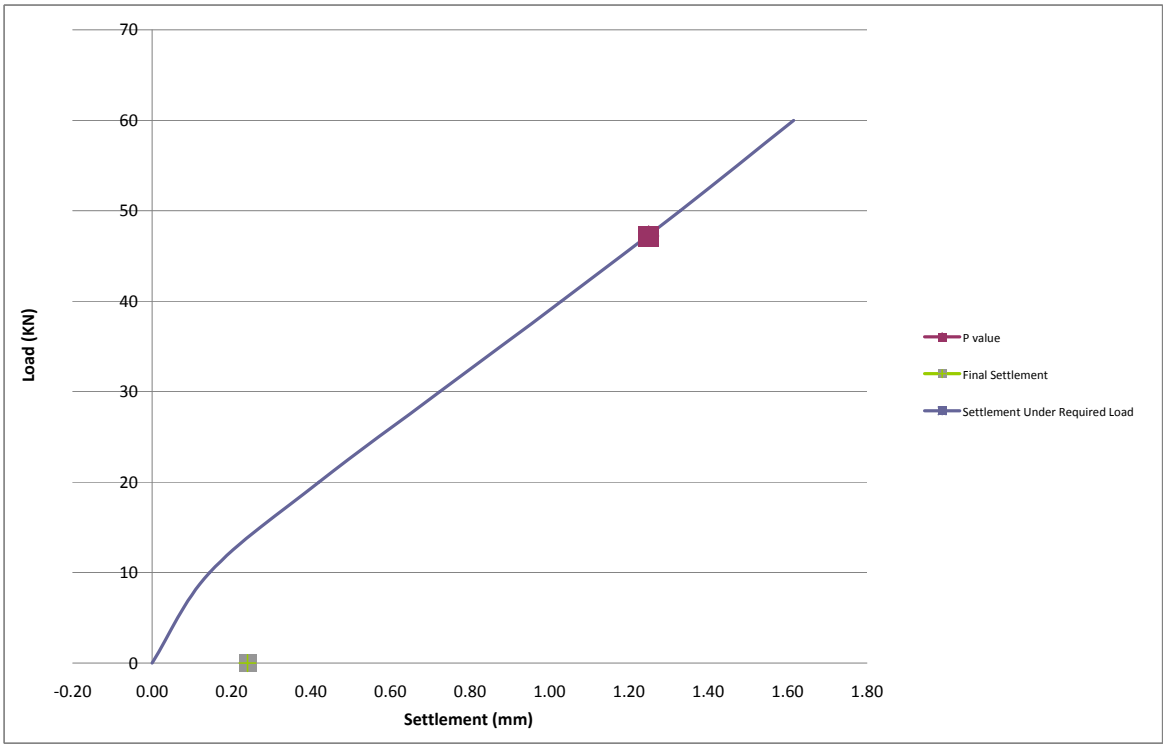


TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd.
Site	Building 401, Manchester Airport
Test Location	48
Test No	11
Conditions	Dry
Operator	MH
Date	31.05.23
Kentledge	8T
Materials	6F2
Plate Size (mm)	457
Settlement	1.25
Interpolation point	47.22
Value	3.08
K762	145438
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	54.0

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	14	15	0.15
20	40	44	0.42
30	72	73	0.73
40	108	98	1.03
50	141	125	1.33
60	165	158	1.62
Final Settlement			
	18	30	0.24



TESTCRETE
CONSTRUCTION TESTING LIMITED
Carlton Station, Goole, DN14 9NT Tel 01405 860905 Fax 01405 860149
Also at: Unit 14 Monde Trading Estate, Trafford Park, Manchester, M17 1LP
Website www.testcrete.co.uk email: info@testcrete.co.uk

Plate Bearing Tests - Summary of Results

Client	R&M Developments Ltd
Site	Building 401, Manchester Airport
Report No.	11260
Test Location	Formation as directed
Test Qty	12
Conditions	Dry
Operator	MH
Date	16.05.23
Kentledge	7T
Plate size (mm)	457
Materials	see graphs

Test No.	Location	K762 Value (kN/m²/m)	CBR (%)
1	4	141064	51.2
2	5	76138	17.6
3	6	141680	51.6
4	3	127512	43.0
5	2	145992	54.3
6	1	144822	53.6
7	4a	172480	72.5
8	6a	174574	74.1
9	3a	170416	71.0
10	2a	156772	61.5
11	5a	133056	46.3
12	1a	172480	72.5

Note:

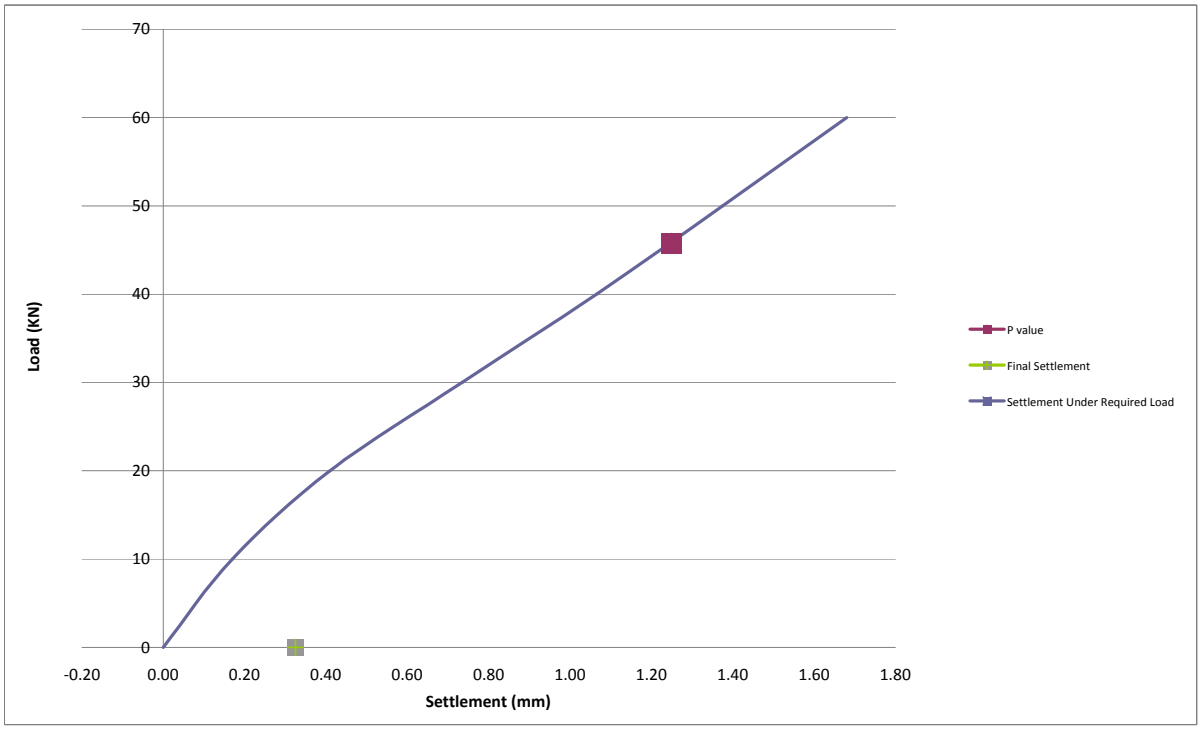
Signed: Graham Rose **Date:** 17.05.23
on behalf of Testcrete Construction Testing Ltd

TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd
Site	Building 401, Manchester Airport
Test Location	4
Test No	1
Conditions	Dry
Operator	MH
Date	16.05.23
Kentledge	7T
Materials	6F2
Plate Size (mm)	457
Settlement	1.25
Interpolation point	45.80
Value	3.08
K762	141064
Required Pressure (kN/m²) 1	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	51.2

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	15	19	0.17
20	38	44	0.41
30	70	77	0.74
40	104	109	1.07
50	135	140	1.38
60	164	172	1.68
Final Settlement	26	39	0.33

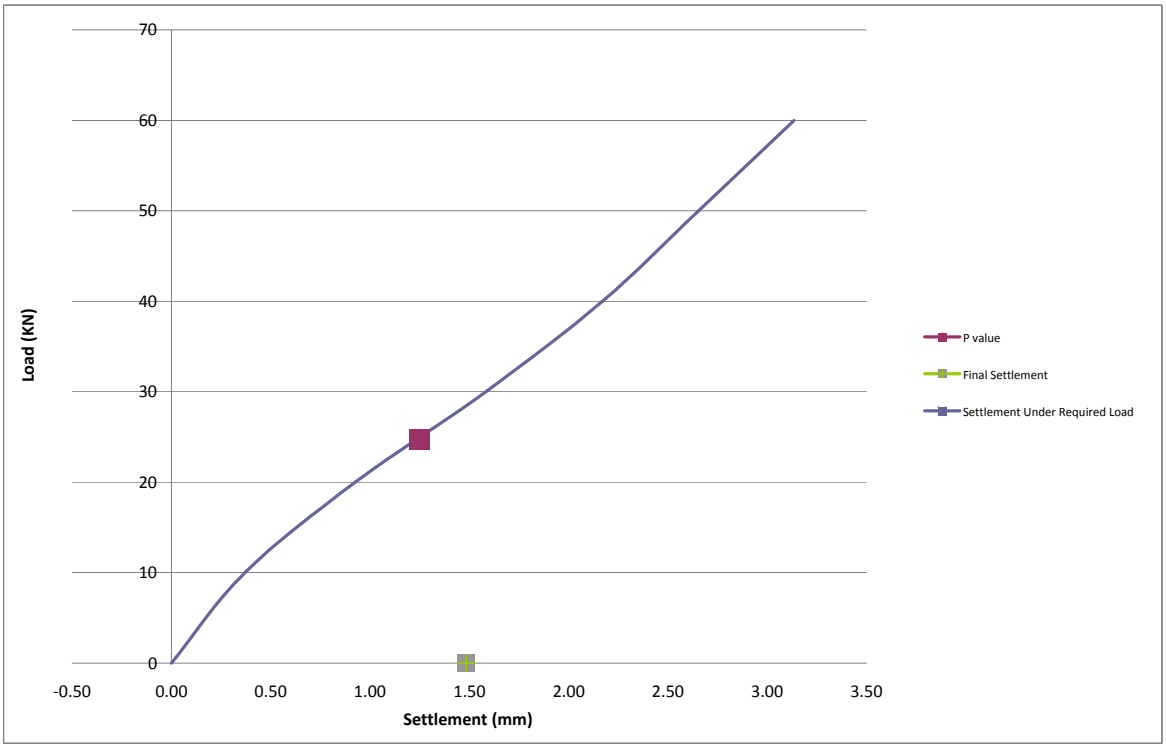


TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd
Site	Building 401, Manchester Airport
Test Location	5
Test No	2
Conditions	Dry
Operator	MH
Date	16.05.23
Kentledge	7T
Materials	recycled MoT
Plate Size (mm)	457
Settlement	1.25
Interpolation point	24.72
Value	3.08
K762	76138
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	17.6

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	34	40	0.37
20	95	90	0.93
30	160	157	1.59
40	216	218	2.17
50	260	271	2.66
60	306	321	3.14
Final Settlement			
	145	152	1.49

