

ENVIRONMENT

Stoford Developments Ltd
Cranton Road
Huyton

Phase 2 Geo-Environmental Assessment

ENVIRONMENT

Stoford Developments Ltd
Cronton Road
Huyton
Phase 2 Geo-Environmental Assessment

Birmingham
Livery Place, 35 Livery Street, Colmore Business District, Birmingham, B3 2PB
T: 0121 233 3322

Leeds
Whitehall Waterfront, 2 Riverside Way, Leeds
LS1 4EH
T: 0113 233 8000

London
11 Borough High Street
London, SE1 9SE
T: 0207 407 3879

Manchester
11, Portland Street, Manchester M1 3HU
T: 0161 233 4260

Market Harborough
Harborough Innovation Centre, Wellington Way, Airfield Business Park,
Leicester Road, Market Harborough, Leicestershire, LE16 7WB
T: 01858 455020

Nottingham
Waterfront House, Station Street, Nottingham NG2 3DQ
T: 0115 924 1100

September 2021

DOCUMENT ISSUE RECORD

Document Number:	HG62-BWB-ZZ-XX-RP-YE-0001_Ph2
BWB Reference:	BMS2392

Revision	Date of Issue	Status	Author:	Checked:	Approved:
P1	Sept 2021	S2	Chris Rhodes BSc MSc FGS	Karen Sinclair BSc (Hons) MSc	Richard Robinson BSc (Hons) MCIWEM
					

Notice

This document has been prepared for the sole use of the Client in accordance with the terms of the appointment under which it was produced. BWB Consulting Limited accepts no responsibility for any use of or reliance on the contents of this document by any third party. No part of this document shall be copied or reproduced in any form without the prior written permission of BWB.

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY	
Site Address	Cronton Rd, Widnes, Prescott L35 1QZ
Site Setting	The site comprises an irregular rectangle shaped plot of land covering c. 9.3 hectares, which is densely vegetated in the main, with a woodland area in the west of the site. A small watercourse, known as Chapel Brook, is present within the wooded area in the west of the site, which is fed by a drain which runs parallel to the north western site boundary. The drain appears to have been recently reprofiled, with steep unvegetated banks and c. 2m high mounds of soil around the edges, presumably from the excavation works.
Published Ground Conditions	British Geological Survey mapping for the site indicates that the site is underlain by superficial deposits comprising Devensian Till. A thin strip of Alluvium is mapped in the north west of the site along Chapel Brook. The underlying bedrock is indicated to comprise the Pennine Middle Coal Measures Formation (mudstone, siltstone and sandstone), with the Etruria Formation (mudstone, siltstone and conglomerate) sub-cropping along the south western site boundary.
Site Investigation	Ground investigation works have been complete comprising thirty trial pits, six cable percussive boreholes, four rotary open holes, four gas monitoring visits, and geotechnical and chemical analysis of soils.
Ground Conditions Encountered	Ground conditions have been found to comprise localised Made Ground overlying predominantly cohesive Till deposits. Bedrock has been recorded at depths ranging from 1.0m to 10.1m bgl across the site, present at shallower depths in the north west of the site. Limited groundwater was encountered during the ground investigation; however, perched pockets have been found within more granular pockets/ lenses, recorded at depths of 0.94m and 5.01m bgl during the post investigation monitoring.
Geotechnical Appraisal	Given the existing site topography and the difference in ground elevations across the site, an earthworks operation will be required to make level platform(s) for the two warehouse units. Details of the structural loads of the proposed development are not known at the time of writing. Nevertheless, it is anticipated that the geotechnically competent ground (i.e. deposits of the Glacial Till) would be suitable for the adoption of shallow foundations for the warehouse unit. Ground bearing floor slabs are likely to be a feasible option for the proposed warehouse, subject to an earthworks strategy and specification and settlement analysis (which is designed and validated by a suitably qualified geotechnical engineer).
Environmental Appraisal	Ground gas monitoring has not identified elevated ground gasses in the location of the proposed building, and gas protection measures are not considered to be required. Marginally elevated ground gasses have been recorded in the north west of the site where increased anthropogenic waste materials were present within the soils. Any future development in this area would require gas protection measures commensurate with a CS2 classification. Soil contaminant concentrations were not found above their respective screening criteria. Asbestos was not identified with the soils, however, it has been identified around an old pipe encountered at 2.0m bgl in TP26. Very low marginal exceedances of heavy metals were encountered within soil leachate and groundwater which are not considered to pose a significant risk to controlled water receptors. Furthermore, the low permeability of the Till will prevent potential contaminant migration towards the identified receptors.

	Additionally, development of the site will reduce rainfall infiltration and further reduce potential leachate or perched groundwater migration.
Waste Assessment	The waste classification assessment indicates that the soils analysed would be classified as non-hazardous in terms of off site disposal.
Recommendations	Dependent on the final layout of the scheme, further ground gas monitoring may be required to satisfy the Local Authority. It is recommended that prior to earthworks, the asbestos coated pipe is excavated and removed by a specialist contractor to ensure that asbestos containing materials are not spread across the site. Once the layout plan of the proposed development is confirmed, the ground conditions information presented in this document and any further required supplementary information should be utilised by a suitably qualified geotechnical engineer to develop a ground model in support of a detailed foundation appraisal and Geotechnical Assessment Report for the warehouse units. The geotechnical and other relevant information presented in this report, including but not limited to the test results summarised in Section 6, are recommended to be used in informing the future earthworks strategy and specification by a qualified geotechnical engineer.
This summary should be read in conjunction with BWB's full report (ref. HG62-BWB-ZZ-XX-RP-YE-0001_Ph2) and reflects an assessment of the Site based on information received by BWB at the time of production.	

CONTENTS

EXECUTIVE SUMMARY	iii
1. INTRODUCTION.....	1
2. THE SITE	3
Site Location.....	3
Site Description	3
3. PUBLISHED GROUND CONDITIONS	5
Published Geology	5
Coal Authority Mining Report.....	5
Hydrogeology	6
Hydrology	6
4. PREVIOUS REPORT SUMMARY	7
Phase 1, Geo-Environmental Investigation by Integra Consulting dated August 2017	7
Factual Ground Investigation Report by Integra Consulting dated August 2017	8
BWB Comment.....	8
5. PRELIMINARY ENVIRONMENTAL RISK ASSESSMENT	9
Introduction	9
Conceptual Site Model.....	9
6. PHASE II ENVIRONMENTAL AND GEOTECHNICAL GROUND INVESTIGATION	12
Chemical Sampling Strategy	12
Chemical Analytical Strategy	13
7. GROUND CONDITIONS ENCOUNTERED.....	15
Geological Summary	15
Contamination Observations.....	20
8. GEOTECHNICAL ASSESSMENT	21
Earthworks.....	21
Floor Slabs	23
Roads and Pavements.....	23
Drainage.....	23
Excavations	23
Groundwater.....	24
Chemical Attack on Buried Concrete	24
9. GROUND GAS ASSESSMENT	25
Introduction	25
Results.....	25
10. HUMAN HEALTH RISK ASSESSMENT	27

Sources.....	27
Pathways	27
11. CONTROLLED WATERS RISK ASSESSMENT	29
12. ENVIRONMENTAL RISK ASSESSMENT	31
13. ENVIRONMENT LIABILITY ASSESSMENT AND DEVELOPMENT CONSTRAINTS	34
14. WASTE MANAGEMENT	36
Waste Classification	36
15. CONCLUSION AND RECOMMENDATIONS	37
Conclusions	37
Recommendations.....	38
16. REFERENCES	39

FIGURES

Figure 2:1: Site Location Plan
Figure 3:1: Geological Fault Location Plan
Figure 7:1: SPT 'N₆₀' Value Versus Depth
Figure 7:2: In Situ Hand Shear Vane Test Results
Figure 7:3: Inferred mv Plot
Figure 7:4: Inferred Shear Strength Plot

TABLES

Table 5:1: Potential Sources of Contamination
Table 5:2: Relevant Potential Pathways and Receptors
Table 5:3: Preliminary Conceptual Site Model
Table 7:1 : Summary of Ground Conditions
Table 7:2 : PSD Results Summary
Table 7:3 : Groundwater Strikes
Table 9:1 : Summary of Recorded Ground Gas Results
Table 10:1 : Commercial Exposure Pathways
Table 11:1 : Controlled Water Exposure Pathways
Table 11:2: Summary of Leachate Chemical Testing Results
Table 11:3: Summary of Groundwater Chemical Testing Results
Table 12:1 : Conceptual Site Model

APPENDICES

Appendix 1: Proposed Development Masterplan
Appendix 2: Coal Authority Mining Report and Gas Emissions Report
Appendix 3: CIRIA Risk Classification Scheme
Appendix 4: Factual Ground Investigation Report
Appendix 5: CLEA Assessment

Appendix 6 : Leachate Assessment Sheet
Appendix 7: Groundwater Assessment Sheet
Appendix 8: HazwasteOnline Waste Classification Report

1. INTRODUCTION

Instruction

- 1.1 BWB Consulting (BWB) was instructed by Stoford Developments Ltd (the Client) to carry out a Phase 2 Geo-Environmental Assessment. Details of the project brief are included in BWB proposal reference 210622/02/0001/BMS2392/KES/RS Rev. 2, dated 22nd June 2021.
- 1.2 The proposed development is anticipated to comprise the construction of an industrial warehouse, with associated infrastructure. An indicative development layout plan, current at the time of writing, is included as **Appendix 1**.

Previous Reports

- 1.3 The following geo-environmental reports have previously been completed for the site:
- 'Phase 1, Geo-Environmental Investigation' by Integra Consulting for Maro Developments Ltd, reference 2956-01, dated August 2017; and
 - 'Factual Ground Investigation Report' by Integra Consulting for Maro Developments Ltd, reference 2956-02, dated August 2017.
- 1.4 It is understood that the Client does not currently have reliance on the above reports and therefore pertinent information has been provided on an information only basis where appropriate.

Objectives

- 1.5 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 strength properties of the soil beneath the site to enable foundation design; and
 - The ground gas regime beneath the site.
- 1.6 The 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>.

Scope of Works

1.7 The ground investigation scope of works was completed between 26th and 30th July 2021 and comprised the following:

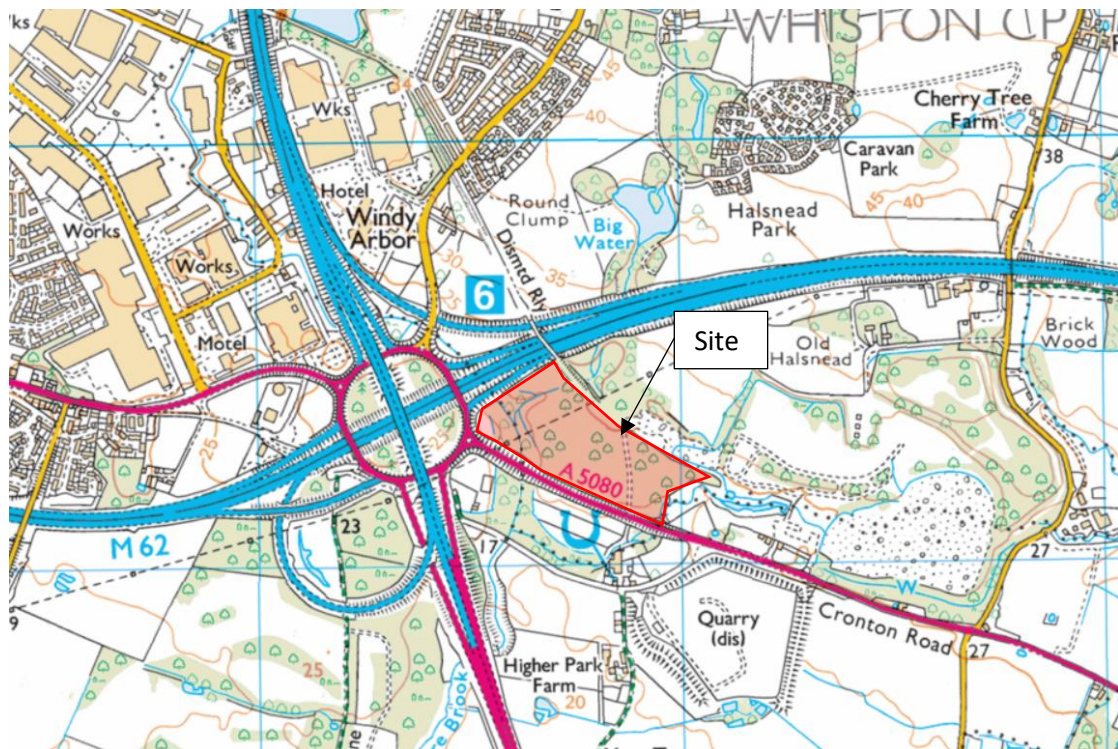
- Non-intrusive survey of excavation locations for underground utilities;
- Thirty machine excavated trial pits;
- Six cable percussive boreholes;
- Four rotary open holes;
- Four gas and groundwater monitoring visits;
- Chemical analysis of soils and groundwater; and
- Geotechnical testing of soil.

2. THE SITE

Site Location

- 2.1 The site is located at Cronton Road, Huyton located at national grid reference 346754, 389301. The location of the site is shown in **Figure 2.1**.

Figure 2.1: Site Location Plan



Site Description

- 2.2 The site comprises an irregular rectangle shaped plot of land covering c. 9.3 hectares, which is densely vegetated in the main, with a woodland area in the west of the site.
- 2.3 Site elevations range from 23m above Ordnance Datum (AOD) in the north of the site, reducing to c. 17m AOD in the west, 20m AOD along the south west boundary, 17m AOD in the southern corner and 19m at the eastern corner of the site. The topographical high point is c. 24.5m AOD half-way along the north eastern boundary.
- 2.4 A small watercourse, known as Chapel Brook, is present within the wooded area in the west of the site, which is fed by a drain which runs parallel to the north western site boundary. The drain appears to have been recently reprofiled, with steep unvegetated banks and c. 2m high mounds of soil around the edges, presumably from the excavation works.
- 2.5 A small track crosses the eastern half of site in a north-south direction, before following the northern boundary towards the drain. Electricity cables cross the central area of the site with a pylon present along the south west boundary.

- 2.6 The site is bound by the M62 to the north west, Cronton Road to the south west, Fox's Brook and associated ponds to the south east, and open land to the north east. The ground level raises up along the north eastern boundary where a bridge crosses the M62. The north eastern and south eastern boundaries are densely vegetated/ wooded.

3. PUBLISHED GROUND CONDITIONS

Published Geology

- 3.1 British Geological Survey (BGS) mapping for the site indicates that the site is underlain by superficial deposits comprising Devensian Till. A thin strip of Alluvium is mapped in the north west of the site along Chapel Brook.
- 3.2 The underlying bedrock is indicated to comprise the Pennine Middle Coal Measures Formation (mudstone, siltstone and sandstone), with the Etruria Formation (mudstone, siltstone and conglomerate) sub cropping along the south western site boundary.
- 3.3 Two faults are mapped within the west of the site, orientated in a broadly north to south direction. The location of the faults is presented within the Coal Authority Report (**Appendix 2**) and reproduced below in **Figure 3:1**.

Figure 3:1: Geological Fault Location Plan



Coal Authority Mining Report

- 3.4 A Coal Authority Mining Report has been obtained for the site which is presented within **Appendix 2**.
- 3.5 The report states that the shallowest worked seams near to the site are at a depth of 159m below ground level (bgl), where 190cm of coal was extracted from the Crombouke Seam in 1917, east of the site. The shallowest workings underneath the site are at 169m bgl in the London Delph Seam (probably the same seam as Crombouke

Seam but known by a different name). Several further seams have been worked under the site at increased depths.

- 3.6 The report states that there are not any probable unrecorded shallow workings under the site. Nor are there any recorded opencast workings on site.
- 3.7 Given the depths to the underground working, these workings are not expected to represent a risk of ground instability issues at the surface, as such the Coal Authority have not deemed the site as being within a Development High Risk Area.

Mine Gas Emissions

- 3.8 Three mine gas incidents/remediation areas are listed between 300m and 340m east of site within the Coal Authority Report. A Mine Gas Emissions Report (**Appendix 2**) indicates that the three entries relate to three former mine shafts located within Cronton Colliery, as indicated by the three orange circles on **Figure 3:1**.
- 3.9 The report states that vents were installed within the shaft caps of the three shafts to allow mine gasses to vent to the atmosphere. The vents are monitored by the Coal Authority on a two monthly basis.
- 3.10 Shaft No. 1 recorded elevated methane and low concentrations of carbon dioxide until c. 2013, before recording trace ground gasses from 2015 onwards. Shaft No. 2 recorded generally low methane and carbon dioxide, with rare occasional spikes of carbon dioxide throughout the monitoring period. Shaft No. 3 recorded consistently high methane and carbon dioxide until 2014/2015 when both dropped to low levels.
- 3.11 Liaison with the Coal Authority has suggested that the drop in ground gas concentrations is possibly related to rising groundwater levels preventing gas migration to the atmosphere via the mine shafts vents.

Hydrogeology

- 3.12 The underlying ground conditions have been classified by the Environment Agency (EA) as follows:
- Devensian Till: Undifferentiated Secondary Aquifer;
 - Pennine Middle Coal Measures: Secondary A Aquifer; and
 - Etruria Formation: Secondary A Aquifer.
- 3.13 The site does not lie within an EA designated Source Protection Zone (SPZ), however, a Zone 3 SPZ is mapped adjacent to the south west boundary of the site.

Hydrology

- 3.14 Chapel Brook is located in the western edge of the site flowing in a north-south direction. This is fed by a small drain which flows across the north western area of the site. Fox's Brook and associated ponds are mapped adjacent to the south eastern site boundary.

4. PREVIOUS REPORT SUMMARY

- 4.1 BWB have been provided with two previous reports which have been reviewed, pertinent information has been summarised below.

Phase 1, Geo-Environmental Investigation by Integra Consulting dated August 2017

- 4.2 The report comprised a geo-environmental desk study covering the subject site.
- 4.3 The site is indicated to have historically remained largely undeveloped land. Ravenhurst Pits (considered to be clay pits) were located in the centre of the site from the 1920s up until the 1950s. A mineral railway formed the north eastern boundary until the 1970s, with a tank located towards the northern corner of the site. The M62 junction is also developed at this time. Surrounding land uses have included Cronton Colliery 200m north east of site, a brick works 150m east, Huyton Quarry 310m north west and Cronton Clay Pit 120m south east.
- 4.4 The geology is as reported in **Section 3**, with numerous BGS borehole logs located predominantly around the site boundary, associated with the historical road improvements.
- 4.5 A detailed assessment of the coal workings is undertaken based on ground investigation data undertaken on the adjacent colliery site. Old workings were identified within several investigation locations, located along the alignment of a coal seam outcrop. Only one borehole is advanced near to the site boundary (BH121R) which recorded 16cm of weak black vitreous coal at 11.33m bgl (13.81m AOD). The report recommended that rotary drilling be undertaken to assess the possibility of unrecorded shallow coal seams being present.
- 4.6 The report reviews data from the following previous ground investigations undertaken at the site:

Integra, 2016

- 4.7 The investigation comprised twenty four trial pits to depths of between 0.3m and 5.7m bgl, mainly focussing on the former Ravenhurst Pits area. Ground conditions were found to comprise topsoil (to 0.3m bgl) over localised Made Ground to depths of between 0.85m and 2.75m bgl, over Till. Weathered greyish green/ pink sandstone was recorded from 4.9 to 5.5m bgl in the north of the site, but unproven below 5.7m. Groundwater was not encountered. Only logs and a location plan are provided within the report.
- 4.8 The Integra Desk Study concludes that there is a low to moderate risk to human health receptors due to the possible presence of contamination in associated with the historic mineral railway, historic tank, infilled pits and colliery spoil. The gas risk was considered to be low based on the localised sources of Made Ground and localised potentially organic-rich Alluvium. The conclusions state that there is a low risk to controlled waters due to the lack of a significant source of contamination and the low permeability of the underlying Till inhibiting migration pathways.

Factual Ground Investigation Report by Integra Consulting dated August 2017

- 4.9 Following completion of the aforementioned desk study, an additional ground investigation was undertaken comprising eleven trial pits under a proposed building footprint aligned adjacent to the north eastern boundary. Hand shear vanes were undertaken within cohesive soils.
- 4.10 Ground conditions were found to comprise topsoil (0.15 – 0.3m thick) over firm becoming stiff Glacial Till encountered as gravelly sandy clay. Made Ground was recorded at TP106 (0.2 – 1.6m) located near to the former Ravenhurst Pits. Groundwater strikes were not recorded except for a slight seepage at 1.35m in TP107, considered to be associated with a decaying tree trunk.
- 4.11 Shallow shear vane tests (0.3 – 0.4m bgl) recorded shear strengths of 22-82kPa, whilst deeper tests (0.5 – 3.0m bgl) recorded values between 31 and 120kPa. Plasticity index (PI) tests recorded values between 15 and 19% with moisture content results ranging between 15 and 18%.

BWB Comment

- 4.12 Following a review of the coal mining risk for the site, it is considered that the risk relating to the potential for shallow underground coal workings to be present under the site is slightly overstated.
- 4.13 The uncertainty in the risk assessment is based on the presence of a thin band (20cm) of coal in one location near to the site. This is too thin to be economically extracted, and its presence within the shallow soils would not represent a ground stability issue with respect to the proposed development.
- 4.14 It is also worth noting that the Coal Authority do not have concerns about the potential presence of shallow coal workings at the site as it is not within a Development High Risk Area, and they have confirmed that they wouldn't be a consultee as part of the planning process.
- 4.15 It is considered highly unlikely that voids are present at shallow depth, however, to provide further comfort in this assessment, four rotary open holes are proposed, advanced to 30m below the depth of competent bedrock.

5. PRELIMINARY ENVIRONMENTAL RISK ASSESSMENT

Introduction

- 5.1 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.
- 5.2 Three impact potentials exist for any given site, all of which need to be considered in a risk assessment, which are:
- The site impacting upon itself;
 - The site impacting on its surroundings; and
 - The surroundings impacting on the site.
- 5.3 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.
- 5.4 The assessment is qualitative and aimed to determine all likely pollutant linkages, with consideration of significance and allowing for uncertainties.
- **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).
 - **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.
 - **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).

Conceptual Site Model

- 5.5 Consideration has been given to the likely sources, pathways and receptors which may be present, based on the information in the previous sections. These are presented in **Table 5:1** and **Table 5:2** and further information about the risk classification scheme is included within **Appendix 3**, with reference to CIRIA C552 '*Contaminated land risk assessment - a guide to good practice*'.
- 5.6 A tabulated version of the Preliminary CSM based on the desk study and site observations is presented in **Table 5:3**.

Table 5.1: Potential Sources of Contamination

Location	Potential Source	Contaminants of Potential Concern (CoPC)
On-site	MADE GROUND associated with the former Ravenhurst Pit and in north west of site.	- Heavy metals - Inorganics, such as cyanides, sulphates and nitrates - pH - Asbestos Containing Materials (ACMs) - Polycyclic aromatic hydrocarbons (PAH) - Petroleum hydrocarbons - Methane, carbon dioxide
	Former Tank	Petroleum hydrocarbons
	Underlying Coal Measures	Methane, carbon dioxide
Off-site	Contamination associated with neighbouring commercial activities	- Heavy metals - Inorganics, such as cyanides, sulphates and nitrates - PAH - Petroleum hydrocarbons
	MADE GROUND associated with the mineral railway and adjacent colliery.	- Heavy metals - Inorganics, such as cyanides, sulphates and nitrates - PAHs - Petroleum hydrocarbons - Methane, carbon dioxide

Table 5.2: Relevant Potential Pathways and Receptors

Receptors	Pathways
Human Health: - Future site users (commercial) - Intrusive maintenance workers	- Dermal contact with soil or dust - Incidental ingestion of soil and/or dust - Inhalation of dust and/or fibres - Migration and accumulation of ground gas in enclosed spaces leading to inhalation or explosion
Controlled Waters: - Groundwater (Underlying Secondary aquifers) - Surface water (Chapel Brook and Fox's Brook) - Adjacent SPZ	- Leaching of soil contaminants - Vertical and lateral migration - Surface run-off
Property: - Underground utilities - Building structures	Direct Contact

Table 5:3: Preliminary Conceptual Site Model

Source	Pathway	Receptor	Con	Prob	Risk
On-site sources as detailed in Table 5:1 .	Dermal contact with, and incidental ingestion of soil and/or dust.	Future site users (commercial)	Md	UI	L
	Inhalation of dust and/or fibres.	Intrusive maintenance workers	Mi	Lw	L
	Migration and accumulation of ground gases in enclosed spaces leading to asphyxiation (carbon dioxide) or explosion (methane).	Future site users (commercial)	Sv	Lw	M
	Leaching and permeation through soil profile.	Groundwater: Underlying Secondary Aquifers	Mi	Lw	L
	Vertical and lateral migration of contaminants.	Chapel Brook and Fox's Brook	Mi	Lw	L
	Surface run-off.		Mi	Lw	L
	Direct contact.	Water utility pipes	Mi	Lw	L
		Buried structures/ foundations.	Md	Lw	M/L
Off-site sources as detailed in Table 5:1 .	Migration and accumulation of ground gases in enclosed spaces leading to asphyxiation (carbon dioxide) or explosion (methane).	Future site users (commercial)	Sv	Lw	M
	Lateral migration of contaminated groundwater.	Groundwater: Underlying Secondary A Aquifer	Mi	Lw	L

6. PHASE II ENVIRONMENTAL AND GEOTECHNICAL GROUND INVESTIGATION

6.1 Intrusive ground investigation works were undertaken between 26th and 30th July 2021 and comprised the following works:

- Clearance of investigation locations by a specialist buried services tracing company;
- Collection of coordinates and elevations of exploratory hole locations;
- The advancement of six cable percussive boreholes (BH01 to BH06) to a maximum depth of 10.5m bgl with completion of SPTs and installations of gas and groundwater monitoring wells;
- The advancement of four rotary open-hole boreholes (RO01 – RO04) with water flush system to a maximum depth of 40.5m bgl;
- The advancement of thirty machine excavated trial pits (TP01-TP10, TP12-TP14, TP16, TP17, TP19-TP23, TP25-27, TP29, TP31-TP34, TP33A and SP01) to a maximum depth of 3.8m bgl;
- Collection of environmental soil and groundwater water samples for chemical analysis at a UKAS and MCERTS accredited laboratory;
- Collection of bulk and disturbed soil samples for geotechnical analysis at a UKAS accredited laboratory; and
- Four post investigation ground gas and groundwater level monitoring visits.

6.2 An exploratory hole location plan is presented as **Drawing 1**. Exploratory hole records, drillers' logs, the SPT calibration certificate, and the post investigation gas and groundwater monitoring data is presented as **Appendix 4**.

6.3 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

6.4 Investigation locations were spread across the site for coverage, with the following locations positioned to target specific possible contamination sources:

- TP33 – Located adjacent to the former tank;
- TP22,23,25 & TP16,17, 07 and BH03 – located in the area surrounding Ravenhurst Pits; and
- TP32, BH06, TP30 – Located near to Made Ground identified around the realigned drain.

Chemical Analytical Strategy

Soil Strategy

- 6.5 Selected soil samples collected from exploratory hole locations were sent to i2 Analytical (UKAS and MCERTS accredited) for chemical analysis. The following chemical analytical testing was undertaken:
- Thirteen 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, Polycyclic Aromatic Hydrocarbons (PAHs) (United States Environment Protection Agency priority 16 compounds) and Total Petroleum Hydrocarbons (TPH) C6-C40;
 - One soil sample tested for TPH speciated to the UK Criteria Working Group (TPHCWG) aliphatic and aromatic compounds;
 - Eight soil samples for asbestos screening; and
 - Three 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.
- 6.6 The results of the soil chemical testing are presented in **Appendix 4**.
- 6.7 Areas of Made Ground were targeted with a range of contaminant testing set out below. The samples tested near to the former tank was scheduled for TPH CWG analysis.

Groundwater Strategy

- 6.8 Groundwater samples were obtained from all boreholes with groundwater present during the first monitoring visit, except for BH02 where there was a blockage preventing water sampling.
- 6.9 Groundwater samples were obtained using a bailer following the removal of 3 times the well volume of water or the well bailed dry and was allowed to recharge. The groundwater samples were sent to i2 Analytical (UKAS and MCERTS accredited) for the following suite of groundwater chemical testing:
- Three water samples tested for arsenic, barium, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, vanadium, zinc, conductivity, soluble sulphate, ammoniacal nitrogen, total phenols, total cyanide, pH, total organic carbon, PAHs (US EPA priority 16 compounds).
- 6.10 The results of the water chemical testing are presented in **Appendix 4**.

Geotechnical Strategy

- 6.11 The cable percussive borehole locations were positioned beneath the proposed building footprints at the time the ground investigation was set up to assess underlying

ground conditions for geotechnical purposes. The proposed development layout has changed since the ground investigation has been completed with the larger of the two units now being located adjacent to the south western boundary rather than the north eastern boundary. The trial pits were positioned to assess ground conditions, strength properties and characteristics across the wider site. Rotary openhole boreholes were positioned under the initial proposed building footprints to confirm the absence of any mining related voids under the site.

