

Kirklees Council
Huddersfield Bus Station Canopy
Huddersfield

Phase 2 Geo-Environmental Assessment

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August 2025

DOCUMENT ISSUE RECORD

Document Number:	HBSC-BWB-XX-XX-T-G-0001_Ph2	
BWB Reference:	221692	
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REVISION CONTROL

Revision	Date of Issue	Status	Update Notes:	Updated:	Approved:
P1	August 2025	S2	First Issue	-	-

Notice

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This report details the findings of work carried out between the date of our appointment and the date of this report. The report has been prepared by BWB on the basis of available information obtained during the study period.

Although every reasonable effort has been made to gather all relevant information, not all potential environmental constraints or liabilities associated with the site may have been revealed. BWB has used reasonable skill, care and diligence in the design of the investigation of the site. The inherent variation of ground conditions allows only definition of the actual conditions at the locations and depths of the exploratory holes formed and at the time of the investigation. At intermediate locations, conditions can only be inferred.

Information provided by third parties has been used in good faith and is taken at face value; however, BWB cannot guarantee its accuracy or completeness.

Should additional information or records be provided following the issue of this report, or are not identified in the References section of this report, which are considered to be relevant to the study area and for which reliance can be provided, BWB should be informed in order that the content of the document can be reviewed and revised accordingly.

The work has been carried out in general accordance with recognised good practices.

Unless otherwise stated, no assessment has been made concerning soil or groundwater known or suspected to be contaminated or impacted with radioactive substances or unexploded ordnance.

Geotechnical designs should be carried out in parallel with the geo-environmental recommendations including requirements for remediation to minimise contamination risks and to undertake all earthworks in accordance with a Declared Material Management Plan.

Geotechnical recommendations provided in this report are preliminary and may be subject to further investigation, assessment and geotechnical design.

Any site boundary line depicted on plans does not imply legal ownership of land.

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY	
Site Address	Huddersfield Bus Station, Upperhead Row, Huddersfield, HD1 2JN.
Site Setting	The site comprises surface parking for buses in the west, a multi-storey bus station in the centre that includes Kirklees Council offices, Macaulay Square in the south-west and Upperhead Row (a partly pedestrianised road) in the east.
Published Ground Conditions	A combination of BGS mapping and historical BGS boreholes indicated Made Ground, over superficial Head deposits, underlain by bedrock of Middle Band Rock (sandstone).
Site Investigation	The ground investigation scope of works was completed between the 12th - 14th, and 17th - 18th June 2025, and comprised the following: • Non-intrusive survey of excavation locations for underground utilities; • Two windowless sample boreholes with follow on rotary coring and/or rotary open hole drilling; • Chemical analysis of soils and leachate; and • Geotechnical testing of soil. In addition, two gas and groundwater monitoring visits were completed on 30/06/2025 and 15/07/2025.
Ground Conditions Encountered	The ground conditions generally recorded Made Ground of collective thicknesses up to 1.40m and included a layer of sandstone cobbles with bituminous binding. This was overlying stiff yellowish brown clay Head deposits, over sandstone of Middle Band Rock. This was underlain by dark grey mudstone of Pennine Lower Coal Measures Formation, with an intact 0.2m thick coal deposit and evidence of mining present at 20.20m and 22.20m bgl respectively. The arisings from BH03 significantly changed colour to a light grey mudstone/siltstone in the final 1.00m of the borehole, potentially indicating soft bed flags
Geotechnical Appraisal	The risk of void migration affecting surface stability is considered to be low. Treatment/stabilisation of mine workings below the canopy site is not deemed necessary. Further detailed assessment and design is required to determine suitable foundations; hence a Geotechnical Design Report is currently being undertaken. Aggressive ground testing typically classifies the soils as DS-2 and AC-2 concrete classes in the near surface deposits (Made Ground, Head and MBR (sandstone)). However, one sample of the PLCMF Mudstone at depth (c.11.4m bgl) was recorded to be pyritic. Therefore, if concrete is extended into the Mudstone of the PLCMF, DS-4, AC4 will need to be adopted.
Environmental Appraisal	BH01 showed slight exceedances of several PAHs in Made Ground which can be attributed to the bituminous material present. Appropriate PPE/hygiene during construction and the anticipated hardstanding cover will limit the risk to construction workers and commercial end site users respectively. A leachate sample from the same Made Ground showed slight exceedances in arsenic and vanadium, however, these are not considered to be significantly different to background levels. Cohesive Head deposits are anticipated to limit any migration of leachate. Preliminary ground gas monitoring results suggests there is no significant gas risk associated with shallow coal workings.
Waste Assessment	Waste soils are likely to be primarily classified as non-hazardous, with some potentially hazardous Made Ground, if disposal off-site is required.

	Waste Acceptance Criteria (WAC) indicated that the majority of wastes should be suitable for inert landfill, whilst the Made Ground containing bituminous materials would be suitable for stable non-reactive hazardous waste in non-hazardous landfill.
Recommendations	A Geotechnical Design Report is currently being undertaken to confirm the foundation design.
This summary should be read in conjunction with BWB's full report (ref. HBSC-BWB-XX-XX-T-G-0001_Ph2) and reflects an assessment of the Site based on information received by BWB at the time of production.	

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Drawing 1: Exploratory Hole Location Plan HBS-BWB-00-XX-DR-G-0003-S2-P03-EHLP
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APPENDICES

Appendix 1: Factual Report
Appendix 2: SPT Calibration Certificate
Appendix 3: CLEA Flowchart and Worksheet
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Appendix 5: Preliminary Risk Classification
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1. INTRODUCTION

Instruction

- 1.1 BWB Consulting (BWB) was instructed by Kirklees Council (the Client) to carry out a Phase 2 Geo-Environmental Assessment.
- 1.2 The subject site is being considered for development, indicated to comprise a new canopy at Huddersfield bus station.

Previous Reports

- 1.3 The following geo-environmental reports have previously been completed for the site:
- 'Huddersfield Bus Station Desk Study and Coal Mining Risk Assessment' by WSP for The West Yorkshire Combined Authority, reference 70079084-GEO-001, dated November 2021; and
 - 'Huddersfield Bus Station Canopy – Mining Risk Assessment' by BWB for Kirklees Council and West Yorkshire Combined Authority (WYCA), reference 221692-HBS-SH4-SBF-REP-W-CV-000002_P2, dated May 2025.

Objectives

- 1.4 The objectives of the report are to assess:
- The prevailing ground and groundwater conditions across the site;
 - The potential presence and extent of contamination in shallow soil and groundwater beneath the site;
 - The significance and magnitude of the observed contamination through comparison of analytical data to appropriate published environmental screening criteria;
 - The geotechnical properties of the ground beneath the site to enable geotechnical assessment and foundation selection;
 - The risk associated with any coal features underlying the site; and
 - The ground gas regime beneath the site.
- 1.5 The above objectives will allow the preliminary Conceptual Site Model presented in the Desk Study report to be verified and updated. This report has been completed in accordance with BS10175:2011(+A2:2017) 'Investigation of Potentially Contaminated Sites, Code of Practice' and EA Guidance on Risk Management of Land Contamination <https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm>.
- 1.6 This report presents the information obtained from a desk study and the current ground investigations and contains relevant factual information from the previous investigations undertaken by others. The report, together with the associated Figures and Appendices, provides a Ground Investigation Report (GIR), as defined in BS EN 1997-1:2004 and BS EN 1997-2:2007

Scope of Works

1.7 The ground investigation scope of works was completed on 18th June 2025 and comprised the following:

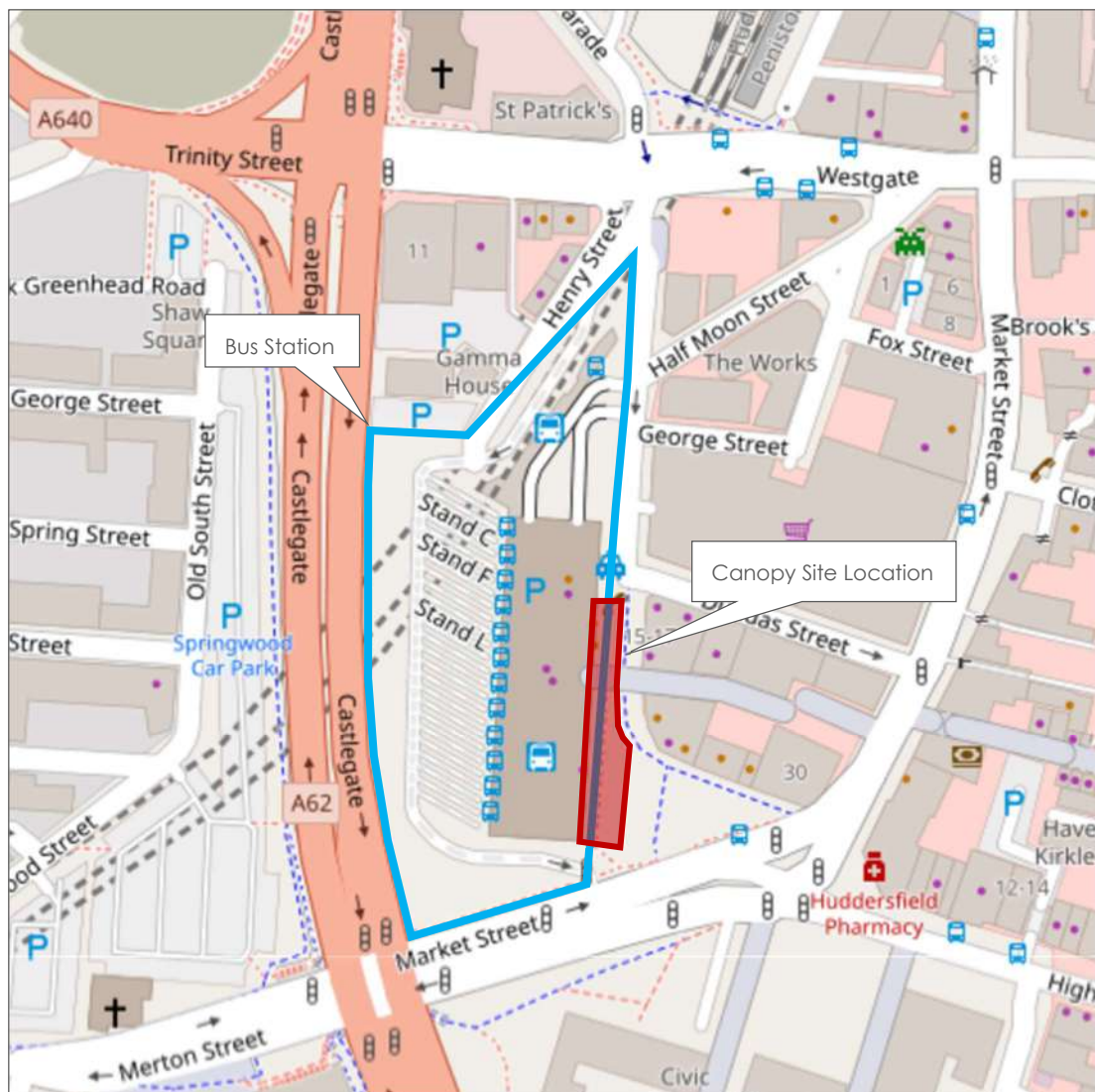
- Non-intrusive survey of excavation locations for underground utilities;
- Two windowless sample boreholes with follow on rotary coring and/or rotary open hole drilling;
- Chemical analysis of soils and leachate; and
- Geotechnical testing of soil.

2. THE SITE

Site Location

- 2.1 The site is located at Huddersfield Bus Station, Upperhead Row in Huddersfield. The National Grid Reference for the centre of the proposed new canopy site is 414231, 416571. The location of the site is shown in **Figure 2.1**.

Figure 2.1: Site Location Plan



Site Description

- 2.2 The site of the proposed canopy comprises a relatively flat area at approximately 99.6m to 99.9m Above Ordnance Datum (AOD) and comprises a block paved pedestrian area adjacent to the main bus station entrance on Upperhead Row.

Previous Report Summary

Desk Study and Coal Mining Risk Assessment, 2021

- 2.3 British Geological Survey (BGS) mapping for the site indicates that Head (clay, silt and gravel) superficial deposits were present over Middle Band Rock (Sandstone), which is part of the Pennine Lower Coal Measures Formation (parent unit).
- 2.4 Eight historical BGS borehole logs were recorded onsite from 1971, before the bus station was constructed. A summary of these logs is present below, in **Table 2:1**.

Table 2:1: Summary of BGS Borehole Data

Geological Unit	Top of strata (m bgl)	Base of strata (m bgl)	Proven thickness (m)
Fill	Ground Level	0.60 – 3.70	0.60 – 3.70
Head	0.60 – 2.10	2.70 – 3.90	1.20 – 3.30
Middle Band Rock (Sandstone)	2.70 – 3.90	5.80 (base only proven in SE11NW492)	1.90
Pennine Lower Coal Measures Formation (Mudstone) (SE11NW492 – west of site) and SE11NW214 and SE11NW215 (within 50m of the eastern border of site).	3.80 – 6.05	17.30 – 18.00	10.00 – 10.50 (in proven boreholes)
Soft Bed Flags (SE11NW214 and SE11NW215)	18.60 – 21.20	Base not proven	Base not proven
Coal Seam	7.00 – 7.30 m bgl (SE11NW214) 7.00 – 7.50 m bgl (SE11NW215)		
Soft Bed Coal	18.00 – 18.60 m bgl (SE11NW215)		

* bgl = below ground level

- 2.5 A negligible to low subsidence risk was recorded for collapsible ground, ground dissolution, landslides, running sands and shrinking/swelling clay. A moderate risk was identified for compressible ground.
- 2.6 The underlying ground conditions have been classified as follows:
- Head: Secondary Undifferentiated Aquifer; and
 - Middle Band Rock: Secondary A Aquifer (designated by the Environment Agency (EA)).
- 2.7 There were no recorded surface water features within 250m of site.

- 2.8 Earliest mapping showed the site comprised Upperhead Row with some residential buildings and Lockwood's Mill. Lockwood's Mill was later replaced by Upper Head Mill (wool and cotton) and then labelled 'works' by the mid-20th century. By 1975, Huddersfield Bus Station was shown in its current day position, with Upperhead Row primarily converted into a pedestrian street.
- 2.9 The potential risk from contamination was considered to be low for human health due to the continued site use as a bus station and the presence of widespread hardstanding. Construction would involve the removal of Made Ground which potentially could contain asbestos, heavy metals, PAHs and hydrocarbons. The risk to maintenance workers was considered low due to the limited excavation, the use of appropriate PPE and clean hygiene practices.
- 2.10 The risk to controlled waters (underlying Secondary A Aquifer) was low to moderate due to limited sources of onsite contamination, limited groundworks undertaken and the presence of cohesive superficial deposits and hardstanding, which should limit migration potential.

Mining Risk Assessment, 2025

- 2.11 The site was located within an area of high risk from mining related activities. The area was known for mining of coal, fireclay ironstone or ganister and was likely to have unrecorded shallow workings.
- 2.12 Historical mining hazards were identified at National Rail (NR) Springwood Tunnel, including non-engineered backfilled narrow (1.8m wide) "pillar and stall" workings and four shafts potentially related to ventilation tunnelling. The closest shaft to the canopy was located 50m northwest. Connected coal workings under the site cannot be discounted.
- 2.13 There was a high probability of shallow mine workings beneath the canopy site and a marginal risk of collapse from these workings. Void migration could therefore lead to surface subsidence affecting the proposed canopy.
- 2.14 However, it should be noted that foundations are likely to be founded on rock 2.0m to 3.0m bgl, providing a minimum of ten times the working thickness of rock cover.
- 2.15 Alternative designs could be considered including the use of geogrid reinforced earth below canopy footings and below paved areas which could help reduce any mining subsidence.

3. PHASE II ENVIRONMENTAL AND GEOTECHNICAL GROUND INVESTIGATION

- 3.1 Intrusive ground investigation works were undertaken between 12/06/2025 -14/06/2025 and 17/06/2025 - 18/06/2025 and comprised the following works:
- Clearance of investigation locations by a specialist buried utilities' tracing company;
 - Collection of coordinates and elevations of exploratory hole locations;
 - The formation of two boreholes advanced through dynamic sampling drilling techniques and rotary open-hole/cored drillholes with water flush system to depths of up to 25m bgl with in situ SPTs at regular depth intervals and installations of gas and groundwater monitoring wells on completion;
 - Collection of environmental soil and groundwater samples for chemical analyses at a UKAS and MCERTS accredited laboratory; and
 - Collection of Class 4 large and small disturbed samples for geotechnical testing at a UKAS accredited laboratory.
- 3.2 An exploratory hole location plan is presented as **Drawing 1**. Exploratory hole records and the post investigation gas and groundwater monitoring data are included on the Factual Report presented as **Appendix 1**; and the SPT calibration certificate is presented in **Appendix 2**.
- 3.3 The site investigation works were carried out in general accordance with BS5930:2015 'Code of Practice for Site Investigations' and BS10175:2011 'Investigation of Potentially Contaminated Sites'.

Chemical Sampling Strategy

- 3.4 Exploratory hole locations were set out to assess the ground conditions across the east of site at the intended location of the bus station canopy. These locations were restricted by services/utilities, fire exits, commercial operations (eating areas, delivery space, shop entrances).
- 3.5 BH03 targeted a location for partially enclosed spaces (e.g. bike storage, seating area).
- 3.6 BH02 was not completed due to time restraints, however sufficient data was collected from the remaining two.

Chemical Analytical Strategy

Soil Strategy

- 3.7 Selected soil samples collected from exploratory hole locations were sent to i2 Analytical Ltd Services (UKAS and MCERTS accredited) for chemical analysis. The following chemical analytical testing was undertaken:
- 7 soil samples tested for a soil suite (BWB Standard Suite) comprising arsenic, barium, beryllium, water soluble boron, cadmium, chromium, hexavalent chromium,

copper, lead, mercury, nickel, selenium, vanadium, zinc, water soluble sulphate (2:1 extract), total phenols, total cyanide, free cyanide, complex cyanide, fraction of organic carbon, pH, and Total Petroleum Hydrocarbons (TPH) C6-C40;

- 3 soil samples tested for TPH speciated to the UK Criteria Working Group (TPHCWG) aliphatic and aromatic compounds;
- 8 soil samples tested for Polycyclic Aromatic Hydrocarbons (PAHs) (United States Environment Protection Agency priority 16 compounds);
- 3 soil samples for asbestos screening; and
- 2 soil samples tested for a suite of common leachable contaminants, namely arsenic, barium, beryllium, water soluble boron, cadmium, chromium, copper, lead, mercury, nickel, selenium, vanadium, zinc, water soluble sulphate (2:1 extract), sulphate, total cyanide and pH.

3.8 The results of the soil chemical testing are included in Rogers' Factual Report presented as **Appendix 1**.

3.9 The above soil chemical testing was targeted based on the following rationale presented within **Table 3:1**.

Table 3:1 : Analytical Strategy

Location	Depth (m bgl)	Stratum	Analysis	Reason
BH01	0.50 – 0.70	Made Ground	Asbestos screen, PAH - speciated	General coverage.
	0.70 – 0.90	Made Ground	BWB Standard suite, TPH CWG, asbestos screen, leachate suite, full WAC	General coverage.
	1.20 – 1.40	Made Ground	BWB Standard suite, BRE Suite D	General coverage.
	1.40 – 1.60	Natural soils - clay	BWB Standard suite	General coverage.
BH03	0.25 – 0.40	Made Ground – bituminous binding of sandstone cobbles	BWB Standard suite, TPH CWG	Bituminous binding of cobbles was targeted for TPH.
	0.40 – 0.50	Made Ground	BWB Standard suite, TPH CWG, asbestos screen, full WAC, BRE Suite D	General coverage.
	0.60 – 0.80	Made Ground	BWB Standard suite, leachate suite	General coverage.
	1.50 – 1.70	Natural soils - clay	BWB Standard suite	General coverage.

Geotechnical Investigation Strategy

3.10 The borehole locations were positioned relative to the proposed canopy footprints to determine underlying ground conditions and parameters for geotechnical assessment purposes, such as to inform foundation design and assess risks associated with coal workings.

- 3.11 In-situ soil strength testing comprising SPTs were undertaken with the boreholes. SPT 'N' values are included on the Factual Report exploratory hole records (**Appendix 1**).
- 3.12 Selected Class 4 large and small disturbed samples were collected from the investigation locations and sent to the geotechnical testing laboratory (Rogers Geotechnical Services), which is UKAS accredited. The following geotechnical testing was undertaken:
- 11 samples tested for moisture contents;
 - 11 samples tested for Atterberg (liquid and plastic) limits;
 - 1 sample tested for particle size distribution (PSD) by sieve and pipette;
 - 7 samples tested for BRE suite comprising pH, water soluble sulphate, total sulphur, water-soluble magnesium and water-soluble nitrate (as NO₃); and
 - 7 samples tested for point load on rock.
- 3.13 The results of the geotechnical testing are also included in the Rogers' Factual Report (**Appendix 1**).

Limitations and Uncertainty

- 3.14 BH02 was not completed to due to time restraints, though this is expected to have negligible impact on account of correlation between the strata present in the remaining two boreholes.
- 3.15 BH01 was stopped at 23.50m bgl, due to the drilling rod being blocked, so there is a limited understanding of ground conditions beyond this depth.
- 3.16 The BH03 0.25 – 040m sample was unsuitable for testing due to the sample matrix having been contaminated by tar. Therefore, the bituminous binding present within the cobblestone layer has not been directly tested.
- 3.17 The three samples taken at 4.75m, 4.88m and 5.30m were not tested for UCS as they were of insufficient length. The subsequent Point Load samples recovered were not viable due to sample fracturing.

4. GROUND CONDITIONS ENCOUNTERED

Stratigraphy and Ground Model

- 4.1 The ground conditions encountered during ground investigations confirmed the published geology comprising Made Ground over Head Deposits, underlain by Middle Band Rock over Pennine Lower Coal Measures with evidence of both intact coal and coal mining.
- 4.2 The recorded ground conditions are summarised in **Table 4:1** below and **Drawing 2** presents a geological cross section through the site. Uncorrected SPT results collected from the borehole locations are presented on the exploratory hole records included in **Appendix 1**.

Table 4:1 : Summary of Ground Conditions

Stratum	Top Depth (m)		Base Depth (m)		Thickness (m)		SPT N Value	
	Min	Max	Min	Max	Min	Max	Min	Max
Made Ground	0.00	0.00	1.20	1.40	1.20	1.40	7	7
Head	1.20	1.40	3.80	4.85	2.60	3.45	9	25
Middle Band Rock	3.80	4.85	6.40	8.50	1.55	4.70	50	50
Pennine Lower Coal Measures	6.40	8.50	22.50	25.00 (EOH)	15.50	NP	50	50
Potential Soft Bed Flags	24.00	24.00	25.00 (EOH)	25.00 (EOH)	NP	NP	-	-

*EOH = End of Hole, therefore base depth is not proven (also affecting thickness)

*NP = Not Proven

Geological Descriptions

Made Ground

- 4.3 Two different hardstanding types were present onsite: at BH01 concrete flags were present over concrete, whereas at BH03 brick paving was present over light brown sand, underlain by concrete.
- 4.4 At both locations Made Ground comprising sandstone cobbles with bituminous binding was present from 0.25m bgl down to 0.40m – 0.50m bgl. This was underlain by Made Ground of dark brown, silty very gravelly or gravelly fine to coarse sand (with low cobble content at BH01) of thicknesses ranging from 0.1m - 0.7m.
- 4.5 In BH03, a second concrete layer was present at 0.50m – 0.60m bgl, over Made Ground of brown very gravelly fine to coarse sand down to 1.20m bgl.

- 4.6 In BH01, Made Ground of dark brown very sandy clay was present from 1.20 to 1.40m bgl.
- 4.7 The one SPT N_{60} value for the Made Ground recorded 7 blows. A plot of corrected SPT 'N₆₀' Value Vs Depth is presented as **Figure 4:1** below.

Head

- 4.8 Strata inferred to represent Head deposits were encountered in both exploratory holes, beneath the Made Ground.
- 4.9 The deposits were typically described as firm becoming stiff yellowish brown slightly sandy, slightly gravelly, silty clay; thicknesses ranged from 2.60m – 3.45m.
- 4.10 SPT N_{60} values within the Made Ground were recorded as between 9 and 25 blows. A plot of corrected SPT 'N₆₀' Value Vs Depth is presented as **Figure 4:1** below.

Middle Band Rock (MBR)

- 4.11 At both boreholes the Head deposits were underlain by MBR, however BH01 had 0.15m of weathered MBR before the sandstone was reached at 5.00m bgl until 6.40m bgl, described as yellowish brown in colour.
- 4.12 MBR was recorded in BH03 as medium strong, thickly laminated greyish brown cross laminated sandstone from 3.80m bgl to 8.50m bgl.
- 4.13 SPT N_{60} values within the Middle Band Rock were all above 50 blows. A plot of corrected SPT 'N₆₀' Value Vs Depth is presented as **Figure 4:1** below.

Pennine Lower Coal Measures Formation (PLCMF)

- 4.14 At both boreholes Middle Band Rock deposits were underlain by dark grey mudstone of the PLCMF.
- 4.15 In BH03, the PLCMF mudstone was noted as completely fractured at 10.00 – 10.85m, 11.50 – 11.90m, 12.20 – 12.50m and 13.00 – 13.30m bgl. No recovery was possible from 8.50 – 10.00m, and 11.90 – 12.20m bgl; a cross-cutting sub-vertical clean fracture was present from 12.50 – 12.80m bgl. An intact coal deposit, 0.20m thick, was present at 20.20m bgl and underlain by mudstone down to 24.00m bgl.
- 4.16 In BH01, the PLCMF mudstone was intact down to 21.20m bgl and then underlain by 1.00m of soft ground. A 0.80m thick void was present below this, indicating it had been mined, and was underlain by 0.30m of broken ground. Hard ground was then present from 23.30m to 23.50m where the hole was terminated due to the drilling rod being blocked.
- 4.17 SPT N_{60} values for the PLCMF each recorded above 50 blows. A plot of corrected SPT 'N₆₀' Value Vs Depth is presented as **Figure 4:1** below.