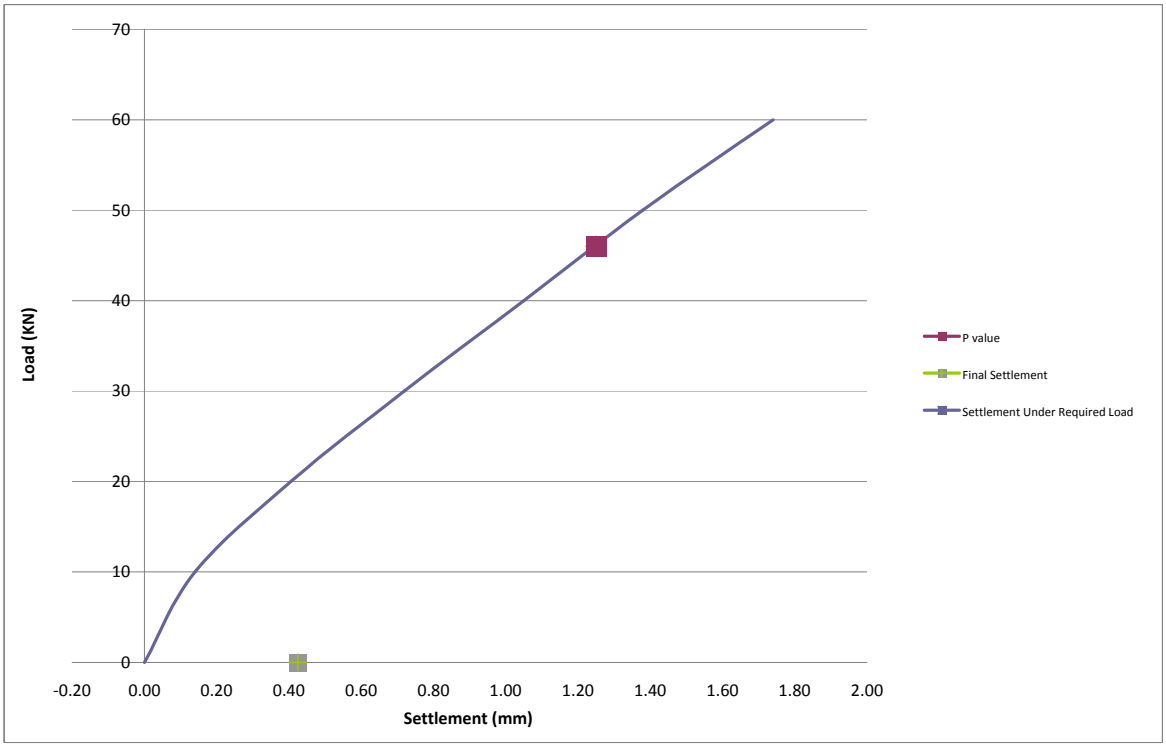


TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd
Site	Building 401, Manchester Airport
Test Location	6
Test No	3
Conditions	Dry
Operator	MH
Date	16.05.23
Kentledge	7T
Materials	recycled MoT
Plate Size (mm)	457
Settlement	1.25
Interpolation point	46.00
Value	3.08
K762	141680
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	51.6

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	13	15	0.14
20	38	43	0.41
30	70	74	0.72
40	106	104	1.05
50	142	134	1.38
60	175	173	1.74
Final Settlement			
	51	34	0.43

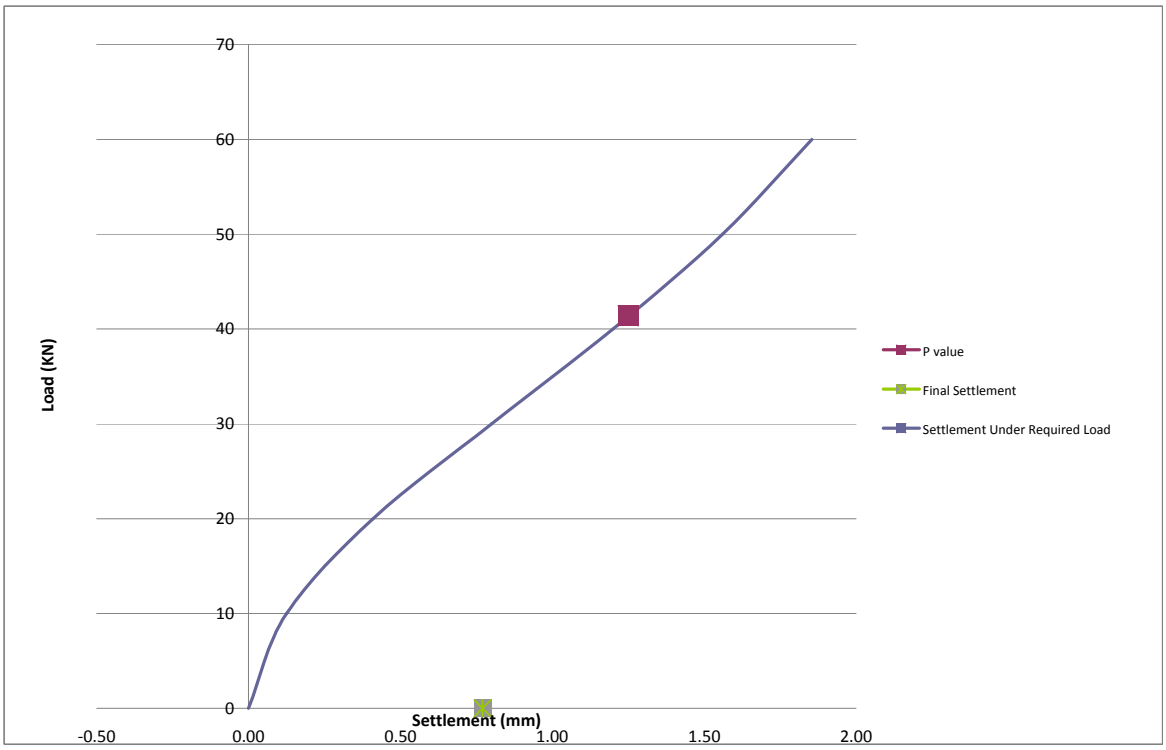


TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd
Site	Building 401, Manchester Airport
Test Location	3
Test No	4
Conditions	Dry
Operator	MH
Date	16.05.23
Kentledge	7T
Materials	recycled MoT
Plate Size (mm)	457
Settlement	1.25
Interpolation point	41.40
Value	3.08
K762	127512
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	43.0

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	10	15	0.13
20	38	44	0.41
30	73	87	0.80
40	110	130	1.20
50	145	167	1.56
60	173	198	1.86
Final Settlement			
	72	82	0.77