- 6.12 In-situ soil strength testing comprising SPTs were undertaken with the cable percussive. SPT 'N' values are included on the exploratory hole logs presented in **Appendix 4**.
- 6.13 Selected disturbed and bulk samples were collected from the investigation locations and sent to the geotechnical project laboratory (GSTL Ltd and Exploration & Testing Associates), which is UKAS accredited. The following geotechnical testing was undertaken;
- Twenty four samples tested for moisture content;
 - Sixteen samples tested for Atterberg (liquid and plastic) limits;
 - Three samples tested for particle size distribution by pipette;
 - Six particle density tests;
 - Eight samples tested for BRE Suite comprising aqueous sulphate and pH;
 - Two oedometer consolidation tests;
 - One hand shear vane test;
 - Two samples tested for quick undrained triaxial compaction testing;
 - Three 2.5kg compaction tests; and
 - Three 4.5kg compaction tests.
- 6.14 The results of the geotechnical testing are included as **Appendix 4**.

Limitations and Uncertainty

- 6.15 As mentioned above, the proposed development layout has altered since the ground investigation was completed. Despite the change in layout, there is still sufficient site coverage to inform the preliminary foundation design at the site.

7. GROUND CONDITIONS ENCOUNTERED

Geological Summary

- 7.1 The recorded ground conditions are summarised in **Table 7:1** below. Uncorrected SPT results collected from the borehole locations are presented on the exploratory hole records presented in **Appendix 4**.

Table 7:1 : Summary of Ground Conditions

Stratum	Top Depth (m)		Base Depth (m)		Thickness (m)		SPT N Value	
	Min	Max	Min	Max	Min	Max	Min	Max
Topsoil	Ground Level		0.2	0.6	0.2	0.6	N/A	
Made Ground	Ground Level	0.4	0.5	2.7	0.2	2.7	10	15
Till	0.2	2.7	4.0	10.1	1.3	9.7	11	>50
Etruria Formation	4.0	7.7	Not Proven					>50
Pennine Middle Coal Measures	1.0	10.1	Not Proven				>50	

Geological Descriptions

Topsoil

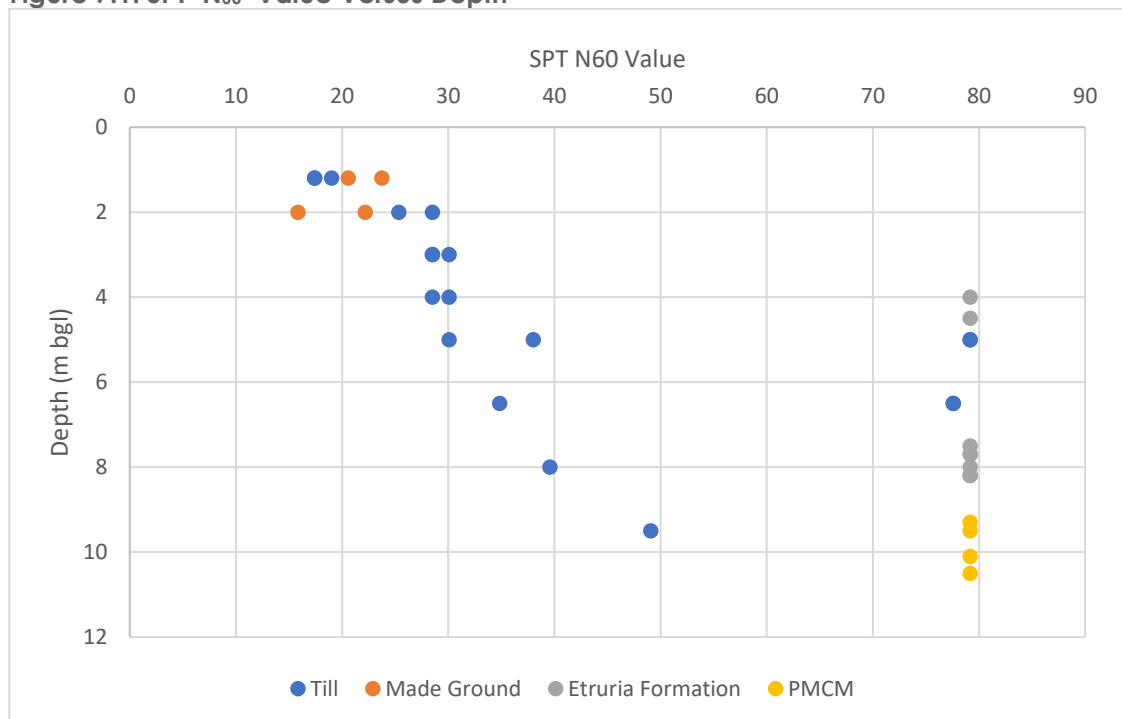
- 7.2 Topsoil was encountered in the majority of locations across the site, with thicknesses ranging between 0.2m and 0.6m thick, but typically between 0.3m and 0.4m thickness.
- 7.3 Topsoil typically comprised brown clayey sand or sandy clay with rootlets and occasional gravels of mudstone, sandstone, quartzite and occasional brick and rare concrete.

Made Ground

- 7.4 Made Ground was encountered within several areas across the site. In the north west of the site, Made Ground was recorded in SP01 (excavated in the bund around the drain), TP29 (2.3m thick), TP31 (1.2m thick), TP32 (2.7m thick), TP33/33A (1m thick), BH05 (2.1m thick), and BH06 (2.6m thick). Arisings were found to comprise granular and cohesive Made Ground with inclusions of brick, concrete, timber, plastic, wire, rebar and pottery.
- 7.5 Around the former Ravenshurt Pits, Made Ground was recorded to depths of 1.3m (TP07), 2.1m (TP16) and 1.1m (TP17). Arisings were typically sandy gravel with a high cobble content. Anthropogenic materials were rare and comprised occasional inclusions of brick.

- 7.6 Elsewhere across the site, a thin layer of Made Ground was recorded in the south east of the site, between 0.2m and 0.35m of Made Ground was recorded at TP02, TP03, and TP04, , with increased thicknesses recorded at TP19 (1.8m thick). Arisings were typically a slightly gravelly slightly clayey sand, whilst at TP19, arisings were a mix of gravelly sandy clay or gravelly clayey sand, with inclusions of brick.
- 7.7 Made Ground was also recorded at TP09 (0.35m thick) comprising a sandy clay, and TP26 (to 2.1 m bgl). At TP26, arisings comprised clayey gravelly sand, over sandy gravelly clay, over sandy gravel with an old six inch diameter drain recorded. A possible asbestos containing coating was identified around the pipe.
- 7.8 SPT N_{60} values within the Made Ground were recorded in the range 16 and 24 blows. A plot of corrected SPT N_{60} Value vs Depth is presented as **Figure 7:1** below.

Figure 7:1: SPT ' N_{60} ' Value Versus Depth



- 7.9 Moisture content (MC) analysis on the Made Ground recorded values between 9.6 and 16%, whilst plasticity index (PI) values were recorded at 17%, indicative of a low plasticity clay. The values are noted to be similar to those recorded the in the Till and summarised below.
- 7.10 Particle density values range between 2.5 and 2.62%, with optimum moisture content (OMC) results recorded at 9% (received MC was 13% at 2.0m bgl) and 12% (received MC was 9.6% at 0.6m bgl).
- 7.11 Two PSD tests were undertaken on samples from the Made Ground, a summary of the results is provided in **Table 7:2** below.

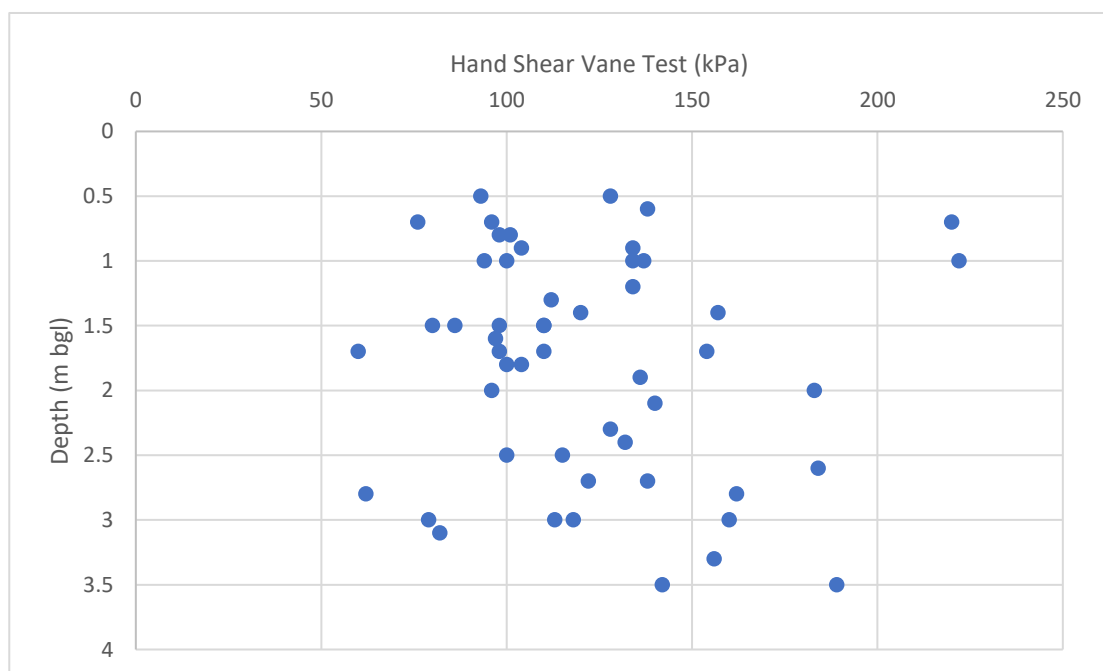
Table 7:2 : PSD Results Summary

Stratum	Location	Depth (m)	Cobble Content (%)	Gravel Content (%)	Sand Content (%)	Clay/ Silt Content (%)	Earthworks Classification
MG	TP16	0.7	0	48	35	17	2C
MG	TP26	0.5	0	11	48	41	2A/B
Till	TP31	2.5	0	1	78	21	2A/B

Till

- 7.12 Till has been recorded below the Made Ground in all locations across the site and proven to depths of between 4.0m and 10.1m bgl. Till has commonly been encountered as firm becoming stiff and very stiff sandy gravelly clay.
- 7.13 Occasional bands are present where the gravel content is reduced or absent. Additionally, at shallow depth, the arisings were recoded as clayey gravelly sand, whilst at TP31, a gravelly sand was recorded at 2.2-2.7m bgl.
- 7.14 SPT N₆₀ values within the Till were recorded between 19 and >79 blows and were noted to gradually increase with depth (**Figure 7:1**).
- 7.15 Where suitable cohesive deposits were encountered hand shear vane tests were undertaken. The HSV results obtained from trial pits are presented on the exploratory hole records and summarised in **Figure 7:2**. The results range between 60 and 222kPa (both recorded in the same trial pit, TP08), with no discernible pattern associated with depth.

Figure 7:2: In Situ Hand Shear Vane Test Results



- 7.16 The geotechnical laboratory testing has indicated that MCs range between 12 and 20%, with Pls ranging between 11 and 21% indicative of a low to intermediate plasticity clay. Particle densities ranged between 2.61 and 2.66%. OMC values were recorded at 9% (received MC was 17% at 0.6m bgl), 11% (received MC was 13% at 3.0m bgl), 12% (received MC was 16% at 2.5m bgl), and 14% (received MC was 13% at 1.8m bgl).
- 7.17 Two triaxial tests undertaken within the Till have recorded shear strengths of 29 (4.0m at BH03) and 88kPa (3.0m at BH05). Low strength of 29kPa does not fit well within those measured in hand vane or estimated from SPT N₆₀ values, and this may be result of sampling disturbance rather than reflection of in situ conditions.
- 7.18 One PSD test was undertaken on samples from the Till, a summary of the result is provided in **Table 7:2**.
- 7.19 Oedometer tests undertaken within the Till have indicated mv values of 0.15m²/MN (pressure range 120-240 at BH05 at 3.0m bgl) and 0.05m²/MN (pressure range 200-400 at BH02 at 5.0m bgl). The SPT N₆₀ values have been used to infer mv values based on the Stroud correlation and a factor f₂ of 0.55 (Stroud & Butler 1975). A plot of inferred mv values is presented in **Figure 7:3** below. The correlation proposed by Stroud and Butler (1975) has also been used to infer shear strengths based on the SPT data based on a factor f₁ of 5.5 (see **Figure 7:4**).

Figure 7:3: Inferred mv Plot

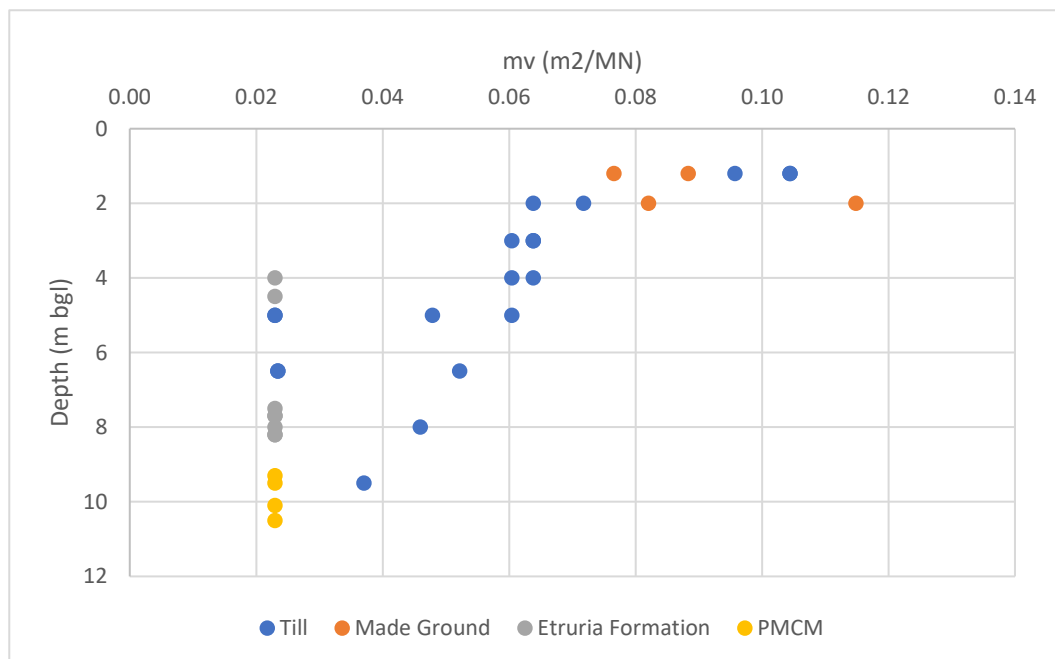
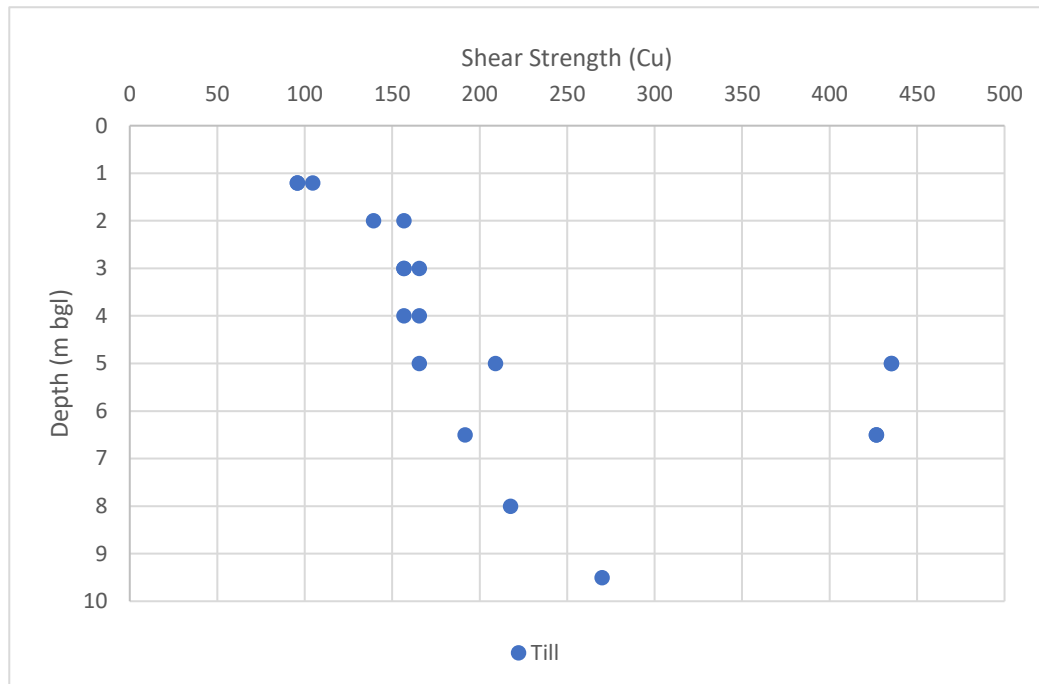


Figure 7:4: Inferred Shear Strength Plot



Etruria Formation

- 7.20 The Etruria Formation was encountered in four locations, at depths ranging from 4.0m (BH05) to 7.7m bgl (BH03), with the depths to bedrock getting shallower towards the north west.
- 7.21 Arisings were encountered as very weak reddish brown mudstone/siltstone, commonly arising as stiff reddish brown gravelly clay, with gravels of mudstone/siltstone.
- 7.22 SPT N_{60} Values within the Etruria Formation were all recorded at >79 (**Figure 7:1**).

Pennine Middle Coal Measures Formation

- 7.23 The Coal Measures were encountered in four locations, at depths of 1.0m bgl (TP33 and TP33A), 9.3m bgl (BH04) 10.1m bgl (BH02). The depths recorded at TP33 are considerably shallower than at BH02 and BH04, however, this correlates with several third-party borehole logs along the M62 which also recorded shallow bedrock. It is possibly related to faulting in the area.
- 7.24 Arisings were encountered as very weak grey or bluish grey mudstone or yellowish brown sandstone.
- 7.25 SPT N_{60} Values within the Etruria Formation were all recorded at >79 (**Figure 7:1**).

Hydrogeology and Hydrology

- 7.26 Limited groundwater strikes were encountered during the ground investigation, with depths summarised in **Table 7:3**.

Table 7:3 : Groundwater Strikes

Location	Depth	Stratum/ Notes
TP02	2.5	Till
TP25	2.6	Till – sand lense
BH02	8.5	Level reduced to 9.0m after 20mins
BH03	3.9	Level reduced to 4.5m after 20mins
	7.5	Level rose to 6.5m after 20mins
BH04	9.0	Level rose to 8.0m after 20mins

- 7.27 During the post-investigation monitoring, groundwater levels were recorded at levels ranging between 0.94m and 5.01m bgl. BH05 and BH06 were recorded as dry during the first visit.
- 7.28 Based on the lack of groundwater encountered during the ground investigation, and the range of depths groundwater was encountered at during the monitoring, it is considered that there is not a consistent, connected groundwater body across the site. The groundwater is considered to be reflective of minor perched pockets which have accumulated within more granular pockets or lenses within the Till. The cohesive and low permeability nature of the Till will reduce groundwater migration across the site or towards neighbouring sites.
- 7.29 Surface water is likely to migrate towards the surface water receptors, either via surface runoff, or via the underground land drainage system.

Contamination Observations

- 7.30 No contamination observations were noted during the ground investigation, or subsequent gas and groundwater monitoring period.

8. GEOTECHNICAL ASSESSMENT

Introduction

- 8.1 The proposed development is anticipated to comprise the construction of an industrial warehouse, with associated infrastructure. An indicative development layout plan, current at the time of writing, is included as **Appendix 1**. No design loadings were available at the time of writing.
- 8.2 A proposed finished floor level of 22m AOD is proposed for the unit, which would mean that an earthworks programme will be required across the site to achieve a development plateau. Current site elevations under the building footprint are predominantly lower than 22m AOD.

Ground Model

- 8.3 Ground conditions have been found to comprise localised Made Ground overlying predominantly cohesive Till deposits. Bedrock has been recorded at depths ranging from 1.0m to 10.1m bgl across the site, present at shallower depths to the north west of the site.
- 8.4 Limited groundwater was not encountered during the ground investigation, however, perched pockets have been found within more granular pockets/ lenses, recorded at depths of 0.94m and 5.01m bgl during the post investigation monitoring.

Rotary open holes were positioned across the site under the proposed building footprints (at the time of the ground investigation) to assess the potential for any voids under the initial proposed building footprints. Rotary boreholes were advanced through the superficial soils followed by 30m of competent rock. No voids were encountered in any of the holes. 20cm of coal was recorded in one location (RO04 at 24.1m bgl) which suggests that it is a localised, inconsistent band of coal which is too thin to have been economically extracted.

Earthworks

- 8.5 An earthworks operation will be required to make a level platform(s) for the warehouse unit. Specific considerations such as movement of potentially unsuitable/ contaminated soils should be taken into account in preparation of earthworks strategy and specification.
- 8.6 The suitability of earthworks materials has been assessed on the basis of the testing carried out as part of this investigation. The Particle Size Distribution test results and the following classification in accordance with the Specification for Highway Works, 600 series indicate that fill material are likely to conform Class 2A/2B or Class 2C (as summarised in **Table 7:2**). Compaction tests indicate that the soils are both wet and dry of optimum, and some modification is likely to be required to create a suitable earthworks material.

- 8.7 It should be noted that the materials encountered on site may vary from those analysed; furthermore, inclement weather or winter working may result in materials being unsuitable for incorporation within the works without modification by lime, cement or other methods. In particular, cohesive soils are very susceptible to 'wet weather working' and we strongly recommend that consideration should be given to lime and/or cement stabilisation of these materials if the earthworks are undertaken during inclement weather or the winter period.
- 8.8 Stockpiled materials often deteriorate due to water infiltration and they may become unsuitable for incorporation in the works; further testing and re-assessment should be made prior to the finalisation and implementation of the earthworks design.
- 8.9 The geotechnical information including the test results summarised in Section 6 are recommended to be used in informing the future earthworks strategy and specification by a qualified geotechnical engineer.

Foundation Solutions

Shallow Spread Foundations

- 8.10 Following earthworks at the site, it is likely that a shallow spread foundation could be adopted to support the likely loads for the warehouse.
- 8.11 A gross bearing pressure of the order 170kN/m² (net bearing pressure 150kN/m²) is likely to be available for pad foundations founded 1m below the formation level into the engineered fill. Similar bearing pressures are anticipated in firm to stiff Till based on assumed undrained shear strength of 75kPa. These bearing pressures are preliminary and detailed assessment including settlements estimates should be carried out as part of a detailed geotechnical assessment.
- 8.12 Foundations should be positioned within the same strata to avoid differential settlement issues.
- 8.13 Once the layout plan of the proposed development is confirmed, the ground conditions information presented in this document and any further required supplementary information should be utilised by a suitably qualified geotechnical engineer to develop a ground model in support of a detailed foundation appraisal and Geotechnical Assessment Report for the proposed development.

Piles

- 8.14 If larger design loads are required to support the building, a piled foundation could be adopted, transferring loads to the underlying bedrock.

Floor Slabs

Method of Construction

- 8.15 A ground bearing floor slab is likely to be a feasible option for the proposed warehouses, subject to an earthworks strategy and specification (which is designed and validated by a suitably qualified geotechnical engineer).

Treatment of Ground Prior to Casting

- 8.16 Based on the current masterplan, ground gas protection measures are not indicated to be required at the site (**Section 9**).

Roads and Pavements

- 8.17 Based upon guidance within Interim Advice Note 73/06 (IAN73/06) Revision 1 2009, roads should be designed with CBR's between 3% and for 5%, which should be confirmed by in-situ testing once detailed designs are available.

Drainage

- 8.18 Given the low permeability of the predominantly cohesive Till, soakaway drainage will not be viable for the proposed development, and an alternative drainage solution will be required.

Excavations

Ease of Excavation

- 8.19 Excavations into the underlying Made Ground or natural soils should be readily achievable using standard plant. Excavations into the weathered bedrock where present at shallow depths (TP33/TP33A – north of site) may require breaking out with a hydraulic breaker.

Stability of Excavation

- 8.20 Shallow pits are likely to display good stability. Where personnel entry is required for inspection, excavations should be sufficiently enlarged and an assessment of safe temporary angles should be made. If deemed necessary, temporary shoring of the excavations shall be provided.

Legislation on Personnel Entry to Excavations

- 8.21 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.

Groundwater

- 8.22 Shallow groundwater is unlikely to be encountered within excavations in the short term. However, groundwater will accumulate in excavations which remain open for longer periods of time, particularly where more cohesive soils are present.
- 8.23 Dewatering should be achieved using a traditional sump and pump system.

Chemical Attack on Buried Concrete

- 8.24 Water soluble sulphate concentrations in soils varied from 8.8mg/l to 330mg/l with soil pH values ranging from 7.1 to 9. Total sulphur concentration ranged from 0.008% to 0.135%.
- 8.25 Sulphate concentrations in the groundwater ranged from 120mg/l to 492mg/l with groundwater pH values ranging from 7.3 to 7.5.
- 8.26 In accordance with the recommendations of BRE Special Digest 1, 'Concrete in Aggressive Ground' 2005, the conditions of the soils at the site would therefore be classified as Design Sulphate Class DS-2 and ACEC Class AC-2 for soils and groundwater, when considering the most appropriate type of concrete to be used at the site in order to resist chemical attack from elevated sulphate present in the soils (assuming mobile groundwater in potentially pyritic soils).

9. GROUND GAS ASSESSMENT

Introduction

- 9.1 Ground gas assessment has been undertaken to assess the risks associated with ground gases and volatile vapours to new buildings and their occupants. The results obtained have been assessed in line with relevant guidance (notably CIRIA C665).
- 9.2 Based on the desk study and the ground investigation undertaken, the following potential sources of hazardous ground gas have been identified:
- Localised Made Ground across the site; and
 - Deep underground coal workings.
- 9.3 Four ground gas monitoring visits have been undertaken over a period of four weeks.

Methodology

- 9.4 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

- 9.5 The minimum and maximum steady state concentrations recorded for borehole flow, oxygen, carbon dioxide and methane are summarised below in **Table 9:1**. The full Ground gas monitoring results are presented in **Appendix 4**.

Table 9:1 : 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	Till	0.1	0.1	0.2	2.0	<0.1	<0.1
BH02	Till	<0.1	0.1	0.5	2.6	<0.1	<0.1
BH03	Till/ EF	<0.1	0.1	0.5	0.6	<0.1	<0.1
BH04	Till/ PMCM	<0.1	0.5	0.2	0.5	<0.1	<0.1
BH05	MG	<0.1	0.1	3.0	5.2	<0.1	3.8
BH06	MG	<0.1	1.2	1.6	5.1	<0.1	<0.1

- 9.6 The atmospheric pressures were recorded as follows:
- Round 1 – 1001mb during the site visit with atmospheric pressures falling over the preceding 12 hours;

- Round 2 – 1015mb during the site visit with atmospheric pressures rising over the preceding 12 hours;
 - Round 3 – 1017mb during the site visit with atmospheric pressures falling over the preceding 12 hours;
 - Round 4 – 1028mb during the site visit with atmospheric pressures falling over the preceding 12 hours;
- 9.7 During the first visit, local pressures dropped from 1005mb to 989mb during the day, which is representative of a rapidly falling weather event. On this basis, the monitoring is considered to have possibly captured the worst-case gassing scenario at the site as generally, ground gas emissions tend to increase when atmospheric pressure falls rapidly.
- 9.8 Trace hydrogen sulphide (max 7ppm) were recorded on the initial visit, with concentrations reducing to below 2ppm for the subsequent visits. Trace carbon monoxide concentrations have been recorded with a maximum concentration of 9ppm recorded during the initial visit. The trace concentrations are likely related to the drilling processes rather being reflective of the actual ground gas regime.
- 9.9 PID concentrations were recorded between 0.9ppm and 7.9ppm during the monitoring visits, with trace concentrations recorded at all locations.

Risk Assessment

- 9.10 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 levels which depend on both the concentration and emission rate of gas from the ground. Gas screening levels are calculated as follows:

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

- 9.11 Maximum gas screening levels of 0.06 were recorded giving a classification of Characteristic Situation (CS)1. The guidance recommends considering upgrading the CS classification to CS2 where carbon dioxide concentration exceed 5% or methane concentrations exceed 1%. Both boundaries were exceeded within BH05 and BH06, where response zones were installed in the Made Ground.
- 9.12 The Made Ground in the north of the site where BH05 and BH06 were located contained a lot of anthropogenic inclusions (including brick, concrete, timber, plastic, wire, rebar and pottery) which are considered likely to be the source of the marginally elevated ground gas concentrations. It is considered that any future development within this north western area would warrant an increase in gas classification to CS2.
- 9.13 Across the rest of the site, the Made Ground was more reflective of reworked natural soils with limited anthropogenic inclusions. Based on this, coupled with the low ground gas concentrations, and the rare gas flow rates, the CS1 classification is considered appropriate for the proposed warehouse as per the current masterplan.

10. HUMAN HEALTH RISK ASSESSMENT

- 10.1 Soil contaminant data have been compared against Land Quality Management Suitable for Use Levels (LQM S4ULs) for a commercial end use. The results of the soil chemical laboratory results are provided within **Appendix 4**.

Sources

- 10.2 Soil samples were obtained for chemical analysis from Made Ground across the site, as well as from natural soils across the site.
- 10.3 Generally low contaminant concentrations were recorded in both Made Ground and natural soils, with heavy metal concentrations in both strata recorded at similar orders of magnitude.
- 10.4 Very low concentrations of Total TPH were recorded in the samples analysed, with concentrations ranging from >10 to 46mg/kg. Speciated TPH conducted on the shallow soils in the vicinity of the former tank recorded trace concentrations of Aromatic C21-35 (15mg/kg at 1.0m in TP33). It is likely that this relates to the overlying Made Ground rather than from a former tank.
- 10.5 Low concentrations of Total PAH were recorded in four Made Ground samples, ranging from 0.91mg/kg (TP17 at 0.5m) to 14.5mg/kg (BH06 at 2.0m). The most elevated concentrations were in the north western area of the site.
- 10.6 Asbestos was not recorded in any of the soil samples analysed, however, the asbestos which was tentatively identified surrounding the pipe at 2.0m in TP26 was confirmed as being chrysotile cement.