Potential Soft Bed Flags

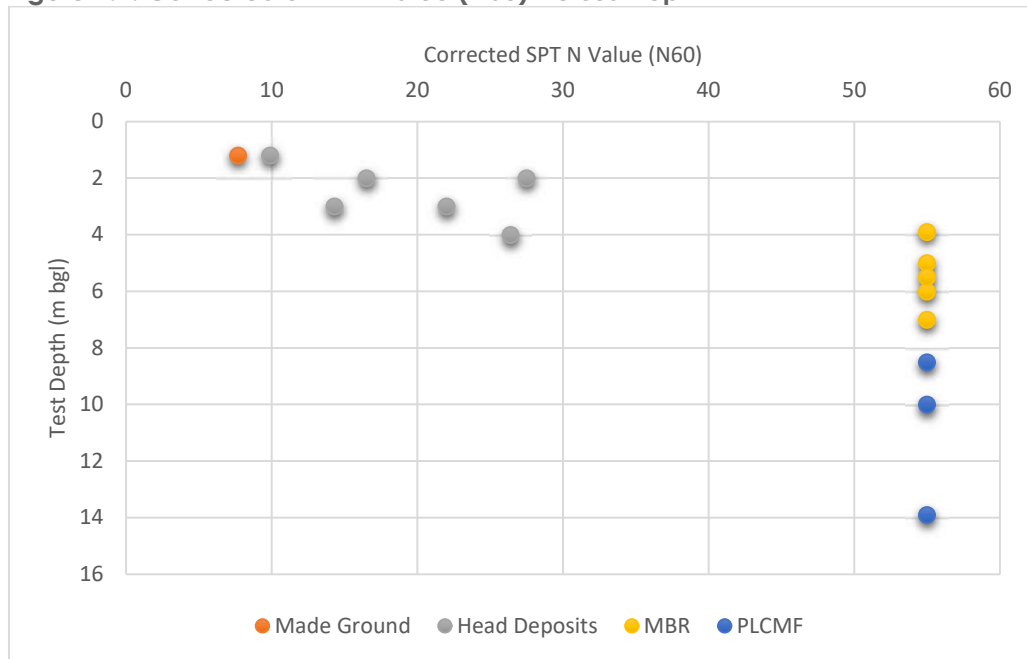
- 4.18 In BH03, strata significantly changed colour from dark grey mudstone to light grey mudstone/siltstone between 24m and 25m bgl. The significant colour change suggests this could be soft bed flags, however only a small volume of arisings was excavated, so it cannot be confirmed.

In Situ and Laboratory Geotechnical Test Results

In Situ Testing

- 4.19 From in situ SPTs, corrected 'N60' values have been derived, and a plot of N60 value vs. depth (in m bgl) is presented as **Figure 4:1** below. N60 values within the Head were recorded ranging from 9 to 25 blows. N60 values with the Middle Band Rock were found to be above 50; and N60 values for the PLCMF were also above 50 blows.

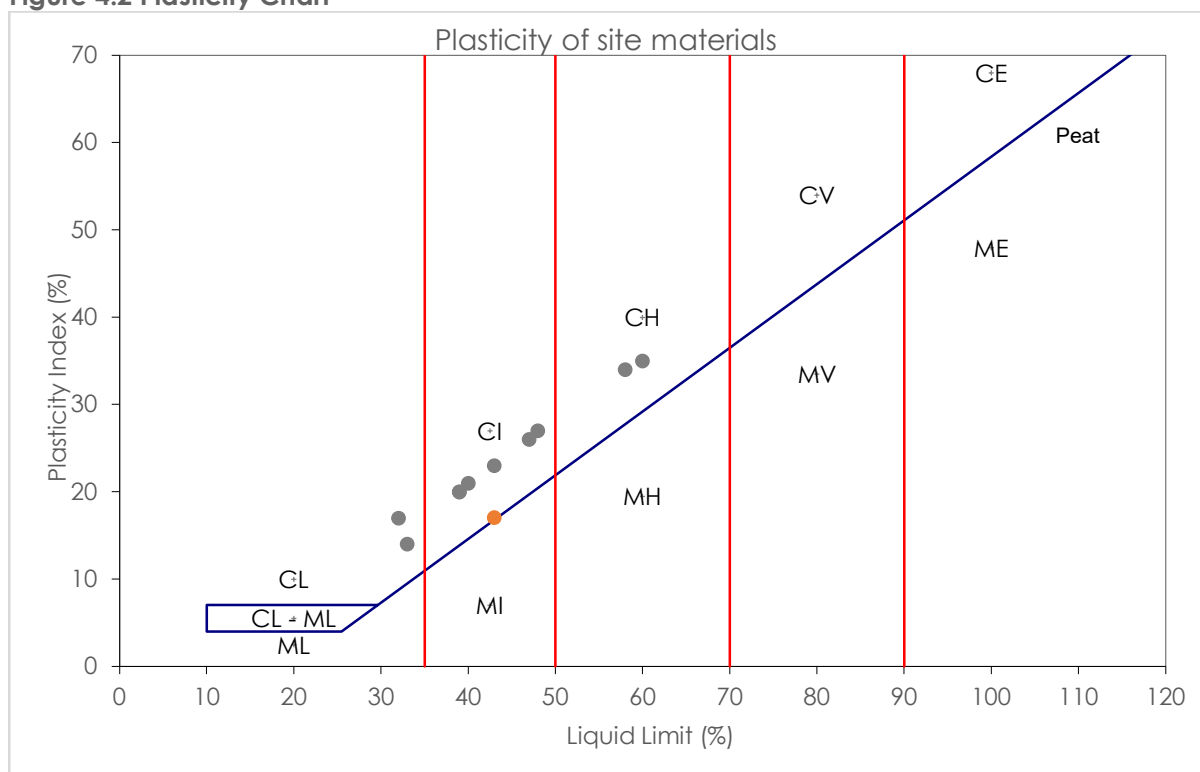
Figure 4:1: Corrected SPT 'N' Value (N60) Versus Depth



Geotechnical Laboratory Test Results

- 4.20 Where cohesive soils were encountered and sampled, geotechnical laboratory testing included the determination of Atterberg Limits and Plasticity Index (PI) values. A Plasticity Chart is presented as **Figure 4:2**. This indicates PI values for the Head Deposits to be in the range 14% to 35% (low to high plasticity).

Figure 4:2 Plasticity Chart



4.21 The results of the insitu and geotechnical laboratory testing undertaken are summarised in **Table 4:2**.

Table 4:2: Summary of Laboratory and Insitu Geotechnical Test Results

Lithology / Parameter (Units)	Made Ground	Head Deposits	MBR	PLCMF
Moisture Content (%)	19	14 - 26	0.43 – 1.3	0.91
Plasticity Index (%)	17	14 - 35	-	-
Atterberg Classification	CL	CL, CI and CH	-	-
PSD: Cobbles (%) Gravel (%) Sand (%) Silt/Clay (%)	-	PSD: 0 46 31 23	-	-
Organic Matter (%)	1.0 – 5.5	0.8 - 0.9	-	-
SPT N60 Values	7	9 - 25	24 - 50	50
pH conditions	7.8 – 10.8	5.7 – 8.4	6.4 – 7.5	8.1
Total Sulphur (%)	0.016-0.13	0.014 - 0.027	0.007 - 0.013	2.54
Total Sulphate as SO ₄ (%)	0.034-0.073	0.033 – 0.067	0.024 – 0.037	0.021
Water Soluble Sulphate as SO ₄ (mg/l)	14.5-105	8.2-87.4	38.8 – 64.9	101
Point Load Index (MPa) Diametral (D) Axial (A)	-	-	(D) 0.8 – 1.9 (A) 1.9 – 3.1	(D) 0.2

Hydrogeology

- 4.22 A groundwater strike was observed in both boreholes (resting groundwater levels could not be recorded due to use of water flush during boring):
- BH01 – 5m bgl strike, rising to 4.70m bgl within 20 minutes; and
 - BH03 – 5.20m bgl strike, remaining at this depth after 20 minutes.
- 4.23 The strikes were recorded within the Middle Bank Rock (MBR) in both boreholes. With the strike in BH01 occurring at the base of the weathered MBR.
- 4.24 Subsequent well water monitoring recorded BH01 as dry down to 6.13m bgl (base of well).

Hydrology

- 4.25 No surface water monitoring was completed as part of this assessment.

Contamination Observations

- 4.26 A bituminous material with evident hydrocarbon odour was noted as binding cobbles within the Made Ground (present from 0.25m to between 0.4-0.5m bgl).
- 4.27 No contamination observations were noted during the subsequent gas and groundwater monitoring period.

5. GEOTECHNICAL APPRAISAL

Introduction

- 5.1 This section of the report provides a summary geotechnical appraisal of the site relative to the proposed development, based on the ground and groundwater conditions encountered (as summarised in previous report sections).
- 5.2 It should be noted that the following comments are provided for guidance only and in relation to the purpose of this document, which is a Phase 2 report, with the key focus on the geo-environmental conditions of the site and associated risk assessment but taking due account of geotechnical requirements and impact of the proposed development.
- 5.3 At a later stage in the development design process, more rigorous geotechnical assessment and design needs to be undertaken, culminating in a Geotechnical Design Report, as required under Eurocode 7.

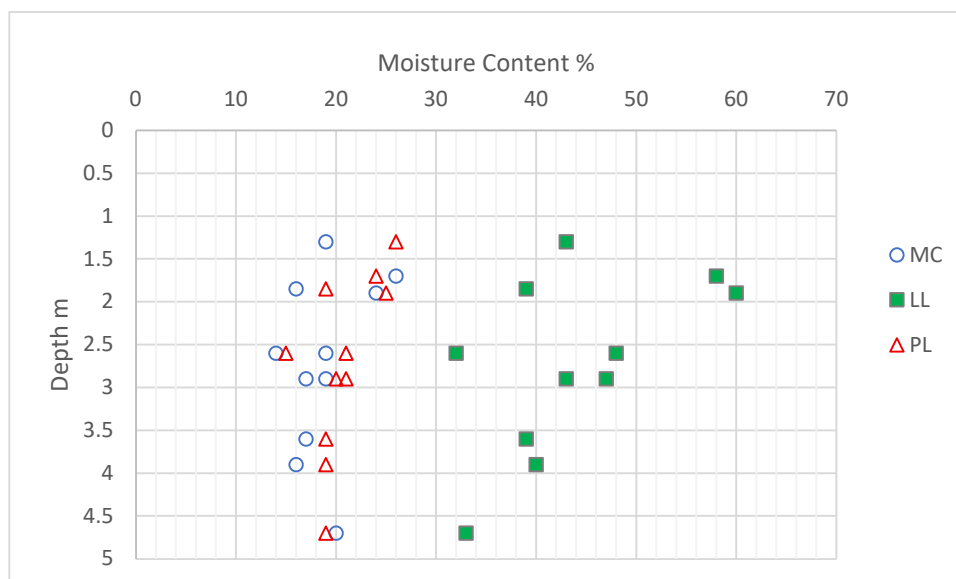
Ground Model

- 5.4 A summary of the ground conditions recorded from the site investigation (SI) is given in **Section 4**. A model of the ground conditions derived from the SI is given as **Drawing 2**.
- 5.5 Untreated Made Ground is not considered suitable as a founding stratum.

Head Deposits

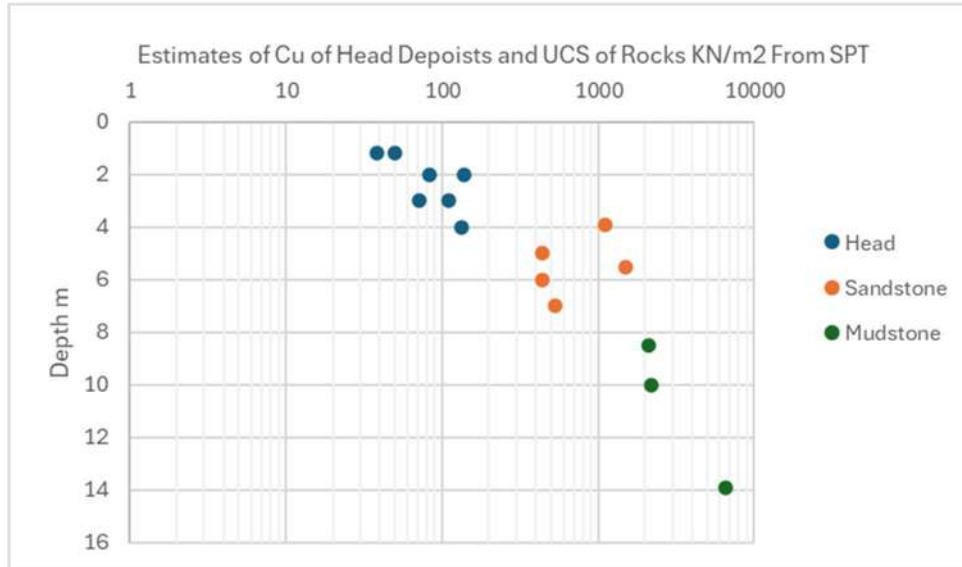
- 5.6 Natural slightly sandy slightly gravelly silty Clay soils classified as Head deposits were described as soft to firm becoming stiff with measured moisture contents generally below their plastic limits see **Figure 5:1**.

Figure 5:1: Atterberg Limits



- 5.7 Estimates of undrained shear strengths (C_u) made from derived SPT_{N60} correlations with the plasticity index of these soils using a $F1$ value of 5 is given in **Figure 5:2**.

Figure 5:2: C_u and Rock UCS Estimates against depth

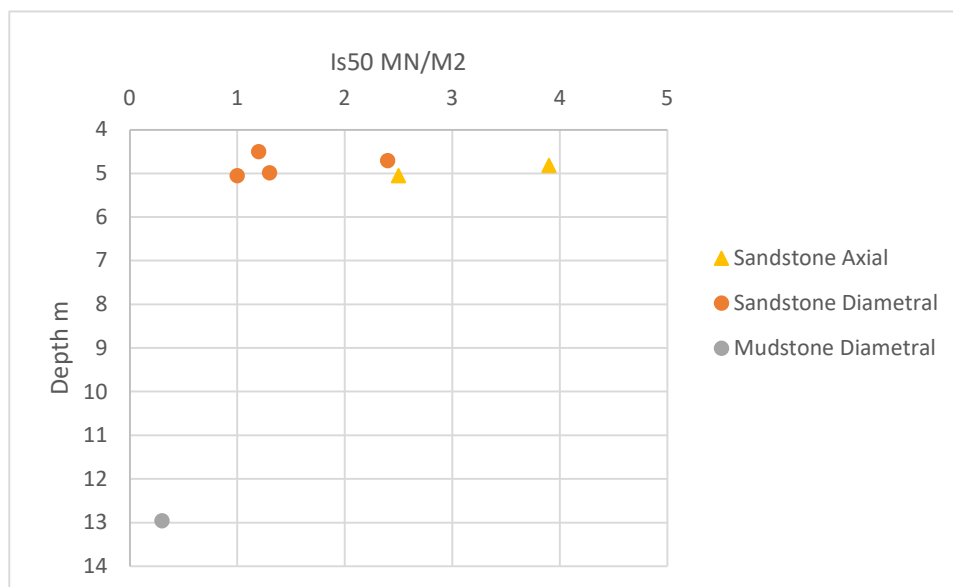


- 5.8 The Head deposits show a general increase in undrained strength with depth.

Sandstone (Middle Band Rock)

- 5.9 Sandstone bedrock classified as the (Middle Band Rock) was recorded from 3.80m to 4.85m depth to 6.4m and 8.5m. It has been described as medium strong, thickly cross laminated sandstone with closely spaced, rough, closed to open fractures. SPT blow counts were all recorded above 50 blows in this sandstone. The N values have therefore been extrapolated to $N300$ values based on the average penetration for the 50 blows. This gives conservation estimates for a full test drive of 300mm. Blow counts of between 87 blows and 300 blows were recorded. Stroud 1989 has suggested that for insensitive weak rocks where $N60 < 200$ blows an estimation can be made of the undrained shear strength of the rock mass as it is for clays where a $F1$ value of 5 kN/m^2 is recommended. The unconfined compressive strength of the rock mass (UCS_m) can then be estimated as $2C_u$. Based on these assumptions the rock mass strength in compression is estimated at 0.9 MN/m^2 to 3 MN/m^2 , which is extremely to very weak to 7m depth.
- 5.10 Intact point load rock strength index $Is50$ values (see **Figure 5:3**) are generally high 1 MN/m^2 to 3.9 MN/m^2 (Franklin1972 strength designation values). If a commonly used correlation of the UCS_m between 20 to 25 times that of the point load strength index is accepted, then the UCS_m of the intact sandstone rock would be between 20 MN/m^2 and 98 MN/m^2 (weak to strong). Unfortunately, no UCS test could be undertaken (due to poor sample quality) to corroborate this assumption. The axial strength index was 2.4 MN/m^2 to 3.9 MN/m^2 while the strength along bedding was around 1 MN/m^2 .

Figure 5:3: Point Load Strength Index Testing



5.11 Rock quality indices Total Core recovery (TCR), Solid Core recovery (SCR), and Rock quality designation (RQD) were recorded in BH03 to 14m depth; see **Table 5:1** below.

Table 5.1: TCR, SCR and RQD

Location ID	Depth Top	Depth Base	TCR%	SCR%	RQD%	Rock Type
BH03	3.9	5.5	75	20	0	SST
BH03	5.5	7	0	0	0	SST
BH03	7	8.5	15	0	0	SST
BH03	8.5	10	0	0	0	MST
BH03	10	11.5	80	0	0	MST
BH03	11.5	13	65	0	0	MST
BH03	13	13.9	60	0	0	MST

- 5.12 Total core recoveries were <90% with virtually no solid core recovery and RQD was zero. Given SPT data within the sandstones, this appears to be down to poor inexperienced drilling contractors.

Mudstone

- 5.13 Below the Middle Band Sandstone is recorded Mudstone, described as weak, dark grey, and thinly laminated, with closely spaced, smooth planar, closed to open discontinuities.
- 5.14 Three SPT's carried out at 8.5m, 10.0m and 13.9m depths recorded 50 blows before full penetration of 300mm. Extrapolating the blow counts to the full 300mm as above gives N values of 209 to 660 blows. Stroud 1989 suggested that with blow count below 200 there is evidence that the undrained shear strength can be estimated as for clays and the UCS_m can be estimated as $2C_u$. Although the SPT at 13.9m was 660 blow the ones at 8.5m and 10m are close to 200. These have therefore been plotted on **Figure 5.2**. This suggest the UCS of the mudstone rock mass is very weak to weak ($1MN/m^2$ - $25MN/m^2$).
- 5.15 A single sample of mudstone rock was subject to point load test and recorded a $Is50$ strength index of $0.3MN/m^2$ low to medium strength (Franklin 1972). Using the correlation of intact rock UCS_m equal to 20 to 25 times the Point load strength index suggests a UCS_m of $6MN/m^2$ to $7.5MN/m^2$ weak designation.

Mining Risks

- 5.16 As outlined in **Section 1** two rotary borings have been drilled to assess the ground conditions beneath the proposed canopy site.
- 5.17 The BWB Mining Risk Assessment (221692-HBS-SH4-SBF-REP-W-CV-000002_P2) outlined the potential risk from workings in the soft bed Coal at around 77m OD to 81m OD.
- 5.18 As described in **Section 4**, BH03 recorded a thin 0.2m coal seam at 79.32m OD to 79.12m OD. No indication of mine workings was noted. Rock head was recorded at 95.72m OD.
- 5.19 BH01 encountered 1m of relatively "soft ground" at 78.41m OD to 77.41m OD, with a 0.8m void below this at between 77.41m OD to 76.61m OD. Broken ground was recorded from 76.61m OD to 76.31m OD. Rock head at BH01 was encountered at 94.61m OD. This gives 16.2m of competent rock cover. Based on the general "rule of thumb" given by Piggott and Eynon for crown hole collapse above coal workings, it is recommended that ten times the seam or cavity thickness plus the seam or cavity thickness would normally present a negligible risk of instability at the surface. In this case the cavity looks as if it has already started to migrate with bed splitting roof fall into the cavity resulting in the broken ground at the base of the void. It is noteworthy here that the soft ground has not fallen to the mine floor but is bridging the 0.8m void. Given the above it is estimated that the original cavity before the onset of void migration would not have been greater than 1.1m (the combined thickness of void and collapsed rock) which would require 12.1m of competent rock cover to meet the requirements of ten times the seam or cavity thickness plus the seam or cavity thickness.

Earthworks/Enabling works

- 5.20 No significant earthworks are anticipated. Arisings from footings will require removal from site. WAC testing has been undertaken as part of this report detailed in **Section 11**.
- 5.21 The risk of void migration affecting surface stability is considered to be LOW. Treatment/stabilization of mine workings below the canopy site is not deemed necessary.

5.22 Foundations

- 5.23 Column loads are anticipated to be on the order of 100KN/m².

Spread Foundations (Pads/Strips)

- 5.24 As described in **Section 4**, 1.2m to 1.4m of Made Ground was recorded on site. Untreated Made Ground is unsuitable for the support of shallow spread foundations with further treatment owing to its variability/poor competence and the potential risk of excessive total and/or differential settlements. Consequently, foundations will need to be taken through these and founded in the medium to high strength Head deposits, anticipated to be at depths of between 1.5m and 2.0m below current ground levels.

- 5.25 Estimates of Undrained shear strengths (C_u) of Head deposits at 1.5m depth derived from SPT correlations are 39kN/m² to 50kN/m². The Head deposits show a general increase in their strength with depth with undrained shear strengths $C_u > 100\text{kN/m}^2$ at 3.0m.
- 5.26 Initial estimates indicate that foundations supported on the stoney clay Head deposits at such depths could be designed on the basis of a presumed net bearing pressure in the order of 100kN/m², with foundation widths limited by maximum allowable settlement tolerances. Therefore, further detailed assessment and design is being undertaken and will be present in a Geotechnical Design Report.

Roads and Pavements

- 5.27 The canopy area is to be used as a pedestrian zone. The design of proposed pavements will need to be based on appropriate design surface modulus values at formation/sub-grade levels following regrading of site levels. Consideration will need to be given to construction traffic and delivery vehicles that may use the site.

Groundwater

- 5.28 Drilling was undertaken using water as the flushing media. No increases of water were noted that may indicate a groundwater strike. Flush returns were estimated to be 90% in BH01 until flush was lost completely at 21.20m depth. No flush loss was recorded in BH03.
- 5.29 Excavation for shallow footings are unlikely to encounter significant quantities of water any should easily be controlled with standard readily available pumps.

Drainage and Soakaway Viability

- 5.30 Infiltration/permeability testing did not form part of this investigation. Based on soil descriptions and testing, shallow clayey Head deposits are likely to have a low permeability and are unlikely to be suitable for soakaway drainage.
- 5.31 Given the location of the site in a high density built area, drainage should be positive to avoid saturation and softening of surface clay horizons such as the Head Deposits.

Excavations

Ease of Excavation

- 5.32 Excavations into the underlying natural soils should be readily achievable using standard plant, noting that the potential for soft ground should be considered by the Contractor in selection of plant for tracking purposes. Depending on weather conditions and timing of works, tracked plant and other access interventions may be necessary.

Stability of Excavation

- 5.33 Excavations are only likely to be stable in the short term only. Should excavation be required to remain open for any extended period of time (days) then temporary works shoring will be required. The risks associated with excavation instability needs to be considered by the temporary works' designer and the contractor with regard to sequencing, trench support proposals and construction methodology.
- 5.34 If excavation below the water table is required during construction, it is recommended that these excavations should be undertaken in sections/limited areas, rather than excavating in a single phase. This should limit the volume of groundwater that would need to be managed in each excavation.
- 5.35 Management of groundwater, including the anticipated requirement for localised dewatering, should be considered/implemented by the temporary works designer / contractor.
- 5.36 Temporary shoring of the excavations is likely to be necessary to assist deeper excavations, and an assessment/design should be undertaken by the temporary works designer/contractor.

Legislation on Personnel Entry to Excavations

- 5.37 It is recommended that no excavations should be entered without appropriate support and a full risk assessment should be completed prior to entry. Mitigation measures to protect from accumulating ground gases should be implemented.
- 5.38 Where personnel entry is required for inspection, excavations should be sufficiently enlarged, and an assessment of safe temporary angles should be made by the contractor/temporary works designer.

Chemical Attack on Buried Concrete

- 5.39 The classification of concrete in aggressive ground has been undertaken in accordance with BRE Special Digest 1: Concrete in Aggressive Ground (2005).
- 5.40 From the available information, concrete to be cast in contact with the near-surface soils (Made Ground, Head and MBR sandstone) at the site should be designed against Design Sulphate (DS) and Aggressive Chemical Environment for Soils (AC) classes DS-2, AC-2.
- 5.41 One sample of the mudstone in the PLCMF was also tested at depth (circa 11.4m bgl). This sample was recorded as pyritic and therefore if concrete is extended into the Mudstone of the PLCMF, DS-4, AC4 will need to be adopted.

6. GROUND GAS ASSESSMENT

Introduction

- 6.1 Ground gas assessment has been undertaken to assess the risks associated with ground gases and volatile vapours to new partially enclosed spaces (bike storage/eating area) and their occupants. The results obtained have been assessed in line with relevant guidance (notably CIRIA C665).
- 6.2 Based on the desk study and the ground investigation undertaken, the following potential sources of hazardous ground gas have been identified:
- Made Ground associated with previous developments, present across the site; and
 - Probable mine workings underlying the site.
- 6.3 Two visits were undertaken with a fortnightly interval to inform the preliminary ground gas risk at the site.

Methodology

- 6.4 All boreholes were installed with ground gas monitoring wells with response zones set within the Head deposits and Middle Band Rock. Exploratory hole records showing monitoring well constructions are included in **Appendix 1**.
- 6.5 The assessment of potential ground gas generation is based on the observation of trends and changes in gas evolution by the direct measurement of ground gases from gas wells. The works included measurement of methane, carbon dioxide, oxygen, hydrogen sulphide, carbon monoxide, gas flows and barometric pressure. A PID survey was undertaken to measure volatile organic compounds within the borehole response zones.

Results

- 6.6 The minimum and maximum steady state concentrations recorded for borehole flow, oxygen, carbon dioxide and methane are summarised below in **Table 6:1**. The full ground gas monitoring results are included in **Appendix 1**.

Table 6:1 : Summary of Recorded Ground Gas Results

Borehole ID	Targeted Geology	Steady Flow (l/hr)		Carbon Dioxide (%v/v)		Methane (%v/v)	
		min.	max.	min.	max.	min.	max.
BH01	Head deposits/ MBR	0	0	2.0	3.4	0	0
BH03	Head deposits	0	0	0.4	2.3	0	0

Atmospheric Pressure and Flow

- 6.7 During the monitoring programme completed at the site the atmospheric pressures were recorded as follows:
- Round 1 – static at 1017mB during the site visit, with regional pressures falling from 1023mB to 1015mB over the preceding 12 hours; and
 - Round 2 – static at 1009mB during the site visit, with regional pressures static at approximately 1008mB over the preceding 12 hours.

Hazardous Ground Gas and Volatile Vapours

- 6.8 Steady carbon dioxide concentrations recorded ranged between 0.4% v/v (recorded on 30/06/2025 in BH03) and 3.4% v/v (recorded on 15/07/2025 in BH01).
- 6.9 Steady methane concentrations recorded <0.1% v/v, for both boreholes, during both visits.
- 6.10 Hydrogen sulphide and carbon monoxide concentrations were not recorded above the limit of detection of the equipment during the monitoring visits.
- 6.11 PID concentrations were recorded as <0.1ppm (the limit of detection of the equipment) for both boreholes during the first visit and was not recorded during the second visit.
- 6.12 Ground gas monitoring results are included in **Appendix 1**.

Suitability of the Data

- 6.13 The tap installed at BH03 was open prior to the first visit, therefore these results are likely to be low due to gas being able to migrate out from the top of the well.