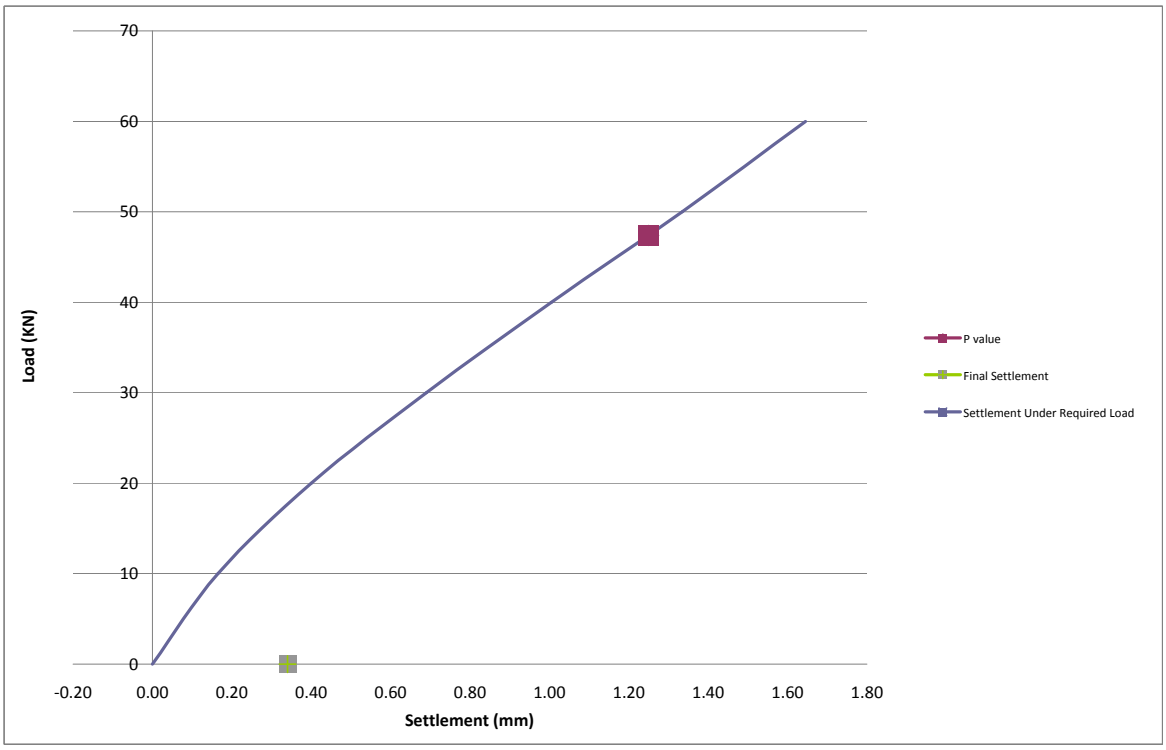


TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd
Site	Building 401, Manchester Airport
Test Location	2
Test No	5
Conditions	Dry
Operator	MH
Date	16.05.23
Kentledge	7T
Materials	recycled MoT
Plate Size (mm)	457
Settlement	1.25
Interpolation point	47.40
Value	3.08
K762	145992
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	54.3

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	20	13	0.17
20	41	39	0.40
30	72	66	0.69
40	102	99	1.01
50	136	131	1.34
60	167	162	1.65
Final Settlement			
	36	32	0.34

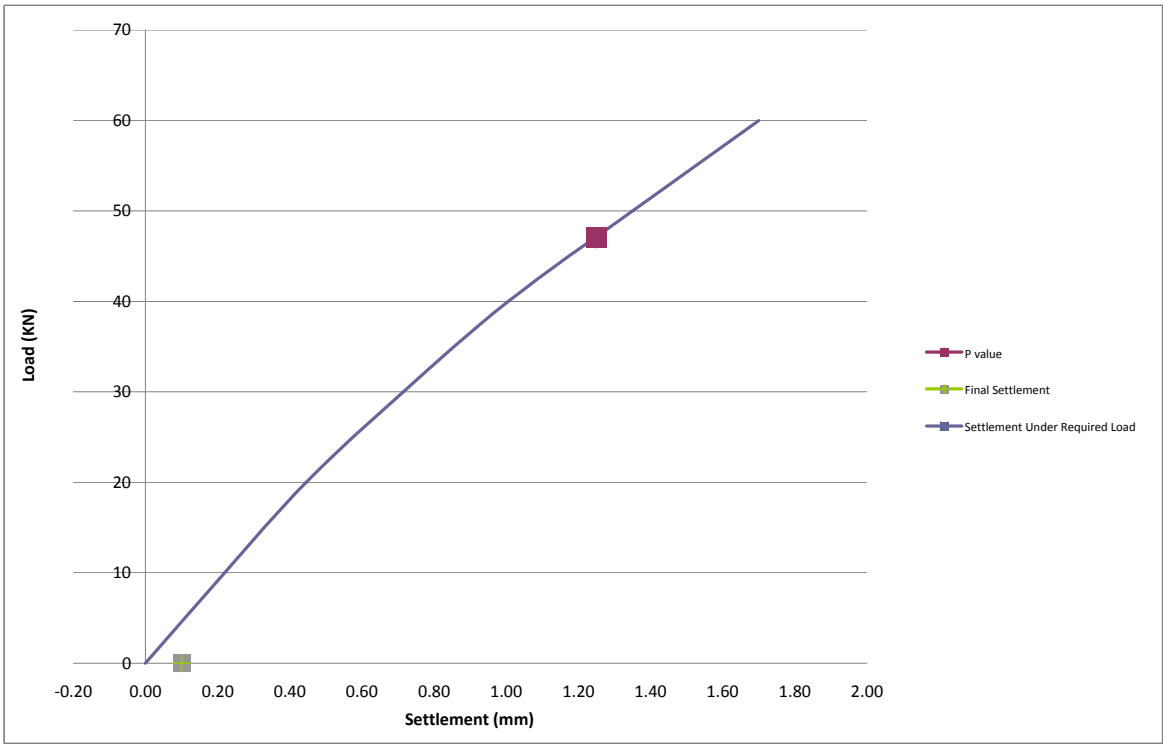


TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd
Site	Building 401, Manchester Airport
Test Location	1
Test No	6
Conditions	Dry
Operator	MH
Date	16.05.23
Kentledge	7T
Materials	6F2
Plate Size (mm)	457
Settlement	1.25
Interpolation point	47.02
Value	3.08
K762	144822
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	53.6

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	21	23	0.22
20	44	45	0.45
30	72	71	0.72
40	96	105	1.01
50	134	136	1.35
60	168	172	1.70
Final Settlement			
	7	13	0.10