Pathways

- 10.7 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%.
- 10.8 [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.
- 10.9 Exposure pathways considered in this assessment are presented in **Table 10:1**.

Table 10:1 : 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	✓	✗	✗

Source	Shallow Soils		Deep Soils
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	✓	✓	✓

- 10.10 When compared against the screening criteria none of the contaminants were found to exceed their screening criteria. The screening sheets are presented within **Appendix 5**.
- 10.11 Asbestos was not identified with the soils, however, it has been identified around an old pipe encountered at 2.0m bgl in TP26. It is recommended that prior to earthworks, this pipe is excavated and removed by a specialist contractor to ensure that asbestos containing materials are not spread across the site.
- 10.12 Following removal of the asbestos coated pipe, no further mitigation measures are required as part of the scheme. Earthworks contractors should maintain visual vigilance for any further asbestos coated pipework.

11. CONTROLLED WATERS RISK ASSESSMENT

11.1 The results of soil leachate analysis and groundwater sampling are presented as **Appendix 4**. The controlled waters assessment considers the potential impact of on-site contamination to pertinent controlled waters receptors identified at the site including:

- Underlying undifferentiated Secondary Aquifer within Till
- Secondary A Aquifer within underlying Etruria Formation and Coal Measures;
- Water courses – on site and along south eastern boundary; and
- Source Protection Zone adjacent to site.

Pathways

11.2 Controlled water risk assessment has been undertaken through assessment of leachable concentrations of contaminants in soil referring to exposure pathways considered and referencing **Table 11:1**.

Table 11:1 : 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 off site receptors	✓

11.3 As the underlying cohesive soils are likely to prevent migration towards the underlying aquifers, the most sensitive receptor is considered to be the surface water features on site. Therefore, it is considered a conservative approach to adopt the more stringent environmental quality standards (EQS) for freshwater when assessing groundwater quality and soil leachate concentrations. Where EQS are not available, World Health Organisation Standards (WHO) and UK Drinking Water Standards (DWS) have been adopted as the relevant screening criteria

Soil Leachate

11.4 A summary of the soil leachate concentrations and adopted guideline concentrations are presented within **Appendix 6**. A summary of the soil leachate results exceeding the adopted screening criteria is presented in **Table 11:2** below.

Table 11:2: Summary of Leachate Chemical Testing Results

Contaminant	No of Samples	Range of Concentrations	Generic Screening Level (µg/l)	No of Exceedances
Copper	3	2.9 - 6.3	1.00	3
Lead	3	<1.0 – 4.3	1.20	1
Zinc	3	9.8 – 16.0	10.90	1

- 11.5 Chemical analysis of the Made Ground identified three heavy metals as exceeding their respective guideline concentrations within soil leachate at the site. Leachable copper, lead and zinc were recorded in Made Ground samples across the site marginally exceeding their respective guideline concentration. However, when compared to the slightly less stringent UKDWS screening criteria, none of the leachate concentrations exceed the screening criteria. Therefore, the marginally elevated leachate concentrations are not considered to represent a significant risk to controlled waters.

Groundwater

- 11.6 A groundwater concentration screening sheet is presented as **Appendix 7**. A summary of the soil leachate results exceeding the adopted screening criteria is presented in **Table 11:3** below.

Table 11:3: Summary of Groundwater Chemical Testing Results

Contaminant	No of Samples	Range of Concentrations	Generic Screening Level (µg/l)	No of Exceedances
Cadmium	3	0.12 – 0.28	0.25	2
Lead	3	0.4 – 1.3	1.2	1
Nickel	3	3.7 – 6.5	4	1
Zinc	3	13.0 – 14.0	10.9	3
Sulphate	3	120 – 492	400	1

- 11.7 Concentrations of PAH were recorded below the limits of detection.
- 11.8 The results indicate several marginal exceedances for heavy metals including cadmium, lead, nickel, zinc and sulphate. The heavy metal concentrations within the groundwater are relatively stable across the locations, with little variation noted. Concentrations are only marginally elevated above their respective screening criteria.
- 11.9 When compared to the slightly less stringent UKDWS screening criteria, the copper, lead and nickel concentrations are not shown to be exceedances and are therefore not considered to represent a significant risk to controlled waters.

Summary

- 11.10 The very low marginal exceedances of soil leachate and groundwater are not considered to pose a significant risk to controlled water receptors. Furthermore, the low permeability of the Till will reduce potential contaminant migration towards the identified receptors.
- 11.11 Additionally, development of the site will reduce rainfall infiltration and further reduce potential leachate or perched groundwater migration.

12. ENVIRONMENTAL RISK ASSESSMENT

- 12.1 The preliminary conceptual site model presented in **Table 5:3** has been updated based upon the findings of the ground investigation. The Conceptual Site Model is presented in **Table 12:1**.

Table 12:1 : Conceptual Site Model

Source	Pathway	Receptor	Con	Prob	Risk	Potential Mitigation/Investigation Requirements
Marginally elevated localised carbon dioxide and methane concentrations in north west of site.	Migration and accumulation of ground gases in enclosed spaces leading to asphyxiation (carbon dioxide) or explosion (methane).	Future site users (commercial)	Md	UI	L	Ground gas monitoring has not identified elevated ground gases in the location of the proposed building, and gas protection measures are not considered to be required. Marginally elevated ground gasses have been recorded in the north west of the site where increased anthropogenic waste materials were present within the soils. Any future development in this area would require gas protection measures commensurate with a CS2 classification. Dependent on the final layout of the scheme, further monitoring may be required to satisfy the Local Authority.
Asbestos containing materials around old pipework	Inhalation of harmful particulates	Future site users (commercial)	Md	UI	L	Asbestos was not identified with the soils, however, it has been identified around an old pipe encountered at 2.0m bgl in TP26. It is recommended that prior to earthworks, this pipe is excavated and removed by a specialist contractor to ensure that asbestos containing materials are not spread across the site.
		Intrusive maintenance workers	Md	UI	L	Following removal of the asbestos coated pipe, no further mitigation measures are required as part of the scheme although similar additional pipes may be encountered and should also be dealt with similarly. Earthworks contractors should maintain visual vigilance for any further asbestos coated pipework.
Marginally elevated localised heavy metals in leachate and groundwater	Vertical and lateral migration of leachate and groundwater.	Groundwater: Underlying Secondary Aquifers	Mi	UI	VL	The very low marginal exceedances of soil leachate and groundwater are not considered to pose a significant risk to controlled water receptors. Furthermore, the low permeability of the Till will prevent potential contaminant migration towards the identified receptors.
		Chapel Brook and Fox's Brook	Mi	UI	VL	Additionally, development of the site will reduce rainfall infiltration and further reduce potential leachate or perched groundwater migration.
VH = Very High, H = High, M = Moderate, M/L = Moderate/Low, L = Low, VL = Very Low						

Source	Pathway	Receptor	Con	Prob	Risk	Potential Mitigation/Investigation Requirements
KEY: Sv = Severe, Md = Medium, Mi = Mild, Mr = Minor, Hi = High, Li = Likely, Lw = Low Likelihood, Ul = Unlikely						

13. ENVIRONMENT LIABILITY ASSESSMENT AND DEVELOPMENT CONSTRAINTS

Statutory Liability

- 13.1 Under statutory guidance for definition of contaminated land site may be classified into 4 categories. Categories 1 and 2 would meet the definition of contaminated land and categories 3 and 4 would not meet the definition. Sites assessed under planning would normally be expected to fall within Category 4 as a minimum standard, to allow for a suitable factor of safety should standards change in the future.
- 13.2 It is considered that the Site would fall within Category 3 based on the lack of a significant contamination source identified at the site.
- 13.3 The contaminated land regime has implications for those who cause or knowingly permit land to be contaminated, or who own or occupy land that is contaminated. Contaminated land is defined in Section 78A(2) of Part IIA of the Environmental Protection Act 1990 as:
- a) *Significant harm is being caused or there is a significant possibility of such harm being caused; or*
 - b) *Pollution of controlled waters is being or is likely to be, caused."*
- 13.4 Harm is defined in Section 78(4) of the Environmental Protection Act 1990 as:
- 13.5 "Harm to the health of living organisms or other interference with ecological systems of which they form part and, in the case of man, includes harm to property."
- 13.6 Once an area of land has been identified as contaminated land, appropriate persons will be identified as being responsible for the cost of cleaning up the land by the enforcing authority. The appropriate person will be liable for all or part of the remediation of the land. Two classes of appropriate person have been identified:
- Class A appropriate persons are those who cause or knowingly permit the pollutants to be in, on or under the land.
- Class B appropriate persons are the owners(s) or occupier(s) of the land.
- 13.7 Where no Class A appropriate persons can be identified, then Class B appropriate persons may become liable.
- 13.8 Based on the information available regarding the site, the potential for Statutory Authority action based on "*pollution of controlled water*" or "*significant harm*" as defined by Part IIA of the Environmental Protection Act 1990 is considered to be **Low** based on lack of a significant source of contamination identified at the site.

Third Party Liability

- 13.9 Based on the information contained in this report, it is the opinion of BWB that the potential for legal action by surrounding landowners, based on the potential for

contamination to migrate off-site, is considered to be **Low** given the lack of a source or viable migration pathway at the site.

Public Relations

- 13.10 It is considered that the Proposed Development represents a **Low** risk in terms of public relations associated with potential contamination issues.

Development Implications

- 13.11 It is recommended that the requirement for earthworks and potential for re-use of or disposal of waste is established at an early stage in the project.

14. WASTE MANAGEMENT

Waste Classification

- 14.1 Soil samples have been characterised against hazardous waste criteria using Hazwasteonline. The results of the waste classification are presented in **Appendix 8**. The assessment indicates that the soils analysed are likely to be 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.
- 14.2 Asbestos has not been found within the soils at the site, however it has been identified surrounding an old drain. The presence of visible asbestos containing materials in waste or at concentrations exceeding 0.1% by weight will classify the waste as mixed and require disposal as hazardous waste irrespective of the chemical properties of the waste.
- 14.3 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.

15. CONCLUSION AND RECOMMENDATIONS

Conclusions

- 15.1 The site comprises an irregular rectangle shaped plot of land covering c. 9.3 hectares, which is densely vegetated in the main, with a woodland area in the west of the site. A small watercourse, known as Chapel Brook, is present within the wooded area in the west of the site, which is fed by a drain which runs parallel to the north western site boundary. The drain appears to have been recently reprofiled, with steep unvegetated banks and c. 2m high mounds of soil around the edges, presumably from the excavation works.
- 15.2 Ground conditions have been found to comprise localised Made Ground overlying predominantly cohesive Till deposits. Bedrock has been recorded at depths ranging from 1.0m to 10.1m bgl across the site, present at shallower depths to the north west of the site.
- 15.3 Limited groundwater was encountered during the ground investigation, however, perched pockets have been found within more granular pockets/ lenses, recorded at depths of 0.94m and 5.01m bgl during the post investigation monitoring.

Environmental

- 15.4 Ground gas monitoring has not identified elevated ground gasses in the location of the proposed building, and gas protection measures are not considered to be required. Marginally elevated ground gasses have been recorded in the north west of the site where increased anthropogenic waste materials were present within the soils. Any future development in this area would require gas protection measures commensurate with a CS2 classification.
- 15.5 Soil contaminant concentrations were not found above their respective screening criteria. Asbestos was not identified with the soils, however, it has been identified around an old pipe encountered at 2.0m bgl in TP26.
- 15.6 Very low marginal exceedances of heavy metals were encountered within soil leachate and groundwater which are not considered to pose a significant risk to controlled water receptors. Furthermore, the low permeability of the Till will reduce potential contaminant migration towards the identified receptors. Additionally, development of the site will reduce rainfall infiltration and further reduce potential leachate or perched groundwater migration.
- 15.7 The waste classification assessment indicates that the soils analysed would be classified as non-hazardous in terms of off site disposal.

Geotechnical

- 15.8 Given the existing site topography and the difference in ground elevations across the site, an earthworks operation will be required to make level platform(s) for the two warehouse units. Details of the structural loads of the proposed development are not

known at the time of writing. Nevertheless, it is anticipated that the geotechnically competent ground (i.e. deposits of the Glacial Till) would be suitable for the adoption of shallow foundations for the warehouse unit.

- 15.9 Ground bearing floor slabs are likely to be a feasible option for the proposed warehouses, subject to an earthworks strategy and specification and slab settlement analysis (which is designed and validated by a suitably qualified geotechnical engineer).

Recommendations

Environmental

- 15.10 Dependent on the final layout of the scheme, further ground gas monitoring may be required to satisfy the Local Authority.
- 15.11 It is recommended that prior to earthworks, the asbestos coated pipe is excavated and removed by a specialist contractor to ensure that asbestos containing materials are not spread across the site. Earthworks contractors should maintain visual vigilance for any further asbestos coated pipework.

Geotechnical

- 15.12 Once the layout plan of the proposed development is confirmed, the ground conditions information presented in this document and any further required supplementary information should be utilised by a suitably qualified geotechnical engineer to develop a ground model in support of a detailed foundation appraisal and Geotechnical Assessment Report for the warehouse units.
- 15.13 The geotechnical and other relevant information presented in this report, including but not limited to the test results summarised in Section 6, are recommended to be used in informing the future earthworks strategy and specification by a qualified geotechnical engineer.

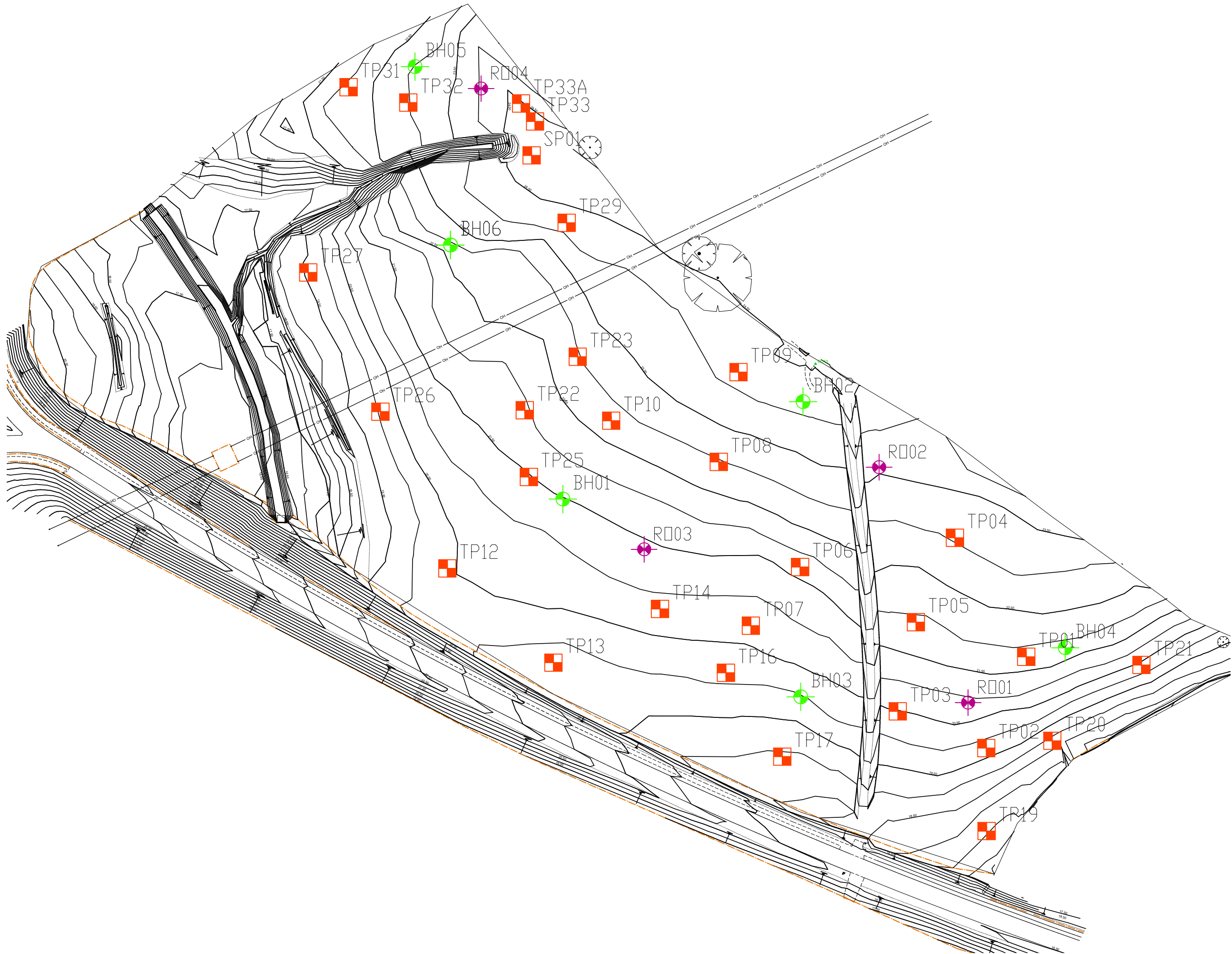
16. REFERENCES

1. British Standards Institution, (BSI), BS 8485:2015, Code of Practice for the characterization and remediation from ground gas in affected developments
2. British Standards Institution, (BSI), BS 8576:2013, Guidance on investigations for ground gas – Permanent gases and Volatile Organic Compounds (VOCs)
3. British Standards Institution, (BSI), BS 10175:2011+A2:2017, Investigation of Contaminated Sites – Code of Practice
4. British Standards Institution, (BSI), BS5930:2015) Code of practice for ground investigations
5. British Standards Institution, (BSI), BS EN 1997-1:2004 Incorporating corrigendum February 2009, Eurocode 7 – Geotechnical Design – Part 1: General rules.
6. British Standards Institution, (BSI), BS EN 1997-2:2007 Incorporating corrigendum June 2010, Eurocode 7 – Geotechnical Design – Part 2: Ground Investigation and testing.
7. Building Research Establishment Special Digest 1 *Third Edition*. Concrete in Aggressive Ground (2005)
8. Building Research Establishment (BRE) BR211, Radon; Guidance on Protective Measures for New Buildings (2015)
9. Construction Industry Research and Information Association (CIRIA), Report 132, A Guide to Safe working on Contaminated Sites (1996).
10. Construction Industry Research and Information Association (CIRIA). 2001, C522 Contaminated land risk assessment, A guide to good practice.
11. Construction Industry Research and Information Association (CIRIA). 2007, Report C665, Assessing Risk Posed by on Hazardous Ground Gases to Buildings
12. Department for Communities and Local Government (DCLG), 2012, National Planning Policy Framework.
13. Department for Environment Food and Rural Affairs (DEFRA), 2012, Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance.
14. Environment Agency report Land Contamination Risk Management, 2020.
15. Environment Agency 2008, Updated technical background to the CLEA model Science Report – SC050021/SR3
16. Environment Agency 2008, Human health toxicological assessment of contaminants in soil Science Report – SC050021/SR2
17. Environment Agency 2009, CLEA Software (Version 1.05) Handbook Better Regulation Science Programme Science report: SC050021/SR4
18. Environment Agency 2008, A review of body weight and height data used within the Contaminated Land Exposure Assessment model (CLEA) Project SC050021/ Technical Review 1

19. Environment Agency, 2006, Remedial Targets Methodology, Hydrogeological Risk Assessment for Land Contamination
20. Health and Safety Executive (HSE) 'Protection of workers and the general public during the Development of Contaminated Land (1991).
21. NHBC Guidance for the Safe Development of Housing on Land Affected by Contamination, R&D Publication 66: 2008.

DRAWINGS

Drawing 1: Site Layout



- Notes**
1. Do not scale this drawing. All dimensions must be checked/ verified on site. If in doubt ask.
 2. This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.
 3. All dimensions in millimetres unless noted otherwise. All levels in metres unless noted otherwise.
 4. Any discrepancies noted on site are to be reported to the engineer immediately.

Key Plan

Legend

- BH01 Cable Percussive Borehole
- TP01 Trial Pit Location
- RO01 Rotary Openhole Borehole

Rev	Date	Details of issue / revision	Dwn	Rev

Issues & Revisions

BWB
ACAF GROUP COMPANY

■ Birmingham | 0121 233 3322
□ Leeds | 0113 233 8000
□ London | 020 7234 9122
□ Manchester | 0161 233 4260
□ Nottingham | 0115 924 1100
www.bwbconsulting.com

Client
Stoford Developments Ltd

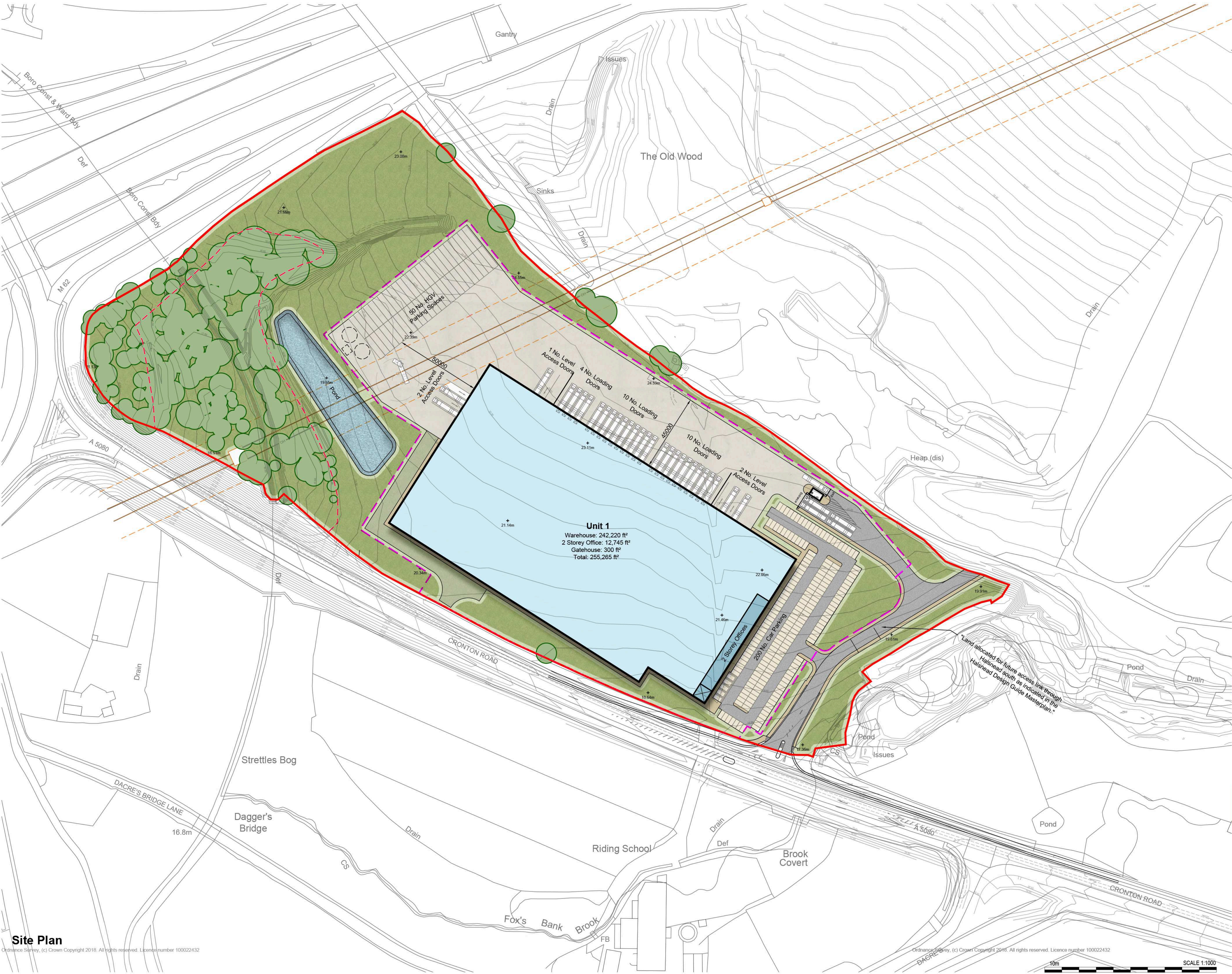
Project Title
Cronton Road, Huyton

Drawing Title
Exploratory Hole Location Plan

Drawn:	CR		Reviewed:	RS	
BWB Ref:	BMS2392	Date:	Sept 21	Scale@A3:	NTS
Drawing Status					
Final					
Project - Originator - Zone - Level - Type - Role - Number				Status	Rev
				S2	V1

APPENDICES

Appendix 1: Proposed Development Masterplan



- Dimensions are in millimeters, unless stated otherwise.
- Scaling of this drawing is not recommended.
- It is the recipient's responsibility to print this document to the correct scale.
- All relevant drawings and specifications should be read in conjunction with this drawing.



SCHEDULE OF ACCOMMODATION (Gross Internal Area)			
Unit 1			
Warehouse Area	-	242,220 sq ft (22,503m²)	
Office (2 storey)	-	12,745 sq ft (1,184m²)	
Gatehouse	-	300 sq ft (28m²)	
Total Area	-	255,265 sq ft (23,715m²)	
Net Developable Area			
	-	11.01 Acres (4.46 Hectares)	
Loading Docks			
	-	24	
Level Access			
	-	5	
HGV Parking			
	-	50	
Car Parking			
	-	200	
Overall Site Area			
	-	22.08 Acres (8.94 Hectares)	

- Group of TPO trees to be retained
- Existing Overhead Power Lines

rev	amendments	by	ckd	date
-----	------------	----	-----	------

Mercury M62

Site Plan



Newark Beacon Innovation Centre, Cafferata Way, Newark, Nottinghamshire NG24 2TN
0 +44 (0)1636 653027 E +44 (0)1636 653010 I info@umcarchitects.com

Drawing Status:	Feasibility
Drawn / Checked:	RAC / CA
Date:	27/08/2021
Scale:	1:1000 @ A1
Drawing no:	Revision:
20424 F0009	A