Risk Assessment

- 6.14 CIRIA Report 665 "Assessing Risks Posed by Hazardous Ground Gases to Buildings" presents current best practice on the assessment of ground gases for commercial and residential buildings (with the exception of low rise traditional housing). The report presents a risk based approach based on gas screening values which depend on both the concentration and emission rate of gas from the ground. Gas screening values are calculated as follows:

$$\text{Gas screening value (l/hr)} = \frac{\text{gas concentration (\%)} \times \text{measured borehole flow rate (l/h)}}{100}$$

- 6.15 Based on a maximum flow rate of <0.1% l/hr and a maximum carbon dioxide concentration of 3.4%, a maximum gas screening value of 0.0034 was recorded. This would give a classification of CS1 however, not all potential sources of ground gas were targeted. Therefore, these results suggest there is no significant gas risk associated specifically with shallow coal workings.

7. HUMAN HEALTH RISK ASSESSMENT

7.1 Soil contaminant data have been compared against Generic Site Assessment Criteria (GSAC) published by LQM Suitable for Use Levels (S4ULs) using the CLEA model 1.071 and the updated CLEA framework (2009) for assessing risk from soil contamination to human health. Details of the derivation of the GSACs are presented in **Appendix 3**. The results of the soil chemical laboratory results are provided within **Appendix 1** with a table summarising the results presented as **Appendix 3**.

7.2 The GSACs have been developed with the following assumptions which have been changed from the CLEA default parameter set. Soil type is a sandy loam with an organic matter content of 1%. This is considered to be more representative of shallow Made Ground found on most Brownfield sites than the CLEA default of 6% organic matter. The building type for a commercial development is assumed to be a post 1970s office which is representative of new commercial buildings.

Pathways

7.3 Contamination data have been compared to generic site assessment criteria (GSAC) for a commercial end use (i.e. using all pathways for that end use) based on an organic matter content of 1%.

7.4 The site is to be developed for commercial end use and therefore the key receptor is considered to be an adult female worker and GSACs for a commercial industrial end use have been adopted.

7.5 Exposure pathways considered in this assessment are presented in **Table 7:1**.

Table 7:1 : Commercial Exposure Pathways

Source	Shallow Soils		Deep Soils
Pathway	Commercial / Industrial with managed landscaped areas	Commercial / Industrial with Hard standing areas	Commercial / Industrial
Ingestion of Soil	✓	✗	✗
Ingestion of site derived household dust	✓	✗	✗
Ingestion of contaminated vegetables	✗	✗	✗
Ingestion of soil attached to vegetables	✗	✗	✗
Dermal contact with Soil	✓	✗	✗
Dermal contact with site derived household dust	✓	✗	✗
Inhalation of fugitive soil dust	✓	✗	✗
Inhalation of fugitive site derived household dust	✓	✗	✗
Inhalation of vapours outside	✓	✓	✓
Inhalation of vapours inside	✓	✓	✓

Sources

Soils

- 7.6 When the results were screened against the LQM S4ULS for a commercial end use development some exceedances were recorded for BH01.
- 7.7 The 0.5m to 0.7m and 0.7m to 0.9m samples in BH01 recorded exceedances for several PAHs and Coal Tar. These samples comprised Made Ground including bituminous materials, so this is considered to be the source of the high PAH readings.
- 7.8 No asbestos was present in the two samples tested.
- 7.9 Assuming a hard cover development this will break the pathway between Made Ground and future site users and no contaminant linkage is likely to be realised.

8. CONTROLLED WATERS RISK ASSESSMENT

- 8.1 No groundwater or surface water testing has been undertaken as part of this assessment. However, soil leachability has been undertaken for a number of metals in the Made Ground. The soil leachability results are presented within **Appendix 4**.
- 8.2 The controlled waters assessment considers the potential impact of on-site contamination to pertinent controlled waters receptors identified at the site including:
- Secondary Undifferentiated Aquifer beneath the site within superficial Head deposits; and
 - Secondary A Aquifer beneath the site within Middle Band Rock bedrock deposits.

Pathways

- 8.3 Controlled water risk assessment has been undertaken through assessment of leachable concentrations of contaminants in soil referring to exposure pathways considered and referencing **Table 16**.

Table 8:1 : Controlled Water Exposure Pathways

Controlled Waters Exposure Pathway	Receptor
Leaching of soil contamination into recharge infiltration	✓
Vertical migration of impacted pore water through unsaturated zone into underlying aquifer	✓
Horizontal migration of groundwater through aquifer to offsite receptors	✓

- 8.4 The site is underlain by Head Deposits (Secondary Undifferentiated Aquifer) and Middle Band Rock (Secondary A Aquifer). Therefore, in the absence of surface water receptors, it is considered appropriate to adopt UK Drinking Water Standards (DWS) when assessing the soil leachate concentrations. Where UK DWS are not available, environmental quality standards (EQS) for freshwater and World Health Organisation Standards (WHO) have been adopted as the relevant screening criteria.

Soil Leachability

- 8.5 A summary of the soil leachate concentrations and adopted guideline concentrations are presented within **Appendix 4**. Slight exceedances of arsenic and vanadium were recorded in BH01 at 0.7m – 0.9m, however these are unlikely to be significantly higher than background levels.
- 8.6 Assuming a hard cover development this will break the pathway between recharging infiltration through the Made Ground and underlying aquifers and no contaminant linkage is likely to be realised.

9. ENVIRONMENTAL RISK ASSESSMENT

Introduction

- 9.1 The risk posed by any contaminants in soil or groundwater will depend on the nature of the hazard, the probability of exposure, the pathway by which exposure occurs, and the likely effects on the receptors. A contaminant is defined as a substance that has the potential to cause harm, while a risk is considered to exist if such a substance is present in sufficient concentration to cause harm and a pathway exists for a receptor to be exposed to the substance.
- 9.2 The following sections discuss all the identified potential on and off-site sources, pathways and receptors in the context of the proposed development and plausible pollutant linkages which may represent a risk to identified receptors such as human health and/or controlled waters from the data gained from the desk study. At this stage the assessment is qualitative and aimed to determine all pollutant linkages, irrespective of significance or allowing for uncertainty.
- 9.3 Three impact potentials exist for any given site; these are:
- The site impacting upon itself;
 - The site impacting on its surroundings; and
 - The surroundings impacting on the site.
- 9.4 All three impacts need to be considered in a risk assessment.
- 9.5 A Source, Pathway, Receptor analysis has been undertaken for the site based on the information provided in the preceding sections. This is presented as **Table 9:1** and further information about the risk classification scheme is included within **Appendix 5**.
- 9.6 **Sources (S);** These are potential or known sources of contamination that may relate to a former land use or present site feature or process (e.g. fuel storage tanks).
- 9.7 **Pathways (P);** A pathway is defined as a mechanism or route by which a contaminant comes into contact with, or otherwise affects a receptor. Pathways by which the identified receptors may be impacted upon in the context of the proposed development.
- 9.8 **Receptors (R);** Receptors are defined as people, living organisms, ecological systems, controlled waters, atmosphere, structures and utilities that could be adversely affected by contaminant(s).

Table 9.1: Preliminary Conceptual Site Model

Source	Pathway	Receptor	Con	Prob	Risk	Mitigation/Investigation
S1: On site: Made Ground – benzo(a)anthracene, benzo(b)fluoranthene, benzo(a)pyrene, dibenzo(ah)anthracene and coal tar; arsenic and vanadium within soil leachate; and potential hazardous ground gases (carbon dioxide/methane). S2: On site: Shallow Coal Workings – potential hazardous ground gases (carbon dioxide/methane).	P1: Direct contact, incidental ingestion and inhalation of particulates.	R1: Construction/ services personnel	Md	UI	L	Elevated PAH levels were identified within shallow Made Ground in BH01, the source of which is attributed to the bituminous material present.
		R2: Future site users (commercial)	Md	UI	L	The minimal excavation anticipated for construction of the canopy foundations will limit exposure of workers/services personnel to contaminants within Made Ground. Exposure can also be mitigated by utilising appropriate PPE and maintaining good hygiene levels. Post-construction, the areas is anticipated to be covered in hardstanding, limiting any contact with future site users.
	P2: Vertical migration of contaminants in the soil leachate.	R3: Underlying Secondary A Aquifer	Mi	UI	VL	Soil leachate testing for the Made Ground indicated slight exceedances of arsenic and vanadium levels, though these are unlikely to be significantly different to background levels. The underlying cohesive Head deposits are likely to limit any vertical migration of Made Ground leachate into the groundwater within the Middle Band Rock below.
	P4: Direct contact.	R4: Buried structures/ foundations.	Mi/Md	Lw	L/M	Geotechnical assessment classified the near surface Made Ground, Head Deposit and MBR (sandstone) as Design Sulphate (DS) class and Aggressive Chemical Environment for Soils (AC) classes as DS-2 and AC-2 respectively. Therefore, any concrete designed to be in contact with near surface soils should be suitably designed for these classes. However, one sample of the PLCMF Mudstone at depth (c.11.4m bgl) was recorded to be pyritic. therefore, if concrete is extended into the Mudstone of the PLCMF, DS-4, AC4 will need to be adopted.

Source	Pathway	Receptor	Con	Prob	Risk	Mitigation/Investigation
	P5: Migration and accumulation of ground gases in partially enclosed spaces leading to asphyxiation (carbon dioxide).	R1: Construction/ services personnel	Md	UI	L	There is potential for construction of bike storage or a seating area with surrounding walls, creating partially enclosed spaces.
		R2: Future site users	Mi	UI	VL	Gas monitoring within the Head deposits and Middle Band Rock recorded no flow or methane, carbon monoxide or hydrogen sulphide in the Head deposits and Middle Band Rock. Carbon dioxide levels were also fairly low (maximum of 3.4%). Therefore, suggesting there is no significant risk from shallow coal workings.
	P5: Migration and accumulation of ground gases in partially enclosed spaces leading to explosion (methane).	R2: Future site users	Mi	UI	VL	The anticipated hardstanding across the site will also limit any gas migration into enclosed spaces once the development is complete.
VH = Very High, H = High, M = Moderate, M/L = Moderate/Low, L = Low, VL = Very Low KEY: Sv = Severe, Md = Medium, Mi = Mild, Mr = Minor Hi = High, Li = Likely, Lw = Low Likelihood, UI = Unlikely						
Pollutant Linkage Assessment Summary When considered in the context of the conceptual site model and the historical activities that have taken place (former cotton/wool mill and shallow coal mining), the proposed development is considered to pose a LOW TO VERY LOW RISK to human health, due to the limited soil contaminant exceedances recorded. The risk posed to controlled waters is predominantly considered to be very LOW due to the limited contaminants present in the soil leachate.						

10. WASTE MANAGEMENT

Waste Classification

- 10.1 Soil samples have been characterised against hazardous waste criteria using HazWaste online in order to give an indication of how onsite waste would be classified during development. The results of the waste classification are presented in **Appendix 6**.
- 10.2 The assessment indicates that the shallows soils analysed from BH01 would likely be classified as hazardous, with the 0.7 – 0.9m sample flagged for high total TPH. The 0.5 – 0.7m sample from BH01 would likely also be classified as hazardous had it been tested for TPH.
- 10.3 The deeper soils from BH01 and soils from BH03 tested were classified as non-hazardous. The waste classification assessment only applies to those soils that have been tested. If other soils are to be disposed of off-site, then further analysis may be required.
- 10.4 Asbestos was not observed at the site and was not present in the two samples tested.
- 10.5 Should any soils require disposal off site an assessment of waste classification of the soils for disposal should be made by a competent person. Further chemical analysis may be required to fully characterise waste soils for disposal to landfill or re-use off site. WAC analysis may be required for disposal of soils as inert or hazardous.

Waste Acceptance Criteria

- 10.6 WAC testing was completed on one sample from each borehole. The BH01 Made Ground sample was classified as suitable for disposal as stable non-reactive hazardous waste in non-hazardous landfill, due to high total TPH. The BH03 Made Ground sample indicated that the waste was suitable for inert landfill.

11. CONCLUSION AND RECOMMENDATIONS

Conclusions

- 11.1 The ground conditions generally recorded Made Ground of collective thicknesses up to 1.40m and included a layer of sandstone cobbles with bituminous binding. This was overlying stiff yellowish brown clay Head deposits, over sandstone of Middle Band Rock. This was underlain by dark grey mudstone of Pennine Lower Coal Measures Formation, with an intact 0.2m thick coal deposit and evidence of mining present at 20.20m and 22.20m bgl respectively. The arisings from BH03 significantly changed colour to a light grey mudstone/siltstone in the final 1m of the borehole, potentially indicating Soft Bed Flags.

Environmental

- 11.2 BH01 showed exceedances of several PAHs in Made Ground which can be attributed to the bituminous material present.
- 11.3 A sample from the same Made Ground showed slight exceedances in arsenic and vanadium, however, these are not considered to be significantly different to background levels.
- 11.4 Preliminary ground gas monitoring results show on significant gas risk associated with shallow coal workings. The anticipated hardstanding across the site will also limit any gas migration into enclosed spaces once the development is complete.
- 11.5 Waste soils are likely to be primarily classified as non-hazardous if disposal off-site is required, with the exception of shallow Made Ground containing bituminous materials.
- 11.6 Waste soils are likely to be primarily classified as non-hazardous if disposal off-site is required, Waste Acceptance Criteria (WAC) indicated it would be suitable for inert landfill. WAC testing also indicated the Made Ground containing bituminous materials would be suitable for stable non-reactive hazardous waste in non-hazardous landfill.

Geotechnical

- 11.7 The risk of void migration affecting surface stability is considered to be LOW. Treatment/stabilization of mine workings below the canopy site is not deemed necessary.
- 11.8 Further detailed assessment and design is required to determine suitable foundations; therefore, a Geotechnical Design Report is currently being undertaken.
- 11.9 Aggressive ground testing typically classifies the soils as DS-2 and AC-2 concrete classes in the near surface deposits (Made Ground, Head and MBR (sandstone)). However, one sample of the PLCMF Mudstone at depth (c.11.4m bgl) was recorded to be pyritic. Therefore, if concrete is extended into the Mudstone of the PLCMF, DS-4, AC4 will need to be adopted.

Recommendations

- 11.10 A Geotechnical Design Report is currently being undertaken to confirm the foundation design.

12. REFERENCES

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19. Environment Agency, 2006, Remedial Targets Methodology, Hydrogeological Risk Assessment for Land Contamination
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21. NHBC Guidance for the Safe Development of Housing on Land Affected by Contamination, R&D Publication 66: 2008.

DRAWINGS

Drawing 1: Exploratory Hole Location Plan

Drawing 2: Site Cross Section

APPENDICES

Appendix 1: Factual Report

Environmental
Geotechnical
Specialists



FACTUAL REPORT

job number	C5244/25/E/8058	date	01/08/2025
site address	Huddersfield Bus Station, Upperhead Row, Huddersfield, West Yorkshire, HD1 2JL		
written by	T. Merry	checked by	R. Palmer
issued by	T. Merry		



Please consider the environment before printing this report.



<ENVIRONMENTAL> <GEOTECHNICAL>



Environmental
Geotechnical
Specialists

Rogers Geotechnical Services Ltd
Offices 1 & 2 Barncliffe Business Park, Near Bank, Shelley, Huddersfield, HD8 8LU
☎ 01484 604354 Company No. 5130864

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Appendices

1.	Site Plan
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Factual Report on a Ground Investigation

Location: **Huddersfield Bus Station**
Upperhead Row, Huddersfield, West Yorkshire, HD1 2JL

For: **BWB Consulting Limited**

Intermediary: **Kirklees Council**

Report No: **C5244/25/E/8058**

Report date: **August 2025**

For and on behalf of **Rogers Geotechnical Services Ltd**

	
Tobias Merry MSci (Hons), FGS Geo-environmental Engineer	Rob Palmer MSc FGS ACIEH Engineering Director

1. Introduction

Kirklees Council propose to develop the exterior of the Huddersfield Bus Station, Upperhead Row, Huddersfield, West Yorkshire, HD1 2JL by the construction of a new canopy. Consequently, a site investigation has been undertaken in accordance with the instruction from our client, BWB Consulting, who are acting as a Consultant for the council. This work was required in order to determine the nature of the underlying soils and to assess their engineering properties. This report describes the work undertaken and presents the data obtained.

At the time of the investigation, the site was occupied by an open area of public space, with fixed seating and commercial premises to the north-east. The site was predominantly capped by brick paving to the south and concrete paving to the north.

2. Limitations

This report has been prepared in accordance with our understanding of current best practice. However, new information or legislation, or changes to best practice may necessitate revision of the report after the date of issue. No liability can be accepted for the incorrect interpretation of any of the factual data supplied, particularly between investigatory locations.

3. Fieldworks

The fieldworks were undertaken between the 12th & 14th, and 17th & 18th June 2025. The completed scope of work included the following:

- GPR Clearance.
- Application of Streetworks Permit.
- Two windowless sample boreholes with rotary core and rotary open-hole follow-on, with SPT's undertaken at regular intervals through the overburden.
- Installation of two monitoring standpipes.

The investigatory locations were specified by the client on site and are indicated on the site plan which is presented in Appendix 1 to this report. It should be appreciated that a third borehole was intended, but time constraints of the Streetworks Permit resulted in RBH102 being abandoned under instruction from the client.

3.1 Acquisition of Coal Permit

In order to undertake this investigation, it was necessary to obtain permission to enter or disturb Mining Remediation Authority interests. This permission was granted by Kirklees Council on the 14th May 2025 as permit reference number 28409, which is presented in Appendix 2 to this report.

3.2 Windowless Sample and Rotary Boreholes

These boreholes were initially sunk using a drive-in windowless sampler through the near surface soils. The windowless sample cores were undertaken in 1m lengths and reduced in diameter from 97mm for the first 1.0m, through 87mm, 77mm and 67mm for the final increment within BH01 and 87mm for the first 1.0m, through 77mm for subsequent 1.0m increments. The recovered cores were logged on site, then sealed and returned to the laboratory for subsequent testing. The soils were described in general accordance with BS5930: 2015 +A1: 2020 and full descriptions are given on the borehole records which are presented in Appendix 3. Also included on these records are the core diameters and percentages of core recovered.

Standard penetration tests (SPTs) were undertaken at 1.0m intervals (at the end of each sampler drive). The SPTs were conducted in accordance with the procedures given in BS EN ISO 22476: Part 3: 2005 +A1: 2011, and the results are summarised on the borehole records. During this work an automatic trip hammer of 63.5kg falling through 750mm was employed to drive either a cone or split barrel sampler assembly into the ground, the barrel samples were retained in air tight plastic containers. The SPT certificates are also presented in Appendix 3.

On meeting refusal, BH03 was progressed by rotary cored drilling techniques utilising water flushing and a 115mm diameter barrel, which recovers a 93mm diameter core. The recovered cores were logged on site before being sealed and returned to the laboratory for subsequent testing. The rock was described in general accordance with BS 5930: 2015 +A1: 2020, and full descriptions are given on the borehole records which are presented within Appendix 3. Also included on these records are the sample depths, ground water levels, the percentages of *Total Core Recovery* (TCR), the *Solid Core Recovery* (SCR) and *Rock Quality Designation* (RQD).

Upon meeting refusal within the soil at BH01, and underneath the rotary coring undertaken within BH03, the boreholes were progressed using rotary open-hole drilling techniques in order to assess the nature of the underlying geology with respect to the risk of potential worked coal seams beneath the site

In compliance with the license and the joint Mining Remediation Authority and Health and Safety Executive position statement, water flushing techniques were employed with gas monitoring taking place at the borehole positions throughout the drilling. The boreholes were drilled using a track-mounted rotary drilling rig, using rotary open-hole techniques with 140mm diameter drag and tricone roller bits. The drill chippings brought to the surface in the flush returns were inspected by the driller on a screen which forms part of the re-circulation tanks. The results of this work are also provided on the borehole records which are provided in Appendix 3.

4. Geology

The available published geological data for the site has been examined and the following table presents the anticipated geology.

Table 1: Geological Data for the Site			
Strata Type	Strata Name ¹	Previous Name ²	Description ²
Superficial Geology	Head	Head Gravel	Head is poorly sorted and poorly stratified, angular rock debris and/or clayey hillwash and soil creep, mantling a hillslope and deposited by solifluction and gelifluction processes.
Solid Geology	Middle Band Rock	-	The Middle Band Rock is a thin and relatively impersistent thinly bedded rubbly sandstone notable mainly in the north of the district and around Huddersfield.

Markers within the same faulted block on the geological map suggest that the solid geology generally dips at about 2-4° to the east.

¹ Sources: British Geological Survey (NERC) Map Sheets 77; Huddersfield; Solid and Drift Edition, and Onshore GeoIndex Viewer [online resource from www.bgs.ac.uk]

² Sources: British Geological Survey (NERC) Lexicon of Named Rock Units [online resource from www.bgs.ac.uk]

5. Strata Conditions

The investigation revealed the following strata:

Table 2: Generalised Strata Profile

Depth m below ground level to underside of layer	Strata Type	Encountered in	Groundwater Strikes m below ground level
0.05	Made Ground (Paving).	BH01	None
0.10	Made Ground (Silty SAND).	BH03	None
0.25 – 0.60	Made Ground (Concrete).	BH01, BH03	None
0.40 – 0.50	Made Ground (Sandstone COBBLES with bituminous binding).	BH01, BH03	None
0.5	Made Ground (Silty gravelly SAND).	BH03	None
1.20	Made Ground (Silty very gravelly SAND with low cobble content).	BH01	None
1.20	Made Ground (Very gravelly SAND with moderate cobble content).	BH03	None
1.40	Made Ground (Very sandy CLAY).	BH01	None
3.80 – 4.85	Slightly sandy to sandy slightly gravelly silty CLAY. [Head]	BH01, BH03	None
4.55 – 5.00	Silty to very silty gravelly to very gravelly SAND. [Weathered Middle Band Rock]	BH01	None
6.40 – 8.50	SANDSTONE. [Middle Band Rock]	BH01, BH03	None
13.90 – +25.00	MUDSTONE. [Pennine Lower Coal Measures Formation]	BH01, BH03	None
20.40 – 21.50	COAL. [Soft Bed Coal]	BH01	None
23.00	VOID.	BH01	None

'+' denotes that the strata extended below the termination depth of the investigated positions, thus the extent of the deposit is only proven to the depths indicated.

5.1 General Strata

The investigation has revealed that below a moderate capping of cohesive and granular made ground, firm to stiff yellowish brown locally mottled grey slightly sandy becoming sandy slightly gravelly silty clay was recorded to between 3.80m and 4.85m below existing ground level (begl) within both locations, however in location BH01, this clay is interbedded with yellowish brown silty to very silty gravelly to very gravelly sand to depths of between 4.55 and 5.00m begl. These strata are anticipated to represent Head deposits underlain by the weathered fraction of the Middle Band Rock.

Underlying these soils, medium strong yellowish brown and greyish brown sandstone was exposed to depths of between 6.40m and 8.50m begl in each location. Taking into consideration the available geological data for the site, this stratum is anticipated to represent the Middle Band Rock.

Beneath the sandstone, dark grey mudstone was uncovered to depths of between 20.20m and 21.20m begl, underlain by intact coal in each location to a depth of between 20.40m and 21.50m begl. It is anticipated that these strata represent the Soft Bed Coal within the undifferentiated Pennine Lower Coal Measures Formation, indicated to underlie the site. Underneath the coal seam

within location BH03, the dark grey and light grey mudstone continues to termination of the borehole, however, within location BH01 broken ground was encountered to a depth of 22.20m begl, underneath which a 0.80m void was discovered. Beneath this void the dark grey mudstone was revealed to termination of the borehole.

5.2 Groundwater

A groundwater strike was observed within both borehole locations, 5.00m within BH01 rising to 4.70m begl after 20 minutes of observation, and 5.20m within BH03 remaining at 5.20m begl after 20 minutes of observation. It should be appreciated that the normal rate of boring does not permit the recording of an equilibrium water level for any one strike. Moreover, groundwater levels are subject to seasonal variation or changes on local drainage conditions.

6. Insitu Testing

6.1 Standard Penetration Tests

The standard penetration tests undertaken are summarised in the following table:

Table 3: Summary of Standard Penetration Tests					
Strata	Depth Range (m)	SPT 'N' (Blows/300mm)			Comments
		Granular soils	Cohesive soils	Rock	
Head Deposits	1.40m – 4.05m 4.05m – 4.55m	24	7 to 25	–	SPTs indicate cohesive material is in a firm to stiff insitu condition and granular material is in a medium dense insitu condition.
Middle Band Rock	3.80m – 8.50m 5.00m – 6.40m	–	–	50	SPTs indicate rock.
Pennine Lower Coal Measures Formation	8.50m – 13.99m	–	–	50	SPTs indicate rock.

6.2 Gas and Water Level Monitoring

The standpipes were monitored between the 30th June and the 15th July 2025. The results of the gas monitoring undertaken to date are tabulated below and full results are presented in Appendix 4.

Table 5: Gas Monitoring								
Location	Date	CH ₄ (%)	CO ₂ (%)	O ₂ (%)	Flow (l/h)	Barometric Pressure (mb)	Water Level (m)	Standpipe Depth (m)
BH01	30.06.2025	0.0	2.0	14.2	0.0	1017↓	-	6.00
	15.07.2025	0.0	3.4	9.5	0.0	1009↑	-	
BH03	30.06.2025	0.0	0.4	17.0	0.0	1017↓	-	3.87
	15.07.2025	0.0	2.3	10.9	0.0	1009↑	-	

↑ - rising pressure ↓ - falling pressure ↔ -steady pressure

This work was undertaken using a GFM Series gas monitor (serial No 13747/270525) which was last calibrated on the 27th May 2025

7. Laboratory Testing - Geotechnical

The following programme of laboratory testing has been undertaken on samples obtained during this investigation:

- Determination of water content BS EN ISO 17892-1:2014
- Determination of liquid and plastic limits BS EN ISO 17892-12:2018
- Determination of particle size distribution (Wet) BS EN ISO 17892-4:2016: 5.2
- Sedimentation by pipette BS EN ISO 17892-4:2016: 5.3 – 5.4
- Determination of total sulphur BS 1377-3:2018+A1:2021: Pt3: 7.10
- Soluble sulphate content BS 1377-3:2018+A1:2021: Pt3: 7.3
- pH value BS 1377-3:2018+A1:2021: Pt3: 12
- Point Load Strength Index Test ISRM (1984)

The test results are presented in Appendix 4 and are summarised below:

Table 4: Summary of Geotechnical Test Results				
Test type	Number of tests	Range of results		Comments
Moisture content determinations	11	14% to 26%		Generally reducing with depth.
Index Properties (4 Point)	11	LL PL PI	33% to 60% 15% to 26% 14% to 35%	Clay of high plasticity. Consistency index 0.9 to 1.4 NHBC Class - Medium
Particle size distribution (Wet sieve and sedimentation)	1	Gravel Sand Silt Clay	46% 31% 11% 12%	Clayey silty very sandy GRAVEL.
Soluble sulphate & pH	8	SO ₄ pH	0.0145 & 0.448g/l 5.7 & 10.8	
Point Loads	7	I _{s(50)}	0.3 to 3.9	Results indicate rock is present in a weak to strong in-situ condition.

8. Laboratory Testing - Environmental

A suite of testing was conducted on samples from across the site and the following regime was undertaken.