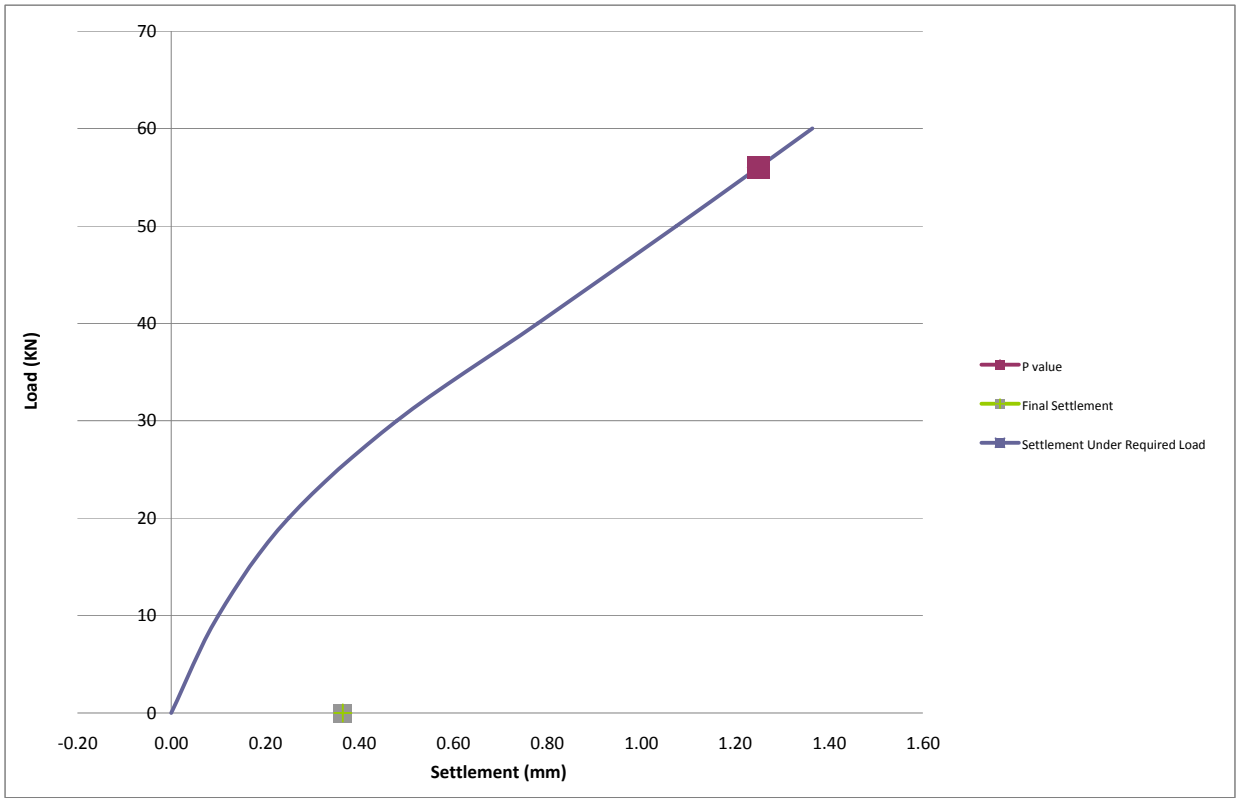


TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd
Site	Building 401, Manchester Airport
Test Location	4a
Test No	7
Conditions	Dry
Operator	MH
Date	16.05.23
Kentledge	7T
Materials	new MoT
Plate Size (mm)	457
Settlement	1.25
Interpolation point	56.00
Value	3.08
K762	172480
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	72.5

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	8	12	0.10
20	20	30	0.25
30	46	50	0.48
40	66	90	0.78
50	86	129	1.08
60	124	149	1.37
Final Settlement			
	30	43	0.37

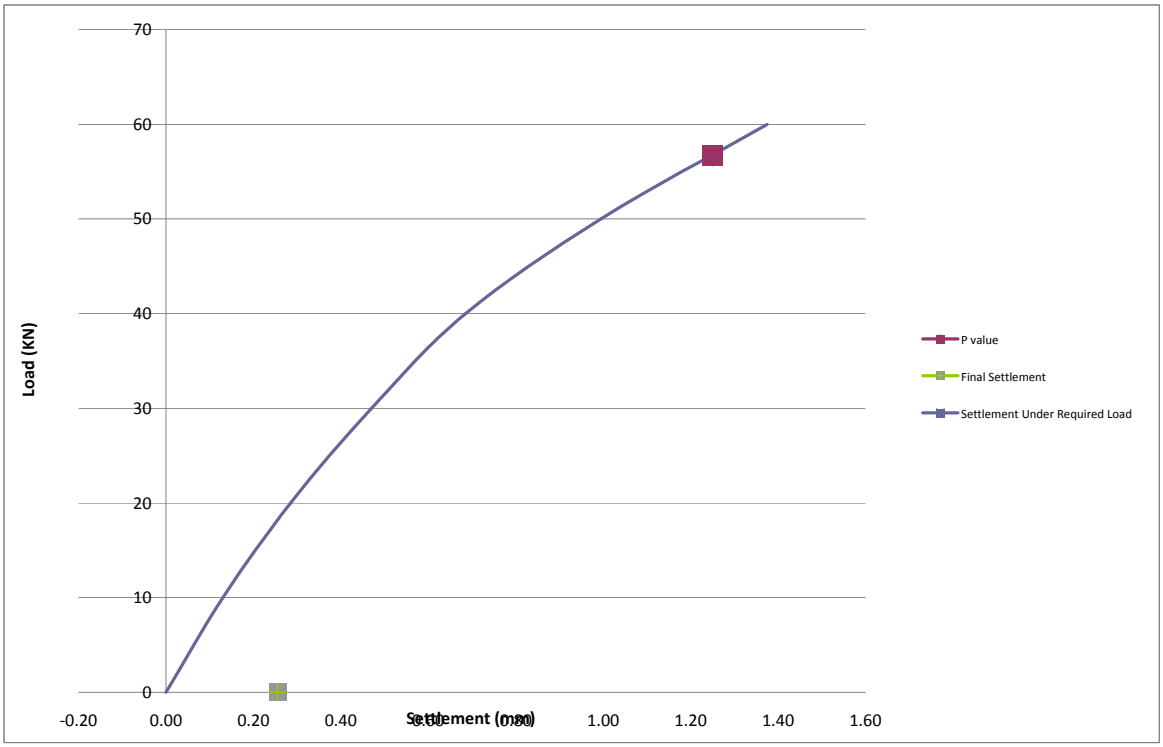


TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd
Site	Building 401, Manchester Airport
Test Location	6a
Test No	8
Conditions	Dry
Operator	MH
Date	16.05.23
Kentledge	7T
Materials	new MoT
Plate Size (mm)	457
Settlement	1.25
Interpolation point	56.68
Value	3.08
K762	174574
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	74.1

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	11	15	0.13
20	26	31	0.29
30	46	48	0.47
40	66	71	0.69
50	99	100	1.00
60	133	142	1.38
Final Settlement			
	26	25	0.26