Appendix 2: Coal Authority Mining Report and Gas Emissions Report



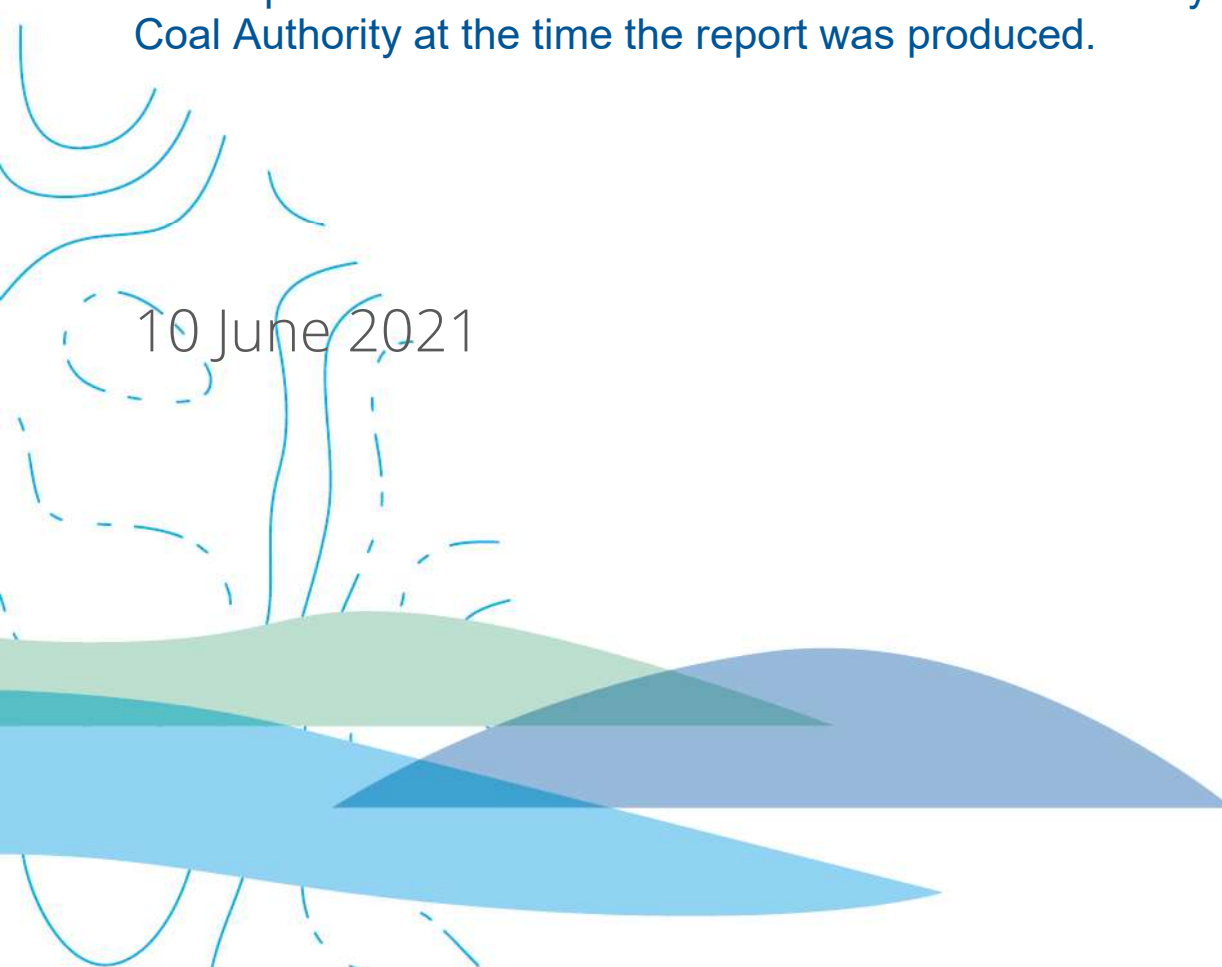
The Coal
Authority

Mine Gas Emissions Report

LAND OFF CRONTON ROAD
CRONTON ROAD
WIDNES
PRESCOT
MERSEYSIDE
L35 1QR

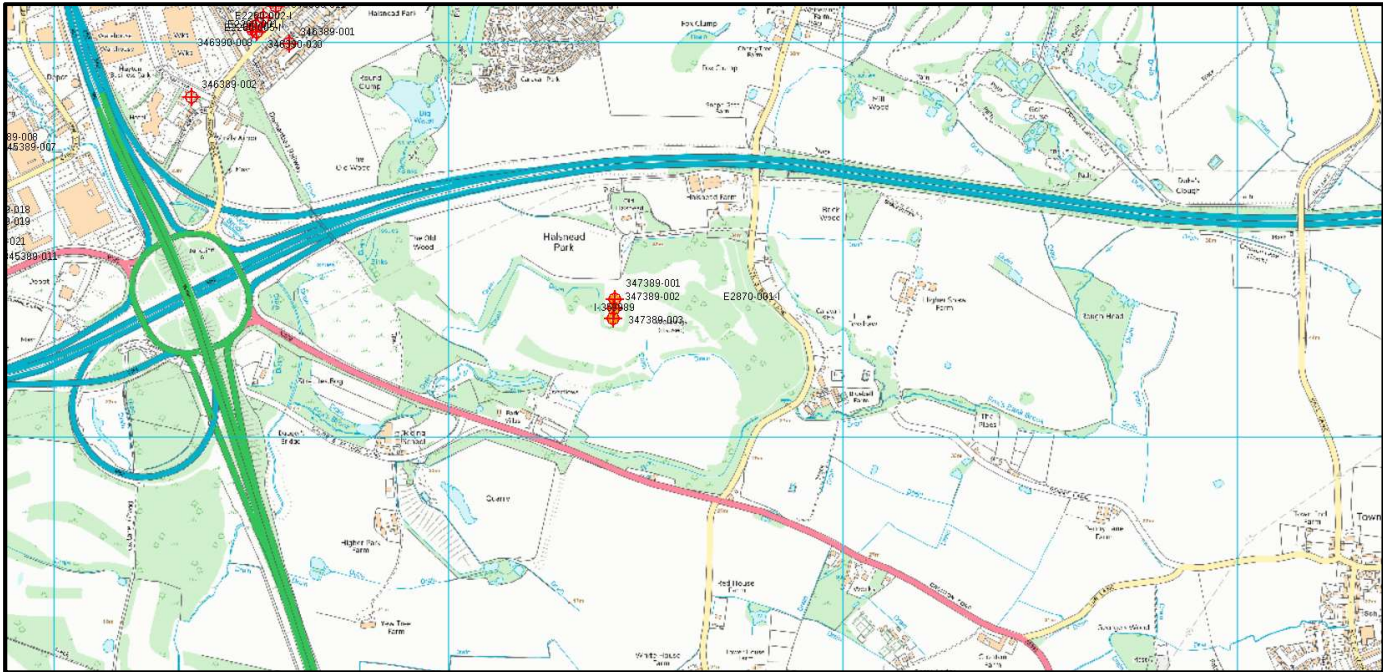
This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

10 June 2021



Location

Plan



Sub sites

Coordinates	
L1501.1 Cronton No1 Shaft	347418E 389300N
L150.2 Cronton No2 Shaft	347420E 389324N
L150.3 Cronton No3 Shaft	347423E 389347N

L150.1 Cronton No1 Shaft

Background

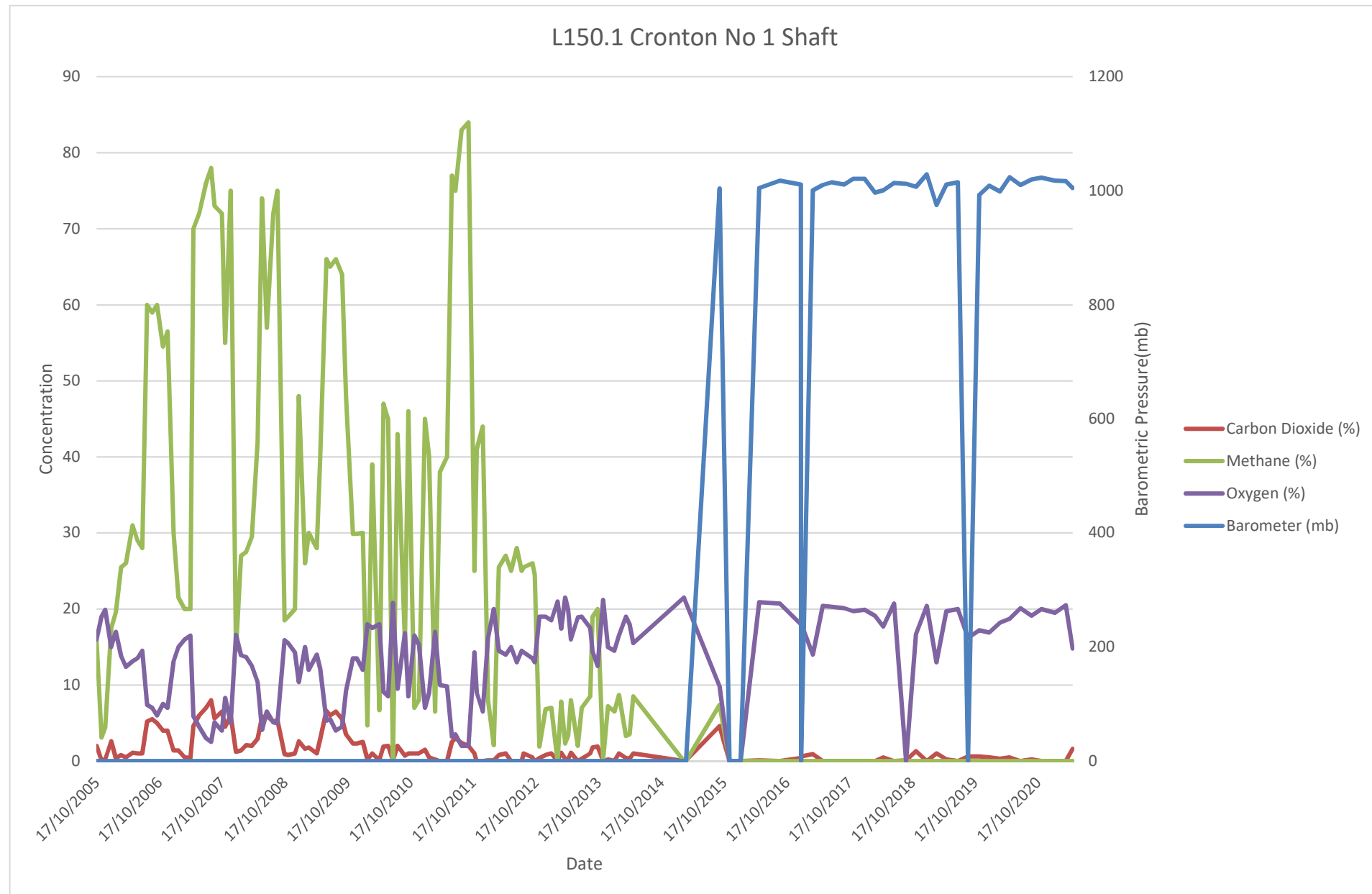
L150.1 is a mine gas vent installed through the shaft cap into Cronton No1 Shaft of the former Cronton Colliery. The vent was installed upon closure of the colliery to allow the safe discharge of mine gas to atmosphere.

The vent is approximately 5.5m high 200mm diameter and contained within a locked palisade compound around 5m x 5.5m.

Monitoring

The site is visited on a 2 monthly basis by contractors on behalf of the Coal Authority. During these visits spot readings are taken and concentrations of oxygen, carbon dioxide and methane are recorded and latterly atmospheric pressure.

Data



L150.2 Cronton No2 Shaft

Background

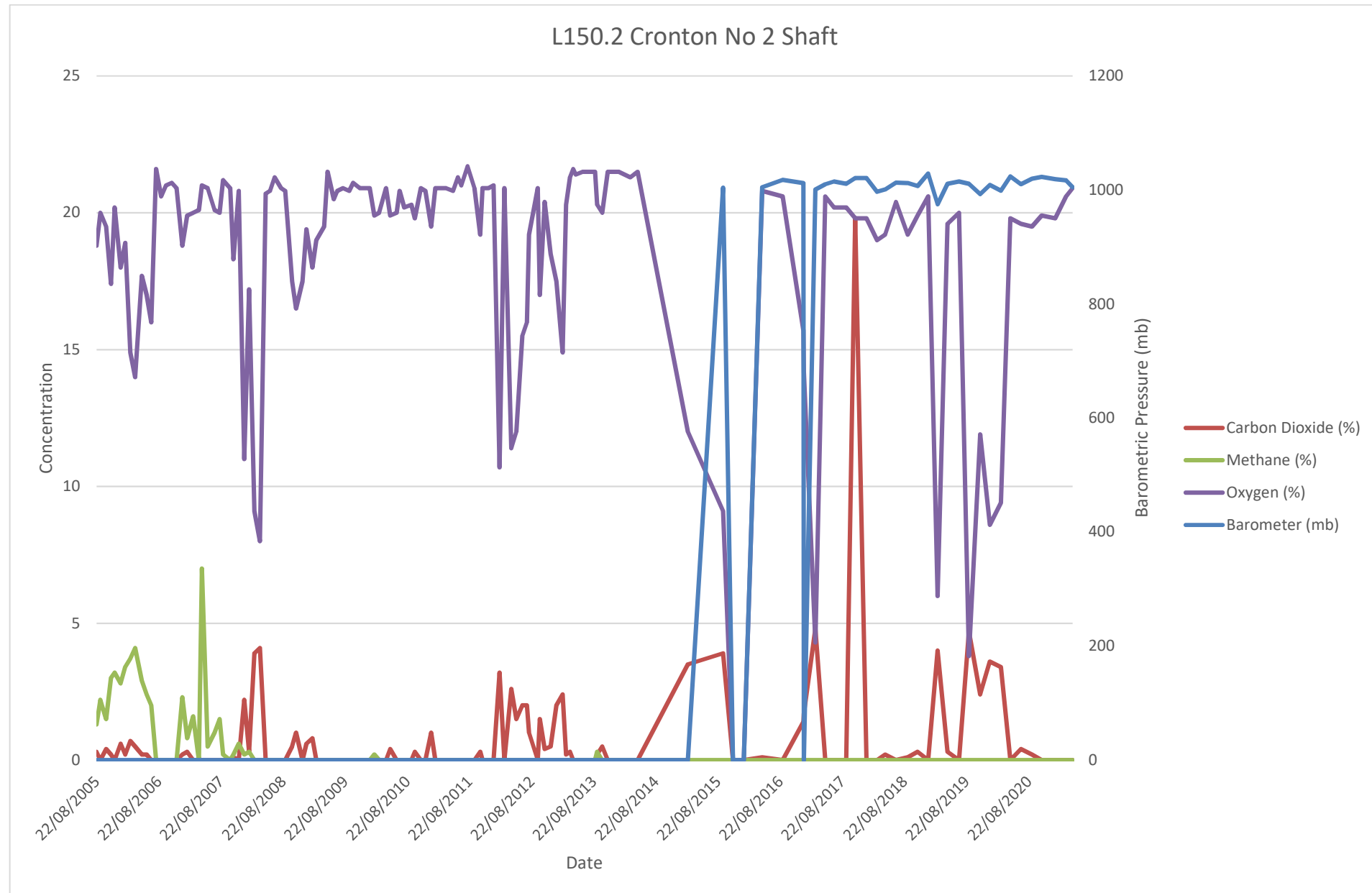
L150.2 is a mine gas vent installed through the shaft cap into Cronton No2 Shaft of the former Cronton Colliery. The vent was installed upon closure of the colliery to allow the safe discharge of mine gas to atmosphere.

The vent is approximately 5.5m high 200mm diameter and contained within a locked palisade compound around 5m x 5.5m.

Monitoring

The site is visited on a 2 monthly basis by contractors on behalf of the Coal Authority. During these visits spot readings are taken and concentrations of oxygen, carbon dioxide and methane are recorded and latterly atmospheric pressure.

Data



L150.3 Cronton No3 Shaft

Background

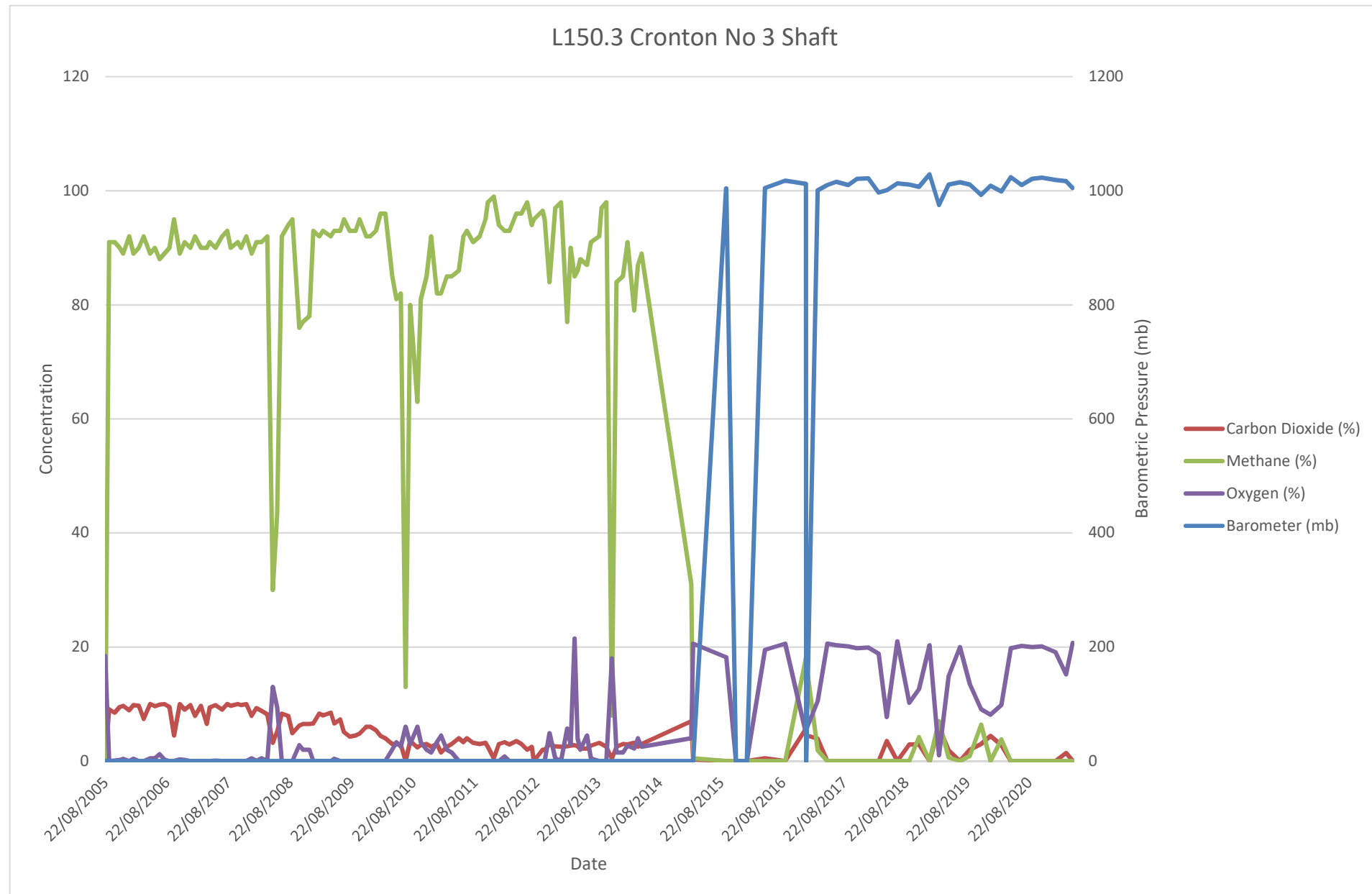
L150.3 is a mine gas vent installed through the shaft cap into Cronton No3 Shaft of the former Cronton Colliery. The vent was installed upon closure of the colliery to allow the safe discharge of mine gas to atmosphere.

The vent is approximately 5.5m high 200mm diameter and contained within a locked palisade compound around 5m x 5.5m.

Monitoring

The site is visited on a 2 monthly basis by contractors on behalf of the Coal Authority. During these visits spot readings are taken and concentrations of oxygen, carbon dioxide and methane are recorded and latterly atmospheric pressure.

Data





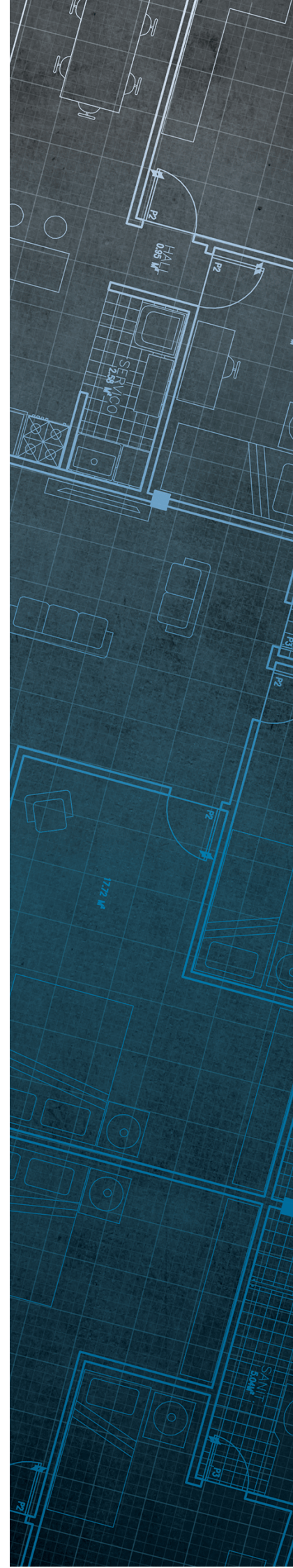
The Coal
Authority

Consultants Coal Mining Report

Cronton Road, Widnes, L35 1qr
Cheshire

Date of enquiry:	2 June 2021
Date enquiry received:	2 June 2021
Issue date:	2 June 2021

Our reference:	51002553925001
Your reference:	HMD-214-7915766



Consultants

Coal Mining Report

This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

Client name

GROUNDSURE LIMITED

Enquiry address

Cranton Road, Widnes, L35 1qr
Cheshire

How to contact us

0345 762 6848 (UK)
+44 (0)1623 637 000 (International)

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

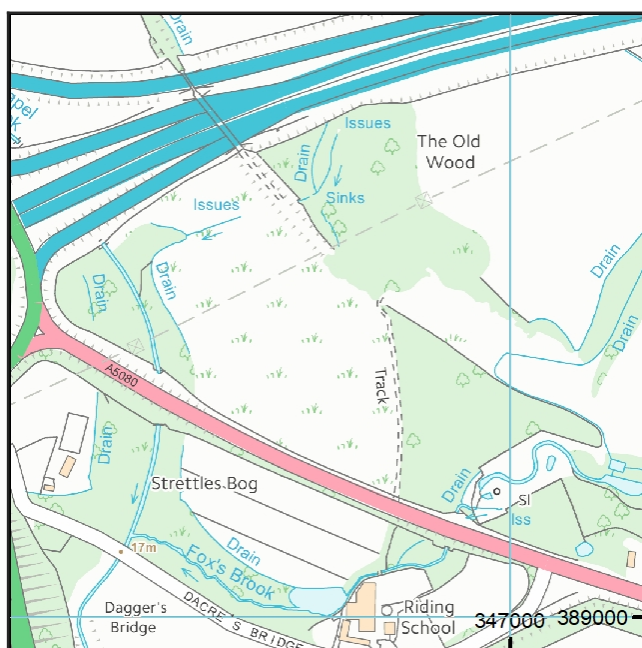
www.groundstability.com

 @coalauthority

 /company/the-coal-authority

 /thecoalauthority

 /thecoalauthority



Approximate position of property



Reproduced by permission of
Ordnance Survey on behalf of
HMSO. © Crown copyright and
database right 2018. All rights
reserved.

Ordnance Survey Licence number: 100020315

Section 1 – Mining activity and geology

Past underground mining

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
CRONTON	CROMBOUK E	Coal	302R	159	East	13.4	South-West	190	1917
unnamed	LONDON DELPH (BIN)	Coal	302N	169	Beneath Property	13.1	South-West	180	1925
unnamed	ST. HELENS YARD	Coal	302X	198	Beneath Property	11.3	South-West	90	1931
unnamed	HIGHER FLORIDA	Coal	3036	207	North	12.3	South-West	180	1924
unnamed	RAMS	Coal	3033	226	Beneath Property	12.7	South-West	180	1958
CRONTON	HIGHER FLORIDA	Coal	3035	226	Beneath Property	11.3	South	180	1875
unnamed	HIGHER FLORIDA	Coal	3037	236	Beneath Property	11.5	South-West	180	1921
unnamed	ST. HELENS YARD	Coal	302W	239	Beneath Property	13.4	South-West	90	1949
unnamed	HIGHER FLORIDA	Coal	3038	257	South	15.5	South-West	180	1921
unnamed	LOWER FLORIDA	Coal	303N	281	South-East	12.8	South-West	130	1966
unnamed	HIGHER FLORIDA	Coal	30BP	286	South	11.2	South-West	180	1923
unnamed	WIGAN FOUR FEET	Coal	303Z	303	East	9.9	South-West	170	1944
unnamed	WIGAN FIVE FEET	Coal	303U	308	Beneath Property	11.8	South-West	110	1948
unnamed	WIGAN FIVE FEET	Coal	303V	329	Beneath Property	12.3	South-West	110	1952
unnamed	WIGAN FOUR FEET	Coal	303Y	359	Beneath Property	12.8	South-West	160	1876
unnamed	WIGAN FIVE FEET	Coal	30C8	380	South	11.9	South-West	110	1951
unnamed	HAIGH YARD	Coal	304F	402	North-East	13.7	South-West	120	1949
unnamed	HAIGH YARD	Coal	304G	409	East	12.3	South	120	1930
unnamed	PLODDER	Coal	304D	437	East	11.6	South-West	330	1930
unnamed	RUSHY PARK	Coal	304J	438	North	12.0	South	130	1889
unnamed	PLODDER	Coal	304C	442	Beneath Property	11.6	South-West	330	1964
unnamed	HAIGH YARD	Coal	304E	449	Beneath Property	9.6	South-West	120	1947

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
unnamed	RUSHY PARK	Coal	304K	449	North-East	12.0	South	130	1896
unnamed	RUSHY PARK	Coal	304I	478	North	9.5	South	130	1889
unnamed	PLODDER	Coal	30CD	483	South	11.2	South-West	330	1964
unnamed	RUSHY PARK	Coal	304M	488	Beneath Property	10.9	South-West	130	1946
unnamed	HAIGH YARD	Coal	30CJ	500	South	11.4	South-West	120	1942
unnamed	RUSHY PARK	Coal	30CL	539	South	11.2	South-West	130	1935

Probable unrecorded shallow workings

None.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

None recorded within 100 metres of the enquiry boundary.

Abandoned mine plan catalogue numbers

The following abandoned mine plan catalogue numbers intersect with some, or all, of the enquiry boundary:

NW368	NW727	NW803
3671	NW638	11793
16566	12635	NW822

Our records show we have more plans than those shown above which could affect the enquiry boundary.

Please contact us on 0345 762 6848 to determine the exact abandoned mine plans you require based on your needs.

Outcrops

No outcrops recorded.

Geological faults, fissures and breaklines

Please refer to the 'Summary of findings' map (on separate sheet) for details of any geological faults, fissures or breaklines either within or intersecting the enquiry boundary.

Faults under or close to the property recorded.

Opencast mines

None recorded within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

Section 2 – Investigative or remedial activity

Please refer to the 'Summary of findings' map (on separate sheet) for details of any activity within the area of the site boundary.

Site investigations

None recorded within 50 metres of the enquiry boundary.

Remediated sites

None recorded within 50 metres of the enquiry boundary.

Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres of the enquiry boundary, since 31 October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

Mine gas

Distance to gas incident/remediation (m)	Direction
330.9	East
351.7	North-East
340.9	East

See Section 4 for further information.

Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

Section 3 – Licensing and future mining activity

Future underground mining

None recorded.

Coal mining licensing

None recorded within 200 metres of the enquiry boundary.

Court orders

None recorded.

Section 46 notices

No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

Withdrawal of support notices

The property is not in an area where a notice to withdraw support has been given.

The property is not in an area where a notice has been given under section 41 of the Coal Industry Act 1994, cancelling the entitlement to withdraw support.

Payments to owners of former copyhold land

The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Section 4 – Further information

The following potential risks have been identified and as part of your risk assessment should be investigated further.

Development advice

The site is within an area of historical coal mining activity. Should you require advice and/or support on understanding the mining legacy, its risks to your development or what next steps you need to take, please contact us.

Mine gas remedial works

The site is within an area of previous interest. It is close to where the Coal Authority has investigated and subsequently remediated the effects of mine or ground gas emissions following specific reported hazards.

The site requires further investigation and may influence your risk assessment. We recommend that you order the **Coal Authority Mine Gas Emission Report**, which will include more information about the hazard.

For further information on specific site or ground investigations in relation to any issues raised in Section 4, please call us on 0345 762 6848 or email us at groundstability@coal.gov.uk.

Section 5 – Data definitions

The datasets used in this report have limitations and assumptions within their results. For more guidance on the data and the results specific to the enquiry boundary, please **call us on 0345 762 6848** or **email us at groundstability@coal.gov.uk**.

Past underground coal mining

Details of all recorded underground mining relative to the enquiry boundary. Only past underground workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination, will be included.

Probable unrecorded shallow workings

Areas where the Coal Authority believes there to be unrecorded coal workings that exist at or close to the surface (less than 30 metres deep).

Spine roadways at shallow depth

Connecting roadways either, working to working, or, surface to working, both in-seam and cross measures that exist at or close to the surface (less than 30 metres deep), either within or within 10 metres of the enquiry boundary.

Mine entries

Details of any shaft or adit either within, or within 100 metres of the enquiry boundary including approximate location, brief treatment details where known, the mineral worked from the mine entry and conveyance details where the mine entry has previously been sold by the Authority or its predecessors British Coal or the National Coal Board.

Abandoned mine plan catalogue numbers

Plan numbers extracted from the abandoned mines catalogue containing details of coal and other mineral abandonment plans deposited via the Mines Inspectorate in accordance with the Coal Mines Regulation Act and Metalliferous Mines Regulation Act 1872. A maximum of 9 plan extents that intersect with the enquiry boundary will be included. This does not infer that the workings and/or mine entries shown on the abandonment plan will be relevant to the site/property boundary.

Outcrops

Details of seam outcrops will be included where the enquiry boundary intersects with a conjectured or actual seam outcrop location (derived by either the British Geological Survey or the Coal Authority) or intersects with a defined 50 metres buffer on the coal (dip) side of the outcrop. An indication of whether the Coal Authority believes the seam to be of sufficient thickness and/or quality to have been worked will also be included.

Geological faults, fissures and breaklines

Geological disturbances or fractures in the bedrock. Surface fault lines (British Geological Survey derived data) and fissures and breaklines (Coal Authority derived data) intersecting with the enquiry boundary will be included. In some circumstances faults, fissures or breaklines have been known to contribute to surface subsidence damage as a consequence of underground coal mining.

Opencast mines

Opencast coal sites from which coal has been removed in the past by opencast (surface) methods and where the enquiry boundary is within 500 metres of either the licence area, site boundary, excavation area (high wall) or coaling area.

Coal Authority managed tips

Locations of disused colliery tip sites owned and managed by the Coal Authority, located within 500 metres of the enquiry boundary.

Site investigations

Details of site investigations within 50 metres of the enquiry boundary where the Coal Authority has received information relating to coal mining risk investigation and/or remediation by third parties.

Remediated sites

Sites where the Coal Authority has undertaken remedial works either within or within 50 metres of the enquiry boundary following report of a hazard relating to coal mining under the Coal Authority's Emergency Surface Hazard Call Out procedures.

Coal mining subsidence

Details of alleged coal mining subsidence claims made since 31 October 1994 either within or within 50 metres of the enquiry boundary. Where the claim relates to the enquiry boundary confirmation of whether the claim was accepted, rejected or whether liability is still being determined will be given. Where the claim has been discharged, whether this was by repair, payment of compensation or a combination of both, the value of the claim, where known, will also be given.

Details of any current 'Stop Notice' deferring remedial works or repairs affecting the property/site, and if so the date of the notice.

Details of any request made to execute preventative works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991. If yes, whether any person withheld consent or failed to comply with any request to execute preventative works.

Mine gas

Reports of alleged mine gas emissions received by the Coal Authority, either within or within 500 metres of the enquiry boundary that subsequently required investigation and action by the Coal Authority to mitigate the effects of the mine gas emission.

Mine water treatment schemes

Locations where the Coal Authority has constructed or operates assets that remove pollutants from mine water prior to the treated mine water being discharged into the receiving water body.