- Metals – Cd, Cr^{VI}, Cu, Hg, Ni, Pb, V and Zn.
- Semi and Non-Metals - As, Se, Free CN⁻ and Phenols.
- Polycyclic aromatic hydrocarbons (PAHs).
- Petroleum hydrocarbons (TPHs).
- Others – pH, organic content, VOCs, MTBEs and total/soluble SO₄²⁻.
- Asbestos.

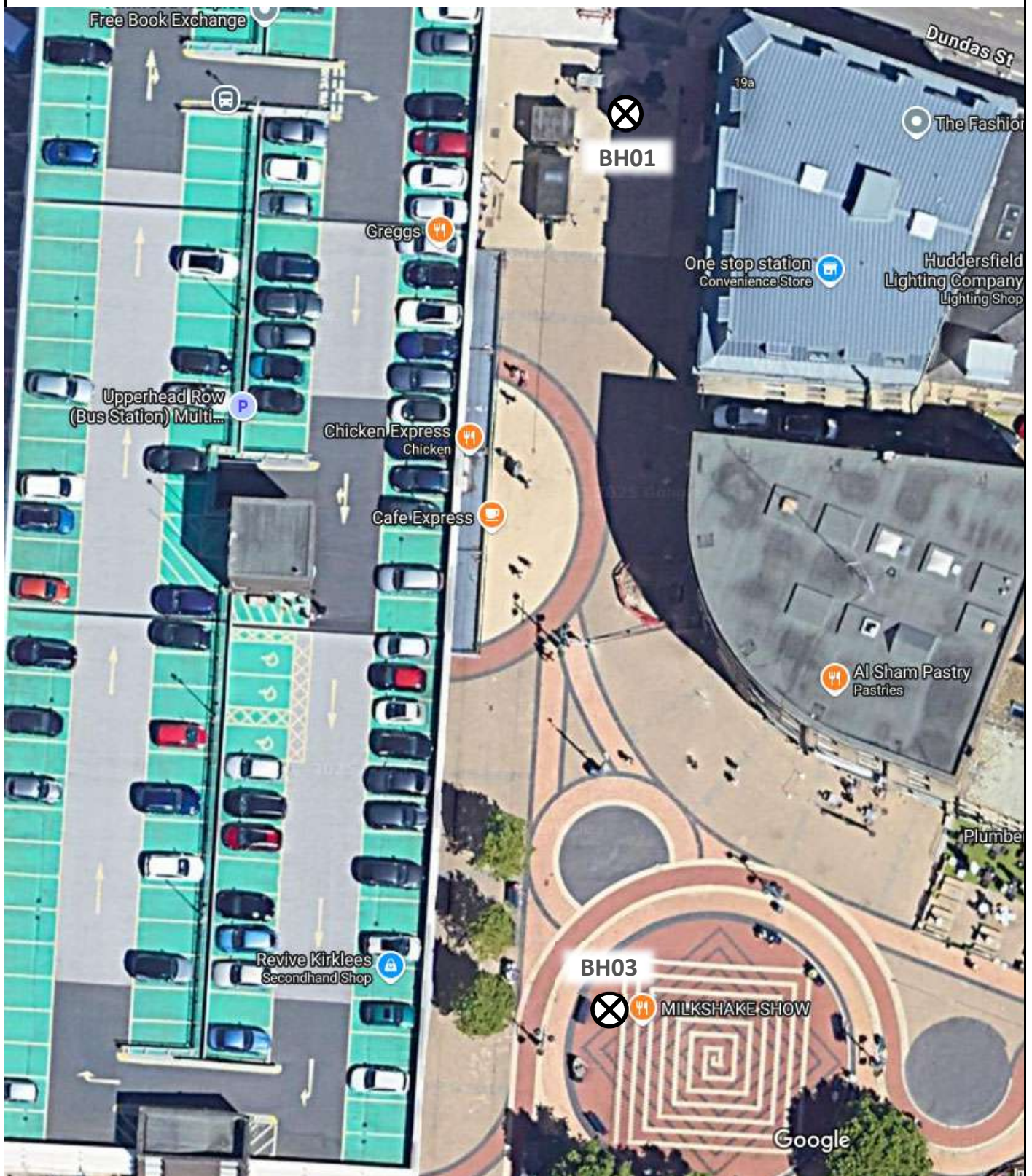
This testing was undertaken by i2 Analytical Ltd and the results of all of the chemical testing are presented in Appendix 4 of this report.

9. References

- British Standards Institution (1990) BS1377: *British standard methods of test for soils for civil engineering purposes*, B.S.I., London.
- British Standard Institution (2005 +A1: 2011) EN ISO 22476-3: *Geotechnical investigation and testing – Field testing, Part 3: Standard penetration test*, B.S.I., London.
- British Standards Institution (2015+ A1: 2020) BS5930: *Code of practice for ground investigations*, B.S.I., London.
- British Geological Survey (NERC) (2025), BGS, Keyworth.
 - Onshore GeoIndex:
(<https://mapapps2.bgs.ac.uk/geoindex/home.html>)
 - Lexicon of Named Rock Units:
(<http://www.bgs.ac.uk/lexicon/>)

Appendix 1

Site Plan



Plan not to scale and investigation positions approximated from site operative's notes.

Title: **Investigation Location Plan**

	Site Name: Huddersfield Bus Station	Job No: C5244/24/E/8058	t. 0843 50 666 87 www.rogersgeotech.co.uk
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Appendix 2

Coal Permit



Mining
Remediation
Authority

Permit to Enter or Disturb Coal Authority Interests

Permit 28409

Name and Address of Permit Holder:

*Kirkless Council
Princess Street
Huddersfield
HD1 2TT*

Site Location:

*Huddersfield Bus Station
Upperhead Row
Huddersfield
HD1 2JN*

This certificate hereby grants the above named Permit Holder a Permit to carry out:-

Ground investigation by three boreholes to 25m within the Authority's interests at the identified site location above as shown on the Grant Permit Boundary (overleaf) for the period of **12 months** from the granted date shown below. *The granting of this Permit does not constitute advice given by the Authority in relation to the proposed operations. It is the Permit Holder's responsibility to obtain appropriate health, safety, environmental, technical and legal advice.*

Conditions:

- *Manned entry (i.e.) into mine entries/workings) is strictly prohibited.*
- *No works to commence prior to agreement of Network Rail's Asset Protection Team.*
- *Water flush*
- *Gas Monitoring CO, CH₄, CO₂, O₂, H₂S at borehole and rig*
- *Operators undertaking the work must be in possession of this certificate and the Permit boundary plan at the time of works*
- *Appropriate borehole sealing without delay and to withstand site level changes*

Signed: Izaak Hayes Granted Date: 14/05/2025

For and on behalf of The Coal Authority

Nominated Representative: Izaak Hayes, Permitting Manager;

The Mining Remediation Authority, Permitting Office, 200 Lichfield Lane, Mansfield, Notts, NG18 4RG

Tel: 01623 637150; E-Mail: permissions@coal.gov.uk



Mining
Remediation
Authority

Granted Permit Boundary

Permit Ref: 28409

Permit Boundary:

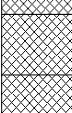
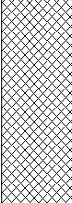
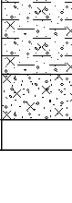


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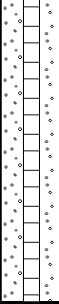
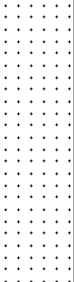
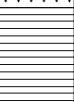
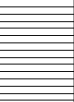
Appendix 3

Borehole Records

				Borehole Log				Borehole No. BH01	
Project Name: Huddersfield Bus Station				Project No. C5244/25/E/8058		Co-ords: 414235.28E - 416592.79N		Sheet 1 of 5	
Location: Upperhead Row, Huddersfield, West Yorkshire, HD1 2JL				Level: 99.61m aOD		Scale 1:25		Hole Type WLS+RO	
Client: BWB Consulting Limited				Dates: 18/06/2025		Logged By TM			

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.05	99.56		CONCRETE FLAGS.	
					0.25	99.36		CONCRETE (Dark grey matrix, clasts are angular to rounded and <55mm of primarily limestone, with various lithologies. 0.0% Voids)	
	0.50 - 0.70	ES		0.50	99.11	MADE GROUND (SANDSTONE COBBLES with bituminous binding).			
								MADE GROUND (Dark brown, silty, very gravelly fine to coarse SAND, with low cobble content. Gravel is sub-angular to sub-rounded and fine to coarse of various lithologies, bituminous materials, concrete and brick. Cobbles are sub-angular to sub-rounded and <150mm of various lithologies, concrete and brick).	
	0.70 - 0.90	ES							
	1.20 - 1.40	ES		1.20	98.41			MADE GROUND (Dark brown, very sandy CLAY. Sand is fine to coarse. Gravel is angular to sub-angular and fine to medium of ash and clinker).	
									
	1.40 - 1.60	ES	N=7 (1,0/1,2,2,2)	1.40	98.21				
									
	1.60 - 1.80	C							
	1.80 - 2.00	C							
									
2.00	SPT	N=15 (1,2/3,3,4,5)							
									
2.50 - 2.70	C								
2.80 - 3.00	C								
									
3.00	SPT	N=20 (2,3/4,4,5,7)							
									
3.50 - 3.70	C								
3.80 - 4.00	C								
4.00	SPT	N=24 (7,6/6,6,6,6)		4.05	95.56		Medium dense yellowish brown, clayey, silty, very gravelly fine to coarse SAND. Gravel is angular to sub-angular and fine to coarse of sandstone. Slightly to moderately weathered.		
4.40 - 4.55	C						HEAD DEPOSITS		
4.60 - 4.80	C			4.55	95.06		Soft becoming stiff, yellowish brown mottled grey, sandy, slightly gravelly, silty CLAY. Sand is fine to coarse. Gravel is angular to sub-angular and fine to coarse of sandstone.		
4.70				4.85	94.76				
5.00	SPT	50 (25 for 85mm/50 for 190mm)		5.00	94.61				

Remarks Inspection pit to 1.2m. Casing installed to 6m. Termination Reason: Drilling Rod Blocked.		
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				Borehole Log				Borehole No. BH01	
Project Name: Huddersfield Bus Station				Project No. C5244/25/E/8058		Co-ords: 414235.28E - 416592.79N		Sheet 2 of 5	
Location: Upperhead Row, Huddersfield, West Yorkshire, HD1 2JL				Level: 99.61m aOD		Hole Type WLS+RO			
Client: BWB Consulting Limited				Dates: 18/06/2025		Scale 1:25			
Client: BWB Consulting Limited				Dates: 18/06/2025		Logged By TM			
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		5.00						Soft becoming stiff, yellowish brown mottled grey, sandy, slightly gravelly, silty CLAY. Sand is fine to coarse. Gravel is angular to sub-angular and fine to coarse of sandstone. HEAD DEPOSITS	
		6.00	SPT	50 (25 for 125mm/50 for 190mm)	6.40	93.21		Yellowish brown, very silty, gravelly fine to coarse SAND. Gravel is angular to sub-angular and fine to medium of sandstone. Yellowish brown SANDSTONE . (Driller's notes) MIDDLE BAND ROCK	6
								Dark grey MUDSTONE. (Driller's notes - 90% drill flush returns) PENNINE LOWER COAL MEASURES FORMATION	7
									8
									9
									10
Remarks Inspection pit to 1.2m. Casing installed to 6m. Termination Reason: Drilling Rod Blocked.									

					Borehole Log				Borehole No. BH01 Sheet 3 of 5										
Project Name: Huddersfield Bus Station					Project No. C5244/25/E/8058		Co-ords: 414235.28E - 416592.79N			Hole Type WLS+RO									
Location: Upperhead Row, Huddersfield, West Yorkshire, HD1 2JL					Level: 99.61m aOD			Scale 1:25											
Client: BWB Consulting Limited					Dates: 18/06/2025			Logged By TM											
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description											
		Depth (m)	Type	Results															
								Dark grey MUDSTONE. (Driller's notes - 90% drill flush returns) PENNINE LOWER COAL MEASURES FORMATION	11										
									12										
									13										
									14										
									15										
									Remarks										
									Inspection pit to 1.2m. Casing installed to 6m.										
Termination Reason: Drilling Rod Blocked.																			

					Borehole Log				Borehole No. BH01 Sheet 4 of 5								
Project Name: Huddersfield Bus Station					Project No. C5244/25/E/8058		Co-ords: 414235.28E - 416592.79N			Hole Type WLS+RO							
Location: Upperhead Row, Huddersfield, West Yorkshire, HD1 2JL					Level: 99.61m aOD			Scale 1:25									
Client: BWB Consulting Limited					Dates: 18/06/2025			Logged By TM									
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description									
		Depth (m)	Type	Results													
								Dark grey MUDSTONE. (Driller's notes - 90% drill flush returns) PENNINE LOWER COAL MEASURES FORMATION	16								
									17								
									18								
									19								
									20								
									Remarks								
									Inspection pit to 1.2m. Casing installed to 6m. Termination Reason: Drilling Rod Blocked.								

				Borehole Log				Borehole No. BH01	
Project Name: Huddersfield Bus Station				Project No. C5244/25/E/8058		Co-ords: 414235.28E - 416592.79N		Sheet 5 of 5 Hole Type WLS+RO	
Location: Upperhead Row, Huddersfield, West Yorkshire, HD1 2JL				Level: 99.61m aOD		Scale 1:25			
Client: BWB Consulting Limited				Dates: 18/06/2025		Logged By TM			
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					21.20	78.41		Dark grey MUDSTONE. (Driller's notes - 90% drill flush returns) PENNINE LOWER COAL MEASURES FORMATION	21
								Soft Ground. Loss of flush with little to no resistance during drilling. (Consultant's notes) <u>21.20m to 21.50m: COAL.</u>	22
					22.20	77.41		VOID.	
					23.00	76.61		Broken ground. No flush returns. Drill string noted to be bouncy on uneven surfaces, with varying drilling rates. (Consultant's notes)	23
					23.30	76.31			
					23.50	76.11		Hard Ground. No flush returns. (Consultant's notes)	
								End of Borehole at 23.50m	24
Remarks Inspection pit to 1.2m. Casing installed to 6m. Termination Reason: Drilling Rod Blocked.									

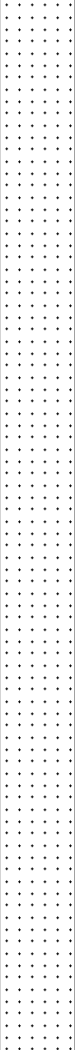
					Borehole Log					Borehole No. BH03 Sheet 1 of 5	
Project Name: Huddersfield Bus Station					Project No. C5244/25/E/8058		Co-ords: 414234.17E - 416530.14N			Hole Type WLS+RO+RC	
Location: Upperhead Row, Huddersfield, West Yorkshire, HD1 2JL					Level: 99.52m aOD			Scale 1:25			
Client: BWB Consulting Limited					Dates: 12/06/2025 - 17/06/2025			Logged By TM			

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10 - 0.25	ES		0.05	99.47		Brick Paving.	1 2 3 4 5
		0.25 - 0.40	ES		0.10	99.42		MADE GROUND (Light brown, silty fine to coarse SAND).	
		0.40 - 0.50	ES		0.25	99.27		CONCRETE (Dark grey matrix, clasts are angular to rounded and <55mm of various lithologies. 0.5% Voids)	
		0.60 - 0.80	ES		0.40	99.12		MADE GROUND (SANDSTONE COBBLES with bituminous binding.)	
					0.50	99.02		MADE GROUND (Dark brown, silty, gravelly fine to coarse SAND. Gravel is angular to sub-rounded and fine to coarse of various lithologies and concrete).	
					0.60	98.92		CONCRETE (Dark grey matrix, clasts are angular to rounded and <55mm of various lithologies. 0.5% Voids)	
		1.20	SPT	N=9 (1,0/2,2,3,2)	1.20	98.32		MADE GROUND (Brown, very gravelly fine to coarse SAND with moderate cobble content. Gravel is angular to sub-rounded and fine to coarse of sandstone. Cobbles are sub-rounded to rounded and <400mm of sandstone).	
		1.50 - 1.70	ES						
		1.70 - 2.00	C					Firm becoming stiff yellowish brown, slightly sandy becoming sandy, slightly gravelly, silty CLAY. Sand is fine to coarse. Gravel is angular to sub-rounded and fine to coarse of sandstone.	
		2.00	SPT	N=25 (11,5/5,6,6,8)				HEAD DEPOSITS	
		2.50 - 2.70	C					2.00m to 2.90m: No recovery.	
		2.80 - 3.00	C						
		3.00	SPT	N=13 (2,2/2,3,3,5)				2.90m: Low cobble content - angular to sub-angular and <72mm of sandstone.	
		3.80						3.00m: Becoming sandy.	
		3.90	SPT	50 (25 for 105mm/50 for 75mm)					
4.50 - 4.60	C	93 75 20 0							
		4.70 - 4.75	C					Medium strong, thickly laminated, greyish brown, cross laminated SANDSTONE. Discontinuities are rough undulating, closed to open and commonly clean, rarely infilled with gravel.	
		4.81 - 4.86	C						
		4.98 - 5.03	C						

Remarks

Inspection pit to 1.2m. Casing installed to 4m.
 Termination Reason: Target depth reached.



										Borehole Log				Borehole No. BH03	
Project Name: Huddersfield Bus Station										Project No. C5244/25/E/8058		Co-ords: 414234.17 - 416530.14		Sheet 2 of 5 Hole Type WLS+RO+RC	
Location: Upperhead Row, Huddersfield, West Yorkshire, HD1 2JL										Level: 99.52m aOD		Scale 1:25		Logged By TM	
Client: BWB Consulting Limited										Dates: 12/06/2025 - 17/06/2025					
Well	Water Strikes	Samples and In Situ Testing							Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Dia. (mm)	TCR (%)	SCR (%)	RQD (%)	FS (mm)							
		5.05	C									Medium strong, thickly laminated, greyish brown, cross laminated SANDSTONE. Discontinuities are rough undulating, closed to open and commonly clean, rarely infilled with gravel. MIDDLE BAND ROCK			
		5.05 - 5.10	C												
		5.20 (0 mins)													
		5.20 (20 mins)													
		5.50	SPT	N=50 (25/50 for 50mm)											5.50m to 8.30m: No recovery.
													6		
				93	0	0	0								
		7.00	SPT	N=50 (7,11/50 for 155mm)										7	
				93	15	0	0								
		8.50	SPT	50 (25 for 135mm/50 for 79mm)					8.50	91.02		Weak, thinly laminated, dark grey MUDSTONE. Discontinuities are closely spaced, smooth planar, closed to open, commonly clean, commonly infilled with gravel. PENNINE LOWER COAL MEASURES FORMATION			
				93	0	0	0							9	
		10.00	SPT	N=50 (8,16/50 for 75mm)										10	
Remarks															
Inspection pit to 1.2m. Casing installed to 4m.															
Termination Reason: Target depth reached.															
															

									Borehole Log				Borehole No. BH03 Sheet 3 of 5	
Project Name: Huddersfield Bus Station				Project No. C5244/25/E/8058			Co-ords: 414234.17 - 416530.14			Hole Type WLS+RO+RC				
Location: Upperhead Row, Huddersfield, West Yorkshire, HD1 2JL				Level: 99.52m aOD			Scale 1:25			Logged By TM				
Client: BWB Consulting Limited				Dates: 12/06/2025 - 17/06/2025										
Well	Water Strikes	Samples and In Situ Testing							Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Dia. (mm)	TCR (%)	SCR (%)	RQD (%)	FS (mm)						
		11.38	C	93	80	0	0					Weak, thinly laminated, dark grey MUDSTONE. Discontinuities are closely spaced, smooth planar, closed to open, commonly clean, commonly infilled with gravel. PENNINE LOWER COAL MEASURES FORMATION <i>10.00m to 10.85m: Completely fractured.</i>	11	
												<i>11.50m to 11.90m: Completely fractured</i>		
												<i>11.90m to 12.20m: No recovery</i>	12	
		12.95 - 13.00	93	65	0	0					<i>12.20m to 12.50m: Completely fractured.</i> <i>12.50m to 12.80m: Cross-cutting sub-vertical clean fracture.</i>	13		
												<i>13.00m to 13.30m: Completely fractured.</i>		
		13.90	SPT	50 (25 for 60mm/50 for 25mm)				13.90	85.62			Dark grey MUDSTONE. (Driller's notes - 80% drill flush returns) PENNINE LOWER COAL MEASURES FORMATION	14	
													15	
Remarks Inspection pit to 1.2m. Casing installed to 4m. Termination Reason: Target depth reached.														



					Borehole Log				Borehole No. BH03 Sheet 4 of 5										
Project Name: Huddersfield Bus Station					Project No. C5244/25/E/8058		Co-ords: 414234.17E - 416530.14N			Hole Type WLS+RO+RC									
Location: Upperhead Row, Huddersfield, West Yorkshire, HD1 2JL					Level: 99.52m aOD			Scale 1:25											
Client: BWB Consulting Limited					Dates: 12/06/2025 - 17/06/2025			Logged By TM											
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description											
		Depth (m)	Type	Results															
								Dark grey MUDSTONE. (Driller's notes - 80% drill flush returns) PENNINE LOWER COAL MEASURES FORMATION	16										
									17										
									18										
									19										
									20										
									Remarks										
									Inspection pit to 1.2m. Casing installed to 4m.										
Termination Reason: Target depth reached.																			

					Borehole Log				Borehole No. BH03 Sheet 5 of 5		
Project Name: Huddersfield Bus Station					Project No. C5244/25/E/8058		Co-ords: 414234.17E - 416530.14N			Hole Type WLS+RO+RC	
Location: Upperhead Row, Huddersfield, West Yorkshire, HD1 2JL					Level: 99.52m aOD			Scale 1:25			
Client: BWB Consulting Limited					Dates: 12/06/2025 - 17/06/2025			Logged By TM			
Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
					20.20	79.32		Dark grey MUDSTONE. (Driller's notes - 80% drill flush returns) PENNINE LOWER COAL MEASURES FORMATION			
					20.40	79.12		COAL. (Driller's notes) SOFT BED COAL?			
								Dark grey MUDSTONE. (Driller's notes) PENNINE LOWER COAL MEASURES FORMATION			
				24.00	75.52		Light grey MUDSTONE/SILTSTONE. (Driller's notes) SOFT BED FLAGS?	24			
				25.00	74.52			25			
End of Borehole at 25.00m											
Remarks Inspection pit to 1.2m. Casing installed to 4m. Termination Reason: Target depth reached.											

Appendix 4

Gas Monitoring

[illegible]

Appendix 5

Laboratory Testing



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LABORATORY REPORT

job number	date
site address	
date scheduled	date issued
issued by	



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Schedule of UKAS Accredited Laboratory Tests



1. CLASSIFICATION OF SOIL	BS 1377-2:2022	BS EN ISO 17892	Accredited (A)	Unaccredited (U)
1.1 Moisture / Water content determination				
i. Oven drying	Pt 2	BS EN ISO 17892-1:2014+A1:2022	A	
ii. Saturation m/c of chalk	Pt 2 :			U
1.2 Index Properties				
i. Liquid limit – cone penetrometer	Pt 2	BS EN ISO 17892-12 2018+A2:2022	A	
ii. Plastic limit	Pt 2	BS EN ISO 17892-12 2018+A2:2022	A	
iii. Shrinkage limit	:			U
iv. Linear shrinkage	Pt 2		A	
1.3 Particle Density				
i. Gas jar	Pt 2 :		A	
ii. Large pycnometer	Pt 2			U
iii. Small pycnometer		BS EN SIO 17892-3:2015	A	
1.4 Density Tests				
i. Linear measurement	Pt 2	BS EN ISO 17892-2:2014	A	
ii. Immersion in water	Pt 2	Pt 2 : 2014 : 5.2		U
iii. Fluid / Water displacement	Pt 2	Pt 2 : 2014 : 5.3		U
iv. Sand replacement	Pt 9			U
v. Core cutter	Pt 9			U
1.5 Particle Size Distribution				
i. Dry Sieve	Pt 2	BS EN ISO 17892-4:2016	A	
ii. Wet Sieve	Pt 2	BS EN ISO 17892-4:2016	A	
iii. Sedimentation by pipette	Pt 2	BS EN ISO 17892-4:2016	A	
iv. Sedimentation by hydrometer	Pt 2			U
2. CHEMICAL TESTS	BS 1377-3:2018			
ii. Mass loss on ignition	Pt 3 : 4			U
3. COMPACTION RELATED TESTS	BS 1377-2:2022			
3.1 Dry density/moisture relationship				
i. 2.5kg rammer – 1 litre mould	Pt 2		A	
- CBR mould	Pt 2		A	
ii. 4.5kg rammer – 1 litre mould	Pt 2		A	
- CBR mould	Pt 2		A	
3.2 Moisture Condition Value				
i. Single point test	Pt 2			U
ii. MCV/moisture content relationship	Pt 2			U
3.3 California Bearing Ratio				
i. Undisturbed sample	Pt 2		A	
ii. Recompacted sample	Pt 2		A	
iii. Soaked, inc measurement of swell	Pt 2		A	
4. COMPRESSIBILITY OF SOIL	BS 1377-2:2022			
i. One dimensional consolidation	Pt 2	BS EN ISO 17892-5:2017	A	
ii. Swelling pressure test	Pt 2			U
5. SHEAR STRENGTH OF SOIL	BS 1377-2:2022			
i. Hand shear vane	Makers instructions			U
ii. Shear box (100mm square sample)	BS 1377 : Pt 7 : 4			U
iii. Triaxial – quick undrained	BS 1377 : Pt 2	BS EN ISO 17892-8:2018	A	
6. PERMEABILITY				
i. Falling head	K. H. Head Vol 2			U
ii. Constant head	BS 1377 : Pt 6 : 6			U
iii. Triaxial cell	BS 1377 : Pt 6 : 6			U
7. ROCK TESTS				
7.1 Classification Tests				
i. Natural moisture content	-			U
ii. Saturated moisture content	-			U
iii. Natural density	-			U
iv. Porosity	-			U
7.2 Strength Tests				
i. Point load index	ISRM '85			U
ii. Uniaxial compression test	ISRM '81			U

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Disclaimer

The results reported herein relate only to the material supplied to the laboratory.

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GEOTECHNICAL TESTING RESULTS



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Summary of Non-conforming Tests

Project No.