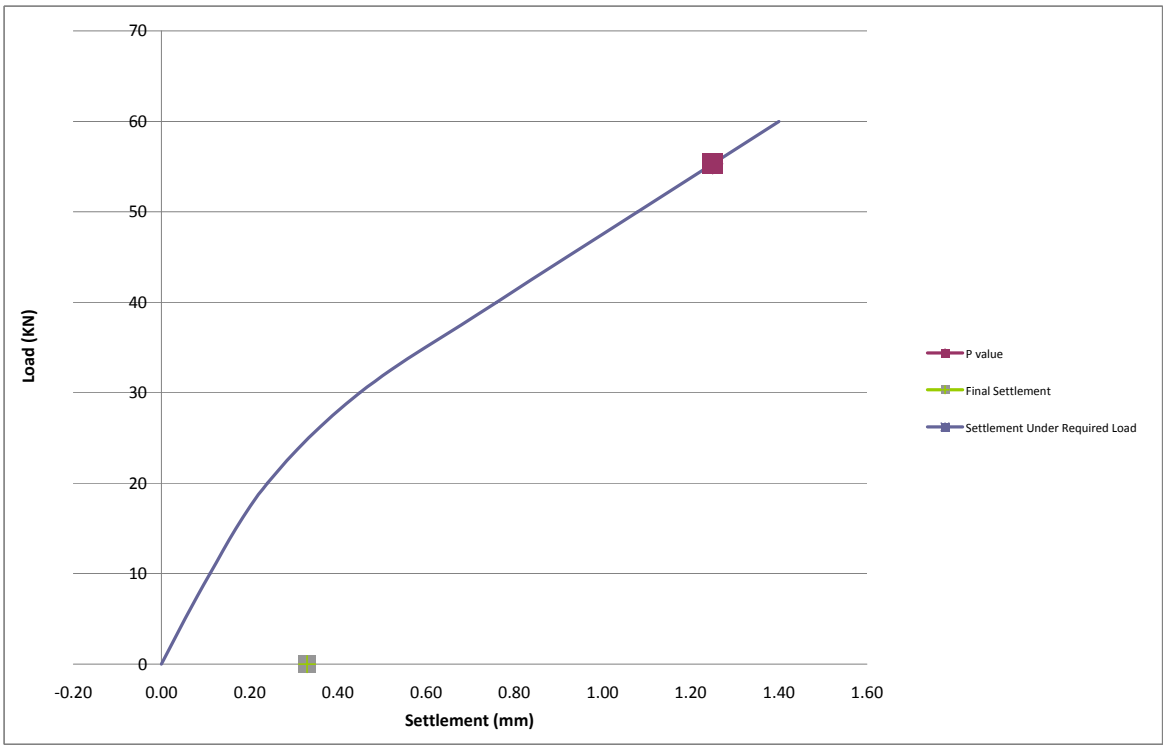
Remarks

TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd
Site	Building 401, Manchester Airport
Test Location	3a
Test No	9
Conditions	Dry
Operator	MH
Date	16.05.23
Kentledge	7T
Materials	new MoT
Plate Size (mm)	457
Settlement	1.25
Interpolation point	55.33
Value	3.08
K762	170416
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	71.0

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	9	13	0.11
20	19	29	0.24
30	41	49	0.45
40	66	86	0.76
50	100	116	1.08
60	134	146	1.40
Final Settlement			
	33	33	0.33

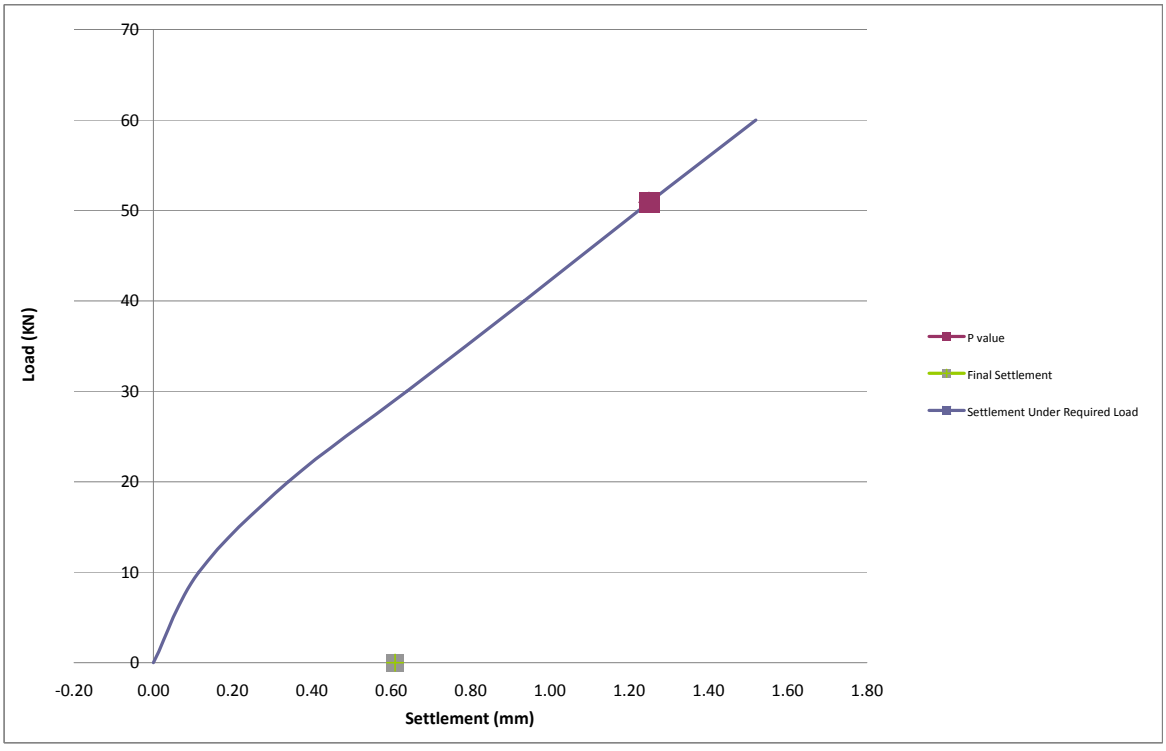


TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd
Site	Building 401, Manchester Airport
Test Location	2a
Test No	10
Conditions	Dry
Operator	MH
Date	16.05.23
Kentledge	7T
Materials	new MoT
Plate Size (mm)	457
Settlement	1.25
Interpolation point	50.90
Value	3.08
K762	156772
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	61.5

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	12	11	0.12
20	39	29	0.34
30	71	57	0.64
40	106	81	0.94
50	141	104	1.23
60	171	133	1.52
Final Settlement			
	68	54	0.61