These schemes are part of the UK's strategy to meet the requirements of the Water Framework Directive. Schemes fall into 2 basic categories: Remedial – mitigating the impact of existing pollution or Preventative – preventing a future pollution incident.

Mine water treatment schemes generally consist of one or more primary settlement lagoons and one or more reed beds for secondary treatment. A small number are more specialised process treatment plants.

Future underground mining

Details of all planned underground mining relative to the enquiry boundary. Only those future workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination will be included.

Coal mining licensing

Details of all licenses issued by the Coal Authority either within or within 200 metres of the enquiry boundary in relation to the under taking of surface coal mining, underground coal mining or underground coal gasification.

Court orders

Orders in respect of the working of coal under the Mines (Working Facilities and Support) Acts of 1923 and 1966 or any statutory modification or amendment thereof.

Section 46 notices

Notice of proposals relating to underground coal mining operations that have been given under section 46 of the Coal Mining Subsidence Act 1991.

Withdrawal of support notices

Published notices of entitlement to withdraw support and the date of the notice. Details of any revocation notice withdrawing the entitlement to withdraw support given under Section 41 of the Coal Industry Act 1994.

Payment to owners of former copyhold land

Relevant notices which may affect the property and any subsequent notice of retained interests in coal and coal mines, acceptance or rejection notices and whether any compensation has been paid to a claimant.

The map highlights any specific surface or subsurface features within or near to the boundary of the site.

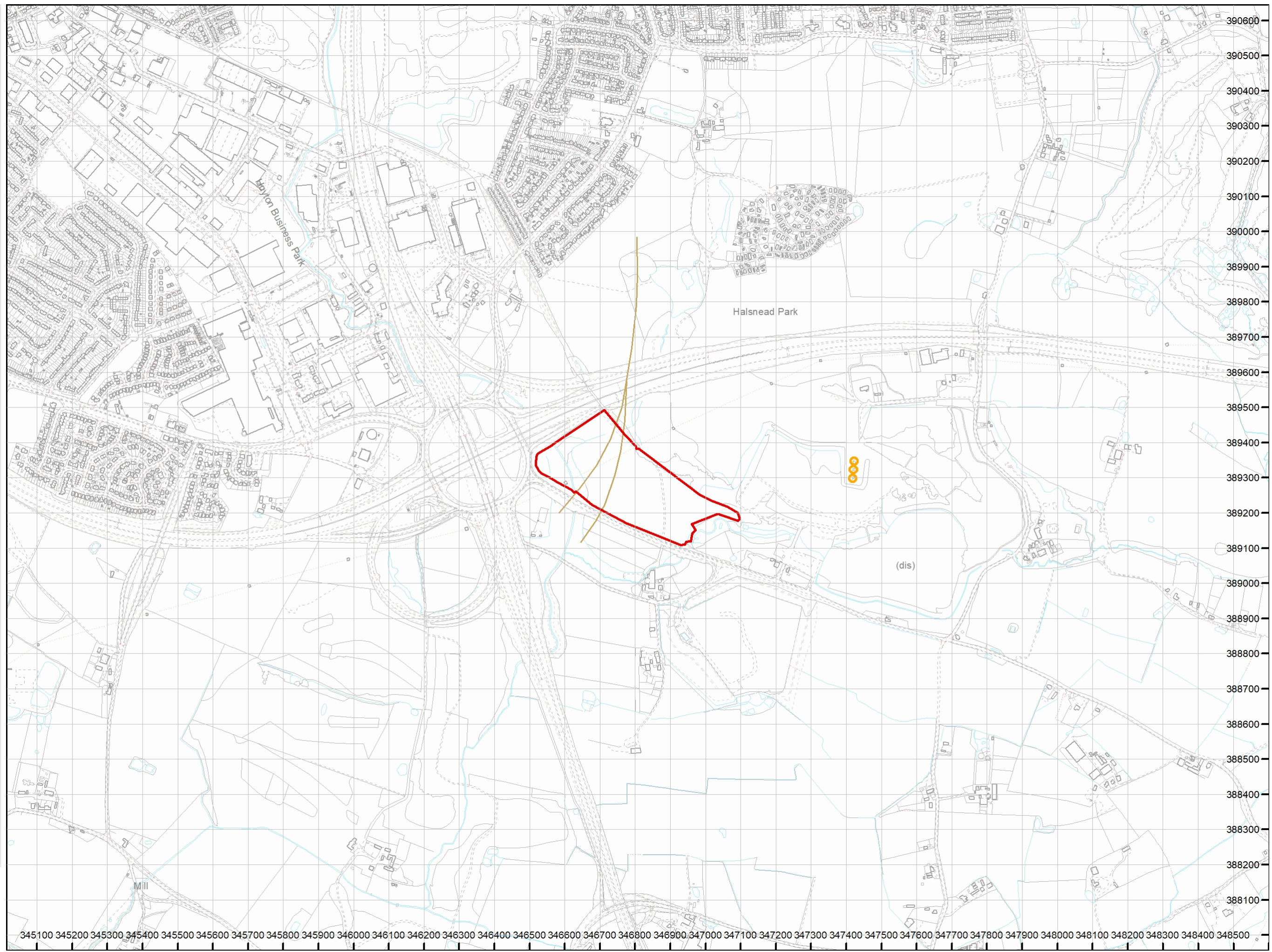
Key

Approximate position of the enquiry boundary shown 

Geological faults 

Mine gas remedial works 

How to contact us
0345 762 6848 (UK)
+44 (0)1623 637 000 (International)
www.groundstability.com



Appendix 3: CIRIA Risk Classification Scheme

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

CIRIA Report 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
- Magnitude of the probability (likelihood) of the risk occurring

The classification of consequence and probability are set out in table A1 and A2 below

Table A1 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 controlled waters. 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 controlled waters. A significant change in a particular ecosystem, or organism forming part of such ecosystem.	Concentrations of contaminants from site exceeding generic or site specific screening criteria Leaching of contaminants into 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 reparable 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 A2 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 or 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 short term.
Unlikely (Ul)	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 (Table A3) to identify an overall risk category. These categories and the actions required are categorised in Table A4

Table A3 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 (Ul)	Mod/low risk (M/L)	Low risk (L)	Very low risk (VL)	Very low risk (VL)

Table A4 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

Rudland, D J, Lancefield, R M, Mayell, P N; 2001; Contaminated land Risk Assessment. A guide to Good Practice; CIRIA Report C552.

Appendix 4: Factual Ground Investigation Report

Factual Ground Investigation Report

Cronton Road,
Huyton

BWB Consulting Limited

September 2021



Factual Ground Investigation Report

Cronton Road
Huyton

Contract: N10017
Reference: N10017-FGIR-01

BWB Consulting Limited
5th Floor
Waterfront House
Station Street
Nottingham
NG2 3DQ

Exploration & Testing Associates Limited
'number three' Siskin Drive, Middlemarch Business Park
Coventry, CV3 4FJ
T: 024 7688 0452, E: enquiries@explorationtesting.uk

Prepared by:		Checked by:	Approved by:
Ellie-Mae Barry BSc(Hons) 		Olivia Gatehouse MSci(Hons) 	Jennifer Mullen BSc(Hons), MRes, PhD, FGS 
Issue:	Date:	Description:	
01	17/09/21	First issue	

EXECUTIVE SUMMARY

Site Address	Cronton road, Huyton L35 1QR. National Grid Reference SJ467892
Proposed Development	The proposed development comprises of two warehouses with associated parking and road infrastructure.
Current Site Use	The site comprises of a heavily vegetated parcel of land, with a culvert in the northwest and a single width track in the eastern half of the site.
Published Geology	The published geology indicates the site to be underlain by Glacial Till with a small band of alluvium in the western corner of the site. The underlying bedrock comprises of the Pennine Middle Coal Measures Formation and the Etruria Mudstone Formation to the south. Two faults are noted on the western half of the site.
Intrusive Works	Intrusive works comprised of thirty mechanically excavated trial pits, four rotary open hole boreholes and six cable percussive boreholes.
Sampling and Testing	Chemical and geotechnical laboratory testing was carried out on selected samples as scheduled by BWB Consulting Ltd.
Disclaimer. This Executive Summary should be read in conjunction with Exploration & Testing Associates Limited's Ground Investigation Report, reference N10017-FGIR-01, of which it forms part.	

TABLE OF CONTENTS

1.0	INTRODUCTION	3
1.1	Introduction	3
1.2	Scope of Work	3
2.0	SITE DESCRIPTION	4
2.1	Site Location	4
2.2	Site Description	4
2.3	Published Geology	4
3.0	GROUND INVESTIGATION	5
3.1	Intrusive Investigation	5
3.2	Sampling Strategy	5
4.0	LABORATORY TESTING	6
4.1	Testing Strategy	6
4.2	Geotechnical Laboratory Testing	6
4.3	Chemical Laboratory Testing	6

APPENDICES

APPENDIX 1: Drawings
APPENDIX 2: Engineering Records
APPENDIX 3: Chemical Testing
APPENDIX 4: Geotechnical Testing
APPENDIX 5: Monitoring

1.0 INTRODUCTION

1.1 Introduction

Exploration & Testing Associates Limited (Exploration) were instructed by BWB Consulting Limited (the Client), to undertake an investigation to establish ground conditions, the presence of contamination and determine the geotechnical properties of the site.

The proposed development comprises of two warehouses with associated parking and road infrastructure.

This report has been prepared for the sole use of the Client for the purpose set out above. No third-party duty of care or reliance on this document is offered and the use of information within this report by any third party is at their own risk. This document shall not be reproduced in any form without the prior written permission of Exploration.

The information contained within this report is based on conditions at the time of investigation and there may be site factors which have not been disclosed within this document. It should be noted that groundwater levels may vary due to seasonal or other conditions.

1.2 Scope of Work

The Scope of Work was set out by BWB at tender stage, comprising of the following:

- a) Six cable percussive boreholes with associated sampling and in situ testing
- b) Four rotary percussive boreholes with associated sampling and in situ testing
- c) The installation of gas and groundwater monitoring wells
- d) Four days of trial pitting with associated samples and in situ testing
- e) Gas and groundwater monitoring
- f) Geotechnical laboratory testing
- g) Chemical laboratory testing

This document is intended to provide a factual account of the work undertaken and present the data obtained.

2.0 SITE DESCRIPTION

2.1 Site Location

The site is located on the northern side of Cronton road, Huyton and may be located by National Grid Reference SJ467892.

A Site Location Plan is appended in Appendix 1, Drawing N10017.SLP_1.

2.2 Site Description

The site is rectangular in shape and comprises an area of approximately 7 hectares. The site topography is generally flat.

At the time of the investigation the site comprised of one large field which was overgrown and heavily vegetated in places. A culvert and associated stockpiles were present in the north-western corner of the site. A single width dirt track was present within the eastern half of the site running from north to south. Trees and dense shrubs formed the majority of the site's perimeter, along with a short section of the M62 forming the north-western border.

The site is accessed to the south off Cronton Road. Concrete blocks and a small bund are present across the site entrance to prevent access onto the site. During the site works, the concrete blocks were removed and reinstated at the end of each working day.

2.3 Published Geology

The published geology for the site, based on records provided by the BGS, indicates the site to be underlain by Glacial Till and a small band of Alluvium noted in the most western part of the site. Superficial deposits are underlain by the Pennine Middle Coal Measures Formation comprising of mudstone, siltstone and sandstone, and the Etruria Mudstone Formation which is present towards the southern part of the site.

Two faults are noted in the western half of the site, trending from the northeast to southwest.

Made Ground is thought to be present within areas associated with the culvert and historic infilled pits known as the Ravenhurst Pits.

Local BGS boreholes on the site suggest little Made Ground, with topsoil overlying a firm brown clay. Towards the north of the site, bedrock was encountered at 0.45m bgl and towards the northwest Made Ground was present from ground level to a depth of 1.70m bgl.

3.0 GROUND INVESTIGATION

3.1 Intrusive Investigation

The intrusive investigation was carried out between the 26th and 30th July 2021.

The investigation was undertaken in general accordance with published guidance; BS 5930:2015+A1:2020 and BS 10175:2011+A2:2017.

The work undertaken comprised the following:

- a) Service clearance of all locations
- b) Six (6 No.) cable percussive boreholes, with in situ testing
- c) Four (4 No.) rotary open boreholes
- d) Thirty (30 No.) machine excavated trial pits
- e) The installation of six (6 No.) gas and groundwater monitoring wells
- f) Representative sampling for laboratory testing.

The exploratory hole locations were set out based on an indicative plan issued in advance by BWB, to provide sufficient coverage across the site to establish ground conditions in relation to the footprint of the proposed development. An Exploratory Hole Location Plan is provided in Appendix 1, Drawing N10017.EHLP_1.

The depths of the exploratory holes, descriptions of strata encountered and comments on groundwater conditions are provided in Appendix 2.

Representative undisturbed and disturbed samples were taken at the depths shown on the exploratory hole records. Samples for contamination testing were collected in appropriate containers and retained in cool boxes prior to dispatch to the laboratory.

Gas and groundwater monitoring visits were undertaken on four occasions, at broadly weekly intervals following installation.

3.2 Sampling Strategy

Representative samples were obtained in order provide suitable material for laboratory testing to establish:

- a) Baseline conditions of commonly occurring contaminants
- b) The geotechnical properties of the underlying soils.

4.0 LABORATORY TESTING

4.1 Testing Strategy

The geotechnical laboratory testing was scheduled by BWB based on material descriptions, taking into consideration the proposed development.

The chemical laboratory testing was scheduled by BWB based on material descriptions, taking into consideration the presence of visual or olfactory evidence of contamination and the site's history.

4.2 Geotechnical Laboratory Testing

All soil samples were prepared in accordance with BS 1377-1:2016 by a UKAS accredited laboratory, with representative sub-samples taken for testing as necessary.

The following tests carried out were:

- a) Twenty-four (24 No.) moisture contents
- b) Sixteen (16 No.) Atterberg Limits
- c) Six (6 No.) particle density tests
- d) Three (3 No.) particle size distribution
- e) Three (3 No.) compaction 2.5kg
- f) Three (3 No.) compaction 4.5kg
- g) Three (3 No.) California Bearing Ratio 2.5kg
- h) Two (2 No.) Single stage unconsolidated triaxial
- i) Two (2 No.) one dimensional consolidation tests
- j) One (1 No.) Hand vane

The results received to date are provided in Appendix 4 as Test Reports L21-518, SLS1258 and 55452.

4.3 Chemical Laboratory Testing

The soil testing was carried out by a UKAS accredited laboratory, in accordance with the MCERTS performance standard, with representative sub-samples taken for testing as necessary.

The following tests were carried out:

- a) Thirteen (13 No.) BWB Standard Suites: - arsenic, barium, beryllium, cadmium, chromium (total & hexavalent), copper, lead, mercury, nickel, selenium, vanadium, zinc, boron, sulphur (total), sulphate, cyanide, pH, organic matter, PAH, phenols and TPH
- b) Eight (8 No.) Asbestos screen
- c) Three (3 No.) BWB Leachate Suites: - arsenic, barium, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, vanadium, zinc, boron, sulphate (as SO₄) and pH
- d) One (1 No.) TPHCWG inc BTEX
- e) Eight (8 No.) BRE SD1 Suite B – pH, sulphate, sulphate (total) and sulphur (total)
- f) Three (3 No.) BWB Water Suite - arsenic, barium, beryllium, cadmium, calcium, chromium (total & hexavalent), copper, lead, mercury, nickel, selenium, vanadium, zinc, boron, sulphate, cyanide, pH, PAH, phenols, TPH, electrical conductivity, ammoniacal nitrogen, hardness and DOC.

The results are provided in Appendix 3 as Test Reports 21-90180-1, 21-91188-1, 21-91719-1, 21-91740-1 and 21-94760-1.

REFERENCES

BRE 365 '*Soakaway Design*' British Research Establishment, 2016

BS 5930:2015+A1:2020 'Code of practice for ground investigations.' British Standards Institute, 2020.

BS 6297:2007+A1:2008 '*Code of practice for the design and installation of drainage fields for use in wastewater treatment*'. British Standards Institute, 2008

BS 10175:2011+A2:2017 'Investigation of potentially contaminated sites. Code of practice', British Standards Institute, 2017

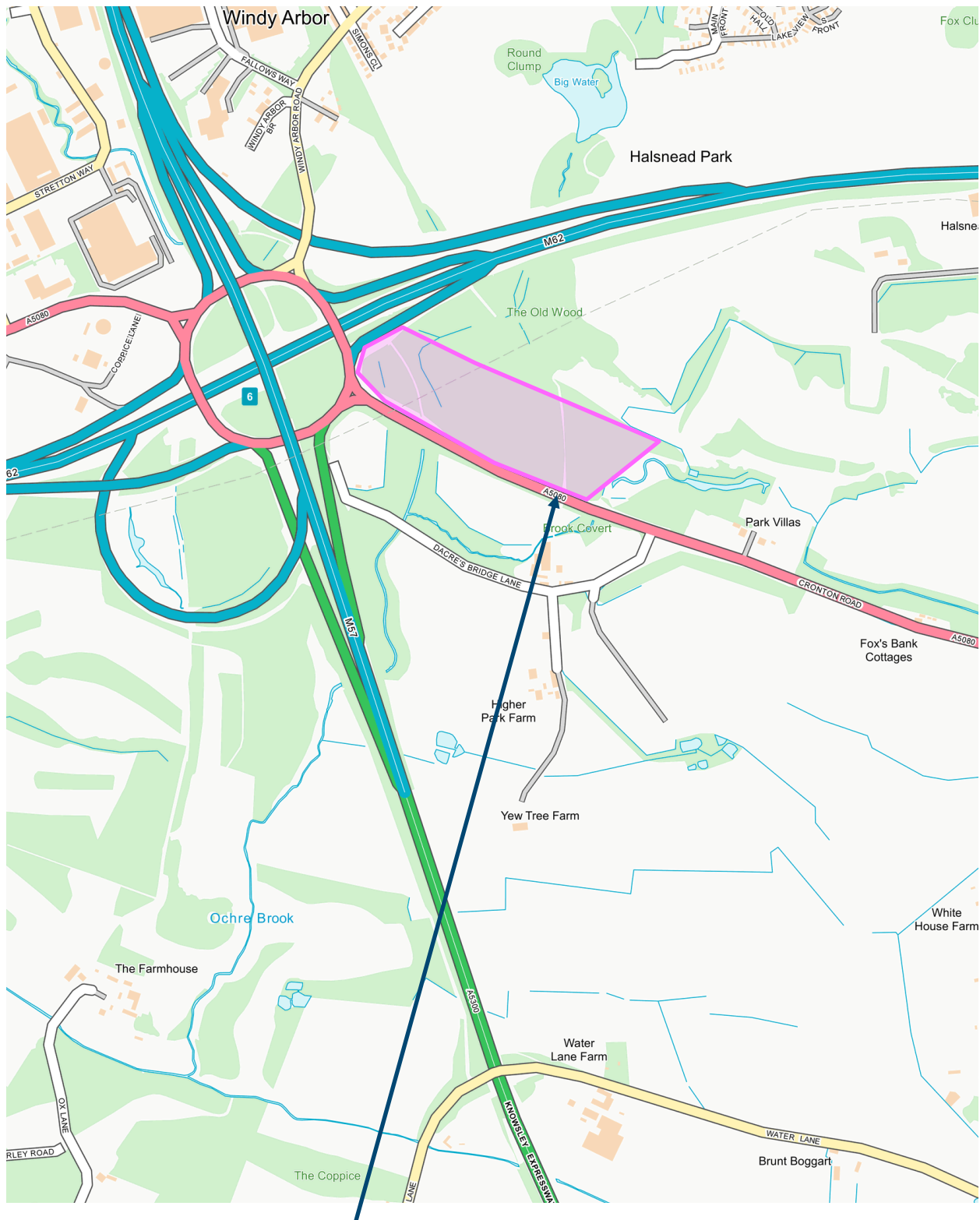
BS 1377-1:2016, '*Methods of test for soils for civil engineering purposes — Part 1: General requirements and sample preparation*', British Standards Institute, 2016

British Geological Survey, Sheet No. 97, 'Runcorn', drift, 1:50 000 scale, published 197.

British Geological Survey, Sheet No. 97, 'Runcorn', solid, 1:50 000 scale, published 1980.

APPENDIX 1: DRAWINGS





Site location

Client: BWB Consulting Ltd
 Contract: Cronton Road, Huyton
 Contract No.: N10017

Title: Site Location Plan
 Drawing: N10017.SLP_1
 Date: 10/09/21

Project Id: N10017
Project Title: Cronton Road
Location: Huyton
Client: BWB Consulting Ltd

Title: N10017.EHLP_01
Scale: 1:2500
Engineer: BWB Consulting Ltd
Contractor: Exploration & Testing

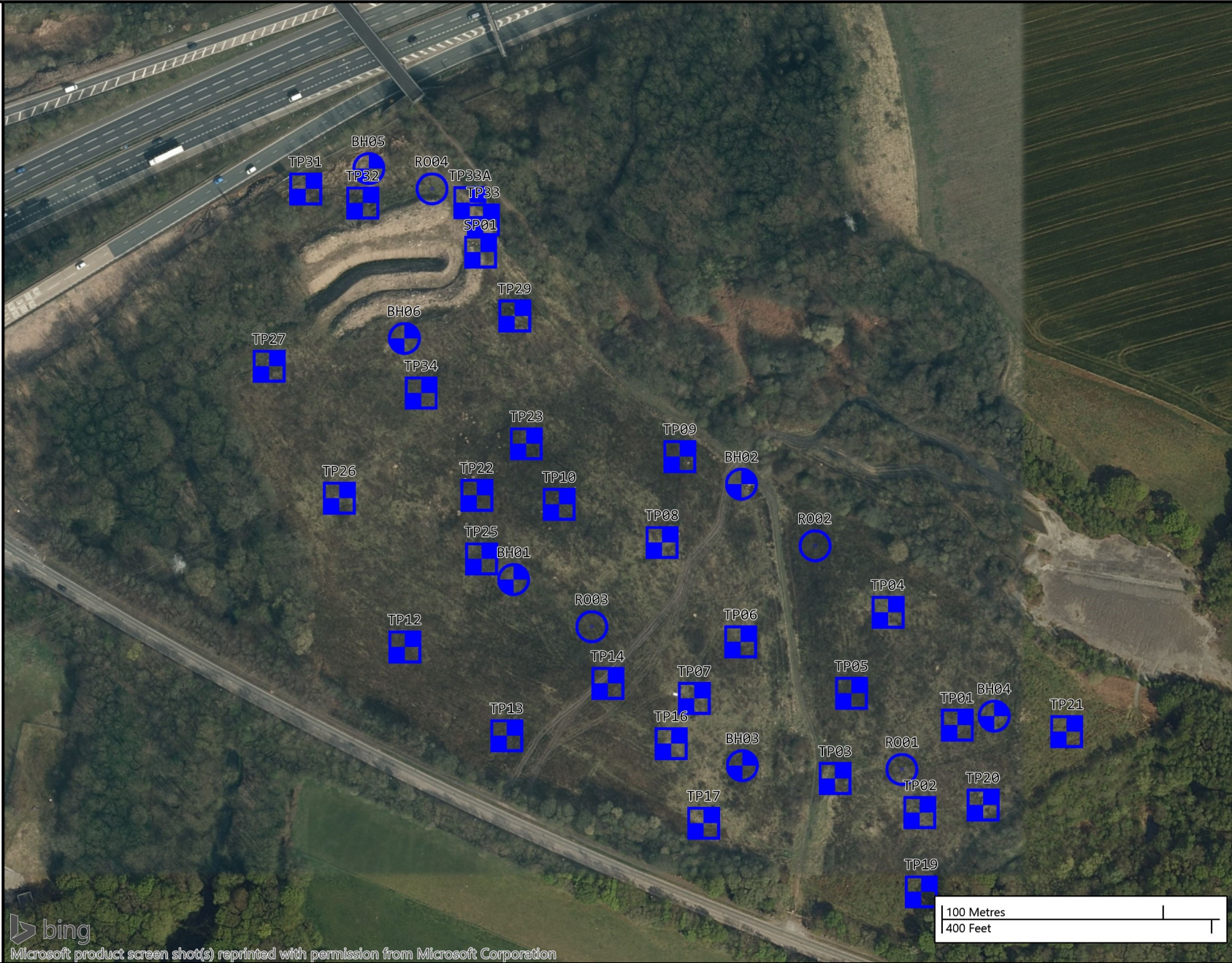


Legend Key

 Locations By Type - CP

 Locations By Type - RO

 Locations By Type - TP



APPENDIX 2: ENGINEERING RECORDS



SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

James Fisher Testing Services
Ruby House
40a Hardwick Grange
Woolton
Warrington
WA1 4RF

SPT Hammer Ref: WB01
Test Date: 13/03/2021
Report Date: 22/06/2021
File Name: WB01.spt
Test Operator: MH

Instrumented Rod Data

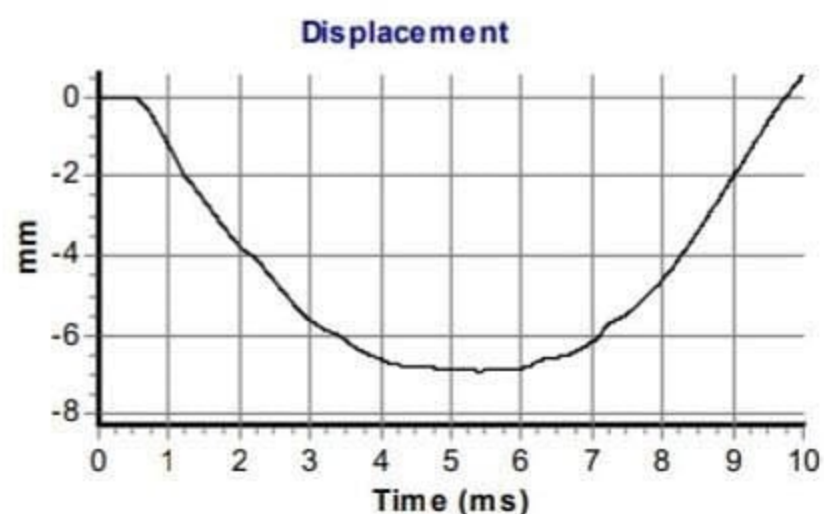
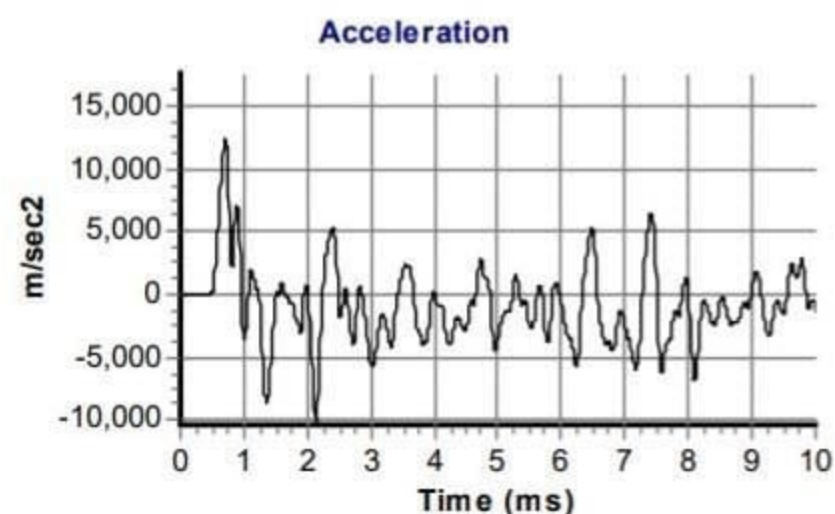
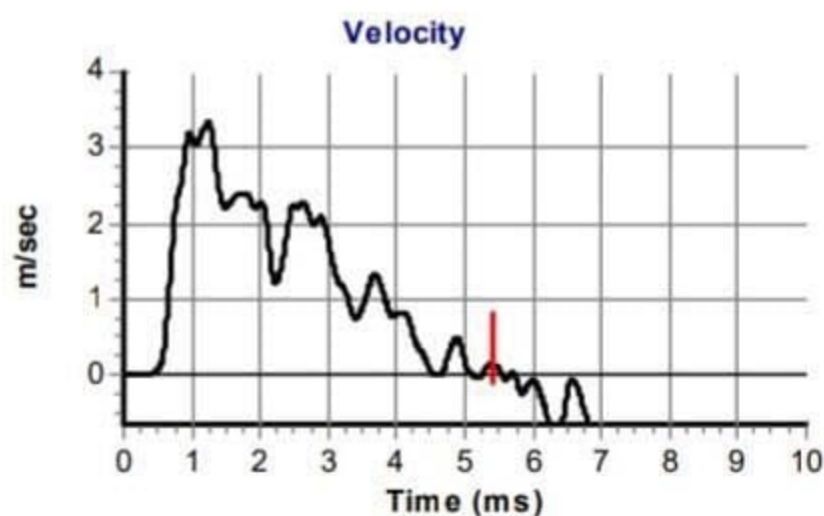
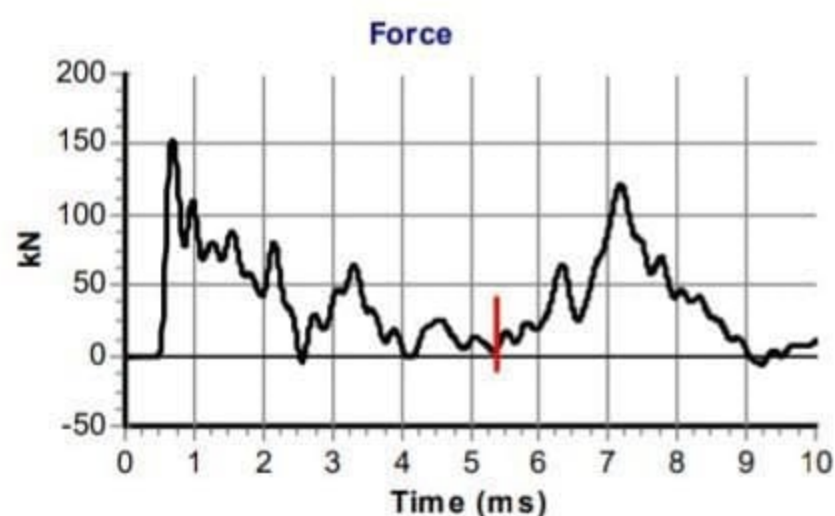
Diameter d_r (mm): 54
Wall Thickness t_r (mm): 6.5
Assumed Modulus E_a (GPa): 208
Accelerometer No.1: 11855
Accelerometer No.2: 9983