C5244/25/E/8058

Project Name

Huddersfield Bus Station

[illegible]

Date Printed

25/06/2025

Approved By

HJL

Table
0

sheet
1

		Summary of Classification Test Results														
Project No. C5244/25/E/8058		Project Name Huddersfield Bus Station														
Hole No.	Sample				Soil Description	Density		w	Passing 425µm	LL	PL	PI	Particle density Mg/m³	1pt/4p t	Date	Increase/D ecrease
	Ref	Top	Base	Type		bulk	dry									
BH01	3	1.20	1.40	ES	MADE GROUND (Dark brown, very sandy CLAY).			19	81	43	26	17		4pt	24-Jun	Increase
BH01	5	1.60	1.80	C	Soft becoming stiff, yellowish brown mottled grey, slightly sandy, slightly gravelly, silty CLAY.			26	97	58	24	34		4pt	24-Jun	Increase
BH01	6	1.80	2.00	C	Soft becoming stiff, yellowish brown mottled grey, slightly sandy, slightly gravelly, silty CLAY.			24	91	60	25	35		4pt	24-Jun	Increase
BH01	7	2.50	2.70	C	Soft becoming stiff, yellowish brown mottled grey, slightly sandy, slightly gravelly, silty CLAY.			19	82	48	21	27		4pt	24-Jun	Increase
BH01	8	2.80	3.00	C	Soft becoming stiff, yellowish brown mottled grey, slightly sandy, slightly gravelly, silty CLAY.			19	77	47	21	26		4pt	24-Jun	Increase
BH01	9	3.50	3.70	C	Soft becoming stiff, yellowish brown mottled grey, slightly sandy, slightly gravelly, silty CLAY.			17	55	39	19	20		4pt	24-Jun	Increase
BH01	10	3.80	4.00	C	Soft becoming stiff, yellowish brown mottled grey, slightly sandy, slightly gravelly, silty CLAY.			16	75	40	19	21		4pt	24-Jun	Increase
BH01	12	4.60	4.80	C	Soft becoming stiff, yellowish brown mottled grey, slightly sandy, slightly gravelly, silty CLAY.			20	92	33	19	14		4pt	24-Jun	Increase
BH03	6	1.70	2.00	C	Soft becoming stiff, yellowish brown, slightly sandy, slightly gravelly, silty CLAY.			16	96	39	19	20		4pt	24-Jun	Increase
BH03	7	2.50	2.70	C	Soft becoming stiff, yellowish brown, slightly sandy, slightly gravelly, silty CLAY.			14	91	32	15	17		4pt	24-Jun	Increase
BH03	8	2.80	3.00	C	Soft becoming stiff, yellowish brown, slightly sandy, slightly gravelly, silty CLAY.			17	65	43	20	23		4pt	24-Jun	Increase
All Water Content Tests performed to BS EN ISO 17892-1:2014+A1:2022 Unless specified Otherwise All Index Property testing performed to BS EN ISO 17892-12 2018+A2:2022 Unless Specified Otherwise All Liquid Limit Tests performed on a 80g/30 Degree Cone unless specified otherwise																
Key								Date Printed		Approved By		Table				
Density test		Liquid Limit		Particle density				03/07/2025		Harry		sheet				
Linear measurement unless :		4pt cone unless :		sp - small pyknometer								1				
wd - water displacement		cas - Casagrande method		gj - gas jar								1				
wi - immersion in water		1pt - single point test														



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Classification of Index Properties

C5244/25/E/8058

Project Name: Huddersfield Bus Station

BS EN ISO 17892-12 2018+A2:2022

Fig. 2
Sheet. 1

Location:

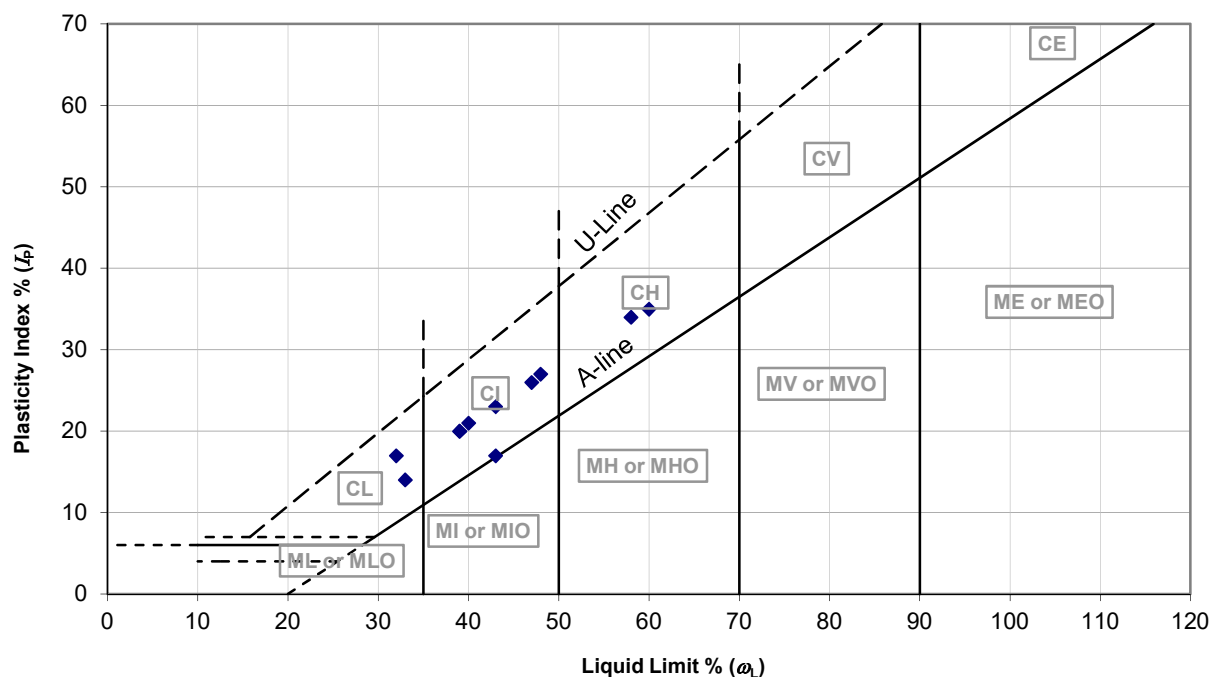
Input By: Harry

Client: BWB Consulting Limited

Check By: EC

Location	Depth (m)	Water Content (ω) (%)	Liquid Limit (ω_L) (%)	Plastic Limit (ω_P) (%)	Plasticity Index (I_P) (%)	Retained by 0.425mm (%)	Modified (ω) (ω') (%)	Modified (I_P) (I_P') (%)	Liquidity/ Consistency		Casagrande Class	N.H.B.C Class (%)
									(I_L) (%)	(I_C) (%)		
BH01	1.20	19	43	26	17	19	23	14	-0.4	1.4	C I	LOW
BH01	1.60	26	58	24	34	3	27	33	0.1	0.9	C H	MEDIUM
BH01	1.80	24	60	25	35	9	26	32	0.0	1.0	C H	MEDIUM
BH01	2.50	19	48	21	27	18	23	22	-0.1	1.1	C I	MEDIUM
BH01	2.80	19	47	21	26	23	25	20	-0.1	1.1	C I	MEDIUM
BH01	3.50	17	39	19	20	45	31	11	-0.1	1.1	C I	LOW
BH01	3.80	16	40	19	21	25	21	16	-0.1	1.1	C I	LOW
BH01	4.60	20	33	19	14	8	22	13	0.1	0.9	C L	LOW
BH03	1.70	16	39	19	20	4	17	19	-0.2	1.2	C I	LOW
BH03	2.50	14	32	15	17	9	15	15	-0.1	1.1	C L	LOW
BH03	2.80	17	43	20	23	35	26	15	-0.1	1.1	C I	LOW

Interpretation graph based on BS EN ISO 14688-2:2018 any interpretations are expressed outside of our UKAS Accreditation.





PARTICLE SIZE DISTRIBUTION

Job Ref

C5244/25/E/8058

Borehole/Pit No.

BH01

Site Name

Huddersfield Bus Station

Sample No.

11

Soil Description

Yellowish brown, silty, very gravelly SAND.

Depth, m

4.40

Specimen
Reference

11

Specimen
Depth

4.4

m

Sample Type

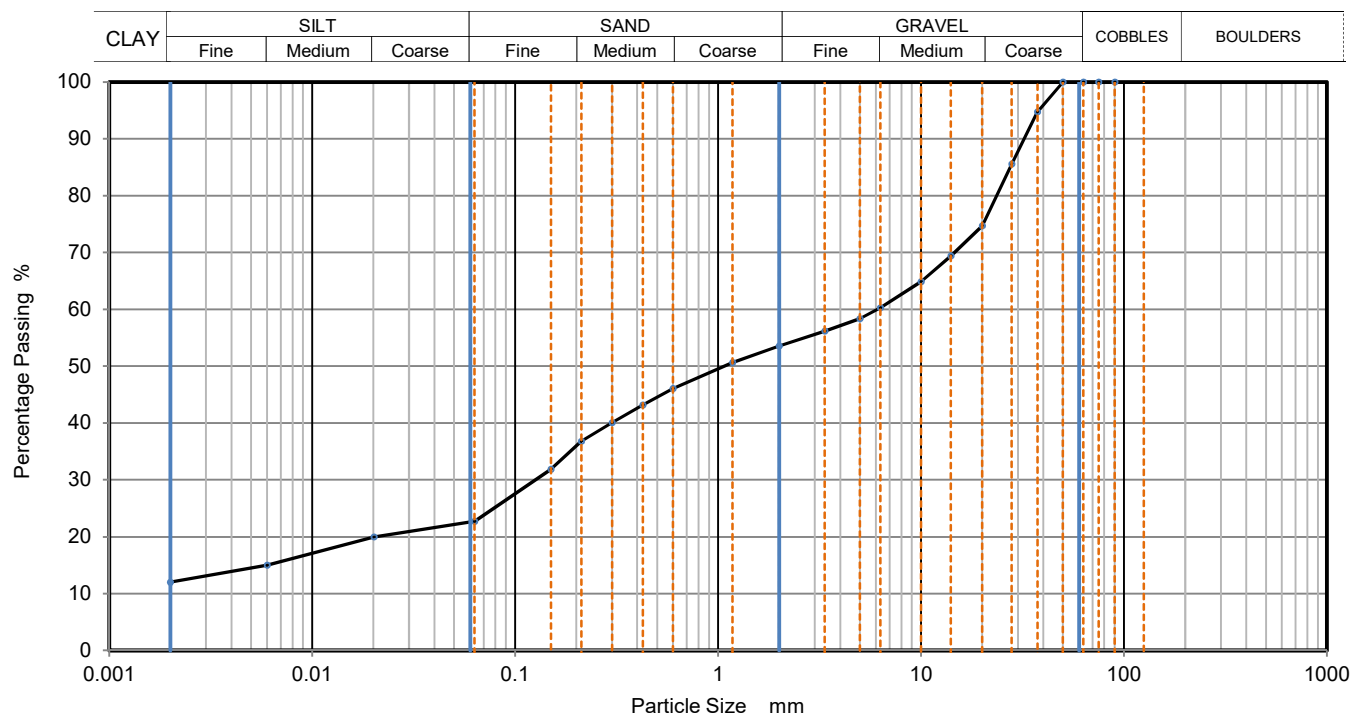
C

Test Method

ISO 17892 -4, by sieving and pipette sedimentation

KeyLAB ID

RGS_2025062413



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0201	20
90	100	0.0060	15
75	100	0.0020	12
63	100		
50	100		
37.5	95		
28	86		
20	75		
14	69		
10	65		
6.3	60		
5	58		
3.35	56		
2	54		
1.18	51		
0.6	46	Particle density (assumed) 2.65 Mg/m ³	
0.425	43		
0.3	40		
0.212	37		
0.15	32		
0.063	23		

Dry Mass of sample, g

1729

Sample Proportions	% dry mass
Very coarse	0
Gravel	46
Sand	31
Silt	11
Clay	12

Grading Analysis	
D ₁₀₀	mm 50
D ₆₀	mm 6.05
D ₃₀	mm 0.125
D ₁₀	mm

Remarks

Preparation and testing in accordance with BS EN ISO 17892 - 4, unless noted below

Test performance date: 01/07/2025

Operator

Checked

Approved

Sheet printed

Fig 3

HJL

EC

Harry

03/07/2025

Sheet 1



Point Load Strength Index Tests Summary of Results



Project No.

C5244/25/E/8058

Project Name

Huddersfield Bus Station

[illegible]

Test Type

D - Diametral, A - Axial, I - Irregular Lump, B - Block

Direction

L - parallel to planes of weakness

P - perpendicular to planes of weakness

U - unknown or random

Dimensions

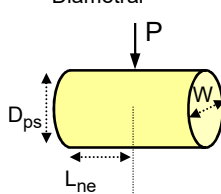
Dps - Distance between platens (platen separation)

Dps' - at failure (see ISRM note 6)

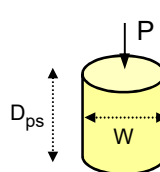
Lne - Length from platens to nearest free end

W - Width of shortest dimension perpendicular to load, P

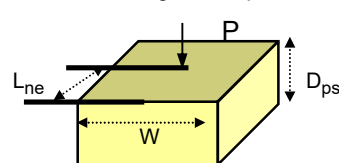
Diametral



Axial



Block/irregular lump



Test performed in accordance with ISRM Suggested Methods : 2007, unless noted otherwise

Detailed legend for test and dimensions, based on ISRM, is shown above.

Size factor, $F = (De/50)^{0.45}$ for all tests.

Date Printed

25/06/2025

Approved By	
-------------	--

Harry

Table

sheet

4

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Rogers Geotechnical Services Ltd
Offices 1 & 2 Barncliffe Business Park, Near Bank, Shelley, Huddersfield, HD8 8LU
☎ 01484 604354 Company No. 5130864



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ENVIRONMENTAL TESTING RESULTS



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Analytical Report Number : 25-033234

Project / Site name:	Huddersfield Bus Station	Samples received on:	23/06/2025
Your job number:	C5244 25 E 8058	Samples instructed on/ Analysis started on:	24/06/2025
Your order number:	PO 3398	Analysis completed by:	04/07/2025
Report Issue Number:	1	Report issued on:	07/07/2025
Samples Analysed:	8 soil samples - 2 leachate samples		



Signed:

Anna Goc
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting
air - once the analysis is complete

Excel copies of reports are only valid when accompanied by this PDF certificate.

Retention period for records and reports is minimum 6 years from the date of issue of the final report.

Some records may be kept for longer according to other legal/best practice requirements.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.

Application of uncertainty of measurement would provide a range within which the true result lies.

An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 25-033234
Project / Site name: Huddersfield Bus Station
Your Order No: PO 3398

Lab Sample Number				592103	592104	592105	592106	592107
Sample Reference				BH01	BH01	BH01	BH01	BH03
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.50-0.70	0.70-0.90	1.20-1.40	1.40-1.60	0.25-0.40
Date Sampled				23/06/2025	23/06/2025	23/06/2025	23/06/2025	23/06/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Test Limit of detection	Test Accreditation Status		

Stone Content	%	0.1	NONE	36.9	37.3	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	12	11	16	20	< 0.01
Total mass of sample received	kg	0.1	NONE	0.6	2	0.6	0.6	1.4

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	-	-	-
Asbestos Analyst ID	N/A	N/A	N/A	PDO	PDO	-	-	-
Analysis completed	N/A	N/A	N/A	03/07/2025	03/07/2025	-	-	-

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	-	10.8	8.4	8.4	U/S ^{*U/S f}
Total Cyanide	mg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0	U/S ^{*U/S f}
Complex Cyanide	mg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0	U/S ^{*U/S f}
Free Cyanide	mg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0	U/S ^{*U/S f}
Total Sulphate as SO ₄	mg/kg	50	MCERTS	-	2400	730	460	U/S ^{*U/S}
Total Sulphate as SO ₄	%	0.005	MCERTS	-	-	0.073	-	-
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	-	900	630	150	U/S ^{*U/S}
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	0.448	0.315	0.0772	U/S ^{*U/S}
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	448	315	77.2	U/S ^{*U/S}
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	-	-	36	-	-
Total Sulphur	mg/kg	50	MCERTS	-	1600	1300	190	U/S ^{*U/S}
Total Sulphur	%	0.005	MCERTS	-	-	0.13	-	-
Organic Matter (automated)	%	0.1	MCERTS	-	5.5	2.7	0.9	U/S ^{*U/S f}
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	2	NONE	-	-	< 2.0	-	-
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/l	5	NONE	-	-	< 5.0	-	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	-	< 1.0	< 1.0	< 1.0	U/S ^{*U/S f}
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	44	31	2.1	< 0.05	U/S ^{*U/S}
Acenaphthylene	mg/kg	0.05	MCERTS	2.8	0.86	0.05	< 0.05	U/S ^{*U/S}
Acenaphthene	mg/kg	0.05	MCERTS	110	48	1.8	< 0.05	U/S ^{*U/S}
Fluorene	mg/kg	0.05	MCERTS	81	39	1.9	< 0.05	U/S ^{*U/S}
Phenanthrene	mg/kg	0.05	MCERTS	580	260	10	0.24	U/S ^{*U/S}
Anthracene	mg/kg	0.05	MCERTS	140	61	2.6	0.06	U/S ^{*U/S}
Fluoranthene	mg/kg	0.05	MCERTS	600	240	9.6	0.23	U/S ^{*U/S}
Pyrene	mg/kg	0.05	MCERTS	520	210	8.6	0.21	U/S ^{*U/S}
Benzo(a)anthracene	mg/kg	0.05	MCERTS	200	84	3.9	0.09	U/S ^{*U/S}
Chrysene	mg/kg	0.05	MCERTS	210	87	3.9	0.09	U/S ^{*U/S}
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	260	100	4.1	< 0.05	U/S ^{*U/S}
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	83	31	2	< 0.05	U/S ^{*U/S}
Benzo(a)pyrene	mg/kg	0.05	MCERTS	220	84	3.8	< 0.05	U/S ^{*U/S}
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	100	40	2.1	0.05	U/S ^{*U/S}
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	24	10	0.88	< 0.05	U/S ^{*U/S}
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	120	47	2.3	0.07	U/S ^{*U/S}

Analytical Report Number: 25-033234
Project / Site name: Huddersfield Bus Station
Your Order No: PO 3398

Lab Sample Number				592103	592104	592105	592106	592107
Sample Reference				BH01	BH01	BH01	BH01	BH03
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.50-0.70	0.70-0.90	1.20-1.40	1.40-1.60	0.25-0.40
Date Sampled				23/06/2025	23/06/2025	23/06/2025	23/06/2025	23/06/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Test Limit of detection	Test Accreditation Status		

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	3300	1380	59.7	1.03	U/S
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	32	5.6	7.4	U/S ^{*U/S}
Barium (aqua regia extractable)	mg/kg	1	MCERTS	-	240	40	34	U/S ^{*U/S}
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	2	0.72	0.73	U/S ^{*U/S}
Boron (water soluble)	mg/kg	0.2	MCERTS	-	2.3	1.3	0.9	U/S ^{*U/S}
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	0.3	< 0.2	< 0.2	U/S ^{*U/S}
Chromium (hexavalent)	mg/kg	1.8	MCERTS	-	< 1.8	< 1.8	< 1.8	U/S ^{*U/S f}
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	19	19	27	U/S ^{*U/S}
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	200	18	20	U/S ^{*U/S}
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	330	35	13	U/S ^{*U/S}
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	< 0.3	< 0.3	< 0.3	U/S ^{*U/S}
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	24	15	13	U/S ^{*U/S}
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	1.3	1.4	1.5	U/S ^{*U/S}
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	37	22	31	U/S ^{*U/S}
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	170	43	38	U/S ^{*U/S}

Magnesium (leachate equivalent)	mg/l	2.5	NONE	-	-	9.6	-	-
Magnesium (water soluble)	mg/kg	5	NONE	-	-	19	-	-

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	-	< 0.010	-	-	U/S ^{*U/S *U/S}
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	-	< 0.010	-	-	U/S ^{*U/S *U/S}
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	-	< 0.010	-	-	U/S ^{*U/S *U/S}
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	-	1.2	-	-	U/S ^{*U/S}
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	-	4.9	-	-	U/S ^{*U/S}
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	-	< 8.0	-	-	U/S ^{*U/S}
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	-	9.8	-	-	U/S ^{*U/S}
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	-	16	-	-	U/S ^{*U/S}

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	MCERTS	-	0.018	-	-	U/S ^{*U/S *U/S}
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	MCERTS	-	< 0.010	-	-	U/S ^{*U/S *U/S}
TPHCWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.02	MCERTS	-	0.035	-	-	U/S ^{*U/S *U/S}
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	-	29	-	-	U/S ^{*U/S}
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	-	240	-	-	U/S ^{*U/S}
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	-	670	-	-	U/S ^{*U/S}
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	-	970	-	-	U/S ^{*U/S}
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	-	1900	-	-	U/S ^{*U/S}

Petroleum Range Organics (EC6 - EC10) _{HS_1D_TOTAL}	mg/kg	1	ISO 17025	-	< 1.0	< 1.0	< 1.0	U/S ^{*U/S}
TPH (EC10 - EC40) _{EH_CU_1D_TOTAL}	mg/kg	10	MCERTS	-	2000	110	< 10	U/S ^{*U/S}

Analytical Report Number: 25-033234
 Project / Site name: Huddersfield Bus Station
 Your Order No: PO 3398

Lab Sample Number				592103	592104	592105	592106	592107
Sample Reference				BH01	BH01	BH01	BH01	BH03
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.50-0.70	0.70-0.90	1.20-1.40	1.40-1.60	0.25-0.40
Date Sampled				23/06/2025	23/06/2025	23/06/2025	23/06/2025	23/06/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)				Units	Test Limit of detection	Test Accreditation Status		

VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	-	< 5.0	-	-	U/S *U/S
Benzene	µg/kg	5	MCERTS	-	17	-	-	U/S *U/S
Toluene	µg/kg	5	MCERTS	-	8.5	-	-	U/S *U/S
Ethylbenzene	µg/kg	5	MCERTS	-	< 5.0	-	-	U/S *U/S
p & m-Xylene	µg/kg	8	MCERTS	-	10	-	-	U/S *U/S
o-Xylene	µg/kg	5	MCERTS	-	9.4	-	-	U/S *U/S

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 25-033234
Project / Site name: Huddersfield Bus Station
Your Order No: PO 3398

Lab Sample Number	592108	592109	592110
Sample Reference	BH03	BH03	BH03
Sample Number	None Supplied	None Supplied	None Supplied
Water Matrix	N/A	N/A	N/A
Depth (m)	0.40-0.50	0.60-0.80	1.20-1.70
Date Sampled	23/06/2025	23/06/2025	23/06/2025
Time Taken	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status

Stone Content	%	0.1	NONE	< 0.1	10.9	< 0.1
Moisture Content	%	0.01	NONE	15	14	15
Total mass of sample received	kg	0.1	NONE	2	0.6	0.6

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	-	-
Asbestos Analyst ID	N/A	N/A	N/A	PDO	-	-
Analysis completed	N/A	N/A	N/A	03/07/2025	-	-

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.9	8.6	5.8
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Complex Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	340	410	960
Total Sulphate as SO ₄	%	0.005	MCERTS	0.034	-	-
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	89	55	230
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0444	0.0277	0.116
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	44.4	27.7	116
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	5.4	-	-
Total Sulphur	mg/kg	50	MCERTS	160	110	290
Total Sulphur	%	0.005	MCERTS	0.016	-	-
Organic Matter (automated)	%	0.1	MCERTS	1.4	1	0.8
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	2	NONE	< 2.0	-	-
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/l	5	NONE	< 5.0	-	-

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	3.2	0.72	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	0.32	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	0.64	0.2	< 0.05
Fluorene	mg/kg	0.05	MCERTS	1.3	0.3	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	6.5	1.8	0.12
Anthracene	mg/kg	0.05	MCERTS	1.6	0.4	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	5.3	1.5	0.17
Pyrene	mg/kg	0.05	MCERTS	5	1.4	0.17
Benzo(a)anthracene	mg/kg	0.05	MCERTS	1.9	0.56	0.07
Chrysene	mg/kg	0.05	MCERTS	2.2	0.63	0.08
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	2.1	0.61	0.09
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.74	0.22	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.9	0.54	0.08
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.95	0.28	0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.32	0.09	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.1	0.33	0.05

Analytical Report Number: 25-033234
Project / Site name: Huddersfield Bus Station
Your Order No: PO 3398

Lab Sample Number	592108	592109	592110
Sample Reference	BH03	BH03	BH03
Sample Number	None Supplied	None Supplied	None Supplied
Water Matrix	N/A	N/A	N/A
Depth (m)	0.40-0.50	0.60-0.80	1.20-1.70
Date Sampled	23/06/2025	23/06/2025	23/06/2025
Time Taken	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	35	9.63	0.88
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	5.8	6.3	6.4
Barium (aqua regia extractable)	mg/kg	1	MCERTS	56	61	41
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.86	1	1
Boron (water soluble)	mg/kg	0.2	MCERTS	1	1	0.4
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	18	19	23
Copper (aqua regia extractable)	mg/kg	1	MCERTS	20	22	21
Lead (aqua regia extractable)	mg/kg	1	MCERTS	53	28	15
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	20	25	18
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	1	1.1	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	22	22	27
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	49	52	37

Magnesium (leachate equivalent)	mg/l	2.5	NONE	5.4	-	-
Magnesium (water soluble)	mg/kg	5	NONE	11	-	-

Petroleum Hydrocarbons

TPHCWG - Aliphatic >EC5 - EC6 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	-	-
TPHCWG - Aliphatic >EC6 - EC8 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	-	-
TPHCWG - Aliphatic >EC8 - EC10 _{HS_1D_AL}	mg/kg	0.01	MCERTS	< 0.010	-	-
TPHCWG - Aliphatic >EC10 - EC12 _{EH_CU_1D_AL}	mg/kg	1	MCERTS	< 1.0	-	-
TPHCWG - Aliphatic >EC12 - EC16 _{EH_CU_1D_AL}	mg/kg	2	MCERTS	< 2.0	-	-
TPHCWG - Aliphatic >EC16 - EC21 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0	-	-
TPHCWG - Aliphatic >EC21 - EC35 _{EH_CU_1D_AL}	mg/kg	8	MCERTS	< 8.0	-	-
TPHCWG - Aliphatic >EC5 - EC35 _{EH_CU+HS_1D_AL}	mg/kg	10	NONE	< 10	-	-

TPHCWG - Aromatic >EC5 - EC7 _{HS_1D_AR}	mg/kg	0.01	MCERTS	0.014	-	-
TPHCWG - Aromatic >EC7 - EC8 _{HS_1D_AR}	mg/kg	0.01	MCERTS	0.017	-	-
TPHCWG - Aromatic >EC8 - EC10 _{HS_1D_AR}	mg/kg	0.02	MCERTS	0.042	-	-
TPHCWG - Aromatic >EC10 - EC12 _{EH_CU_1D_AR}	mg/kg	1	MCERTS	2.6	-	-
TPHCWG - Aromatic >EC12 - EC16 _{EH_CU_1D_AR}	mg/kg	2	MCERTS	6.9	-	-
TPHCWG - Aromatic >EC16 - EC21 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	15	-	-
TPHCWG - Aromatic >EC21 - EC35 _{EH_CU_1D_AR}	mg/kg	10	MCERTS	21	-	-
TPHCWG - Aromatic >EC5 - EC35 _{EH_CU+HS_1D_AR}	mg/kg	10	NONE	46	-	-

Petroleum Range Organics (EC6 - EC10) _{HS_1D_TOTAL}	mg/kg	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH (EC10 - EC40) _{EH_CU_1D_TOTAL}	mg/kg	10	MCERTS	48	< 10	< 10

Analytical Report Number: 25-033234
 Project / Site name: Huddersfield Bus Station
 Your Order No: PO 3398