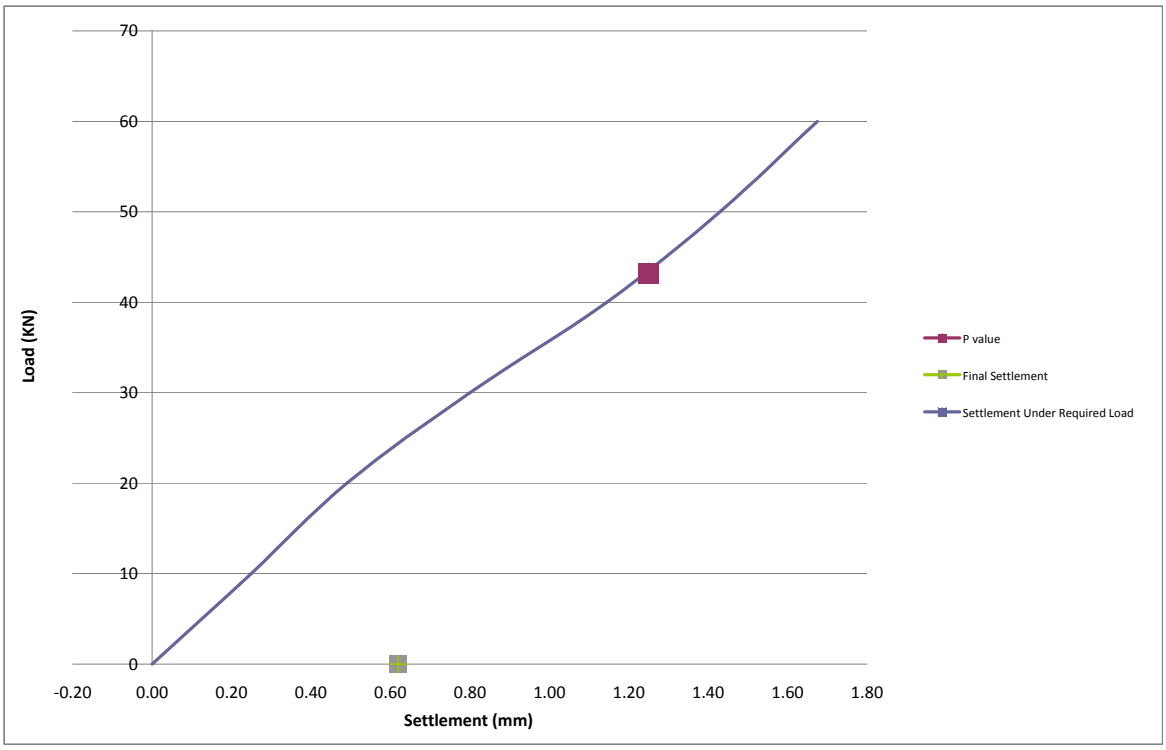


TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd
Site	Building 401, Manchester Airport
Test Location	5a
Test No	11
Conditions	Dry
Operator	MH
Date	16.05.23
Kentledge	7T
Materials	new MoT
Plate Size (mm)	457
Settlement	1.25
Interpolation point	43.20
Value	3.08
K762	133056
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	46.3

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	24	26	0.25
20	44	54	0.49
30	71	89	0.80
40	95	134	1.15
50	115	171	1.43
60	135	200	1.68
Final Settlement			
	24	100	0.62

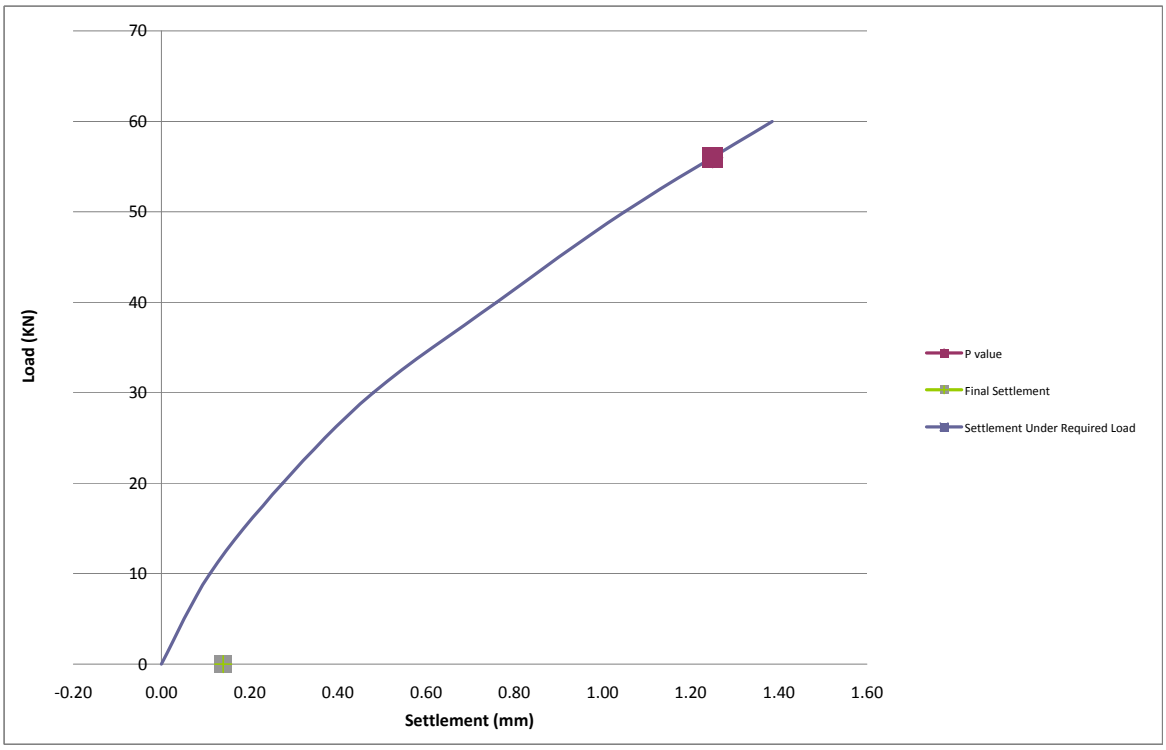


TESTCRETE

Plate Bearing Test

Client	R&M Developments Ltd
Site	Building 401, Manchester Airport
Test Location	1a
Test No	12
Conditions	Dry
Operator	MH
Date	16.05.23
Kentledge	7T
Materials	new MoT
Plate Size (mm)	457
Settlement	1.25
Interpolation point	56.00
Value	3.08
K762	172480
Required Pressure (kN/m²)	
Equivalent Load	
Settlement under Required Load (mm)	#N/A
CBR (%)	72.5

Load KN	Travel/mm dial 1	Travel/mm dial 2	Average Settlement
0			
10	9	13	0.11
20	22	33	0.28
30	43	53	0.48
40	73	79	0.76
50	100	110	1.05
60	134	143	1.39
Final Settlement			
	11	17	0.14



MURRAY RIX
CONSULTANCY, SITE INVESTIGATION
CONSTRUCTION MATERIALS TESTING

TEST REPORT

Client P.P. O'Connor Ltd

Address 61 Mosley Road
Trafford Park
Manchester
M17 1GJ

Contract Eccles New Road,
Salford

Job Number MRN 4329/16
Date of Issue 9 March 2023
Page 1 of 4

Approved Signatories

S J Hutchings, O P Davies

Notes

1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.

2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.

3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.

4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted.