SPT Hammer Information

Hammer Mass m (kg): 63.5
Falling Height h (mm): 760
SPT String Length L (m): 14.5

Comments / Location

Client: Williams Bros Drilling
Location: JFTS Laboratory
Hammer Type: Trip Hammer



Calculations

Area of Rod A (mm²): 970
Theoretical Energy E_{theor} (J): 473
Measured Energy E_{meas} (J): 450

Energy Ratio E_r (%): **95**

Signed: Oliver Turpin
Title: Team Leader

Cable Percussion Drilling Log

Project Name: Cronton Road		Client: BWB Consulting Ltd		Date: 29/07/2021	
Location: Huyton		Contractor: Exploration & Testing		Co-ords: E346753.89 N389277.72	
Project No. : N10017		Crew Name: WB Drilling		Drilling Equipment: Dando 2000	
Borehole Number BH01	Hole Type CP	Level 21.87m AoD	Logged By AO	Scale 1:50	Status FINAL

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.00	B1					Brown sandy gravelly SILT. Gravel is fine to medium subrounded quartzite (TOPSOIL)	
		0.50	B2		0.50	21.37		Firm reddish brown silty sandy CLAY	
		1.20	U1	20 Blows					1
		1.70	D1						
		2.00	B3						2
		2.00	D2						
		2.00	SPT	N=18 (3,4/4,4,5,5)					
		3.00	B4						3
		3.00	D3					Below 3.00m: Occasional fine rounded gravel, blue silt lenses and fine to medium sand lenses.	
		3.00	SPT	N=18 (3,3/4,5,4,5)					
		4.00	B5						4
		4.00	D4						
		4.00	SPT	N=21 (4,3/5,4,6,6)					
		5.00	U2	25 Blows				Below 5.00m: Very stiff	5
		5.50	D5						
		6.50	B6					Below 6.00m: Stiff brownish red gravel lenses. Gravel is fine angular to subrounded.	6
		6.50	D6						
		6.50	SPT	N=31 (4,4/5,9,7,10)					7
		7.70	B7		7.70	14.17		Stiff, reddish gravelly CLAY. Gravel is fine to medium mudstone	8
		7.70	D7						
		7.70	SPT	50 (7,10/50 for 265mm)					
		8.20	SPT	50 (25 for 50mm/50 for 35mm)					
		8.50	D8		8.50	13.37		End of Borehole at 8.50m	9
									10

Hole Diameter		Casing Diameter		Chiselling				Water Strike General		
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Remarks	Depth Strike	Date Time	Remarks
8.50	150	7.50	150	7.70	8.50	01:00				

Remarks Inspection pit from GL-1.20m Groundwater not encountered.									Sheet 1 of 1	
--	--	--	--	--	--	--	--	--	--------------	--

Cable Percussion Drilling Log

Project Name: Cronton Road		Client: BWB Consulting Ltd		Date: 26/07/2021 - 27/07/2021	
Location: Huyton		Contractor: Exploration & Testing		Co-ords: E346858.04 N389319.90	
Project No. : N10017		Crew Name: WB Drilling		Drilling Equipment: Dando 2000	
Borehole Number BH02	Hole Type CP	Level 24.54m AoD	Logged By EMB	Scale 1:50	Status FINAL

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.00	B1		0.60	23.94		Vegetation over dark brown very clayey gravelly fine SAND. Gravel is coarse subangular sandstone (TOPSOIL)	
		0.60	B2					Stiff brown slightly mottled grey, slightly sandy, gravelly CLAY. Gravel is fine to coarse subrounded to subangular quartzite and sandstone.	
		1.20	U1	25 Blows					
		1.70	D1						
		2.00	B3						
		2.00	D2						
		2.00	SPT	N=18 (1,3/4,4,5,5)					
		3.00	U2	30 Blows					
		3.50	D3						
		4.00	B4						
		4.00	D4						
		4.00	SPT	N=21 (4,4/4,5,5,7)					
		5.00	U3	30 Blows					
		5.50	D5						
		6.50	B5						
		6.50	D6						
		6.50	SPT	N=22 (3,4/4,6,5,7)					
		8.00	U4	35 Blows					
		8.50	D7						
		9.50	B6		9.50	15.04			
		9.50	D8						
		9.50	SPT	N=31 (3,5/7,7,8,9)					

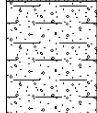
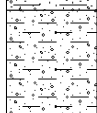
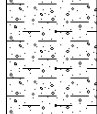
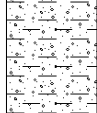
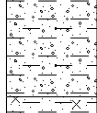
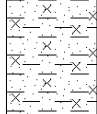
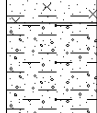
Hole Diameter		Casing Diameter		Chiselling			Remarks	Water Strike General		
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration		Depth Strike	Date Time	Remarks
10.50	150	9.00	150	9.50 10.00 10.10	10.00 10.10 10.50	01:00 00:30 00:45		8.50		

Remarks Inspection pit from GL-1.20m									Sheet 1 of 2	
--	--	--	--	--	--	--	--	--	--------------	--

Sheet 2 of 2

Cable Percussion Drilling Log

Project Name: Cronton Road		Client: BWB Consulting Ltd		Date: 28/07/2021	
Location: Huyton		Contractor: Exploration & Testing		Co-ords: E346857.05 N389192.02	
Project No. : N10017		Crew Name: WB Drilling		Drilling Equipment: Dando 2000	
Borehole Number BH03	Hole Type CP	Level 20.57m AoD	Logged By OG	Scale 1:50	Status FINAL

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.00	B1					Vegetation over dark brown sandy slightly gravelly CLAY. Gravel is fine to medium angular brick (TOPSOIL)	
		0.40	B2		0.40	20.17		Brown clayey gravelly fine to medium SAND. Gravel is subangular fine to coarse sandstone with medium cobble content of sandstone.	1
		1.20 1.20 1.20	B3 D1 SPT	N=11 (1,1/1,2,4,4)	1.20	19.37		Stiff brown slightly sandy gravelly CLAY. Gravel is fine to coarse subrounded to subangular coal, sandstone, siltstone and quartzite.	
		2.00	U1	20 Blows					2
		2.50	D2						
		3.00 3.00 3.00	B4 D3 SPT	N=18 (1,3/4,5,4,5)				Below 3.00m sandy	3
		4.00	U2	25 Blows	4.00	16.57		Stiff brown silty very sandy CLAY.	4
		4.50	D4						
		5.00 5.00 5.00	B5 D5 SPT	N=50 (7,7/50 for 250mm)	5.00	15.57		Very stiff brown slightly sandy gravelly CLAY. Gravel is fine to coarse subrounded to subangular sandstone, siltstone and quartzite.	5
		6.50 6.50 6.50	B6 D6 SPT	N=49 (6,6/10,10,13,16)					6
		7.70 7.70 7.70	B7 D7 SPT	50 (10,15/50 for 160mm)	7.70	12.87		Very weak reddish brown MUDSTONE recovered as gravelly clay. Gravel is fine to coarse subangular mudstone.	8
		8.20	SPT	50 (25 for 75mm/50 for 40mm)	8.20	12.37		End of Borehole at 8.20m	9
									10

Hole Diameter		Casing Diameter		Chiselling				Water Strike General		
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Remarks	Depth Strike	Date Time	Remarks
8.20	150	7.50	150	7.90	8.20	01:00		7.50 3.90		

Remarks Inspection pit from GL-1.20m									Sheet 1 of 1	
--	--	--	--	--	--	--	--	--	--------------	--

Cable Percussion Drilling Log

Project Name: Cronton Road		Client: BWB Consulting Ltd		Date: 27/07/2021	
Location: Huyton		Contractor: Exploration & Testing		Co-ords: E346971.78 N389213.25	
Project No. : N10017		Crew Name: WB Drilling		Drilling Equipment: Dando 2000	
Borehole Number BH04	Hole Type CP	Level 22.25m AoD	Logged By OG	Scale 1:50	Status FINAL

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.00	B1		0.40	21.85		Vegetation over dark brown very clayey, slightly gravelly fine to medium SAND. Gravel is fine to coarse subangular sandstone. (TOPSOIL)	1
		0.40	B2						
		1.20	B3						
		1.20	D1						
		1.20	SPT	N=12 (1,3/2,3,3,4)				Firm brown with black mottling, slightly sandy, gravelly CLAY. Gravel is fine to coarse subrounded to subangular sandstone, siltstone and quartzite.	2
		2.00	B4						
		2.00	D2						
		2.00	SPT	N=16 (2,2/3,4,4,5)					
		3.00	U1	20 Blows					3
		3.50	D3						
		4.00	B5						
		4.00	D4						
		4.00	SPT	N=18 (2,4/4,5,4,5)					4
		5.00	B6						
		5.00	D5						
		5.00	SPT	N=19 (2,3/4,5,5,5)					
		6.50	U2	30 Blows					5
		7.00	D6						
		8.00	B7						
		8.00	D7						
		8.00	SPT	N=25 (2,5/6,6,6,7)					6
		9.30	B8						
		9.30	D8						
		9.30	SPT	50 (25 for 70mm/50 for 30mm)					
		9.50	SPT	50 (25 for 20mm/50 for 20mm)	9.30	12.95		Extremely weak blueish grey SILTSTONE.	7
					9.50	12.75		End of Borehole at 9.50m	

Hole Diameter		Casing Diameter		Chiselling				Water Strike General		
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Remarks	Depth Strike	Date Time	Remarks
9.50	150	7.50	150	9.30	9.50	01:00		9.00		

Remarks Inspection pit from GL-1.20m									Sheet 1 of 1	
--	--	--	--	--	--	--	--	--	--------------	--



Project Name: Cronton Road		Client: BWB Consulting Ltd		Date: 30/07/2021	
Location: Huyton		Contractor: Exploration & Testing		Co-ords: E346689.82 N389465.10	
Project No. : N10017		Crew Name: WB Drilling		Drilling Equipment: Dando 2000	
Borehole Number BH05	Hole Type CP	Level 22.80m AoD	Logged By AO	Scale 1:50	Status FINAL

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results						
		0.00	B1					MADE GROUND: Grass over firm brown sandy gravelly CLAY. Gravel is fine to coarse angular to subangular mudstone sandstone and brick	1	
	0.60	B2								
	1.20	B3								
	D1									
			1.20	SPT	N=15 (2,2/4,3,4,4)					
			2.00	B4					Firm brown slightly sandy, gravelly CLAY. Gravel is fine to coarse subrounded to subangular quartzite and sandstone.	3
		D2								
	SPT									
			2.00	SPT	N=14 (1,2/3,3,4,4)					
			2.70	B5		2.70	20.10			
		3.00	U1							
		3.50	D3							
		4.00	B6		4.00	18.80		Very weak to weak reddish brown SILTSTONE	4	
		4.00	D4							
		4.00	SPT							
		4.50	SPT	50 (10,15/50 for 95mm) 50 (25 for 20mm/50 for 20mm)	4.50	18.30		End of Borehole at 4.50m	5	
									6	
									7	
									8	
									9	
									10	

Hole Diameter		Casing Diameter		Chiselling				Water Strike General		
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Remarks	Depth Strike	Date Time	Remarks
4.50	150	4.00	150	4.00	4.50	01:00				

Remarks

Inspection pit from GL-1.20m
Groundwater not encountered.

Cable Percussion Drilling Log

Project Name: Cronton Road		Client: BWB Consulting Ltd		Date: 28/07/2021 - 29/07/2021	
Location: Huyton		Contractor: Exploration & Testing		Co-ords: E346705.15 N389387.80	
Project No. : N10017		Crew Name: WB Drilling		Drilling Equipment: Dando 2000	
Borehole Number BH06	Hole Type CP	Level 23.70m AoD	Logged By AO	Scale 1:50	Status FINAL

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.00	B1					MADE GROUND: Firm brown silty sandy gravelly CLAY. Gravel is fine to coarse sandstone, quartzite and brick.	
		0.60	B2						
		1.20	B3						
		1.20	D1						
		1.20	SPT	N=13 (2,2/3,2,4,4)					
		2.00	B4						
		2.00	D2						
		2.00	SPT	N=10 (2,2/2,2,3,3)					
		3.00	B5		2.60	21.10		Firm to stiff reddish brown, slightly sandy gravelly CLAY. Gravel is fine to coarse subangular to rounded quartzite.	
		3.00	D3						
		3.00	SPT	N=19 (3,3/3,5,5,6)					
		4.00	U1	35 Blows					
		4.50	D4						
		5.00	B6					Below 5.00m: Stiff	
		5.00	D5						
		5.00	SPT	N=24 (3,4/4,7,6,7)					
		6.50	U2	35 Blows					
		7.00	D6						
		7.50	B7		7.50	16.20		Very stiff reddish brown gravelly CLAY. Gravel is fine to coarse subangular mudstone.	
		7.50	D7						
		7.50	SPT	50 (6,7/50 for 225mm)					
		8.00	D8		8.00	15.70		End of Borehole at 8.00m	
		8.00	SPT	50 (25 for 40mm/50 for 255mm)					

Hole Diameter		Casing Diameter		Chiselling				Water Strike General		
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Remarks	Depth Strike	Date Time	Remarks
8.00	15	7.50	150	7.50	8.00	01:00				

Remarks Inspection pit from GL-1.20m Groundwater not encountered.									Sheet 1 of 1	
--	--	--	--	--	--	--	--	--	--------------	--

Rotary Core Log

Project Name: Cronton Road			Client: BWB Consulting Ltd			Date: 28/07/2021		
Location: Huyton			Contractor: Exploration & Testing			Co-ords: E346929.65 N389189.49		
Project No. : N10017			Crew Name: WB Drilling			Drilling Equipment: T44		
Borehole Number RO01		Hole Type RO		Level 21.43m AoD		Logged By AW		Status FINAL

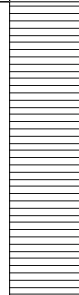
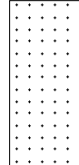
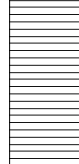
Well	Water	Depth (m)	Type	FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
					TCR	SCR	RQD						
									0.20	21.23		TOPSOIL (Drillers description)	1
												Brown sandy gravelly CLAY (Drillers description)	
									9.20	12.23		Brownish grey sandy MUDSTONE (Drillers description)	9
													10

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)
40.50	114	10.50	114														
		40.50	75														

Remarks Inspection pit from GL-1.20m Rig and equipment move 1 hour															Sheet 1 of 5		
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--------------	--	--

Rotary Core Log

Project Name: Cronton Road				Client: BWB Consulting Ltd				Date: 28/07/2021			
Location: Huyton				Contractor: Exploration & Testing				Co-ords: E346929.65 N389189.49			
Project No. : N10017				Crew Name: WB Drilling				Drilling Equipment: T44			
Borehole Number RO01		Hole Type RO		Level 21.43m AoD		Logged By AW		Scale 1:50		Status FINAL	

Well	Water	Depth (m)	Type	FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description									
					TCR	SCR	RQD														
									12.00	9.43		Brownish grey sandy MUDSTONE (Drillers description)	11								
												Grey sandy MUDSTONE (Drillers description)	12								
													13								
													14								
													15								
													15.50	5.93		Grey SANDSTONE (Drillers description)	16				
																Dark grey MUDSTONE (Drillers description)	17				
																	18				
																	18.50	2.93		Grey sandy MUDSTONE (Drillers description)	19
																				20.00	1.43

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)
40.50	114	10.50	114														
		40.50	75														

Remarks Inspection pit from GL-1.20m Rig and equipment move 1 hour															Sheet 2 of 5		
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--------------	--	--

Rotary Core Log

Project Name: Cronton Road				Client: BWB Consulting Ltd				Date: 28/07/2021			
Location: Huyton				Contractor: Exploration & Testing				Co-ords: E346929.65 N389189.49			
Project No. : N10017				Crew Name: WB Drilling				Drilling Equipment: T44			
Borehole Number RO01		Hole Type RO		Level 21.43m AoD		Logged By AW		Scale 1:50		Status FINAL	

Well	Water	Depth (m)	Type	FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
					TCR	SCR	RQD						
									21.00	0.43		Brown MUDSTONE (Drillers description)	
												Grey sandy MUDSTONE (Drillers description)	21
													22
													23
												Brown MUDSTONE (Drillers description)	
												Grey sandy MUDSTONE (Drillers description)	24
													25
												Grey SANDSTONE (Drillers description)	
													26
													27
													28
													29
													30

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)
40.50	114	10.50	114														
		40.50	75														

Remarks Inspection pit from GL-1.20m Rig and equipment move 1 hour															Sheet 3 of 5		
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--------------	--	--

Sheet 4 of 5

Rotary Core Log

Project Name: Cronton Road				Client: BWB Consulting Ltd				Date: 28/07/2021			
Location: Huyton				Contractor: Exploration & Testing				Co-ords: E346929.65 N389189.49			
Project No. : N10017				Crew Name: WB Drilling				Drilling Equipment: T44			
Borehole Number RO01		Hole Type RO		Level 21.43m AoD		Logged By AW		Scale 1:50		Status FINAL	

Well	Water	Depth (m)	Type	FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
					TCR	SCR	RQD						
									40.50	-19.07		Grey sandy MUDSTONE (Drillers description)	
												End of Borehole at 40.50m	
													41
													42
													43
													44
													45
													46
													47
													48
													49
													50

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)
40.50	114	10.50	114														
		40.50	75														

Remarks Inspection pit from GL-1.20m Rig and equipment move 1 hour															Sheet 5 of 5		
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--------------	--	--

Rotary Core Log

Project Name: Cronton Road				Client: BWB Consulting Ltd				Date: 27/07/2021			
Location: Huyton				Contractor: Exploration & Testing				Co-ords: E346891.04 N389291.50			
Project No. : N10017				Crew Name: WB Drilling				Drilling Equipment: T44			
Borehole Number RO02		Hole Type RO		Level 23.96m AoD		Logged By AW		Scale 1:50		Status FINAL	

Well	Water	Depth (m)	Type	FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
					TCR	SCR	RQD						
									0.30	23.66		Sandy TOPSOIL (Drillers description)	1 <

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)
40.50	114	10.50	114														
		40.50	75														

Remarks Inspection pit from GL-1.20m Rig and equipment move 1 hour Fill bowser x 2 1.5 hours															Sheet 1 of 5		
---	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--------------	--	--

Rotary Core Log

Project Name: Cronton Road				Client: BWB Consulting Ltd				Date: 27/07/2021			
Location: Huyton				Contractor: Exploration & Testing				Co-ords: E346891.04 N389291.50			
Project No. : N10017				Crew Name: WB Drilling				Drilling Equipment: T44			
Borehole Number RO02		Hole Type RO		Level 23.96m AoD		Logged By AW		Scale 1:50		Status FINAL	

Well	Water	Depth (m)	Type	FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
					TCR	SCR	RQD						
									13.00	10.96		Grey SANDSTONE (Drillers description)	11
									16.00	7.96		Grey MUDSTONE (Drillers description)	13
												Grey SANDSTONE (Drillers description)	16
													20

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)
40.50	114	10.50	114														
		40.50	75														

Remarks Inspection pit from GL-1.20m Rig and equipment move 1 hour Fill bowser x 2 1.5 hours															Sheet 2 of 5		
---	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--------------	--	--

Rotary Core Log

Project Name: Cronton Road				Client: BWB Consulting Ltd				Date: 27/07/2021			
Location: Huyton				Contractor: Exploration & Testing				Co-ords: E346891.04 N389291.50			
Project No. : N10017				Crew Name: WB Drilling				Drilling Equipment: T44			
Borehole Number RO02		Hole Type RO		Level 23.96m AoD		Logged By AW		Scale 1:50		Status FINAL	

Well	Water	Depth (m)	Type	FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
					TCR	SCR	RQD						
									24.00	-0.04		Grey SANDSTONE (Drillers description)	21
									26.80	-2.84		Grey sandy MUDSTONE (Drillers description)	24
											xxxxx	Grey SILTSTONE (Drillers description)	27
											xxxxx		28
											xxxxx		29
											xxxxx		30

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)
40.50	114	10.50	114														
		40.50	75														

Remarks Inspection pit from GL-1.20m Rig and equipment move 1 hour Fill bowser x 2 1.5 hours															Sheet 3 of 5		
---	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--------------	--	--



Project Name: Cronton Road						Client: BWB Consulting Ltd						Date: 27/07/2021					
Location: Huyton						Contractor: Exploration & Testing						Co-ords: E346891.04 N389291.50					
Project No. : N10017						Crew Name: WB Drilling						Drilling Equipment: T44					
Borehole Number RO02			Hole Type RO			Level 23.96m AoD			Logged By AW			Scale 1:50			Status FINAL		
Well	Water	Depth (m)	Type	FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description					
									30.20	-6.24	x x x x x x	Grey SILTSTONE (Drillers description)					31
											x x x x x x	Dark grey SILTSTONE (Drillers description)					
											x x x x x x						
											x x x x x x						
											x x x x x x						
											x x x x x x						
											x x x x x x						
											x x x x x x						
											x x x x x x						
											x x x x x x						
											x x x x x x						
											x x x x x x						
									31.50	-7.54		Grey MUDSTONE (Drillers description)					32
									33.00	-9.04	.	Grey SANDSTONE (Drillers description)					33
											.						
											.						
											.						
											.						
											.						
											.						
											.						
											.						
											.						
											.						
											.						
									36.00	-12.04	.	Black SILTSTONE (Drillers description)					36
											.						
											.						
											.						
											.						
											.						
											.						
											.						
											.						
											.						
											.						
											.						
									36.30	-12.34	.	Grey SANDSTONE (Drillers description)					37
											.						
											.						
											.						
											.						
											.						
											.						
											.						
											.						
											.						
											.						
											.						
									37.50	-13.54		Dark grey sandy MUDSTONE (Drillers description)					38
Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)
40.50	114	10.50	114														
		40.50	75														
Remarks															Sheet 4 of 5		
Inspection pit from GL-1.20m																	
Rig and equipment move 1 hour																	
Fill bowser x 2 1.5 hours																	

Rotary Core Log

Project Name: Cronton Road				Client: BWB Consulting Ltd				Date: 27/07/2021			
Location: Huyton				Contractor: Exploration & Testing				Co-ords: E346891.04 N389291.50			
Project No. : N10017				Crew Name: WB Drilling				Drilling Equipment: T44			
Borehole Number RO02		Hole Type RO		Level 23.96m AoD		Logged By AW		Scale 1:50		Status FINAL	

Well	Water	Depth (m)	Type	FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
					TCR	SCR	RQD						
									40.50	-16.54		Dark grey sandy MUDSTONE (Drillers description)	
												End of Borehole at 40.50m	
													41
													42
													43
													44
													45
													46
													47
													48
													49
													50

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)
40.50	114	10.50 40.50	114 75														

Remarks Inspection pit from GL-1.20m Rig and equipment move 1 hour Fill bowser x 2 1.5 hours															Sheet 5 of 5		
---	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--------------	--	--



Project Name: Cronton Road					Client: BWB Consulting Ltd					Date: 28/07/2021 - 29/07/2021				
Location: Huyton					Contractor: Exploration & Testing					Co-ords: E346789.15 N389255.91				
Project No. : N10017					Crew Name: WB Drilling					Drilling Equipment: T44				
Borehole Number RO03			Hole Type RO		Level 21.77m AoD			Logged By AW		Scale 1:50			Status FINAL	
Well	Water	Depth (m)	Type	FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description		
					TCR	SCR	RQD							
									0.20	21.57		TOPSOIL (Drillers description)		1
												Firm brown sandy gravelly CLAY (Drillers description)		
									5.00	16.77		Firm brown gravelly CLAY (Drillers description)		5
												Firm brown sand bands		
									7.50	14.27		Large COBBLES (Drillers description)		7
												Weathered reddish grey MUDSTONE (Drillers description)		
									7.70	14.07				8
														9
														10

Rotary Core Log

Project Name: Cronton Road				Client: BWB Consulting Ltd				Date: 28/07/2021 - 29/07/2021			
Location: Huyton				Contractor: Exploration & Testing				Co-ords: E346789.15 N389255.91			
Project No. : N10017				Crew Name: WB Drilling				Drilling Equipment: T44			
Borehole Number RO03		Hole Type RO		Level 21.77m AoD		Logged By AW		Scale 1:50		Status FINAL	

Well	Water	Depth (m)	Type	FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
					TCR	SCR	RQD						
									12.00	9.77		Weathered reddish grey MUDSTONE (Drillers description)	11
												Reddish grey sandy MUDSTONE (Drillers description)	12
													13
													14
													15
													16
													17
													18
													19
													20

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)
40.00	114	9.00	114														
		40.00	75														

Remarks Inspection pit from GL-1.20m Rig and equipment move 1 hour Fill bowser 0.75 hours															Sheet 2 of 4		
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--------------	--	--

Sheet 3 of 4

Sheet 4 of 4

Rotary Core Log

Project Name: Cronton Road				Client: BWB Consulting Ltd				Date: 29/07/2021 - 30/07/2021			
Location: Huyton				Contractor: Exploration & Testing				Co-ords: E346718.46 N389455.58			
Project No. : N10017				Crew Name: WB Drilling				Drilling Equipment: T44			
Borehole Number RO04		Hole Type RO		Level 24.32m AoD		Logged By AW		Scale 1:50		Status FINAL	

Well	Water	Depth (m)	Type	FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
					TCR	SCR	RQD						
									0.10	24.22		TOPSOIL (Drillers description)	1
									0.50	23.82		MADE GROUND: Brown clay brick fill (Drillers description)	
												Firm brown gravelly CLAY (Drillers description)	
									4.60	19.72		Grey sandy MUDSTONE (Drillers description)	5
													6
													7
													8
													9
													10

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)
36.00	114	6.00	114														
		36.00	75														

Remarks Inspection pit from GL-1.20m Rig and equipment move 1 hour Fill bowser 0.75 hours															Sheet 1 of 4		
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--------------	--	--

Rotary Core Log

Project Name: Cronton Road				Client: BWB Consulting Ltd				Date: 29/07/2021 - 30/07/2021			
Location: Huyton				Contractor: Exploration & Testing				Co-ords: E346718.46 N389455.58			
Project No. : N10017				Crew Name: WB Drilling				Drilling Equipment: T44			
Borehole Number RO04		Hole Type RO		Level 24.32m AoD		Logged By AW		Scale 1:50		Status FINAL	

Well	Water	Depth (m)	Type	FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
					TCR	SCR	RQD						
									12.00	12.32		Grey sandy MUDSTONE (Drillers description)	11

Rotary Core Log

Project Name: Cronton Road				Client: BWB Consulting Ltd				Date: 29/07/2021 - 30/07/2021			
Location: Huyton				Contractor: Exploration & Testing				Co-ords: E346718.46 N389455.58			
Project No. : N10017				Crew Name: WB Drilling				Drilling Equipment: T44			
Borehole Number RO04		Hole Type RO		Level 24.32m AoD		Logged By AW		Scale 1:50		Status FINAL	

Well	Water	Depth (m)	Type	FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
					TCR	SCR	RQD						
									22.50	1.82	[Pattern]	Grey SANDSTONE (Drillers description)	21
													22
												Grey sandy MUDSTONE (Drillers description)	23
													24
												COAL (Drillers description)	25
												Grey sandy MUDSTONE (Drillers description)	26
													27
												Dark grey SILTSTONE (Drillers description)	28
												Grey SANDSTONE (Drillers description)	29
													30
									24.10 24.30	0.22 0.02	[Pattern]		
									25.50 26.00	-1.18 -1.68	[Pattern]		
									28.00 29.50	-3.68 -5.18	[Pattern]		
									30.00	-5.68	[Pattern]		

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)
36.00	114	6.00 36.00	114 75														

Remarks Inspection pit from GL-1.20m Rig and equipment move 1 hour Fill bowser 0.75 hours															Sheet 3 of 4		
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--------------	--	--

Rotary Core Log

Project Name: Cronton Road				Client: BWB Consulting Ltd				Date: 29/07/2021 - 30/07/2021			
Location: Huyton				Contractor: Exploration & Testing				Co-ords: E346718.46 N389455.58			
Project No. : N10017				Crew Name: WB Drilling				Drilling Equipment: T44			
Borehole Number RO04		Hole Type RO		Level 24.32m AoD		Logged By AW		Scale 1:50		Status FINAL	

Well	Water	Depth (m)	Type	FI	Coring			Diameter Recovery (SPT)	Depth (m)	Level (m)	Legend	Stratum Description	
					TCR	SCR	RQD						
									31.20	-6.88		Grey SANDSTONE (Drillers description)	31
									32.00	-7.68	xxxxxx	Dark grey SILTSTONE (Drillers description)	32
												Grey SANDSTONE (Drillers description)	33
													34
									35.00	-10.68		Grey sandy MUDSTONE	35
									36.00	-11.68		End of Borehole at 36.00m	36
													37
													38
													39
													40