Lab Sample Number				592108	592109	592110
Sample Reference				BH03	BH03	BH03
Sample Number				None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A
Depth (m)				0.40-0.50	0.60-0.80	1.20-1.70
Date Sampled				23/06/2025	23/06/2025	23/06/2025
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status			

VOCs

MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	-	-
Benzene	µg/kg	5	MCERTS	< 5.0	-	-
Toluene	µg/kg	5	MCERTS	7.5	-	-
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	-	-
p & m-Xylene	µg/kg	8	MCERTS	13	-	-
o-Xylene	µg/kg	5	MCERTS	13	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 25-033234
Project / Site name: Huddersfield Bus Station

Your Order No: PO 3398

Lab Sample Number				592104	592109
Sample Reference				BH01	BH03
Sample Number				None Supplied	None Supplied
Water Matrix				N/A	N/A
Depth (m)				0.70-0.90	0.60-0.80
Date Sampled				23/06/2025	23/06/2025
Time Taken				None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)				Units	Test Limit of detection
				Test Accreditation Status	

Moisture of sample	%	N/A	NONE	16	18
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General Inorganics

pH (automated)	pH Units	N/A	ISO 17025	10.7	7.8
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10
Sulphate as SO ₄	mg/l	0.045	ISO 17025	105	14.5

Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	1	ISO 17025	16	< 1.0
Barium (dissolved)	µg/l	0.05	ISO 17025	12	25
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2
Boron (dissolved)	µg/l	10	ISO 17025	77	66
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08
Chromium (dissolved)	µg/l	0.4	ISO 17025	1.9	3.6
Copper (dissolved)	µg/l	0.7	ISO 17025	73	7.5
Lead (dissolved)	µg/l	1	ISO 17025	1	< 1.0
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5
Nickel (dissolved)	µg/l	0.3	ISO 17025	8.3	2.5
Selenium (dissolved)	µg/l	4	ISO 17025	5.3	< 4.0
Vanadium (dissolved)	µg/l	1.7	ISO 17025	27	2.4
Zinc (dissolved)	µg/l	0.4	ISO 17025	3.4	5.5

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 25-033234
Project / Site name: Huddersfield Bus Station

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
592103	BH01	None Supplied	0.50-0.70	Brown sand with gravel and stones
592104	BH01	None Supplied	0.70-0.90	Brown sand with gravel and stones
592105	BH01	None Supplied	1.20-1.40	Brown clay and sand with gravel
592106	BH01	None Supplied	1.40-1.60	Brown clay and sand with gravel
592107	BH03	None Supplied	0.25-0.40	Non Soil. ⁹⁹
592108	BH03	None Supplied	0.40-0.50	Brown clay and sand with gravel
592109	BH03	None Supplied	0.60-0.80	Brown clay and sand with gravel and stones
592110	BH03	None Supplied	1.20-1.70	Brown clay

Analytical Report Number : 25-033234
Project / Site name: Huddersfield Bus Station

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
Soil Descriptions	Textural classification	In-house method	L019B	W	NONE
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES	In-house method based on Second Site Properties version 3	L038B	D	MCERTS
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES	In-house method	L038B	D	MCERTS
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088-PL	D/W	MCERTS
Complex Cyanide in soil	Determination of complex cyanide by calculation	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS

Analytical Report Number : 25-033234
Project / Site name: Huddersfield Bus Station

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080-PL	W	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
Total cyanide in leachate	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
Total petroleum hydrocarbons by HS-GC-MS in soil	Determination of total petroleum hydrocarbons in soil by HS-GC-MS	In-house method	L129-PL	W	ISO 17025
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099-PL	D	MCERTS
pH at 20°C in leachate (automated)	Determination of pH in leachate by electrometric measurement	In-house method	L099-PL	W	ISO 17025
One stage WAC 2:1 leachate preparation	One stage batch test at a liquid to solid ratio of 2 L/kg	BS EN 12457-1-2002	L043B	W	NONE
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES	In-house method based on TRL 447	L038B	D	NONE
Water Soluble Nitrate (leachate equivalent)	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction	L078-PL	W	NONE
Nitrate, water soluble, in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction	L078-PL	W	NONE
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser	In-house method	L082B	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C. Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution

Analytical Report Number : 25-033234
Project / Site name: Huddersfield Bus Station

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)

Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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*U/S- Unsuitable for analysis due to sample matrix.

*U/S f- Unsuitable for analysis due to sample matrix (material contaminated by tar)

*g - Unaccredited sample matrix.

Analytical Report Number : 25-033234

Project / Site name: Huddersfield Bus Station

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis. Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container/Insufficient material provided c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
BH01	N/A	L	592104	b	One stage WAC 2:1 leachate preparation	L043B	b
BH03	N/A	L	592109	b	One stage WAC 2:1 leachate preparation	L043B	b

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Analytical Report Number : 25-035055

Project / Site name:	Huddersfield Bus Station	Samples received on:	02/07/2025
Your job number:	C5244 25 E 8058	Samples instructed on/ Analysis started on:	02/07/2025
Your order number:		Analysis completed by:	10/07/2025
Report Issue Number:	1	Report issued on:	10/07/2025
Samples Analysed:	5 soil samples		



Signed:

Anna Goc
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting
air - once the analysis is complete

Excel copies of reports are only valid when accompanied by this PDF certificate.

Retention period for records and reports is minimum 6 years from the date of issue of the final report.

Some records may be kept for longer according to other legal/best practice requirements.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.

Application of uncertainty of measurement would provide a range within which the true result lies.

An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 25-035055
Project / Site name: Huddersfield Bus Station

Lab Sample Number	602063	602064	602065	602066	602067
Sample Reference	BH01	BH01	BH01	BH03	BH03
Sample Number	5	8	11	9	14
Water Matrix	N/A	N/A	N/A	N/A	N/A
Depth (m)	1.50-1.80	2.80-3.00	4.40-4.55	4.50-4.60	4.98-5.03
Date Sampled	23/06/2023	23/06/2023	23/06/2023	23/06/2023	23/06/2023
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Stone Content	%	0.1	NONE	< 0.1	12.8	< 0.1	80	85.1
Moisture Content	%	0.01	NONE	28	16	19	1.3	0.43
Total mass of sample received	kg	0.1	NONE	0.6	0.7	0.6	0.5	0.6

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	6.1	5.7	6.4	6.4	7.5
Total Sulphate as SO ₄	%	0.005	MCERTS	0.067	0.065	0.033	0.037	0.024
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	150	110	16	130	78
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	76.1	54.4	8.2	64.9	38.8
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	49	36	72	9.4	6
Total Sulphur	mg/kg	50	MCERTS	240	270	140	130	65
Total Sulphur	%	0.005	MCERTS	0.024	0.027	0.014	0.013	0.007
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	2	NONE	< 2.0	< 2.0	8.7	< 2.0	3.9
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/l	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

Heavy Metals / Metalloids

Magnesium (leachate equivalent)	mg/l	2.5	NONE	2.6	3.3	5.8	4.1	4.2
Magnesium (water soluble)	mg/kg	5	NONE	5.2	6.5	12	8.2	8.4

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 25-035055

Project / Site name: Huddersfield Bus Station

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
602063	BH01	5	1.50-1.80	Brown clay
602064	BH01	8	2.80-3.00	Brown clay with gravel and stones
602065	BH01	11	4.40-4.55	Brown sandy clay with gravel
602066	BH03	9	4.50-4.60	Light brown clay and sand with gravel and stones
602067	BH03	14	4.98-5.03	Light brown clay and sand with gravel and stones

Analytical Report Number : 25-035055
Project / Site name: Huddersfield Bus Station

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES	In-house method based on TRL 447	L038B	D	NONE
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES	In-house method	L038B	D	MCERTS
Water Soluble Nitrate (leachate equivalent)	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction	L078-PL	W	NONE
Nitrate, water soluble, in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction	L078-PL	W	NONE
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser	In-house method	L082B	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099-PL	D	MCERTS
Soil Descriptions	Textural classification	In-house method	L019B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution

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Analytical Report Number : 25-035316

Project / Site name:	Huddersfield Bus Station	Samples received on:	02/07/2025
Your job number:	C5244 25 E 8058	Samples instructed on/ Analysis started on:	04/07/2025
Your order number:		Analysis completed by:	09/07/2025
Report Issue Number:	1	Report issued on:	10/07/2025
Samples Analysed:	2 soil samples		



Signed:

Anna Goc
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting
air	- once the analysis is complete

Excel copies of reports are only valid when accompanied by this PDF certificate.

Retention period for records and reports is minimum 6 years from the date of issue of the final report.

Some records may be kept for longer according to other legal/best practice requirements.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.

Application of uncertainty of measurement would provide a range within which the true result lies.

An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 25-035316
Project / Site name: Huddersfield Bus Station

Lab Sample Number				603187	603188
Sample Reference				BH03	BH03
Sample Number				6	17
Water Matrix				N/A	N/A
Depth (m)				1.70-2.00	11.38-11.41
Date Sampled				23/06/2025	23/06/2025
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	20	0.91
Total mass of sample received	kg	0.1	NONE	0.5	0.5

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	6.7	8.1
Total Sulphate as SO ₄	%	0.005	MCERTS	0.058	0.021
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	170	200
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	87.4	101
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	22	6.8
Total Sulphur	mg/kg	50	MCERTS	410	25000
Total Sulphur	%	0.005	MCERTS	0.041	2.54
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	2	NONE	< 2.0	< 2.0
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/l	5	NONE	< 5.0	< 5.0

Heavy Metals / Metalloids

Magnesium (leachate equivalent)	mg/l	2.5	NONE	5.6	16
Magnesium (water soluble)	mg/kg	5	NONE	11	33

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 25-035316

Project / Site name: Huddersfield Bus Station

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
603187	BH03	6	1.70-2.00	Brown clay with gravel
603188	BH03	17	11.38-11.41	Brown clay and sand

Analytical Report Number : 25-035316
Project / Site name: Huddersfield Bus Station

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES	In-house method based on TRL 447	L038B	D	NONE
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES	In-house method	L038B	D	MCERTS
Water Soluble Nitrate (leachate equivalent)	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction	L078-PL	W	NONE
Nitrate, water soluble, in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewater & Polish Standard Method PN-82/C-04579.08, 2:1 extraction	L078-PL	W	NONE
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser	In-house method	L082B	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099-PL	D	MCERTS
Soil Descriptions	Textural classification	In-house method	L019B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution

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Analytical Report Number : 25-033235

Project / Site name:	Huddersfield Bus Station	Samples received on:	23/06/2025
Your job number:	C5244 25 E 8058	Samples instructed on/ Analysis started on:	24/06/2025
Your order number:	PO 3398	Analysis completed by:	03/07/2025
Report Issue Number:	1	Report issued on:	03/07/2025
Samples Analysed:	2 10:1 WAC samples		



Signed:

Anna Goc
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41-711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting
air - once the analysis is complete

Excel copies of reports are only valid when accompanied by this PDF certificate.

Retention period for records and reports is minimum 6 years from the date of issue of the final report.

Some records may be kept for longer according to other legal/best practice requirements.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.

Application of uncertainty of measurement would provide a range within which the true result lies.

An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 25-033235
Project / Site name: Huddersfield Bus Station
Your Order No: PO 3398

Lab Sample Number				592111	592112
Sample Reference				BH01	BH03
Sample Number				None Supplied	None Supplied
Water Matrix				N/A	N/A
Depth (m)				0.70-0.90	0.40-0.50
Date Sampled				23/06/2025	23/06/2025
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

Stone Content	%	0.1	NONE	37.3	< 0.1
Moisture Content	%	0.01	NONE	11	15
Total mass of sample received	kg	0.1	NONE	2	2

General Inorganics

pH (L005B)	pH Units	N/A	MCERTS	10.3	8.2
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	3.2	0.8
Loss on Ignition @ 450°C	%	0.2	MCERTS	6.4	2.1
Acid Neutralisation Capacity	mmol/kg	-9999	NONE	75	5.2

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	31	3.2
Acenaphthylene	mg/kg	0.05	MCERTS	0.86	0.32
Acenaphthene	mg/kg	0.05	MCERTS	48	0.64
Fluorene	mg/kg	0.05	MCERTS	39	1.3
Phenanthrene	mg/kg	0.05	MCERTS	260	6.5
Anthracene	mg/kg	0.05	MCERTS	61	1.6
Fluoranthene	mg/kg	0.05	MCERTS	240	5.3
Pyrene	mg/kg	0.05	MCERTS	210	5
Benzo(a)anthracene	mg/kg	0.05	MCERTS	84	1.9
Chrysene	mg/kg	0.05	MCERTS	87	2.2
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	100	2.1
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	31	0.74
Benzo(a)pyrene	mg/kg	0.05	MCERTS	84	1.9
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	40	0.95
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	10	0.32
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	47	1.1
Coronene	mg/kg	0.05	NONE	20	0.42

Total PAH

Total WAC-17 PAHs	mg/kg	0.85	NONE	1400	35.4
-------------------	-------	------	------	------	------

Petroleum Hydrocarbons

Mineral Oil (EC10 - EC40) BH_CU_ID_AL	mg/kg	10	NONE	20	< 10
--	-------	----	------	----	------

VOCs

Benzene	µg/kg	5	MCERTS	25	14
Toluene	µg/kg	5	MCERTS	9.3	31
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	16
p & m-Xylene	µg/kg	8	MCERTS	14	33
o-Xylene	µg/kg	5	MCERTS	14	23

Total BTEX	µg/kg	10	MCERTS	61	120
------------	-------	----	--------	----	-----

Analytical Report Number: 25-033235
 Project / Site name: Huddersfield Bus Station
 Your Order No: PO 3398

Lab Sample Number				592111	592112
Sample Reference				BH01	BH03
Sample Number				None Supplied	None Supplied
Water Matrix				N/A	N/A
Depth (m)				0.70-0.90	0.40-0.50
Date Sampled				23/06/2025	23/06/2025
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status		

PCBs by GC-MS

PCB Congener 28	mg/kg	0.001	MCERTS	< 0.001	< 0.001
PCB Congener 52	mg/kg	0.001	MCERTS	< 0.001	< 0.001
PCB Congener 101	mg/kg	0.001	MCERTS	< 0.001	< 0.001
PCB Congener 118	mg/kg	0.001	MCERTS	< 0.001	< 0.001
PCB Congener 138	mg/kg	0.001	MCERTS	< 0.001	< 0.001
PCB Congener 153	mg/kg	0.001	MCERTS	< 0.001	< 0.001
PCB Congener 180	mg/kg	0.001	MCERTS	< 0.001	< 0.001
Total PCBs	mg/kg	0.007	MCERTS	< 0.007	< 0.007

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

i2 Analytical

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Waste Acceptance Criteria Analytical Results							
Report No:	25-033235						
					Client: Rogers Geotechnical		
Location	Huddersfield Bus Station						
Lab Reference (Sample Number)	592111				Landfill Waste Acceptance Criteria		
Sampling Date	23/06/2025				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	BH01						
Depth (m)	0.70-0.90						
Solid Waste Analysis							
TOC (%)**	3.2				3%	5%	6%
Loss on Ignition (%) **	6.4				--	--	10%
BTEX (µg/kg) **	61				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg) BH, ID, CU, AL	20				500	--	--
Total PAH (WAC-17) (mg/kg)	1400				100	--	--
pH (units)**	10.3				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	75				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test		
	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)							
Arsenic *	0.0146			0.146	0.5	2	25
Barium *	0.0201			0.201	20	100	300
Cadmium *	< 0.000100			< 0.00100	0.04	1	5
Chromium *	0.0016			0.016	0.5	10	70
Copper *	0.33			3.3	2	50	100
Mercury *	< 0.000500			< 0.00500	0.01	0.2	2
Molybdenum *	0.0148			0.148	0.5	10	30
Nickel *	0.0025			0.025	0.4	10	40
Lead *	0.0067			0.067	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.017			0.17	4	50	200
Chloride *	12			120	800	15000	25000
Fluoride*	0.27			2.7	10	150	500
Sulphate *	36			360	1000	20000	50000
TDS*	120			1200	4000	60000	100000
Phenol Index (Monohydric Phenols) *	0.028			0.28	1	-	-
DOC	6.15			61.4	500	800	1000
Leach Test Information							
Stone Content (%)	37.3						
Sample Mass (kg)	2						
Dry Matter (%)	89						
Moisture (%)	11						
Results are expressed on a dry weight basis, after correction for moisture content where applicable.							
* = UKAS accredited (liquid eluate analysis only)							
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation							
** = MCERTS accredited							

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.



4041

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Waste Acceptance Criteria Analytical Results							
Report No:	25-033235						
					Client: Rogers Geotechnical		
Location	Huddersfield Bus Station				Landfill Waste Acceptance Criteria Limits		
Lab Reference (Sample Number)	592112						
Sampling Date	23/06/2025				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	BH03						
Depth (m)	0.40-0.50						
Solid Waste Analysis							
TOC (%)**	0.8				3%	5%	6%
Loss on Ignition (%) **	2.1				--	--	10%
BTEX (µg/kg) **	120				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg) EH, LD, CU, AL	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	35.4				100	--	--
pH (units)**	8.2				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	5.2				--	To be evaluated	To be evaluated
Eluate Analysis	10:1			10:1	Limit values for compliance leaching test		
	mg/l			mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0072			0.072	0.5	2	25
Barium *	0.0226			0.226	20	100	300
Cadmium *	< 0.000100			< 0.00100	0.04	1	5
Chromium *	0.0011			0.011	0.5	10	70
Copper *	0.0073			0.073	2	50	100
Mercury *	< 0.000500			< 0.00500	0.01	0.2	2
Molybdenum *	0.00252			0.0252	0.5	10	30
Nickel *	0.00068			0.0068	0.4	10	40
Lead *	0.0064			0.064	0.5	10	50
Antimony *	< 0.0017			< 0.017	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.028			0.28	4	50	200
Chloride *	2.9			29	800	15000	25000
Fluoride*	0.2			2	10	150	500
Sulphate *	14			140	1000	20000	50000
TDS*	57			570	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	3.55			35.5	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	2						
Dry Matter (%)	85						
Moisture (%)	15						
Results are expressed on a dry weight basis, after correction for moisture content where applicable.							
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation							
** = UKAS accredited (liquid eluate analysis only)							
** = MCERTS accredited							

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Analytical Report Number : 25-033235

Project / Site name: Huddersfield Bus Station

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
592111	BH01	None Supplied	0.70-0.90	Brown sand with gravel and stones
592112	BH03	None Supplied	0.40-0.50	Brown clay and sand with gravel

Analytical Report Number : 25-033235
Project / Site name: Huddersfield Bus Station

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
pH at 20°C in soil	Determination of pH in soil by addition of water followed by electrometric measurement	In-house method	L005B	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
PCB's By GC-MS in soil	Determination of PCB by extraction with hexane followed by GC-MS	In-house method based on USEPA 8082	L027B	D	MCERTS
Total dissolved solids 10:1 WAC	Determination of total dissolved solids in water by electrometric measurement	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L031B	W	ISO 17025
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination	L033B	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved organic carbon in leachate by TOC/DOC NDIR Analyser	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	NONE
Metals in leachate by ICP-OES	Determination of metals in leachate by acidification followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
One stage WAC 10:1 leachate preparation	One stage batch test at a liquid to solid ratio of 10 L/kg	BS EN 12457-2-2002	L043B	W	ISO 17025
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	L046B	W	NONE
Loss on ignition of soil @ 450°C	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	In-house method	L047-PL	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS	In-house method	L076B/L088-PL	D/W	NONE
Monohydric phenols 10:1 WAC	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025

Analytical Report Number : 25-033235
Project / Site name: Huddersfield Bus Station

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)

Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser	In-house based on MEWAM Method ISBN 0117516260	L082B	W	ISO 17025
Soil Descriptions	Textural classification	In-house method	L019B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.

The result for sum should be interpreted with caution



Sample Deviation Report



Analytical Report Number : 25-033235

Project / Site name: Huddersfield Bus Station

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis. Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container/Insufficient material provided c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
BH01	N/A	L	592111	b	One stage WAC 10:1 leachate preparation	L043B	b
BH03	N/A	L	592112	b	One stage WAC 10:1 leachate preparation	L043B	b



< ENVIRONMENTAL > < GEOTECHNICAL >

End of Report



Environmental
Geotechnical
Specialists

Rogers Geotechnical Services Ltd
Offices 1 & 2 Barncliffe Business Park, Near Bank, Shelley, Huddersfield, HD8 8LU
☎ 01484 604354 Company No. 5130864

Appendix 2: SPT Calibration Certificate

Dynamic Sampling Uk Ltd
Unit 8 Victory Park
Victory Road
Derby
DE248ZF

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

SPT Hammer Ref: LB01
Test Date: 06/09/2024
Report Date: 06/09/2024
File Name: LB01.spt
Test Operator: B.HUNTER

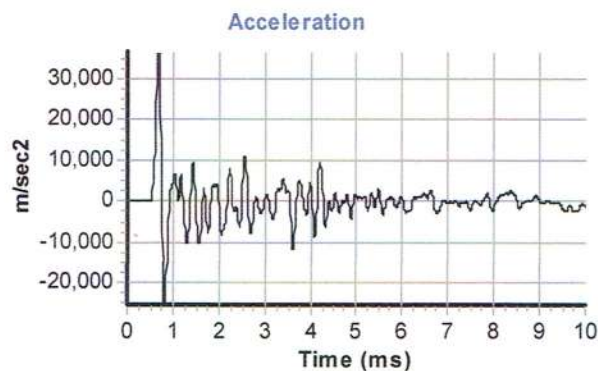
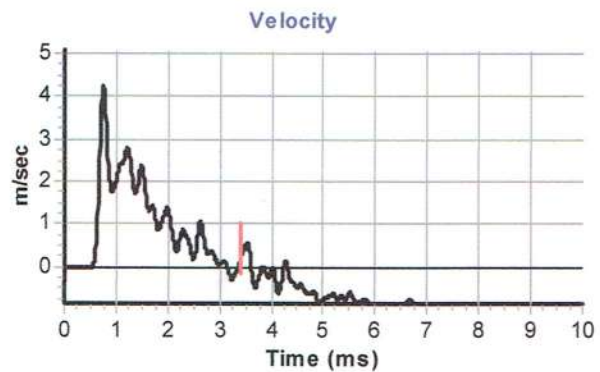
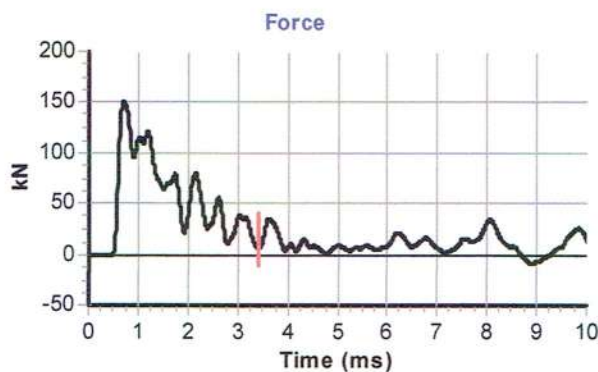
Instrumented Rod Data

Diameter d_r (mm): 54
Wall Thickness t_r (mm): 6.6
Assumed Modulus E_a (GPa): 208
Accelerometer No.1: 62901
Accelerometer No.2: 69902

SPT Hammer Information

Hammer Mass m (kg): 63.5
Falling Height h (mm): 760
SPT String Length L (m): 10.0

Comments / Location



Calculations

Area of Rod A (mm^2): 983
Theoretical Energy E_{theor} (J): 473
Measured Energy E_{meas} (J): 314

Energy Ratio E_r (%): **66**

Signed: B Hunter
Title: Operations Manager

Appendix 3: CLEA Flowchart and Worksheet

STATISTICAL APPROACH FOR ASSESSING RISK TO HUMAN HEALTH FROM CONTAMINATED LAND 2008

CIEH/CLAIRE Guidance on Comparing Soil Contamination Data with a Critical Concentration May 2008

STAGE 1 QA CHECK

Are data of acceptable quality
Lab sampling errors / erroneous results
Are data sufficient to characterise area
of interest

No

Review CSM, update
sampling and
analytical strategy

STAGE 2 DATA SCREENING

Compare all data against GSAC
Do any values exceed GSAC?

No

True mean is less than
critical concentration
No action required

STAGE 3 ZONING AND OUTLIER CHECK

Plot data on bubble chart
Plot histogram
Identify and deal with non

Outliers

Assess Outliers
directly against
GSAC

Non detects to DL or DL/2
Remove outliers

STAGE 4 UPPER CONFIDENCE LIMIT

With outliers removed
do any values exceed GSAC ?

No

True mean is less than
critical concentration
No action required

Yes

With outliers removed are data normally Distributed
Histogram
Shapiro Wilkes test, q-q plot

Normal

Non-
normal

Normal Distributed data
UCL from
Students t-test

Non-normal Distributed data
UCL from
Chebychev theorem

Compare UCL to GSAC
Does UCL exceed GSAC?

No

True mean is less than
critical concentration
No action required

Yes

true mean is greater than
critical concentration
Further action required

Human Health Generic QRA Worksheet



Huddersfield Bus Station Canopy

221692

One averaging area.

GSAC Hierarchy

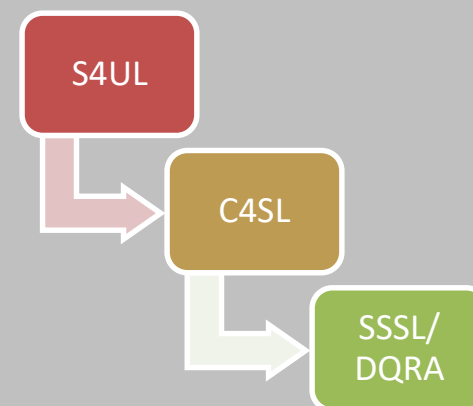
Define CSM – Is site represented by a standard land use?