5 The results included within the report are representative of the samples submitted for analysis.

6 This certificate should not be reproduced, except in full, without the express permission of the laboratory.

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

UKAS TESTING 1580

TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS EN 933-1 : 2012 (Washing & Sieving Method)

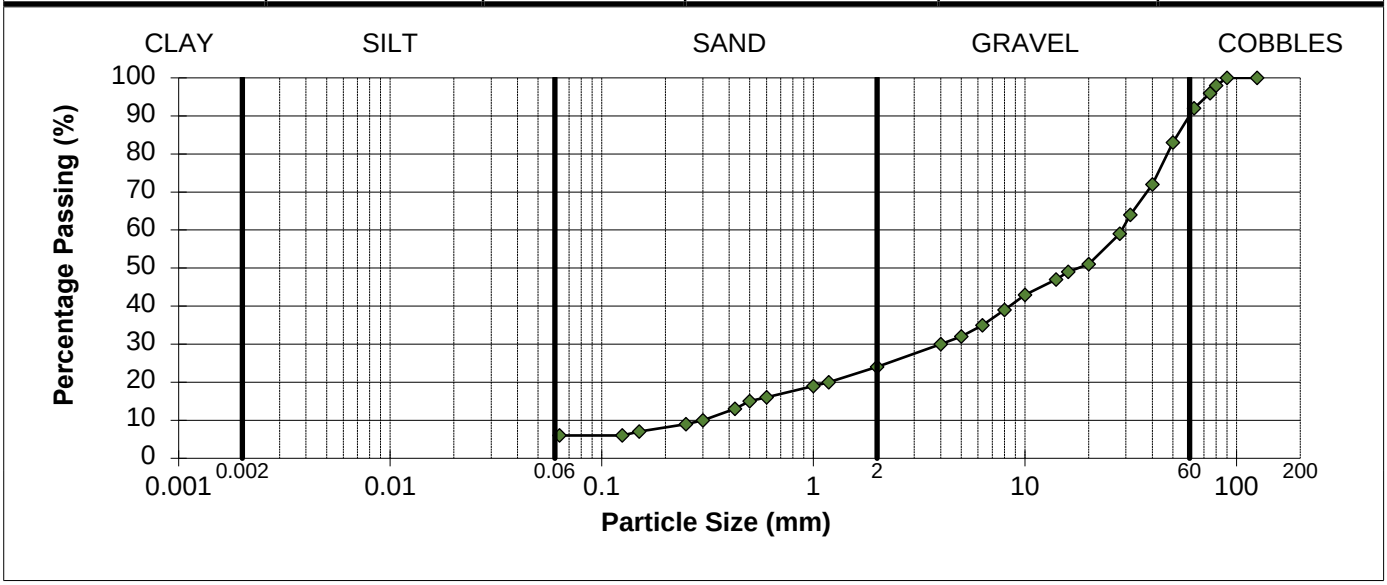
Determination of water content in accordance with BS EN 1097-5:2008

CLIENT	P.P. O'Connor Ltd
SITE	Eccles New Road, Salford
JOB NUMBER	MRN 4329/16

SAMPLE LABEL	6F5	DATE SAMPLED	01-Mar-23
LAB SAMPLE No	117402	DATE RECEIVED	01-Mar-23
DATE TESTED	02-Mar-23	SAMPLED BY	Client

MATERIAL	Recycled Aggregate
ADVISED SOURCE	As client and site above

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100	100	6.3	35	
90	100		5	32	
80	98	75-99	4	30	
75	96		2	24	0-35
63	92		1.18	20	
50	83		1	19	
40	72	50-90	0.6	16	
31.5	64		0.5	15	
28	59		0.425	13	
20	51	30-75	0.3	10	
16	49		0.25	9	
14	47		0.15	7	
10	43	15-60	0.125	6	
8	39		0.063	6.0	0-12



REMARKS

As received water content = 7.4%

Sample complies with the advised grading specification for a 6F5 material (SHW 2016)

SIGNED

NAME O.P. Davies BA (Hons) (Laboratory Manager) DATE 9-Mar-23

M U R R A Y R I X

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

UKAS TESTING 1580

TEST CERTIFICATE

DETERMINATION OF RESISTANCE TO FRAGMENTATION BY THE LOS ANGELES TEST METHOD

BS EN 1097-2:2020

CLIENT	P.P. O'Connor Ltd
SITE	Eccles New Road, Salford

SAMPLE DETAILS

Job Number	:	MRN 4329/16
Laboratory sample number	:	117402
Material	:	Recycled Aggregate
Advised source	:	As Client & Site above
Site mark	:	6F5
Certificate of sampling received	:	No
Date and time of sampling	:	06-Mar-23
Date received at Laboratory	:	06-Mar-23
Date of start of test	:	10-Mar-23
Sampling Location	:	Site
Method of sampling	:	BS EN 932-1 : 1997
Sampled by	:	Client
Size Fraction	:	35% passing 14mm retained 12.5mm 65% passing 12.5mm retained 10mm
Mass of dry sample tested	:	5000g
Target specification	:	<50

RESULT

Los Angeles Coefficient	:	**40**

Comment

NAME	O.P. Davies BA (Hons (Laboratory Manager)	SIGNED		DATE	9-Mar-23

M U R R A Y R I X

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870

UKAS TESTING 1580

TEST CERTIFICATE

DETERMINATION OF CONSTITUENTS OF COARSE RECYCLED AGGREGATE

BS EN 933-11:2009

CLIENT	P.P. O'Connor Ltd
SITE	Eccles New Road, Salford

SAMPLE DETAILS

Job Number	:	MRN 4329/16
Laboratory sample number	:	117402
Material	:	Recycled Aggregate
Advised source	:	As client & site above
Site mark	:	6F5
Certificate of sampling received	:	No
Date and time of sampling	:	01 March 2023
Date received at Laboratory	:	01 March 2023
Date of start of test	:	09 March 2023
Sampling Location	:	Not advised
Method of sampling	:	BS EN 932-1 : 1997
Sampled by	:	Client
Mass of dry sample tested	:	50 kg
Drying Temperature	:	40 ± 5°C

RESULT

Constituent	Description	Proportion (%)
Rc	Concrete, Concrete products, Mortar, Concrete masonry units	72
Ru	Unbound aggregate, Natural stone, Hydraulically bound aggregate	6.2
Rb	Clay masonry units (i.e. bricks & tiles), Calcium silicate masonry units, Aerated non-floating concrete	21
Ra	Bituminous materials	0.4
Rg	Glass	0.2
X	Other: Cohesive (i.e. clay & soil), Metals (ferrous & non-ferrous), Non-floating wood, plastic & rubber, Gypsum plaster	0.1
FL	Floating Particles (cm^3/kg)	1.3

Comments

NAME O.P. Davies BA (Hons) (Laboratory Manager) SIGNED DATE 9-Mar-23