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation				Drilling Flush					
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation	Depth Top	Depth Base	Type	Colour	Min (%)	Max (%)
36.00	114	6.00	114														
		36.00	75														

Remarks Inspection pit from GL-1.20m Rig and equipment move 1 hour Fill bowser 0.75 hours															Sheet 4 of 4		
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--------------	--	--

Trial Pit Log

Project Name: Cronton Road		Client: BWB Consulting Ltd		Date: 30/07/2021	
Location: Huyton		Contractor: Exploration & Testing		Co-ords: E346740.38 N389426.64	
Project No. : N10017		Crew Name: Scott Plant Hire		Equipment: 14T Tracked Machine	
Location Number SP01	Location Type TP	Level 26.14m AoD	Logged By OG	Scale 1:25	Status FINAL

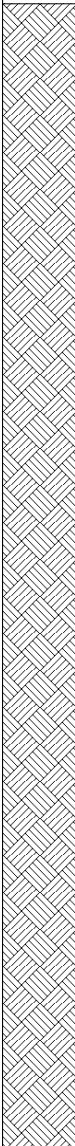
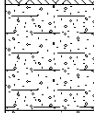
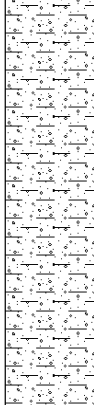
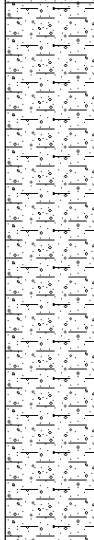
Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.50	ES1		0.70	25.44		MADE GROUND: Vegetation over firm sandy gravelly CLAY, with a medium cobble content. Gravel is angular to subangular fine to coarse quartzite, brick, sandstone and concrete. Cobble of subangular brick.	
								End of Trial Pit at 0.70m	1
									2
									3
									4
									5

Dimensions		Trench Support and Comment			Water Stike General	
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Depth Strike	Date Time
1.00	1.00	Stable				

Remarks Groundwater not encountered.	Sheet 1 of 1
---	--------------

Trial Pit Log

Project Name: Cronton Road		Client: BWB Consulting Ltd		Date: 26/07/2021	
Location: Huyton		Contractor: Exploration & Testing		Co-ords: E346954.84 N389209.37	
Project No. : N10017		Crew Name: Scott Plant Hire		Equipment: 14T Tracked machine	
Location Number TP01	Location Type TP	Level 22.22m AoD	Logged By AH	Scale 1:25	Status FINAL

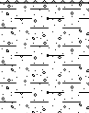
Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
		0.40	ES1	HVP=104	0.30	21.92		Vegetation over dark brown clayey gravelly fine to medium SAND, with frequent rootlets. Gravel is fine to coarse subangular sandstone and quartzite (TOPSOIL)	1		
					0.65	21.58		Reddish brown slightly clayey slightly gravelly fine and medium SAND, with lenses of reddish brown sandy clay. Gravel is angular to subrounded fine to coarse coal, mudstone, siltstone and sandstone.			
		0.80	ES2			Stiff reddish brown slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse coal, mudstone, siltstone and sandstone. North West of pit firm light grey and dark grey slightly sandy gravelly CLAY. Gravel is angular fine and medium coal.					
		0.90	D1								
		1.00									
		1.50		HVP=110				Very stiff friable reddish brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse mudstone, siltstone and sandstone.	2		
		1.90		HVP=136	2.00	20.23					
		2.10	D2								
		3.00	D3								
		3.50		HVP=142							
		3.80	D4		3.80	18.42					
End of Trial Pit at 3.80m									4		
									5		

Dimensions		Trench Support and Comment			Water Stike General	
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Depth Strike	Date Time
3.50	1.00	Stable				

Remarks Groundwater not encountered.						Sheet 1 of 1
--	--	--	--	--	--	--------------

Trial Pit Log

Project Name: Cronton Road		Client: BWB Consulting Ltd		Date: 26/07/2021	
Location: Huyton		Contractor: Exploration & Testing		Co-ords: E346937.52 N389169.82	
Project No. : N10017		Crew Name: Scott Plant Hire		Equipment: 14T tracked machined	
Location Number TP02	Location Type TP	Level 20.10m AoD	Logged By AH	Scale 1:25	Status FINAL

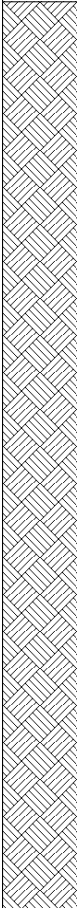
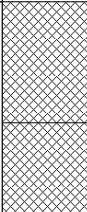
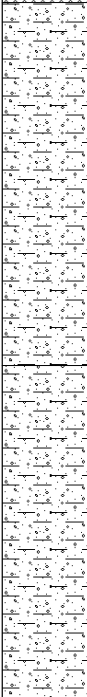
Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.30	19.80		Vegetation over orangish brown clayey fine SAND, with frequent rootlets (TOPSOIL)	
		0.40	ES1	HVP=138	0.50	19.60		MADE GROUND: Orangish brown slightly clayey gravelly fine and medium SAND, with lenses of slightly orangish brown clay, and frequent wood fragments. Gravel is subangular to subrounded fine to coarse mudstone.	
		0.60	ES2					Firm reddish brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine and medium mudstone and siltstone.	
		0.60							
		1.00	D1						1
								Between 1.30m and 1.40m bgl: In South East of pit, layer of soft very sandy clay. Between 1.30m and 1.50m bgl: In south East of pit, grey and a slightly organic smell.	
		1.80		HVP=100					
		2.00	D2		1.90	18.20		Very stiff friable reddish brown slightly sandy slightly gravelly CLAY, with occasional lenses of soft, wet clay. Gravel is subangular to subrounded fine and medium mudstone and siltstone.	2
								Below 2.50m bgl: Becoming less friable.	
		2.70		HVP=138				Between 2.70m and 2.80m bgl: Soft, wet organic lenses in South East of pit. Occasional subangular mudstone boulder.	
		3.00	D3		3.10	17.00		End of Trial Pit at 3.10m	3
									4
									5

Dimensions		Trench Support and Comment			Water Stike General	
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Depth Strike	Date Time
3.50	1.00	Stable			2.50	

Remarks	Sheet 1 of 1
---------	--------------

Trial Pit Log

Project Name: Cronton Road		Client: BWB Consulting Ltd		Date: 27/07/2021	
Location: Huyton		Contractor: Exploration & Testing		Co-ords: E346899.15 N389185.74	
Project No. : N10017		Crew Name: Scott Plant Hire		Equipment: 14T tracked machined	
Location Number TP03	Location Type TP	Level 20.95m AoD	Logged By AH	Scale 1:25	Status FINAL

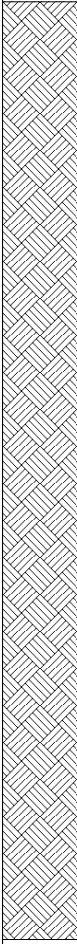
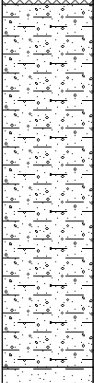
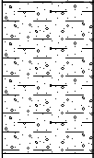
Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10	ES1	HVP=134	0.40	20.55		Vegetation over friable firm dark brown sandy CLAY. Sand is fine (TOPSOIL)	1
		0.50	ES2					MADE GROUND: Orangish brown clayey fine and medium SAND, with rare glass fragments.	
		0.90 1.00	D1					Stiff reddish brown slightly sandy slightly gravelly CLAY, with grey sandy clay lenses. Gravel is subangular to rounded fine and medium mudstone and siltstone.	
		1.70	D2	HVP=98	1.90	19.05		Friable stiff reddish brown, slightly gravelly, slightly sandy CLAY. Gravel is fine to coarse, subangular mudstone, sandstone and siltstone	2
		2.00							
		3.00 3.00	D3	HVP=160	3.00	17.95		End of Trial Pit at 3.00m	3
									4
									5

Dimensions		Trench Support and Comment			Water Stike General	
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Depth Strike	Date Time
3.20	1.00	Stable				

Remarks Groundwater not encountered.	Sheet 1 of 1
---	--------------

Trial Pit Log

Project Name: Cronton Road		Client: BWB Consulting Ltd		Date: 26/07/2021	
Location: Huyton		Contractor: Exploration & Testing		Co-ords: E346923.94 N389260.94	
Project No. : N10017		Crew Name: Scott Plant Hire		Equipment: 14T tracked machined	
Location Number TP04	Location Type TP	Level 23.41m AoD	Logged By OG	Scale 1:25	Status FINAL

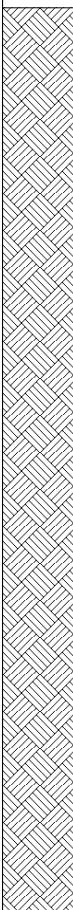
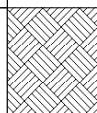
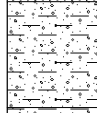
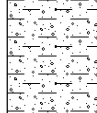
Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	ES1	HVP=62	0.30	23.11		Vegetation over brown clayey fine and medium SAND, with frequent rootlets (<10mm) (TOPSOIL)	1
		0.50 0.50	D1 ES2		0.60	22.81		MADE GROUND: Yellowish brown slightly clayey slightly gravelly fine and medium SAND. Gravel is subangular to subrounded fine to coarse slate and quartzite.	
		1.00	D2		1.80	21.61		Firm to stiff friable brown slightly gravelly sandy CLAY. Gravel is subrounded to subangular fine to coarse sandstone, coal, quartzite and siltstone.	2
		2.00	D3					Firm friable brown and grey mottling sandy CLAY.	
		2.40 2.50	D4 B1					At 2.40m bgl: 100mm lense of dark grey weathered mudstone, recovered as friable clay.	
		2.80 2.80 3.00	D5 B2		2.60	20.81		Firm brown slightly sandy slightly gravelly CLAY. Gravel is subrounded to subangular fine to coarse quartzite and sandstone.	3
					3.10	20.31		End of Trial Pit at 3.10m	
									4
									5

Dimensions		Trench Support and Comment			Water Stike General	
Pit Length 3.00	Pit Width 1.00	Pit Stability Stable	Shoring Used	Remarks	Depth Strike	Date Time

Remarks Groundwater not encountered.	Sheet 1 of 1
---	--------------

Trial Pit Log

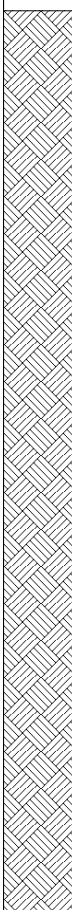
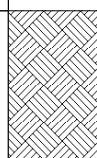
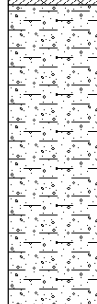
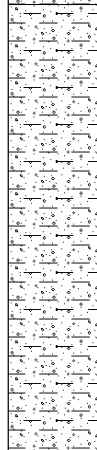
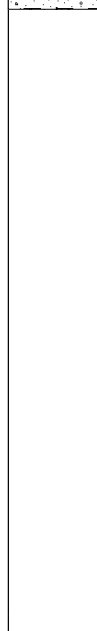
Project Name: Cronton Road		Client: BWB Consulting Ltd		Date: 26/07/2021	
Location: Huyton		Contractor: Exploration & Testing		Co-ords: E346907.01 N389224.38	
Project No. : N10017		Crew Name: Scott Plant Hire		Equipment: 14T tracked machined	
Location Number TP05	Location Type TP	Level 22.26m AoD	Logged By AH	Scale 1:25	Status FINAL

Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.35	21.91		Dark brown sandy CLAY. Sand is fine (TOPSOIL)	
		0.50	ES1					Stiff orangish brown slightly gravelly very sandy CLAY. Gravel is angular to subrounded fine mudstone and sandstone (Possibly reworked)	
		0.80	ES2		0.70	21.56			
		1.00	D1	HVP=134				Stiff reddish brown mottled grey slightly gravelly sandy CLAY, with a low cobble content. Gravel is subangular to subrounded fine to coarse mudstone and sandstone. Cobble is subrounded mudstone and coal.	1
		1.00							
		1.50		HVP=80					
		2.00	D2					Below 1.90m bgl: Friable.	2
		2.60		HVP=184				Below 2.70m bgl: Sandstone in gravel.	
		3.00	D3		3.00	19.26		End of Trial Pit at 3.00m	3
									4
									5

Dimensions		Trench Support and Comment			Water Stike General	
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Depth Strike	Date Time
3.40	1.00	Stable				
Remarks Groundwater not encountered.						Sheet 1 of 1

Trial Pit Log

Project Name: Cronton Road		Client: BWB Consulting Ltd		Date: 27/07/2021	
Location: Huyton		Contractor: Exploration & Testing		Co-ords: E346856.79 N389248.28	
Project No. : N10017		Crew Name: Scott Plant Hire		Equipment: 14T tracked machined	
Location Number TP06	Location Type TP	Level 22.38m AoD	Logged By EMB	Scale 1:25	Status FINAL

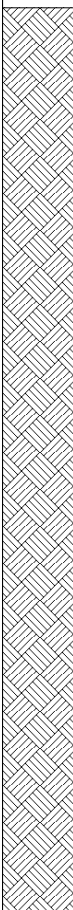
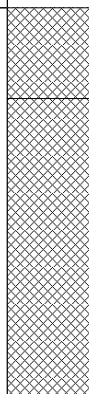
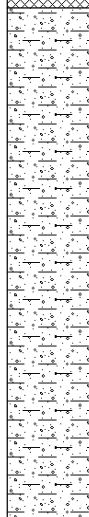
Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results							
		0.20	D1	HVP=93 HVP=96	0.50	21.88		Vegetation over firm brown sandy gravelly CLAY. Gravel is subrounded to subangular is subangular to subrounded sandstone and quartzite (TOPSOIL)	1		
		0.20	ES1								
		0.50	D2				HVP=93 HVP=96			Stiff reddish brown sandy slightly gravelly CLAY, with a low cobble content. Gravel is angular to subrounded fine to coarse siltstone, sandstone, quartzite and coal. Cobble is subrounded sandstone.	
		0.50	ES2							<i>At 0.70m bgl: Eastern corner dark grey CLAY.</i>	
		0.70	D3								
		1.50	D4		1.50	20.88	Firm friable reddish brown and mottled grey slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse coal, sandstone, quartzite and ironstone.	2			
							<i>At 2.20m bgl: Sand pockets (10-50mm).</i>				
		3.00	D5		3.00	19.38		End of Trial Pit at 3.00m	3		
Dimensions		Trench Support and Comment				Water Stike General					
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks		Depth Strike	Date Time				
4.30	1.40	Stable									

Remarks

Groundwater not encountered.

Trial Pit Log

Project Name: Cronton Road		Client: BWB Consulting Ltd		Date: 27/07/2021	
Location: Huyton		Contractor: Exploration & Testing		Co-ords: E346835.44 N389222.83	
Project No. : N10017		Crew Name: Scott Plant Hire		Equipment: 14T tracked machined	
Location Number TP07	Location Type TP	Level 20.95m AoD	Logged By AH	Scale 1:25	Status FINAL

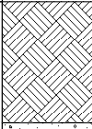
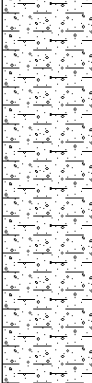
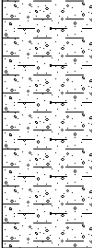
Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.50 0.60 - 1.00	ES1 B1	HVP=98	0.30	20.65		Vegetation over firm dark brown sandy CLAY (TOPSOIL)	1
		1.40 1.50	D1		1.30	19.65		MADE GROUND: Dark grey slightly clayey very sandy angular to subangular fine to coarse GRAVEL of coal and mudstone. Firm reddish brown slightly sandy slightly gravelly CLAY, with lenses of sandy clay. Gravel is subangular to subrounded fine to coarse coal and mudstone.	2
		2.10	D2		3.00	17.95		Below 2.00m bgl: Friable. End of Trial Pit at 3.00m	3
									4
									5

Dimensions		Trench Support and Comment			Water Stake General	
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Depth Strike	Date Time
3.10	1.30	Stable				

Remarks Groundwater not encountered.	Sheet 1 of 1
---	--------------

Trial Pit Log

Project Name: Cronton Road		Client: BWB Consulting Ltd		Date: 28/07/2021	
Location: Huyton		Contractor: Exploration & Testing		Co-ords: E346821.51 N389293.82	
Project No. : N10017		Crew Name: Scott Plant Hire		Equipment: 14T tracked machined	
Location Number TP08	Location Type TP	Level 23.42m AoD	Logged By EMB	Scale 1:25	Status FINAL

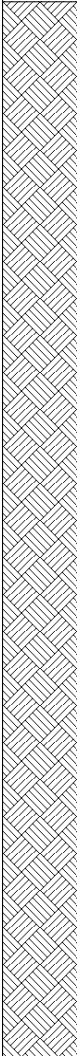
Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.40	23.02		Vegetation over brown sandy subangular gravelly CLAY. Gravel is fine to coarse sandstone and mudstone, with rootlets. (TOPSOIL)	
		0.50	ES1					Stiff reddish brown sandy gravelly CLAY, with a low cobble content. Gravel is subangular to subrounded fine to coarse sandstone and quartzite	1
		1.00		HVP=222					
		1.30	D1						
		1.70 1.70	D2	HVP=60				Below 1.70m bgl: Blue/grey mottled and friable. Occasional fine and medium sand lenses.	2
					2.50	20.92		End of Trial Pit at 2.50m	3
									4
									5

Dimensions		Trench Support and Comment			Water Stike General	
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Depth Strike	Date Time
3.30	0.90	Stable				

Remarks Groundwater not encountered.	Sheet 1 of 1
---	--------------

Trial Pit Log

Project Name: Cronton Road		Client: BWB Consulting Ltd		Date: 28/07/2021	
Location: Huyton		Contractor: Exploration & Testing		Co-ords: E346830.08 N389332.74	
Project No. : N10017		Crew Name: Scott Plant Hire		Equipment: 14T tracked machined	
Location Number TP09	Location Type TP	Level 24.47m AoD	Logged By AH	Scale 1:25	Status FINAL

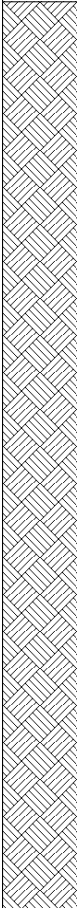
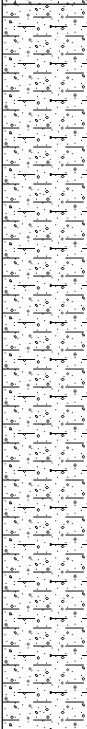
Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.30	24.17		Vegetation over firm dark brown slight gravelly sandy CLAY. Sand is fine. Gravel is angular to subangular fine and medium mudstone and sandstone (TOPSOIL)	
		0.50	ES1					MADE GROUND: Firm to stiff orangish brown very sandy CLAY. Sand is fine.	
		0.70	ES2		0.65	23.82		At 0.60m bgl: Land drain.	
		1.00 1.00	D1	HVP=94				Stiff reddish brown slightly gravelly sandy CLAY. Gravel is angular to subrounded fine to coarse coal, mudstone and sandstone.	1
		1.70		HVP=110				Between 1.70m and 2.20m bgl: Friable.	
		2.00	D2					At 1.90m bgl: Subrounded sandstone boulder.	2
		2.40		HVP=132					
		3.00 3.00 - 3.50	D3 B2		2.80	21.67		Stiff dark brown slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse coal, mudstone and sandstone.	3
		3.30		HVP=156					
					3.50	20.97		End of Trial Pit at 3.50m	4
									5

Dimensions		Trench Support and Comment			Water Stike General	
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Depth Strike	Date Time
2.80	0.90	Stable				

Remarks Groundwater not encountered.	Sheet 1 of 1
---	--------------

Trial Pit Log

Project Name: Cronton Road		Client: BWB Consulting Ltd		Date: 28/07/2021	
Location: Huyton		Contractor: Exploration & Testing		Co-ords: E346774.89 N389311.68	
Project No. : N10017		Crew Name: Scott Plant Hire		Equipment: 14T tracked machined	
Location Number TP10	Location Type TP	Level 23.22m AoD	Logged By AH	Scale 1:25	Status FINAL

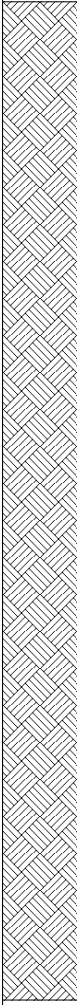
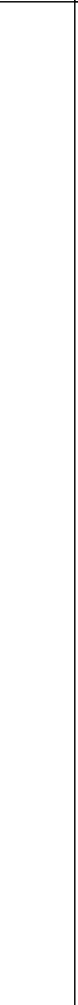
Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.30	22.92		Vegetation over brown sandy subangular gravelly CLAY. Gravel is fine to coarse sandstone and mudstone, with rootlets. (TOPSOIL)	
		0.40	ES1					Orangish brown slightly gravelly very clayey fine and medium SAND. Gravel is fine to coarse angular sandstone	
		0.70	ES2		0.60	22.62		Stiff reddish brown slightly gravelly sandy CLAY, with greenish brown medium sand lenses (<100mm) and occasional cobbles. Gravel is angular to subrounded fine to coarse coal, mudstone and sandstone. Cobble is subrounded sandstone.	
		1.00 1.00	D1	HVP=94					1
		1.50		HVP=110					
		2.00	D2						2
		2.80		HVP=162					
		3.00	D3		3.00	20.23			3
								End of Trial Pit at 3.00m	
									4
									5

Dimensions		Trench Support and Comment			Water Stike General	
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Depth Strike	Date Time
3.10	1.00	Stable				

Remarks Groundwater not encountered.	Sheet 1 of 1
---	--------------

Trial Pit Log

Project Name: Cronton Road		Client: BWB Consulting Ltd		Date: 29/07/2021	
Location: Huyton		Contractor: Exploration & Testing		Co-ords: E346703.83 N389247.68	
Project No. : N10017		Crew Name: Scott Plant Hire		Equipment: 14T tracked machined	
Location Number TP12	Location Type TP	Level 20.72m AoD	Logged By EMB	Scale 1:25	Status FINAL

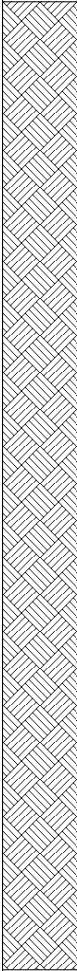
Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
								Vegetation over brown clayey gravelly fine and medium SAND. Gravel is subangular to subrounded fine to coarse siltstone and sandstone. (TOPSOIL)	
		0.30	ES1		0.30	20.42		Firm brown sandy CLAY.	
		0.50	B1						
		0.70	ES2		0.70	20.02		Firm friable reddish brown sandy gravelly CLAY. Gravel is subangular to subrounded medium and coarse sandstone and mudstone <i>At 0.80m bgl: Land drain (south pit).</i>	1
		1.30	B2					<i>At 1.30m bgl: Reddish brown sand lenses.</i>	
		2.00 2.00	D1	HVP=96				<i>At 2.00m bgl: Occasional cohesive clay lenses</i>	2
		3.30	D2		3.30	17.42		End of Trial Pit at 3.30m	3
									4
									5

Dimensions		Trench Support and Comment			Water Stike General	
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Depth Strike	Date Time
3.50	1.00	Stable				

Remarks Groundwater not encountered.	Sheet 1 of 1
---	--------------

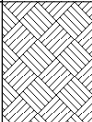
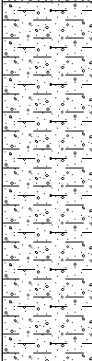
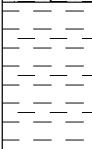
Trial Pit Log

Project Name: Cronton Road		Client: BWB Consulting Ltd		Date: 29/07/2021	
Location: Huyton		Contractor: Exploration & Testing		Co-ords: E346749.82 N389206.84	
Project No. : N10017		Crew Name: Scott Plant Hire		Equipment: 14T tracked machined	
Location Number TP13	Location Type TP	Level 20.16m AoD	Logged By OG	Scale 1:25	Status FINAL

Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.25	19.90		MADE GROUND: Vegetation over brown clayey slightly gravelly fine and medium SAND. Gravel is angular to subangular fine to coarse brick, siltstone and sandstone.	
					0.40	19.76		Firm brown sandy CLAY (Possibly reworked).	
		0.50 0.50	D1 ES1					Firm to stiff friable reddish brown slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse quartzite, sandstone and coal.	
								<i>At 0.70m bgl: Land drain on eastern edge.</i>	
		1.00 1.10	B1 ES2						1
									
		2.00	D2						
									
									
									
		3.00	D3						2
									
									
									
									
									
									
									
									
									
									
									
									

Trial Pit Log

Project Name: Cronton Road		Client: BWB Consulting Ltd		Date: 29/07/2021	
Location: Huyton		Contractor: Exploration & Testing		Co-ords: E346796.04 N389230.10	
Project No. : N10017		Crew Name: Scott Plant Hire		Equipment: 14T tracked machined	
Location Number TP14	Location Type TP	Level 21.24m AoD	Logged By EMB	Scale 1:25	Status FINAL

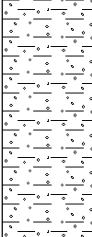
Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	ES1		0.40	20.84		Vegetation over brown clayey gravelly fine and medium SAND. Gravel is subrounded fine to coarse quartzite (TOPSOIL)	1
		0.60	ES2					Stiff reddish brown sandy gravelly CLAY. Gravel is subangular to subrounded medium and coarse quartzite and sandstone.	
		1.00 1.00	D1	HVP=137					2
		1.60		HVP=97	1.60	19.64		Firm to stiff reddish brown sandy gravelly CLAY, with a low cobble content. Gravel is subrounded medium and coarse sandstone and quartzite.	
		2.20 2.20	B1 D2		2.20	19.04		Friable brown with bluish grey mottling slightly gravelly CLAY. Gravel is subangular to angular fine to coarse sandstone, siltstone and coal	
								At 2.60m bgl: Green sandy lenses (central pit).	
		3.00 3.00	D3	HVP=113	3.00	18.24		Firm reddish brown CLAY.	3
					3.50	17.74		End of Trial Pit at 3.50m	
									4
									5

Dimensions		Trench Support and Comment			Water Stike General	
Pit Length 3.40	Pit Width 1.00	Pit Stability Stable	Shoring Used	Remarks	Depth Strike	Date Time

Remarks Groundwater not encountered.						Sheet 1 of 1
---	--	--	--	--	--	--------------

Trial Pit Log

Project Name: Cronton Road		Client: BWB Consulting Ltd		Date: 29/07/2021	
Location: Huyton		Contractor: Exploration & Testing		Co-ords: E346824.63 N389202.43	
Project No. : N10017		Crew Name: Scott Plant Hire		Equipment: 14T tracked machined	
Location Number TP16	Location Type TP	Level 20.43m AoD	Logged By OG	Scale 1:25	Status FINAL

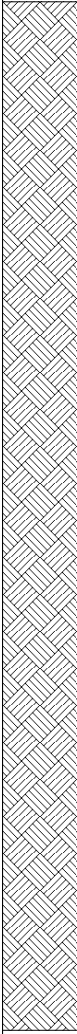
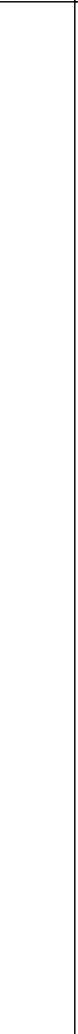
Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10	ES1		0.30	20.13		Vegetation over dark brown clayey gravelly fine and medium SAND. Gravel is angular fine to coarse brick and siltstone. (TOPSOIL)	1
		0.70	B1					MADE GROUND: Grey very sandy angular to subangular fine to coarse GRAVEL of sandstone, ironstone and siltstone, with a medium cobble content of angular siltstone.	
		1.30	D1						
		1.50	ES2					<i>Below 1.50m bgl: High cobble content, with gravelly clay pockets.</i>	2
		2.50	D2		2.10	18.33		Soft to firm grey gravelly CLAY. Gravel is angular fine to coarse siltstone (Possibly reworked)	
		3.00 3.00	D3 ES3		2.90 3.10	17.53 17.33		Firm brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine and medium quartzite and sandstone (Possibly reworked)	3
								End of Trial Pit at 3.10m	4
									5

Dimensions		Trench Support and Comment			Water Stike General	
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Depth Strike	Date Time
3.50	0.90	Unstable.				