Residential with / without homegrown produce

Commercial / Industrial

Public Open Space - Residential (S4UL/C4SL only)

Public Open Space - Park (S4UL/C4SL only)



GSAC Type (BWB, LQM S4UL, C4SL, Bespoke)

LQM_CIEH_S4UL

Key Receptor/CSM (Residential/Commercial/POS)

S4UL Commercial

Organic Matter % (If unknown use 1%)

1

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Publication Number S4UL3271

V8, April 2023

Generic Assessment Criteria

Huddersfield Bus Station Canopy
221692

S4UL Commercial
mg/kg



Source

Arsenic	6.40E+02	LQM_CIEH_S4UL
Barium	2.21E+04	LQM_CIEH_S4UL
Beryllium	1.20E+01	LQM_CIEH_S4UL
Boron	2.40E+05	LQM_CIEH_S4UL
Cadmium	1.90E+02	LQM_CIEH_S4UL
Chromium VI	3.30E+01	LQM_CIEH_S4UL
Chromium III	8.60E+03	LQM_CIEH_S4UL
Copper	6.80E+04	LQM_CIEH_S4UL
Lead	2.33E+03	DEFRA_C4SL
Inorganic Mercury	1.10E+03	LQM_CIEH_S4UL
Nickel	9.80E+02	LQM_CIEH_S4UL
Selenium	1.20E+04	LQM_CIEH_S4UL
Vanadium	9.00E+03	LQM_CIEH_S4UL
Zinc	7.30E+05	LQM_CIEH_S4UL
pH	<4.5 >9.5	BWB
Cyanide (free)	4.30E+01	BWB
Cyanide (Complex)	2.13E+02	LQM_CIEH_S4UL
Phenol	4.40E+02	LQM_CIEH_S4UL
Benzene	2.70E+01	LQM_CIEH_S4UL
Toluene	5.60E+04	LQM_CIEH_S4UL
Ethylbenzene	5.70E+03	LQM_CIEH_S4UL
Total Xylene	5.90E+03	LQM_CIEH_S4UL
TPH (EC5-6) aliphatic	3.20E+03	LQM_CIEH_S4UL
TPH (>EC6-8) aliphatic	7.80E+03	LQM_CIEH_S4UL
TPH (>EC8-10) aliphatic	2.00E+03	LQM_CIEH_S4UL
TPH (>EC10-12) aliphatic	9.70E+03	LQM_CIEH_S4UL
TPH (>EC12-16) aliphatic	5.90E+04	LQM_CIEH_S4UL
TPH (>EC16-21) aliphatic	1.60E+06	LQM_CIEH_S4UL
TPH (>EC21-35) aliphatic	1.60E+06	LQM_CIEH_S4UL
TPH (>EC35-44) aliphatic	1.60E+06	LQM_CIEH_S4UL
TPH (>EC6-7) aromatic (benzene)	2.60E+04	LQM_CIEH_S4UL
TPH (>EC7-8) aromatic (toluene)	5.60E+04	LQM_CIEH_S4UL
TPH (>EC8-10) aromatic	3.50E+03	LQM_CIEH_S4UL
TPH (>EC10-12) aromatic	1.60E+04	LQM_CIEH_S4UL
TPH (>EC12-16) aromatic	3.60E+04	LQM_CIEH_S4UL
TPH (>EC16-21) aromatic	2.80E+04	LQM_CIEH_S4UL
TPH (>EC21-35) aromatic	2.80E+04	LQM_CIEH_S4UL
TPH (>EC35-44) aromatic	2.80E+04	LQM_CIEH_S4UL
Total TPH	5.00E+02	LQM_CIEH_S4UL
Naphthalene	1.90E+02	LQM_CIEH_S4UL
Acenaphthylene	8.30E+04	LQM_CIEH_S4UL
Acenaphthene	8.40E+04	LQM_CIEH_S4UL
Fluorene	6.30E+04	LQM_CIEH_S4UL
Phenanthrene	2.20E+04	LQM_CIEH_S4UL
Anthracene	5.20E+05	LQM_CIEH_S4UL
Fluoranthene	2.30E+04	LQM_CIEH_S4UL
Pyrene	5.40E+04	LQM_CIEH_S4UL
Benzo(a)anthracene	1.70E+02	LQM_CIEH_S4UL
Chrysene	3.50E+02	LQM_CIEH_S4UL
Benzo(b)fluoranthene	4.40E+01	LQM_CIEH_S4UL
Benzo(k)fluoranthene	1.20E+03	LQM_CIEH_S4UL
Benzo(a)pyrene	3.50E+01	LQM_CIEH_S4UL

Generic Assessment Criteria**Huddersfield Bus Station Canopy
221692****S4UL Commercial
mg/kg****Source**

Indeno(123-cd)pyrene	5.00E+02	LQM_CIEH_S4UL
Dibenzo(ah)anthracene	3.50E+00	LQM_CIEH_S4UL
Benzo(g,h,i)perylene	3.90E+03	LQM_CIEH_S4UL

Location	Sample depth	Easting	Northing	Strata Type	Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium VI	Chromium III	Copper	Lead	Inorganic Mercury	Nickel	Selenium	Vanadium	Zinc	pH	Cyanide (free)	Cyanide (Complex)
Detection Limit					0.5	0.5	0.5	0.4	0.1	0.5	0.5	0.5	0.5	0.05	0.5	0.25	0.5	0.5	4	0.5	0.5
GSAC					640	22060	12	240000	190	33	8600	68000	2330	1100	980	12000	9000	730000	<4.5 >9.5	43	213
BH01	0.50-0.70	414235	416593	MG																	
BH01	0.70-0.90	414235	416593	MG	32	240	2.0	2.3	0.3	< 1.8	19	200	330	< 0.3	24	1	37.0	170	10.9	< 1.0	< 1.0
BH01	1.20-1.40	414235	416593	MG	6	40	0.7	1.3	< 0.2	< 1.8	19	18	35	< 0.3	15	1	22.0	43	8.4	< 1.0	< 1.0
BH01	1.40-1.60	414235	416593	Nat	7	34	0.7	0.9	< 0.2	< 1.8	27	20	13	< 0.3	13	2	31.0	38	8.4	< 1.0	< 1.0
BH03	0.25-0.40	414234	416530	MG	U/S *U/S	U/S *U/S	U/S *U/S	U/S *U/S	U/S *U/S	U/S *U/S f	U/S *U/S	U/S *U/S	U/S *U/S	U/S *U/S	U/S *U/S	U/S *U/S	U/S *U/S	U/S *U/S	U/S *U/S f	U/S *U/S f	U/S *U/S f
BH03	0.40-0.50	414234	416530	MG	6	56	0.9	1.0	< 0.2	< 1.8	18	20	53	< 0.3	20	1	22.0	49	8.9	< 1.0	< 1.0
BH03	0.60-0.80	414234	416530	MG	6	61	1.0	1.0	< 0.2	< 1.8	19	22	28	< 0.3	25	1	22.0	52	8.6	< 1.0	< 1.0
BH03	1.20-1.70	414234	416530	Nat	6	41	1.0	0.4	< 0.2	< 1.8	23	21	15	< 0.3	18	< 1.0	27.0	37	5.8	< 1.0	< 1.0

Location	Sample depth	Phenol	Benzene	Toluene	Ethylbenzene	Total Xylene	TPH (EC5-6) aliphatic	TPH (>EC6-8) aliphatic	TPH (>EC8-10) aliphatic	TPH (>EC10-12) aliphatic	TPH (>EC12-16) aliphatic	TPH (>EC16-21) aliphatic	TPH (>EC21-35) aliphatic	TPH (>EC6-7) aromatic (benzene)	TPH (>EC7-8) aromatic (toluene)	TPH (>EC8-10) aromatic	TPH (>EC10-12) aromatic	TPH (>EC12-16) aromatic	TPH (>EC16-21) aromatic	TPH (>EC21-35) aromatic	Total TPH
Detection Limit		0.1	1	1	1	0.001	1	1	1	1	1	1	1	1	1	1	1	1	1	1	10
GSAC		4.40E+05	2.70E+04	5.60E+07	5.70E+06	5900	3200	7800	2000	9700	59000	1600000	1600000	26000	56000	3500	16000	36000	28000	28000	500
BH01	0.50-0.70																				
BH01	0.70-0.90	< 1.0	0.017	0.0085	< 0.005	0.01	< 0.010	< 0.010	< 0.010	1.2	4.9	< 8.0	10	0.018	< 0.010	0.035	29	240	670	970	1000
BH01	1.20-1.40	< 1.0																			110
BH01	1.40-1.60	< 1.0																			< 10
BH03	0.25-0.40	U/S *U/S f	< 0.005	< 0.005	< 0.005	< 0.008	U/S *U/S	U/S *U/S	U/S *U/S	U/S *U/S	U/S *U/S	U/S *U/S	U/S *U/S	U/S *U/S	U/S *U/S	U/S *U/S	U/S *U/S	U/S *U/S	U/S *U/S	U/S *U/S	U/S *U/S
BH03	0.40-0.50	< 1.0	< 0.005	0.0075	< 0.005	0.013	< 0.010	< 0.010	< 0.010	< 1.0	< 2.0	< 8.0	< 8.0	0.014	0.017	0.042	3	7	15	21	48
BH03	0.60-0.80	< 1.0																			< 10
BH03	1.20-1.70	< 1.0																			< 10

Location	Sample depth	Naphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(a)anthracene	Chrysene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(a)pyrene	Indeno(123-cd)pyrene	Dibenzo(ah)anthracene	Benzo(g,h,i)perylene	Coal Tar (B(a)P as surrogate marker)
Detection Limit		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
GSAC		190	83000	84000	63000	22000	520000	23000	54000	170	350	44	1200	35	500	3.5	3900	15
BH01	0.50-0.70	44	2.8	110	81	580	140	600	520	200	210	260	83	220	100	24	120	220
BH01	0.70-0.90	31	0.86	48	39	260	61	240	210	84	87	100	31	84	40	10	47	84
BH01	1.20-1.40	2.1	0.05	1.8	1.9	10	2.6	9.6	8.6	3.9	3.9	4.1	2	3.8	2.1	0.88	2.3	3.8
BH01	1.40-1.60	< 0.05	< 0.05	< 0.05	< 0.05	0.24	0.06	0.2	0.2	0.09	0.09	< 0.05	< 0.05	< 0.05	0.05	< 0.05	0.07	< 0.05
BH03	0.25-0.40	U/S *U/S	U/S *U/S	U/S *U/S	U/S *U/S	U/S *U/S	U/S *U/S	U/S *U/S	U/S *U/S	U/S *U/S	U/S *U/S	U/S *U/S	U/S *U/S	U/S *U/S	U/S *U/S	U/S *U/S	U/S *U/S	U/S *U/S
BH03	0.40-0.50	3.2	0.32	0.64	1.3	6.5	1.6	5.3	5	1.9	2.2	2.1	0.74	1.9	0.95	0.32	1.1	1.9
BH03	0.60-0.80	0.72	< 0.05	0.2	0.3	1.8	0.4	1.5	1.4	0.56	0.63	0.61	0.22	0.54	0.28	0.09	0.33	0.54
BH03	1.20-1.70	< 0.05	< 0.05	< 0.05	< 0.05	0.12	< 0.05	0.17	0.17	0.07	0.08	0.09	< 0.05	0.08	0.05	< 0.05	0.05	0.08

Appendix 4: Leachate Worksheet

*EQS Standard: Phenol and Benzene annual average of 300µg/l; Toluene 500µg/l for Freshwater, 400µg/l for Saltwater; 1,1,1-TCA 1,000µg/l.

Project Name:	Huddersfield Bus Station Canopy
Project Number:	221692
Assessment for:	Soil Leachate Assessment
Laboratory:	i2
Receptor:	Drinking Water
Receptor Water Hardness:	<40 (No Data)



100 = Assessment Criteria Exceedance

									Location	BH03	BH01
									Depth	0.6	0.7
									Sampling Date		
									Lab Ref		
	Contaminant	Units	Detection Limit	Guideline Concentration	Source	Number of Samples	Min	Max	No of Exceedences		
Heavy Metals	Arsenic	µg/l	0.15	10.00	UK DWS	2	< 0.15	16.00	1	< 1.0	16.00
	Barium	mg/l	0.06	1000.00	UK DWS	2	12.00	25.00	0	25.00	12.00
	Beryllium	µg/l	0.1	0.1	No Standard	2	< 0.1	< 0.1	0	< 0.2	< 0.2
	Boron	µg/l	10	1000.00	UK DWS	2	66.00	77.00	0	66.00	77.00
	Cadmium	µg/l	0.02	5.00	UK DWS	2	< 0.02	< 0.02	0	< 0.08	< 0.08
	Chromium III	µg/l	0.2	50.00	UK DWS	2	1.90	3.60	0	3.60	1.90
	Copper	µg/l	0.5	2000.00	UK DWS	2	7.50	73.00	0	7.50	73.00
	Lead	µg/l	0.2	10.00	UK DWS	2	< 0.2	1.00	0	< 1.0	1.00
	Mercury	µg/l	0.05	1.00	UK DWS	2	< 0.05	< 0.05	0	< 0.5	< 0.5
	Nickel	µg/l	0.5	20.00	UK DWS	2	2.50	8.30	0	2.50	8.30
	Selenium	µg/l	0.6	10.00	UK DWS	2	< 0.6	5.30	0	< 4.0	5.30
	Vanadium	mg/l	0.2	20.00	EQS Freshwater	2	2.40	27.00	1	2.40	27.00
	Zinc	µg/l	0.5	5000.00	UK DWS	2	3.40	5.50	0	5.50	3.40
Misc Inorganics/organics	pH	pH	0.045	>6.5 - <9	UK DWS	2	7.80	10.70	1	7.80	10.70
	Cyanide (Total)	µg/l	10	50.00	UK DWS	2	< 10	< 10	0	< 10	< 10
	Sulphate as SO ₄	mg/l	0.045	250.00	UK DWS	1	105.00	105.00	0		105.00
	Chloride	mg/l	0.15	250.00	EQS Freshwater	0	0.00	< 0.15	0		
	Phenol	µg/l	10	7.70	EQS Freshwater	1	0.03	0.03	0		0.03

Appendix 5: Preliminary Risk Classification

BWB RISK ASSESSMENT CLASSIFICATION (REFERENCE CIRIA C552, CONTAMINATED LAND RISK ASSESSMENT: A GUIDE TO GOOD PRACTICE, 2001)

CIRIA C552, *Contaminated Land Risk Assessment A Guide to Good Practice*, 2001 sets out a methodology for estimating risk. The methodology for risk evaluation is a qualitative method for interpreting the output for the risk estimation stage of the assessment. It involves the classification of the:

- Magnitude of the potential consequence (severity) of risk occurring; and
- Magnitude of the probability (likelihood) of the risk occurring.

The classification of consequence and probability are replicated in **Table 1** and **Table 2**, respectively.

Table 1: Classification of Consequence

Classification	Definition	Examples
Severe (Sv)	Short term (acute) risk to human health likely to result in "significant harm" as defined by the Environment Protection Act 1990, Part IIA. Short term risk of pollution of sensitive water resource. Catastrophic damage to buildings/property. A short-term risk to a particular ecosystem, or organism forming part of such ecosystem.	High concentrations of cyanide on the surface of an informal recreation area. Major spillage of contaminants from site into controlled water. Explosion, causing building collapse (can also equate to a short-term human health risk if buildings are occupied).
Medium (Md)	Chronic damage to Human Health ("significant harm"). Pollution of sensitive water resources. A significant change in a particular ecosystem, or organism forming part of such ecosystem.	Concentrations of a contaminant from site exceeding the generic or site-specific assessment criteria. Leaching of contaminants from a site to a major or minor aquifer. Death of species within a designated nature reserve.
Mild (Mi)	Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services. Damage to sensitive buildings/structures/services or the environment.	Pollution of non-classified groundwater. Damage to building rendering it unsafe to occupy (e.g. foundation damage resulting in instability).
Minor (Mr)	Harm, although not necessarily significant harm, which may result in a financial loss, or expenditure to resolve. Non-permanent health effects to human health (easily prevented by measures such as protective clothing etc.). Easily repairable effects of damage to buildings, structures and services.	The presence of contaminants at such concentration that protective equipment is required during site works. The loss of plants in a landscaping scheme. Discolouration of concrete.

The classification of consequence does not take into account the probability of the consequence being realised. Therefore, there may be more than one consequence for a particular pollutant linkage. Both a severe and medium classification can result in death.

Severe relates to short term (acute) risk while medium relates to long term (chronic) risk. Mild relates to significant harm but to less sensitive receptors. Minor classification relates to harm which is not significant but could have a financial cost.

Table 2: Classification of Probability

Classification	Definition
High likelihood (Hi)	There is a pollutant linkage and an event that either appears very likely in the short term and almost inevitable in the long term, or there is evidence at the receptor of harm or pollution.
Likely (Li)	There is a pollutant linkage and all the elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.
Low likelihood (Lw)	There is a pollutant linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such event would take place, and is less likely in the shorter term.
Unlikely (Ui)	There is a pollutant linkage but circumstances are such that it is improbable that an event would occur even in the very long term.

The classification gives a guide as to the severity and consequence of identified risk when compared with other risk presented on the site. It should be noted that if a risk is identified it cannot be classified as “no risk” but as “very low risk”. Differing stakeholders may have a different view on the acceptability of a risk.

Once the consequence and probability have been classified these can be compared using a matrix to identify an overall risk category, as shown in **Table 3**. These categories and the actions required are categorised in **Table 4**.

Table 3: Risk Evaluation Matrix

Consequence		Severe (Sv)	Medium (Md)	Mild (Mi)	Minor (Mr)
Probability	High likelihood (Hi)	Very High Risk (VH)	High Risk (H)	Moderate Risk (M)	Mod/Low Risk (M/L)
	Likely (Li)	High Risk (H)	Moderate Risk (M)	Mod/Low Risk (M/L)	Low Risk (L)
	Low likelihood (Lw)	Moderate Risk (M)	Mod/Low Risk (M/L)	Low Risk (L)	Very Low Risk (VL)
	Unlikely (Ui)	Mod/Low Risk (M/L)	Low Risk (L)	Very Low Risk (VL)	Very Low Risk (VL)

Table 4: Risk Categorisations

Very High Risk (VH)	There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR, there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not undertaken already) and remediation are likely to be required.
High Risk (H)	Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation (if not undertaken already) is required and remedial works may be necessary in the short-term and are likely over the longer-term.
Moderate Risk (M)	It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild. Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer-term.
Low Risk (L)	It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild.
Very Low Risk (VL)	There is a low possibility that harm could arise to a receptor. In the event of such harm being realised it is not likely to be severe.

Reference:

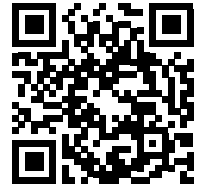
CIRIA C552 *Contaminated land risk assessment. A guide to good practice*. Rudland, D J, Lancefield, R M, Mayell, P N, 2001.

Appendix 6: Hazwaste Assessment

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:

- understand the origin of the waste
- select the correct List of Waste code(s)
- confirm that the list of determinands, results and sampling plan are fit for purpose
- select and justify the chosen metal species (Appendix B)
- correctly apply moisture correction and other available corrections
- add the meta data for their user-defined substances (Appendix A)
- check that the classification engine is suitable with respect to the national destination of the waste (Appendix C)



VLH0F-OS5II-CLOB2

To aid the reviewer, the laboratory results, assumptions and justifications managed by the classifier are highlighted in pale yellow.

Report is invalid if pages are removed.

Job name

221362 - WYP Huddersfield Deployment Centre

Description/Comments

Project

221362

Site

WYP Huddersfield Deployment Centre

Classified by

Name: **Timothy Hull**
Date: **30 Jul 2025 12:08 GMT**
Telephone: **0115 924 1100**
Company: **BWB Consulting Ltd**
5th Floor, Waterfront House
Station Street
Nottingham
NG2 3DQ

HazWasteOnline™ provides a two day, hazardous waste classification course that covers the use of the software and both basic and advanced waste classification techniques. Certification has to be renewed every 3 years.

HazWasteOnline™ Certification:

CERTIFIED

Course

Hazardous Waste Classification

Date

07 Dec 2023

Next 3 year Refresher due by Dec 2026

Purpose of classification

2 - Material Characterisation

Address of the waste

Lower Fitzwilliam Street, Huddersfield

Post Code HD1 6AE

SIC for the process giving rise to the waste

41201 Construction of commercial buildings

Description of industry/producer giving rise to the waste

Redevelopment of the site for a new police deployment centre.

Description of the specific process, sub-process and/or activity that created the waste

Waste created during foundation construction and installation of utilities.

Description of the waste

Made Ground

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	BH01	0.50-0.70	Non Hazardous		3
2	BH01[2]	0.70-0.90	Hazardous	HP 7, HP 11	5
3	BH01[3]	1.20-1.40	Non Hazardous		8
4	BH01[4]	1.40-1.60	Non Hazardous		10
5	BH03	0.40-0.50	Non Hazardous		12
6	BH03[2]	0.60-0.80	Non Hazardous		15
7	BH03[3]	1.20-1.70	Non Hazardous		17

Related documents

#	Name	Description
1	BWB Contaminated Land Suite WM3	waste stream template used to create this Job

Report

Created by: Timothy Hull

Created date: 30 Jul 2025 12:08 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	19
Appendix B: Rationale for selection of metal species	20
Appendix C: Version	21

Classification of sample: BH01

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:	
BH01	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.50-0.70 m		

Hazard properties

None identified

Determinands

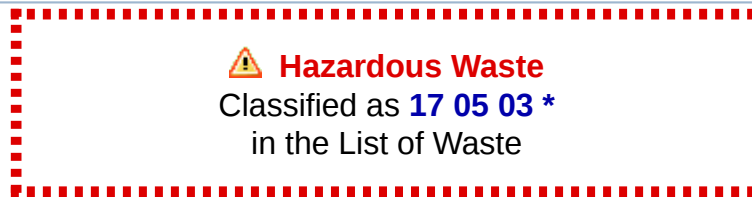
Moisture content: None

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	confirm TPH has NOT arisen from diesel or petrol				☒					
2	acenaphthene				110 mg/kg		110 mg/kg	0.011 %		
		201-469-6	83-32-9							
3	acenaphthylene				2.8 mg/kg		2.8 mg/kg	0.00028 %		
		205-917-1	208-96-8							
4	anthracene				140 mg/kg		140 mg/kg	0.014 %		
		204-371-1	120-12-7							
5	benzo[a]anthracene				200 mg/kg		200 mg/kg	0.02 %		
	601-033-00-9	200-280-6	56-55-3							
6	benzo[a]pyrene; benzo[def]chrysene				220 mg/kg		220 mg/kg	0.022 %		
	601-032-00-3	200-028-5	50-32-8							
7	benzo[b]fluoranthene				260 mg/kg		260 mg/kg	0.026 %		
	601-034-00-4	205-911-9	205-99-2							
8	benzo[ghi]perylene				120 mg/kg		120 mg/kg	0.012 %		
		205-883-8	191-24-2							
9	benzo[k]fluoranthene				83 mg/kg		83 mg/kg	0.0083 %		
	601-036-00-5	205-916-6	207-08-9							
10	chrysene				210 mg/kg		210 mg/kg	0.021 %		
	601-048-00-0	205-923-4	218-01-9							
11	dibenz[a,h]anthracene				24 mg/kg		24 mg/kg	0.0024 %		
	601-041-00-2	200-181-8	53-70-3							
12	fluoranthene				600 mg/kg		600 mg/kg	0.06 %		
		205-912-4	206-44-0							
13	fluorene				81 mg/kg		81 mg/kg	0.0081 %		
		201-695-5	86-73-7							
14	indeno[123-cd]pyrene				100 mg/kg		100 mg/kg	0.01 %		
		205-893-2	193-39-5							
15	naphthalene				44 mg/kg		44 mg/kg	0.0044 %		
	601-052-00-2	202-049-5	91-20-3							
16	phenanthrene				580 mg/kg		580 mg/kg	0.058 %		
		201-581-5	85-01-8							
17	pyrene				520 mg/kg		520 mg/kg	0.052 %		
		204-927-3	129-00-0							
Total:								0.329 %		

Key

	User supplied data
•	Determinand defined or amended by HazWasteOnline (see Appendix A)

Classification of sample: BH01[2]



Sample details

Sample name:	LoW Code:
BH01[2]	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.70-0.90 m	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.: 0.2%)

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.: 0.2%)

Determinands

Moisture content: None

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	confirm TPH has NOT arisen from diesel or petrol				☒					
2	arsenic { arsenic trioxide }				32 mg/kg	1.32	42.25 mg/kg	0.00423 %		
	033-003-00-0	215-481-4	1327-53-3							
3	beryllium { beryllium oxide }				2 mg/kg	2.775	5.551 mg/kg	0.000555 %		
	004-003-00-8	215-133-1	1304-56-9							
4	boron { boron tribromide/trichloride/trifluoride (combined) }				2.3 mg/kg	13.43	30.889 mg/kg	0.00309 %		
			10294-33-4, 10294-34-5, 7637-07-2							
5	cadmium { cadmium sulfide }			1	0.3 mg/kg	1.285	0.386 mg/kg	0.00003 %		
	048-010-00-4	215-147-8	1306-23-6							
6	chromium { chromium(III) oxide (worst case) }				19 mg/kg	1.462	27.77 mg/kg	0.00278 %		
		215-160-9	1308-38-9							
7	copper { dicopper oxide; copper (I) oxide }				200 mg/kg	1.126	225.178 mg/kg	0.0225 %		
	029-002-00-X	215-270-7	1317-39-1							
8	lead { lead chromate }			1	330 mg/kg	1.56	514.739 mg/kg	0.033 %		
	082-004-00-2	231-846-0	7758-97-6							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
9	mercury { mercury dichloride }				<0.3 mg/kg	1.353	<0.406 mg/kg	<0.0000406 %			<LOD
	080-010-00-X	231-299-8	7487-94-7								
10	nickel { nickel dihydroxide }				24 mg/kg	1.579	37.908 mg/kg	0.00379 %			
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]								
11	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1.3 mg/kg	1.405	1.827 mg/kg	0.000183 %			
	034-002-00-8										
12	zinc { zinc chromate }				170 mg/kg	2.774	471.605 mg/kg	0.0472 %			
	024-007-00-3	236-878-9	13530-65-9								
13	pH		PH		10.8 pH		10.8 pH	10.8 pH			
14	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 }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
	006-007-00-5										
15	TPH (C6 to C40) petroleum group		TPH		2000 mg/kg		2000 mg/kg	0.2 %			
16	benzene				17 µg/kg		0.017 mg/kg	0.0000017 %			
	601-020-00-8	200-753-7	71-43-2								
17	ethylbenzene				<5 µg/kg		<0.005 mg/kg	<0.0000005 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
18	toluene				8.5 µg/kg		0.0085 mg/kg	0.00000085 %			
	601-021-00-3	203-625-9	108-88-3								
19	xylene				19.4 µg/kg		0.0194 mg/kg	0.00000194 %			
	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]								
20	acenaphthene				48 mg/kg		48 mg/kg	0.0048 %			
		201-469-6	83-32-9								
21	acenaphthylene				0.86 mg/kg		0.86 mg/kg	0.000086 %			
		205-917-1	208-96-8								
22	anthracene				61 mg/kg		61 mg/kg	0.0061 %			
		204-371-1	120-12-7								
23	benzo[a]anthracene				84 mg/kg		84 mg/kg	0.0084 %			
	601-033-00-9	200-280-6	56-55-3								
24	benzo[a]pyrene; benzo[def]chrysene				84 mg/kg		84 mg/kg	0.0084 %			
	601-032-00-3	200-028-5	50-32-8								
25	benzo[b]fluoranthene				100 mg/kg		100 mg/kg	0.01 %			
	601-034-00-4	205-911-9	205-99-2								
26	benzo[ghi]perylene				47 mg/kg		47 mg/kg	0.0047 %			
		205-883-8	191-24-2								
27	benzo[k]fluoranthene				31 mg/kg		31 mg/kg	0.0031 %			
	601-036-00-5	205-916-6	207-08-9								
28	chrysene				87 mg/kg		87 mg/kg	0.0087 %			
	601-048-00-0	205-923-4	218-01-9								
29	dibenz[a,h]anthracene				10 mg/kg		10 mg/kg	0.001 %			
	601-041-00-2	200-181-8	53-70-3								
30	fluoranthene				240 mg/kg		240 mg/kg	0.024 %			
		205-912-4	206-44-0								
31	fluorene				39 mg/kg		39 mg/kg	0.0039 %			
		201-695-5	86-73-7								
32	indeno[123-cd]pyrene				40 mg/kg		40 mg/kg	0.004 %			
		205-893-2	193-39-5								
33	naphthalene				31 mg/kg		31 mg/kg	0.0031 %			
	601-052-00-2	202-049-5	91-20-3								
34	phenanthrene				260 mg/kg		260 mg/kg	0.026 %			
		201-581-5	85-01-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
35	pyrene	204-927-3	129-00-0		210 mg/kg		210 mg/kg	0.021 %		
36	phenol	203-632-7	108-95-2		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
Total:								0.455 %		

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 Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and <= 75°C"

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 2500 mg/kg (0.25%) because: No free phase recorded. No flammability risk.

Hazard Statements hit:

Flam. Liq. 2; H225 "Highly flammable liquid and vapour."

Because of determinands:

benzene (conc.: 1.7e-06%)
toluene (conc.: 8.5e-07%)

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinands:

TPH (C6 to C40) petroleum group (conc.: 0.2%)
xylene (conc.: 1.94e-06%)

Classification of sample: BH01[3]

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
BH01[3]	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
1.20-1.40 m	

Hazard properties

None identified

Determinands

Moisture content: None

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	confirm TPH has NOT arisen from diesel or petrol				☑							
2	arsenic { arsenic trioxide }				5.6	mg/kg	1.32	7.394	mg/kg	0.000739 %		
	033-003-00-0	215-481-4	1327-53-3									
3	beryllium { beryllium oxide }				0.72	mg/kg	2.775	1.998	mg/kg	0.0002 %		
	004-003-00-8	215-133-1	1304-56-9									
4	boron { boron tribromide/trichloride/trifluoride (combined) }				1.3	mg/kg	13.43	17.459	mg/kg	0.00175 %		
			10294-33-4, 10294-34-5, 7637-07-2									
5	cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
	048-010-00-4	215-147-8	1306-23-6									
6	chromium { chromium(III) oxide (worst case) }				19	mg/kg	1.462	27.77	mg/kg	0.00278 %		
		215-160-9	1308-38-9									
7	copper { dicopper oxide; copper (I) oxide }				18	mg/kg	1.126	20.266	mg/kg	0.00203 %		
	029-002-00-X	215-270-7	1317-39-1									
8	lead { lead chromate }			1	35	mg/kg	1.56	54.594	mg/kg	0.0035 %		
	082-004-00-2	231-846-0	7758-97-6									
9	mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
	080-010-00-X	231-299-8	7487-94-7									
10	nickel { nickel dihydroxide }				15	mg/kg	1.579	23.692	mg/kg	0.00237 %		
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
11	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1.4	mg/kg	1.405	1.967	mg/kg	0.000197 %		
	034-002-00-8											
12	zinc { zinc chromate }				43	mg/kg	2.774	119.288	mg/kg	0.0119 %		
	024-007-00-3	236-878-9	13530-65-9									
13	pH				8.4	pH		8.4	pH	8.4 pH		
			PH									
14	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 }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
	006-007-00-5											

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
15	TPH (C6 to C40) petroleum group		TPH		110 mg/kg		110 mg/kg	0.011 %		
16	acenaphthene	201-469-6	83-32-9		1.8 mg/kg		1.8 mg/kg	0.00018 %		
17	acenaphthylene	205-917-1	208-96-8		0.05 mg/kg		0.05 mg/kg	0.000005 %		
18	anthracene	204-371-1	120-12-7		2.6 mg/kg		2.6 mg/kg	0.00026 %		
19	benzo[a]anthracene	601-033-00-9	200-280-6		3.9 mg/kg		3.9 mg/kg	0.00039 %		
20	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		3.8 mg/kg		3.8 mg/kg	0.00038 %		
21	benzo[b]fluoranthene	601-034-00-4	205-911-9		4.1 mg/kg		4.1 mg/kg	0.00041 %		
22	benzo[ghi]perylene	205-883-8	191-24-2		2.3 mg/kg		2.3 mg/kg	0.00023 %		
23	benzo[k]fluoranthene	601-036-00-5	205-916-6		2 mg/kg		2 mg/kg	0.0002 %		
24	chrysene	601-048-00-0	205-923-4		3.9 mg/kg		3.9 mg/kg	0.00039 %		
25	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.88 mg/kg		0.88 mg/kg	0.000088 %		
26	fluoranthene	205-912-4	206-44-0		9.6 mg/kg		9.6 mg/kg	0.00096 %		
27	fluorene	201-695-5	86-73-7		1.9 mg/kg		1.9 mg/kg	0.00019 %		
28	indeno[123-cd]pyrene	205-893-2	193-39-5		2.1 mg/kg		2.1 mg/kg	0.00021 %		
29	naphthalene	601-052-00-2	202-049-5		2.1 mg/kg		2.1 mg/kg	0.00021 %		
30	phenanthrene	201-581-5	85-01-8		10 mg/kg		10 mg/kg	0.001 %		
31	pyrene	204-927-3	129-00-0		8.6 mg/kg		8.6 mg/kg	0.00086 %		
32	phenol	604-001-00-2	203-632-7		<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
Total:								0.0424 %		

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 Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and ≤ 75°C"

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 2500 mg/kg (0.25%)
because: No free phase recorded. No flammability risk.

Hazard Statements hit:

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinand:

TPH (C6 to C40) petroleum group (conc.: 0.011%)

Classification of sample: BH01[4]

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
BH01[4]	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
1.40-1.60 m	

Hazard properties

None identified

Determinands

Moisture content: None

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	confirm TPH has NOT arisen from diesel or petrol				☒							
2	arsenic { arsenic trioxide }				7.4	mg/kg	1.32	9.77	mg/kg	0.000977 %		
	033-003-00-0	215-481-4	1327-53-3									
3	beryllium { beryllium oxide }				0.73	mg/kg	2.775	2.026	mg/kg	0.000203 %		
	004-003-00-8	215-133-1	1304-56-9									
4	boron { boron tribromide/trichloride/trifluoride (combined) }				0.9	mg/kg	13.43	12.087	mg/kg	0.00121 %		
			10294-33-4, 10294-34-5, 7637-07-2									
5	cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
	048-010-00-4	215-147-8	1306-23-6									
6	chromium { chromium(III) oxide (worst case) }				27	mg/kg	1.462	39.462	mg/kg	0.00395 %		
		215-160-9	1308-38-9									
7	copper { dicopper oxide; copper (I) oxide }				20	mg/kg	1.126	22.518	mg/kg	0.00225 %		
	029-002-00-X	215-270-7	1317-39-1									
8	lead { lead chromate }			1	13	mg/kg	1.56	20.278	mg/kg	0.0013 %		
	082-004-00-2	231-846-0	7758-97-6									
9	mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
	080-010-00-X	231-299-8	7487-94-7									
10	nickel { nickel dihydroxide }				13	mg/kg	1.579	20.533	mg/kg	0.00205 %		
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
11	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1.5	mg/kg	1.405	2.108	mg/kg	0.000211 %		
	034-002-00-8											
12	zinc { zinc chromate }				38	mg/kg	2.774	105.418	mg/kg	0.0105 %		
	024-007-00-3	236-878-9	13530-65-9									
13	pH				8.4	pH		8.4	pH	8.4 pH		
			PH									
14	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 }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
	006-007-00-5											

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
15	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
			TPH							
16	acenaphthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9							
17	acenaphthylene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		205-917-1	208-96-8							
18	anthracene				0.06 mg/kg		0.06 mg/kg	0.000006 %		
		204-371-1	120-12-7							
19	benzo[a]anthracene				0.09 mg/kg		0.09 mg/kg	0.000009 %		
	601-033-00-9	200-280-6	56-55-3							
20	benzo[a]pyrene; benzo[def]chrysene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-032-00-3	200-028-5	50-32-8							
21	benzo[b]fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-034-00-4	205-911-9	205-99-2							
22	benzo[ghi]perylene				0.07 mg/kg		0.07 mg/kg	0.000007 %		
		205-883-8	191-24-2							
23	benzo[k]fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-036-00-5	205-916-6	207-08-9							
24	chrysene				0.09 mg/kg		0.09 mg/kg	0.000009 %		
	601-048-00-0	205-923-4	218-01-9							
25	dibenz[a,h]anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-041-00-2	200-181-8	53-70-3							
26	fluoranthene				0.23 mg/kg		0.23 mg/kg	0.000023 %		
		205-912-4	206-44-0							
27	fluorene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		201-695-5	86-73-7							
28	indeno[123-cd]pyrene				0.05 mg/kg		0.05 mg/kg	0.000005 %		
		205-893-2	193-39-5							
29	naphthalene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
30	phenanthrene				0.24 mg/kg		0.24 mg/kg	0.000024 %		
		201-581-5	85-01-8							
31	pyrene				0.21 mg/kg		0.21 mg/kg	0.000021 %		
		204-927-3	129-00-0							
32	phenol				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	604-001-00-2	203-632-7	108-95-2							
Total:								0.0228 %		

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 Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: BH03

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
BH03	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.40-0.50 m	

Hazard properties

None identified

Determinands

Moisture content: None

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	confirm TPH has NOT arisen from diesel or petrol				☑						
2	arsenic { arsenic trioxide }				5.8 mg/kg	1.32	7.658 mg/kg	0.000766 %			
	033-003-00-0	215-481-4	1327-53-3								
3	beryllium { beryllium oxide }				0.86 mg/kg	2.775	2.387 mg/kg	0.000239 %			
	004-003-00-8	215-133-1	1304-56-9								
4	boron { boron tribromide/trichloride/trifluoride (combined) }				1 mg/kg	13.43	13.43 mg/kg	0.00134 %			
			10294-33-4, 10294-34-5, 7637-07-2								
5	cadmium { cadmium sulfide }			1	<0.2 mg/kg	1.285	<0.257 mg/kg	<0.00002 %			<LOD
	048-010-00-4	215-147-8	1306-23-6								
6	chromium { chromium(III) oxide (worst case) }				18 mg/kg	1.462	26.308 mg/kg	0.00263 %			
		215-160-9	1308-38-9								
7	copper { dicopper oxide; copper (I) oxide }				20 mg/kg	1.126	22.518 mg/kg	0.00225 %			
	029-002-00-X	215-270-7	1317-39-1								
8	lead { lead chromate }			1	53 mg/kg	1.56	82.67 mg/kg	0.0053 %			
	082-004-00-2	231-846-0	7758-97-6								
9	mercury { mercury dichloride }				<0.3 mg/kg	1.353	<0.406 mg/kg	<0.0000406 %			<LOD
	080-010-00-X	231-299-8	7487-94-7								
10	nickel { nickel dihydroxide }				20 mg/kg	1.579	31.59 mg/kg	0.00316 %			
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]								
11	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				1 mg/kg	1.405	1.405 mg/kg	0.000141 %			
	034-002-00-8										
12	zinc { zinc chromate }				49 mg/kg	2.774	135.933 mg/kg	0.0136 %			
	024-007-00-3	236-878-9	13530-65-9								
13	pH				8.9 pH		8.9 pH	8.9 pH			
			PH								
14	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 }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
	006-007-00-5										

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
15	TPH (C6 to C40) petroleum group				48 mg/kg		48 mg/kg	0.0048 %		
			TPH							
16	benzene				<5 µg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
17	ethylbenzene				<5 µg/kg		<0.005 mg/kg	<0.0000005 %		<LOD
	601-023-00-4	202-849-4	100-41-4							
18	toluene				7.5 µg/kg		0.0075 mg/kg	0.00000075 %		
	601-021-00-3	203-625-9	108-88-3							
19	xylene				26 µg/kg		0.026 mg/kg	0.0000026 %		
	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]							
20	acenaphthene				0.64 mg/kg		0.64 mg/kg	0.000064 %		
		201-469-6	83-32-9							
21	acenaphthylene				0.32 mg/kg		0.32 mg/kg	0.000032 %		
		205-917-1	208-96-8							
22	anthracene				1.6 mg/kg		1.6 mg/kg	0.00016 %		
		204-371-1	120-12-7							
23	benzo[a]anthracene				1.9 mg/kg		1.9 mg/kg	0.00019 %		
	601-033-00-9	200-280-6	56-55-3							
24	benzo[a]pyrene; benzo[def]chrysene				1.9 mg/kg		1.9 mg/kg	0.00019 %		
	601-032-00-3	200-028-5	50-32-8							
25	benzo[b]fluoranthene				2.1 mg/kg		2.1 mg/kg	0.00021 %		
	601-034-00-4	205-911-9	205-99-2							
26	benzo[ghi]perylene				1.1 mg/kg		1.1 mg/kg	0.00011 %		
		205-883-8	191-24-2							
27	benzo[k]fluoranthene				0.74 mg/kg		0.74 mg/kg	0.000074 %		
	601-036-00-5	205-916-6	207-08-9							
28	chrysene				2.2 mg/kg		2.2 mg/kg	0.00022 %		
	601-048-00-0	205-923-4	218-01-9							
29	dibenz[a,h]anthracene				0.32 mg/kg		0.32 mg/kg	0.000032 %		
	601-041-00-2	200-181-8	53-70-3							
30	fluoranthene				5.3 mg/kg		5.3 mg/kg	0.00053 %		
		205-912-4	206-44-0							
31	fluorene				1.3 mg/kg		1.3 mg/kg	0.00013 %		
		201-695-5	86-73-7							
32	indeno[123-cd]pyrene				0.95 mg/kg		0.95 mg/kg	0.000095 %		
		205-893-2	193-39-5							
33	naphthalene				3.2 mg/kg		3.2 mg/kg	0.00032 %		
	601-052-00-2	202-049-5	91-20-3							
34	phenanthrene				6.5 mg/kg		6.5 mg/kg	0.00065 %		
		201-581-5	85-01-8							
35	pyrene				5 mg/kg		5 mg/kg	0.0005 %		
		204-927-3	129-00-0							
36	phenol				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	604-001-00-2	203-632-7	108-95-2							
Total:								0.0377 %		

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 Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

HP 3(i): Flammable "flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and ≤ 75°C"

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 2500 mg/kg (0.25%)
because: No free phase recorded. No flammability risk.

Hazard Statements hit:

Flam. Liq. 2; H225 "Highly flammable liquid and vapour."

Because of determinand:

toluene (conc.: 7.5e-07%)

Flam. Liq. 3; H226 "Flammable liquid and vapour."

Because of determinands:

TPH (C6 to C40) petroleum group (conc.: 0.0048%)

xylene (conc.: 2.6e-06%)

Classification of sample: BH03[2]

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
BH03[2]	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.60-0.80 m	

Hazard properties

None identified

Determinands

Moisture content: None

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number									
1	confirm TPH has NOT arisen from diesel or petrol				☒							
2	arsenic { arsenic trioxide }				6.3	mg/kg	1.32	8.318	mg/kg	0.000832 %		
	033-003-00-0	215-481-4	1327-53-3									
3	beryllium { beryllium oxide }				1	mg/kg	2.775	2.775	mg/kg	0.000278 %		
	004-003-00-8	215-133-1	1304-56-9									
4	boron { boron tribromide/trichloride/trifluoride (combined) }				1	mg/kg	13.43	13.43	mg/kg	0.00134 %		
			10294-33-4, 10294-34-5, 7637-07-2									
5	cadmium { cadmium sulfide }			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
	048-010-00-4	215-147-8	1306-23-6									
6	chromium { chromium(III) oxide (worst case) }				19	mg/kg	1.462	27.77	mg/kg	0.00278 %		
		215-160-9	1308-38-9									
7	copper { dicopper oxide; copper (I) oxide }				22	mg/kg	1.126	24.77	mg/kg	0.00248 %		
	029-002-00-X	215-270-7	1317-39-1									
8	lead { lead chromate }			1	28	mg/kg	1.56	43.675	mg/kg	0.0028 %		
	082-004-00-2	231-846-0	7758-97-6									
9	mercury { mercury dichloride }				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
	080-010-00-X	231-299-8	7487-94-7									
10	nickel { nickel dihydroxide }				25	mg/kg	1.579	39.487	mg/kg	0.00395 %		
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
11	selenium { selenium compounds with the exception of cadmium selenosulfide and those specified elsewhere in this Annex }				1.1	mg/kg	1.405	1.546	mg/kg	0.000155 %		
	034-002-00-8											
12	zinc { zinc chromate }				52	mg/kg	2.774	144.256	mg/kg	0.0144 %		
	024-007-00-3	236-878-9	13530-65-9									
13	pH				8.6	pH		8.6	pH	8.6 pH		
			PH									
14	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric cyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
	006-007-00-5											

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
15	●	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
				TPH							
16	●	acenaphthene				0.2 mg/kg		0.2 mg/kg	0.00002 %		
			201-469-6	83-32-9							
17	●	acenaphthylene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
			205-917-1	208-96-8							
18	●	anthracene				0.4 mg/kg		0.4 mg/kg	0.00004 %		
			204-371-1	120-12-7							
19		benzo[a]anthracene				0.56 mg/kg		0.56 mg/kg	0.000056 %		
		601-033-00-9	200-280-6	56-55-3							
20		benzo[a]pyrene; benzo[def]chrysene				0.54 mg/kg		0.54 mg/kg	0.000054 %		
		601-032-00-3	200-028-5	50-32-8							
21		benzo[b]fluoranthene				0.61 mg/kg		0.61 mg/kg	0.000061 %		
		601-034-00-4	205-911-9	205-99-2							
22	●	benzo[ghi]perylene				0.33 mg/kg		0.33 mg/kg	0.000033 %		
			205-883-8	191-24-2							
23		benzo[k]fluoranthene				0.22 mg/kg		0.22 mg/kg	0.000022 %		
		601-036-00-5	205-916-6	207-08-9							
24		chrysene				0.63 mg/kg		0.63 mg/kg	0.000063 %		
		601-048-00-0	205-923-4	218-01-9							
25		dibenz[a,h]anthracene				0.09 mg/kg		0.09 mg/kg	0.000009 %		
		601-041-00-2	200-181-8	53-70-3							
26	●	fluoranthene				1.5 mg/kg		1.5 mg/kg	0.00015 %		
			205-912-4	206-44-0							
27	●	fluorene				0.3 mg/kg		0.3 mg/kg	0.00003 %		
			201-695-5	86-73-7							
28	●	indeno[123-cd]pyrene				0.28 mg/kg		0.28 mg/kg	0.000028 %		
			205-893-2	193-39-5							
29		naphthalene				0.72 mg/kg		0.72 mg/kg	0.000072 %		
		601-052-00-2	202-049-5	91-20-3							
30	●	phenanthrene				1.8 mg/kg		1.8 mg/kg	0.00018 %		
			201-581-5	85-01-8							
31	●	pyrene				1.4 mg/kg		1.4 mg/kg	0.00014 %		
			204-927-3	129-00-0							
32		phenol				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
		604-001-00-2	203-632-7	108-95-2							
Total:									0.03 %		

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 Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: BH03[3]

✔ **Non Hazardous Waste**
Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
BH03[3]	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
1.20-1.70 m	

Hazard properties

None identified

Determinands

Moisture content: None

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	confirm TPH has NOT arisen from diesel or petrol				☑					
2	arsenic { arsenic trioxide }				6.4 mg/kg	1.32	8.45 mg/kg	0.000845 %		
	033-003-00-0	215-481-4	1327-53-3							
3	beryllium { beryllium oxide }				1 mg/kg	2.775	2.775 mg/kg	0.000278 %		
	004-003-00-8	215-133-1	1304-56-9							
4	boron { boron tribromide/trichloride/trifluoride (combined) }				0.4 mg/kg	13.43	5.372 mg/kg	0.000537 %		
			10294-33-4, 10294-34-5, 7637-07-2							
5	cadmium { cadmium sulfide }			1	<0.2 mg/kg	1.285	<0.257 mg/kg	<0.00002 %		<LOD
	048-010-00-4	215-147-8	1306-23-6							
6	chromium { chromium(III) oxide (worst case) }				23 mg/kg	1.462	33.616 mg/kg	0.00336 %		
		215-160-9	1308-38-9							
7	copper { dicopper oxide; copper (I) oxide }				21 mg/kg	1.126	23.644 mg/kg	0.00236 %		
	029-002-00-X	215-270-7	1317-39-1							
8	lead { lead chromate }			1	15 mg/kg	1.56	23.397 mg/kg	0.0015 %		
	082-004-00-2	231-846-0	7758-97-6							
9	mercury { mercury dichloride }				<0.3 mg/kg	1.353	<0.406 mg/kg	<0.0000406 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
10	nickel { nickel dihydroxide }				18 mg/kg	1.579	28.431 mg/kg	0.00284 %		
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]							
11	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1 mg/kg	1.405	<1.405 mg/kg	<0.000141 %		<LOD
	034-002-00-8									
12	zinc { zinc chromate }				37 mg/kg	2.774	102.643 mg/kg	0.0103 %		
	024-007-00-3	236-878-9	13530-65-9							
13	pH				5.8 pH		5.8 pH	5.8 pH		
			PH							
14	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 }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
	006-007-00-5									

#		Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number							
15	■	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
				TPH							
16	■	acenaphthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
			201-469-6	83-32-9							
17	■	acenaphthylene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
			205-917-1	208-96-8							
18	■	anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
			204-371-1	120-12-7							
19		benzo[a]anthracene				0.07 mg/kg		0.07 mg/kg	0.000007 %		
		601-033-00-9	200-280-6	56-55-3							
20		benzo[a]pyrene; benzo[def]chrysene				0.08 mg/kg		0.08 mg/kg	0.000008 %		
		601-032-00-3	200-028-5	50-32-8							
21		benzo[b]fluoranthene				0.09 mg/kg		0.09 mg/kg	0.000009 %		
		601-034-00-4	205-911-9	205-99-2							
22	■	benzo[ghi]perylene				0.05 mg/kg		0.05 mg/kg	0.000005 %		
			205-883-8	191-24-2							
23		benzo[k]fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		601-036-00-5	205-916-6	207-08-9							
24		chrysene				0.08 mg/kg		0.08 mg/kg	0.000008 %		
		601-048-00-0	205-923-4	218-01-9							
25		dibenz[a,h]anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		601-041-00-2	200-181-8	53-70-3							
26	■	fluoranthene				0.17 mg/kg		0.17 mg/kg	0.000017 %		
			205-912-4	206-44-0							
27	■	fluorene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
			201-695-5	86-73-7							
28	■	indeno[123-cd]pyrene				0.05 mg/kg		0.05 mg/kg	0.000005 %		
			205-893-2	193-39-5							
29		naphthalene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		601-052-00-2	202-049-5	91-20-3							
30	■	phenanthrene				0.12 mg/kg		0.12 mg/kg	0.000012 %		
			201-581-5	85-01-8							
31	■	pyrene				0.17 mg/kg		0.17 mg/kg	0.000017 %		
			204-927-3	129-00-0							
32		phenol				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
		604-001-00-2	203-632-7	108-95-2							
Total:									0.0221 %		

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 Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
<LOD	Below limit of detection
CLP: Note 1	Only the metal concentration has been used for classification

Appendix A: Classifier defined and non GB MCL determinands

confirm TPH has NOT arisen from diesel or petrol

Description/Comments: Chapter 3, section 4b requires a positive confirmation for benzo[a]pyrene to be used as a marker in evaluating Carc. 1B; H350 (HP 7) and Muta. 1B; H340 (HP 11)
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

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

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

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

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

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

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

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

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

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

■ **boron tribromide/trichloride/trifluoride (combined)** (CAS Number: 10294-33-4, 10294-34-5, 7637-07-2)

Description/Comments: Combines the hazard statements and the average of the conversion factors for boron tribromide, boron trichloride and boron trifluoride

Data source: N/A

Data source date: 06 Aug 2015

Hazard Statements: EUH014 , Acute Tox. 2; H330 , Acute Tox. 2; H300 , Skin Corr. 1A; H314 , Skin Corr. 1B; H314

■ **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

■ **pH** (CAS Number: PH)

Description/Comments: Appendix C4

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

Hazard Statements: None.

■ **salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex**

GB MCL index number: 006-007-00-5

Description/Comments: Conversion factor based on a worst case compound: sodium cyanide

Additional Hazard Statement(s): EUH032 >= 0.2 %

Reason for additional Hazards Statement(s):

20 Nov 2021 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

■ **TPH (C6 to C40) petroleum group** (CAS Number: TPH)

Description/Comments: Unknown Oil

Hazard statements taken from WM3 1st Edition 2015

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

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

Worst case species based on risk phrases

beryllium {beryllium oxide}

Worst case species based on risk phrases

boron {boron tribromide/trichloride/trifluoride (combined)}

Worst case species based on risk phrases

cadmium {cadmium sulfide}

Worst case species based on risk phrases

chromium {chromium(III) oxide (worst case)}

Chromium VI not detected.

copper {dicopper oxide; copper (I) oxide}

Most likely common species

lead {lead chromate}

Worst case species based on risk phrases

mercury {mercury dichloride}

Worst case species based on risk phrases

nickel {nickel dihydroxide}

Worst case species based on risk phrases

selenium {selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex}

Worst case species based on risk phrases

zinc {zinc chromate}

Worst case species based on risk phrases

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}

Worst case species

Appendix C: Version

HazWasteOnline Classification Engine: **WM3 1st Edition v1.2.GB - Oct 2021**

HazWasteOnline Classification Engine Version: 2025.206.6723.12195 (27 Jul 2025)

HazWasteOnline Database: 2025.206.6723.12195 (27 Jul 2025)

This classification utilises the following guidance and legislation:

WM3 v1.2.GB - Waste Classification - 1st Edition v1.2.GB - Oct 2021

CLP Regulation - Regulation 1272/2008/EC of 16 December 2008

1st ATP - Regulation 790/2009/EC of 10 August 2009

2nd ATP - Regulation 286/2011/EC of 10 March 2011

3rd ATP - Regulation 618/2012/EU of 10 July 2012

4th ATP - Regulation 487/2013/EU of 8 May 2013

Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013

5th ATP - Regulation 944/2013/EU of 2 October 2013

6th ATP - Regulation 605/2014/EU of 5 June 2014

WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014

Revised List of Waste 2014 - Decision 2014/955/EU of 18 December 2014

7th ATP - Regulation 2015/1221/EU of 24 July 2015

8th ATP - Regulation (EU) 2016/918 of 19 May 2016

9th ATP - Regulation (EU) 2016/1179 of 19 July 2016

10th ATP - Regulation (EU) 2017/776 of 4 May 2017

HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017

13th ATP - Regulation (EU) 2018/1480 of 4 October 2018

14th ATP - Regulation (EU) 2020/217 of 4 October 2019

15th ATP - Regulation (EU) 2020/1182 of 19 May 2020

The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit)

Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020

The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1540 of 16th December 2020

GB MCL List - version 1.1 of 09 June 2021

GB MCL List v2.0 - version 2.0 of 20th October 2023

GB MCL List v3.0 - version 3.0 of 11th January 2024

GB MCL List v4.0 - version 4.0 of 2nd March 2024

GB MCL List v5.0 - version 5.0 of 26th June 2024

GB MCL List v6.0 - version 6.0 of 15th February 2025