Remarks Groundwater not encountered. Terminated due to unstable sides.						Sheet 1 of 1
---	--	--	--	--	--	--------------

Trial Pit Log

Project Name: Cronton Road		Client: BWB Consulting Ltd		Date: 29/07/2021	
Location: Huyton		Contractor: Exploration & Testing		Co-ords: E346839.07 N389166.10	
Project No. : N10017		Crew Name: Scott Plant Hire		Equipment: 14T tracked machined	
Location Number TP17	Location Type TP	Level 19.30m AoD	Logged By OG	Scale 1:25	Status FINAL

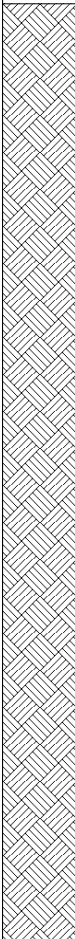
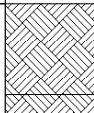
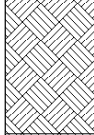
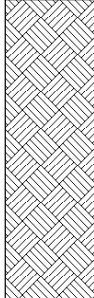
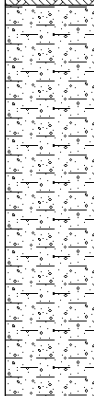
Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30			0.30	19.00		MADE GROUND: Vegetation over brown clayey gravelly fine and medium SAND. Gravel is angular to subangular fine to coarse brick, concrete and sandstone.	1
		0.50	B1					MADE GROUND: Grey very sandy angular to subangular fine to coarse GRAVEL of siltstone and brick, with a high cobble content of angular siltstone.	
		0.50	ES1						
		1.20	ES2		1.10	18.20		Firm friable reddish brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to coarse sandstone, siltstone and quartzite.	2
		1.30	D1						
		2.00	B2						
		2.50		HVP=115				Below 2.20m bgl: Silty lenses.	
		2.80	D2					Below 2.70m bgl: Firm, with sandy lenses.	3
								Below 3.00m bgl: Stiff.	
					3.40	15.90		End of Trial Pit at 3.40m	
									4
									5

Dimensions		Trench Support and Comment			Water Stike General	
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Depth Strike	Date Time
3.10	0.90	Stable				

Remarks Groundwater not encountered.	Sheet 1 of 1
---	--------------

Trial Pit Log

Project Name: Cronton Road		Client: BWB Consulting Ltd		Date: 27/07/2021	
Location: Huyton		Contractor: Exploration & Testing		Co-ords: E346937.69 N389133.87	
Project No. : N10017		Crew Name: Scott Plant Hire		Equipment: 14T tracked machined	
Location Number TP19	Location Type TP	Level 17.84m AoD	Logged By OG	Scale 1:25	Status FINAL

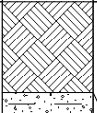
Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		1.40		HVP=120	0.30	17.54		MADE GROUND: Vegetation over brown slightly gravelly clayey fine and medium SAND, with frequent rootlets (<20mm). Gravel is angular to subangular fine to coarse brick and sandstone (TOPSOIL).	1
					0.80	17.04		MADE GROUND: Yellowish brown slightly gravelly very clayey fine and medium SAND, with frequent firm clay pockets. Gravel is angular to subangular fine to coarse sandstone, coal and brick.	
		2.30		HVP=128	1.80	16.04		MADE GROUND: Stiff reddish brown slightly gravelly sandy CLAY, with frequent roots and a low cobble content. Gravel is angular to subrounded fine to coarse brick, mudstone and sandstone. Cobble is subrounded mudstone. <u>From 1.20 to 1.30m bgl: Orangish brown fine and medium SAND.</u>	2
					3.10	14.74		Very stiff friable reddish brown slightly sandy slightly gravelly CLAY, with a low cobble content and occasional greenish brown medium sand lenses. Gravel is angular to subrounded fine to coarse mudstone and sandstone. Cobble is subrounded mudstone. <u>From 2.20m bgl: Not friable.</u>	
							End of Trial Pit at 3.10m	3	
								4	
								5	

Dimensions		Trench Support and Comment			Water Stike General	
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Depth Strike	Date Time
2.90	1.00	Stable				

Remarks Groundwater not encountered. Land drain 0.90m to the North of pit.	Sheet 1 of 1
---	--------------

Trial Pit Log

Project Name: Cronton Road		Client: BWB Consulting Ltd		Date: 26/07/2021	
Location: Huyton		Contractor: Exploration & Testing		Co-ords: E346966.16 N389172.96	
Project No. : N10017		Crew Name: Scott Plant Hire		Equipment: 14T tracked machined	
Location Number TP20	Location Type TP	Level 19.35m AoD	Logged By OG	Scale 1:25	Status FINAL

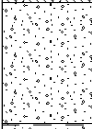
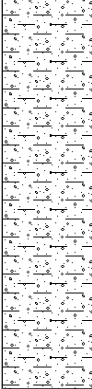
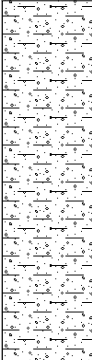
Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	ES1	HVP=101	0.30	19.05		MADE GROUND: Vegetation over dark brown slightly gravelly clayey fine and medium SAND, with occasional rootlets (<20mm). Gravel is subangular to subrounded fine to coarse sandstone, quartzite and siltstone (TOPSOIL).	1
					0.50	18.85		Brown slightly gravelly clayey fine to coarse SAND. Gravel is subangular to subrounded sandstone.	
		0.80	B1					Firm to stiff brown slightly sandy slightly gravelly CLAY. Gravel is subrounded fine to coarse quartzite and sandstone.	
		0.80	ES2						
		0.80							
		1.40	D1					Below 1.40m bgl: Sandy.	
								Below 1.50m bgl: Low cobble content of subrounded quartzite. Friable.	
		2.00	D2						
		2.70	D3						
					3.00	16.35		End of Trial Pit at 3.00m	3
									4
									5

Dimensions		Trench Support and Comment			Water Stike General	
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Depth Strike	Date Time
3.50	0.80	Stable				

Remarks Groundwater not encountered.	Sheet 1 of 1
---	--------------

Trial Pit Log

Project Name: Cronton Road		Client: BWB Consulting Ltd		Date: 26/07/2021	
Location: Huyton		Contractor: Exploration & Testing		Co-ords: E347004.81 N389205.84	
Project No. : N10017		Crew Name: Scott Plant Hire		Equipment: 14T tracked machined	
Location Number TP21	Location Type TP	Level 21.02m AoD	Logged By AH	Scale 1:25	Status FINAL

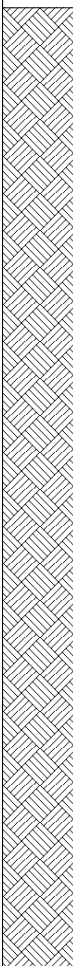
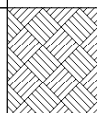
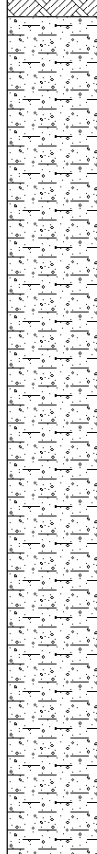
Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.30	20.72		Vegetation over dark brown clayey fine to medium SAND, with frequent rootlets. (TOPSOIL)	
		0.40 0.50 - 0.70	ES1 B1					Reddish brown slightly gravelly clayey fine and medium, SAND. Gravel is subangular fine to coarse coal, quartzite and sandstone.	
		0.80 0.80	ES2	HVP=98	0.70	20.32		Stiff reddish brown slightly gravelly sandy CLAY, with a low cobble content. Gravel is subangular to rounded fine to coarse coal, mudstone, siltstone and sandstone. Cobble is subrounded siltstone.	1
		1.00	D1						
		1.40		HVP=157					
		1.80		HVP=104					
		2.10	D2		2.00	19.02		Very stiff friable brown slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse coal, mudstone, siltstone and sandstone.	2
		3.00	D3						3
					3.20	17.82		Very stiff dark brown slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse coal, mudstone, siltstone and sandstone.	
		3.50		HVP=189	3.50	17.52		End of Trial Pit at 3.50m	4
									5

Dimensions		Trench Support and Comment			Water Stike General	
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Depth Strike	Date Time
3.20	1.00	Stable				

Remarks Groundwater not encountered.	Sheet 1 of 1
---	--------------

Trial Pit Log

Project Name: Cronton Road		Client: BWB Consulting Ltd		Date: 28/07/2021	
Location: Huyton		Contractor: Exploration & Testing		Co-ords: E346737.41 N389316.20	
Project No. : N10017		Crew Name: Scott Plant Hire		Equipment: 14T tracked machined	
Location Number TP22	Location Type TP	Level 22.34m AoD	Logged By EMB	Scale 1:25	Status FINAL

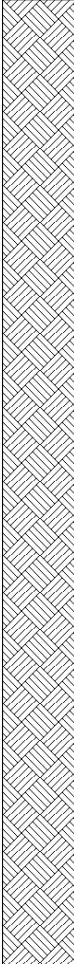
Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.40	21.94		Vegetation over brown sandy gravelly CLAY. with rootlets. Gravel is subrounded fine to medium quartzite and sandstone (TOPSOIL)	
		0.70	ES1	HVP=220				Stiff reddish brown slightly sandy slightly gravelly CLAY. Gravel is subrounded to subangular fine to medium sandstone and mudstone.	
		0.70							
		1.00	D1						1
		1.20		HVP=134				<u>At 1.10m bgl: Friable, sandy lenses.</u>	
		1.40	D2						
								<u>Below 1.50m bgl: Grey mottled subrounded medium and coarse pebbles.</u>	
		1.90	D3					<u>Below 1.80m bgl: Low cobble content of mudstone</u>	2
		2.70		HVP=122				<u>From 2.50 to 2.60m bgl: Not friable.</u>	
		3.00	D4						3
					3.20	19.14		End of Trial Pit at 3.20m	
									4
									5

Dimensions		Trench Support and Comment			Water Stike General	
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Depth Strike	Date Time
3.80	1.00	Stable				

Remarks Groundwater not encountered.	Sheet 1 of 1
---	--------------

Trial Pit Log

Project Name: Cronton Road		Client: BWB Consulting Ltd		Date: 28/07/2021	
Location: Huyton		Contractor: Exploration & Testing		Co-ords: E346760.36 N389339.38	
Project No. : N10017		Crew Name: Scott Plant Hire		Equipment: 14T tracked machined	
Location Number TP23	Location Type TP	Level 23.42m AoD	Logged By AH	Scale 1:25	Status FINAL

Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.10	ES1	HVP=128	0.30	23.12		Firm brown sandy gravelly CLAY, with rootlets. Gravel is subrounded fine to medium quartzite (TOPSOIL)	1 <

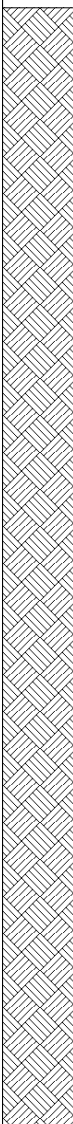
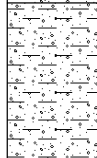
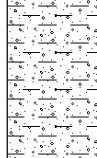
Dimensions		Trench Support and Comment			Water Stike General	
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Depth Strike	Date Time
3.00	0.90	Stable				

Remarks

Groundwater not encountered.

Trial Pit Log

Project Name: Cronton Road		Client: BWB Consulting Ltd		Date: 28/07/2021	
Location: Huyton		Contractor: Exploration & Testing		Co-ords: E346739.18 N389287.30	
Project No. : N10017		Crew Name: Scott Plant Hire		Equipment: 14T tracked machined	
Location Number TP25	Location Type TP	Level 21.95m AoD	Logged By AH	Scale 1:25	Status FINAL

Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20	ES1	HVP=76	0.30	21.65		Vegetation over firm dark brown sandy CLAY. Sand is fine (TOPSOIL)	1
		0.40	ES2		0.50	21.45		Firm friable orangish brown slightly gravelly very sandy CLAY. Gravel is angular to subrounded fine and medium mudstone and quartzite, with very stiff reddish brown clay lenses (<100mm)	
		0.70 0.70	ES3					Firm reddish brown mottled grey slightly gravelly sandy CLAY. Gravel is angular to subrounded fine and medium coal, mudstone and sandstone.	
		1.00	D1	HVP=86					2
		1.50							
		2.00	D2					Between 1.90m abd 2.90m bgl: Friable.	
				HVP=82				Between 2.50m and 2.60m bgl: Reddish brown clayey fine and medium SAND lens in West side.	3
		3.00 3.10	D3						
					3.70	18.25		End of Trial Pit at 3.70m	4
									5

Dimensions		Trench Support and Comment			Water Stike General	
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Depth Strike	Date Time
3.60	1.10	Stable			2.60	

Remarks Slight water ingress 2.60m	Sheet 1 of 1
---------------------------------------	--------------

Trial Pit Log

Project Name: Cronton Road		Client: BWB Consulting Ltd		Date: 29/07/2021	
Location: Huyton		Contractor: Exploration & Testing		Co-ords: E346674.81 N389315.60	
Project No. : N10017		Crew Name: Scott Plant Hire		Equipment: 14T tracked machined	
Location Number TP26	Location Type TP	Level 20.62m AoD	Logged By EMB	Scale 1:25	Status FINAL

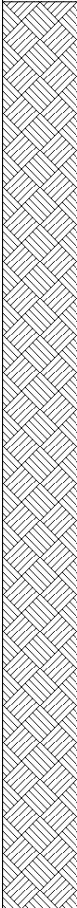
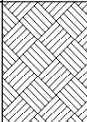
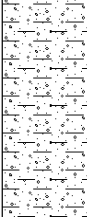
Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.30	20.32		Vegetation over brown clayey gravelly SAND. Gravel is subangular to subrounded medium and coarse sandstone. (TOPSOIL)	
		0.50 0.50	B1 ES1					MADE GROUND: Reddish brown clayey gravelly fine and medium SAND, with clay pockets. Gravel is subangular to subrounded fine and medium sandstone and quartzite	
		1.00	D1		1.00	19.62		MADE GROUND: Stiff reddish brown sandy gravelly CLAY. Gravel is subrounded to subangular medium and coarse sandstone, siltstone and quartzite	1
		1.70	ES2		1.60	19.02		MADE GROUND: Blackish grey very sandy angular fine and medium GRAVEL of ash and charcoal.	
		2.00	B2		2.10	18.52		At 2.00m bgl: Old drain 6 onch diameter, with possible asbestos coating, on the Western side of pit. Stiff reddish brown sandy gravelly CLAY. Gravel is subrounded to subangular fine and medium sandstone, siltstone and coal	2
		3.00	ES3					At 3.00m bgl: Sand lenses.	3
		3.50	D2		3.50 3.60	17.12 17.02		Stiff brown mottled grey sandy gravelly CLAY. Gravel is subrounded medium and coarse sandstone and mudstone. End of Trial Pit at 3.60m	4
									5

Dimensions		Trench Support and Comment			Water Stike General	
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Depth Strike	Date Time
3.50	1.00	Stable				

Remarks Slight water seepage at 3.50m from 2.00m drain.	Sheet 1 of 1
--	--------------

Trial Pit Log

Project Name: Cronton Road		Client: BWB Consulting Ltd		Date: 29/07/2021	
Location: Huyton		Contractor: Exploration & Testing		Co-ords: E346643.52 N389375.90	
Project No. : N10017		Crew Name: Scott Plant Hire		Equipment: 14T tracked machined	
Location Number TP27	Location Type TP	Level 20.16m AoD	Logged By EMB	Scale 1:25	Status FINAL

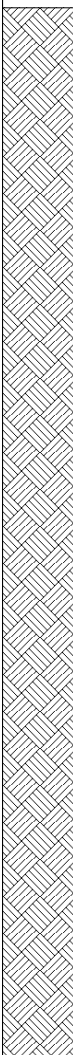
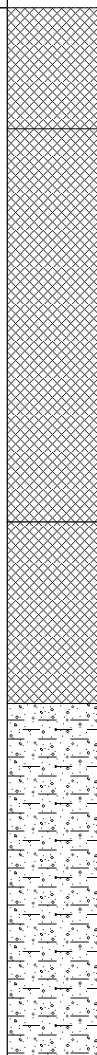
Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.40	19.76		MADE GROUND: Vegetation over brown clayey gravelly fine to medium SAND, with rootlets. Gravel is subrounded to subangular fine to coarse brick and sandstone. (TOPSOIL)	
		0.60	B1		0.60	19.56		Firm reddish brown slightly sandy gravelly CLAY, with clay pockets, and a low cobble content. Gravel is subrounded to subangular fine to coarse quartzite and sandstone (Possibly reworked)	
		1.00	ES1					Firm friable reddish brown and grey mottling slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse quartzite sandstone and siltstone	1
		1.50	D1					Between 1.40 to 2.40m bgl: Orangish brown sand lenses.	2
		2.50 2.50	D2	HVP=100					
		3.00	D3		3.00	17.16		End of Trial Pit at 3.00m	3
									4
									5

Dimensions		Trench Support and Comment			Water Stake General	
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Depth Strike	Date Time
3.50	1.00	Stable				

Remarks Groundwater not encountered.	Sheet 1 of 1
---	--------------

Trial Pit Log

Project Name: Cronton Road		Client: BWB Consulting Ltd		Date: 30/07/2021	
Location: Huyton		Contractor: Exploration & Testing		Co-ords: E346755.58 N389397.44	
Project No. : N10017		Crew Name: Scott Plant Hire		Equipment: 14T tracked machined	
Location Number TP29	Location Type TP	Level 24.74m AoD	Logged By	Scale 1:25	Status FINAL

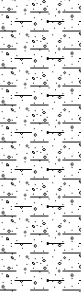
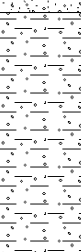
Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.60	ES1		0.40	24.34		MADE GROUND: Vegetation over brown clayey gravelly fine and medium SAND. Gravel is subangular fine to coarse brick and sandstone.	1
								MADE GROUND: Brown clayey gravelly fine and medium SAND, with a medium cobble content. Gravel is subangular medium and coarse brick, concrete, sandstone, mudstone, cable ends and tile. Cobble content of concrete and brick	
		1.70	ES2		1.70	23.04		At 1.20m bgl: Broken old pipe.	
		2.50	D1		2.30	22.44		MADE GROUND: Firm friable brown sandy gravelly CLAY. Gravel is subangular medium and coarse sandstone, mudstone, brick and dumped pipe.	
		3.20	ES3					Friable stiff reddish brown sandy gravelly CLAY. Gravel is subrounded to subangular medium and coarse quartzite, sandstone and mudstone. Below 2.50m bgl: Yellowish brown fine and medium sand lenses. At 2.70m bgl: Greyish brown mottled central pit.	
					3.50	21.24		End of Trial Pit at 3.50m	5

Dimensions		Trench Support and Comment			Water Stike General	
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Depth Strike	Date Time
3.60	1.00	Stable				

Remarks Groundwater not encountered.	Sheet 1 of 1
---	--------------

Trial Pit Log

Project Name: Cronton Road		Client: BWB Consulting Ltd		Date: 30/07/2021	
Location: Huyton		Contractor: Exploration & Testing		Co-ords: E346660.99 N389456.22	
Project No. : N10017		Crew Name: Scott Plant Hire		Equipment: 14T tracked machined	
Location Number TP31	Location Type TP	Level 22.03m AoD	Logged By OG	Scale 1:25	Status FINAL

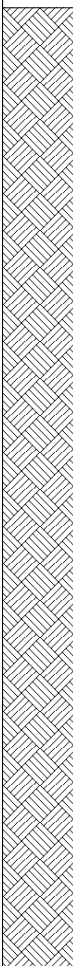
Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description				
		Depth (m)	Type	Results								
		0.40 0.40	B1 ES1	HVP=112	0.20	21.83		MADE GROUND: Vegetation over dark brown silty clayey fine and medium SAND (TOPSOIL).	1			
					0.50	21.53		MADE GROUND: Brown clayey gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse brick, concrete, sandstone and quartzite.				
								MADE GROUND: Firm friable brown sandy gravelly CLAY. Gravel is subangular to subrounded fine to coarse brick, sandstone, timber and quartzite.				
								<i>Below 0.80m bgl: Very sandy, slightly gravelly. No timber.</i>				
		1.20	20.83			Firm to stiff reddish brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse quartzite, sandstone and coal.	2					
						<i>Below 1.70m bgl: Occasional sandy lenses.</i>						
						2.20		19.83	Yellowish brown slightly gravelly fine to coarse SAND. Gravel is subangular fine to coarse sandstone.			
		2.50	B2		2.70	19.33		Stiff brown slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse quartzite, sandstone and siltstone.	3			
								3.40		D2	3.50	18.53
												5

Dimensions		Trench Support and Comment			Water Stike General	
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Depth Strike	Date Time
3.50	0.90	Stable				

Remarks Groundwater not encountered.	Sheet 1 of 1
---	--------------

Trial Pit Log

Project Name: Cronton Road		Client: BWB Consulting Ltd		Date: 30/07/2021	
Location: Huyton		Contractor: Exploration & Testing		Co-ords: E346686.90 N389449.52	
Project No. : N10017		Crew Name: Scott Plant Hire		Equipment: 14T tracked machined	
Location Number TP32	Location Type TP	Level 23.32m AoD	Logged By EMB	Scale 1:25	Status FINAL

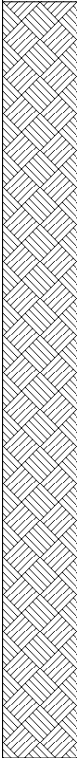
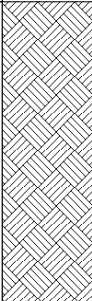
Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30	ES1	HVP=183	0.30	23.02		MADE GROUND: Vegetation over brown clayey gravelly fine and medium SAND. Gravel is subangular to subrounded fine to coarse sandstone, mudstone and brick.	1
		0.70	ES1		1.00	22.32		MADE GROUND: Brown clayey gravelly fine and medium SAND, Gravel is subangular to subrounded fine to coarse concrete, brick, plastic, wire, sandstone and mudstone.	
		1.50	D1					MADE GROUND: Firm friable mottled greyish brown sandy gravelly CLAY. Gravel is subangular to subrounded medium and coarse sandstone, mudstone and brick. <i>At 1.20m bgl: A low cobble content of brick</i>	
		2.00 2.00	B1		1.60	21.72		MADE GROUND: Firm to stiff brown sandy gravelly CLAY. Gravel is subrounded to subangular fine to coarse sandstone, concrete and mudstone. <i>At 1.80m bgl: Some black/grey slag (5cm) in the central pit. Low cobble content.</i>	2
		2.80	ES3		2.70	20.62		Firm friable brownish with grey mottling sandy gravelly CLAY. Gravel is subrounded to subangular medium and coarse sandstone and siltstone	
		3.00	D2		3.20	20.12		End of Trial Pit at 3.20m	3
									4
									5

Dimensions		Trench Support and Comment			Water Stike General	
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Depth Strike	Date Time
3.50	1.00	Stable				

Remarks Groundwater not encountered.	Sheet 1 of 1
---	--------------

Trial Pit Log

Project Name: Cronton Road		Client: BWB Consulting Ltd		Date: 30/07/2021	
Location: Huyton		Contractor: Exploration & Testing		Co-ords: E346741.86 N389441.34	
Project No. : N10017		Crew Name: Scott Plant Hire		Equipment: 14T tracked machined	
Location Number TP33	Location Type TP	Level 25.15m AoD	Logged By OG	Scale 1:25	Status FINAL

Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		1.00	ES1		1.00	24.15		MADE GROUND: Vegetation and shrubs over firm brown sandy very gravelly CLAY. Gravel is angular to subangular fine to coarse brick, concrete, cable ends, pottery, sandstone and siltstone.	1
								North side of pit comprises very weak grey MUDSTONE recovered as fine to coarse gravel,	2
					2.50	22.65		End of Trial Pit at 2.50m	3
									4
									5

Dimensions		Trench Support and Comment			Water Stike General	
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Depth Strike	Date Time
3.00	1.00	Slightly unstable				

Remarks Groundwater not encountered.	Sheet 1 of 1
---	--------------

Trial Pit Log

Project Name: Cronton Road		Client: BWB Consulting Ltd		Date: 30/07/2021	
Location: Huyton		Contractor: Exploration & Testing		Co-ords: E346735.79 N389449.12	
Project No. : N10017		Crew Name: Scott Plant Hire		Equipment: 14T tracked machined	
Location Number TP33A	Location Type TP	Level 25.00m AoD	Logged By OG	Scale 1:25	Status FINAL

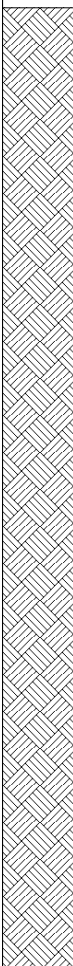
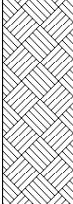
Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					1.00	24.00		MADE GROUND: Shrubs over brown and red clayey very sandy angular to subangular fine to coarse GRAVEL of brick, concrete, sandstone and rebar, with a high cobble content of brick and concrete.	1
								Below 0.60m bgl: Southern edge still Made Ground to 1.00m. Between 0.60 and 1.00m bgl: At North East pit very weak grey MUDSTONE, recovered as fine to coarse angular gravel.	
2.20					22.80		Very weak yellowish brown fine and medium SANDSTONE, recovered as fine to coarse gravel and cobbles.	2	
							End of Trial Pit at 2.20m		3
			4						
				5					

Dimensions		Trench Support and Comment			Water Stike General	
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Depth Strike	Date Time
3.50	1.00	Unstable				

Remarks Groundwater not encountered.	Sheet 1 of 1
---	--------------

Trial Pit Log

Project Name: Cronton Road		Client: BWB Consulting Ltd		Date: 29/07/2021	
Location: Huyton		Contractor: Exploration & Testing		Co-ords: E346712.53 N389362.93	
Project No. : N10017		Crew Name: Scott Plant Hire		Equipment: 14T tracked machined	
Location Number TP34	Location Type TP	Level 22.92m AoD	Logged By EMB	Scale 1:25	Status FINAL

Backfill	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.30	22.62		Vegetation over brown sandy gravelly CLAY, with rootlets. Gravel is fine to coarse subangular sandstone, mudstone (TOPSOIL)	
		0.50	B1					Firm friable orangish brown sandy gravelly CLAY. Gravel is subrounded to subangular medium and coarse quartzite and sandstone.	
		0.50	ES1					<i>Below 0.60m bgl: Low cobble content sandstone</i>	
		0.90	D1		0.80	22.12		Firm friable reddish brown sandy gravelly CLAY. Gravel is subrounded to subangular medium and coarse sandstone and mudstone.	1
								<i>Between 0.80m and 0.90m bgl: Land drainage (center of pit). At 0.90m bgl: Greenish brown sand lenses.</i>	
		1.80	B2					<i>At 1.20m bgl: Grey mottled cobbles of sandstone and quartzite</i>	
		2.30	D2						2
		3.00	D3						3
					3.20	19.72		End of Trial Pit at 3.20m	4
									5

Dimensions		Trench Support and Comment			Water Stike General	
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Depth Strike	Date Time
3.00	1.00	Stable				

Remarks Groundwater not encountered.	Sheet 1 of 1
---	--------------



Contract: Cronton Road, Huyton

Contract No.: N10017

Client: BWB Consulting Ltd

Title: TP01

Drawing: N10017.SP_1

Date: 26/07/21





Contract: Cronton Road, Huyton

Contract No.: N10017

Client: BWB Consulting Ltd

Title: TP02

Drawing: N10017.SP_1

Date: 26/07/21





Contract: Cronton Road, Huyton

Contract No.: N10017

Client: BWB Consulting Ltd

Title: TP03

Drawing: N10017.SP_1

Date: 28/07/21





Contract: Cronton Road, Huyton

Contract No.: N10017

Client: BWB Consulting Ltd

Title: TP04

Drawing: N10017.SP_1

Date: 29/07/21





Contract: Cronton Road, Huyton

Contract No.: N10017

Client: BWB Consulting Ltd

Title: TP05

Drawing: N10017.SP_1

Date: 27/07/21





Contract: Cronton Road, Huyton

Contract No.: N10017

Client: BWB Consulting Ltd

Title: TP06

Drawing: N10017.SP_1

Date: 27/07/21





Contract: Cronton Road, Huyton

Contract No.: N10017

Client: BWB Consulting Ltd

Title: TP07

Drawing: N10017.SP_1

Date: 27/07/21





Contract: Cronton Road, Huyton

Contract No.: N10017

Client: BWB Consulting Ltd

Title: TP08

Drawing: N10017.SP_1

Date: 28/07/21





Contract: Cronton Road, Huyton

Contract No.: N10017

Client: BWB Consulting Ltd

Title: TP09

Drawing: N10017.SP_1

Date: 28/07/21





Contract: Cronton Road, Huyton

Contract No.: N10017

Client: BWB Consulting Ltd

Title: TP10

Drawing: N10017.SP_1

Date: 28/07/21





Contract: Cronton Road, Huyton

Contract No.: N10017

Client: BWB Consulting Ltd

Title: TP12

Drawing: N10017.SP_1

Date: 29/07/21





Contract: Cronton Road, Huyton

Contract No.: N10017

Client: BWB Consulting Ltd

Title: TP13

Drawing: N10017.SP_1

Date: 28/07/21





Contract: Cronton Road, Huyton

Contract No.: N10017

Client: BWB Consulting Ltd

Title: TP14

Drawing: N10017.SP_1

Date: 29/07/21





Contract: Cronton Road, Huyton

Contract No.: N10017

Client: BWB Consulting Ltd

Title: TP16

Drawing: N10017.SP_1

Date: 28/07/21





Contract: Cronton Road, Huyton

Contract No.: N10017

Client: BWB Consulting Ltd

Title: TP17

Drawing: N10017.SP_1

Date: 29/07/21





Contract: Cronton Road, Huyton

Contract No.: N10017

Client: BWB Consulting Ltd

Title: TP21

Drawing: N10017.SP_1

Date: 26/07/21





Contract: Cronton Road, Huyton

Contract No.: N10017

Client: BWB Consulting Ltd

Title: TP22

Drawing: N10017.SP_1

Date: 28/07/21





Contract: Cronton Road, Huyton

Contract No.: N10017

Client: BWB Consulting Ltd

Title: TP23

Drawing: N10017.SP_1

Date: 28/07/21





Contract: Cronton Road, Huyton

Contract No.: N10017

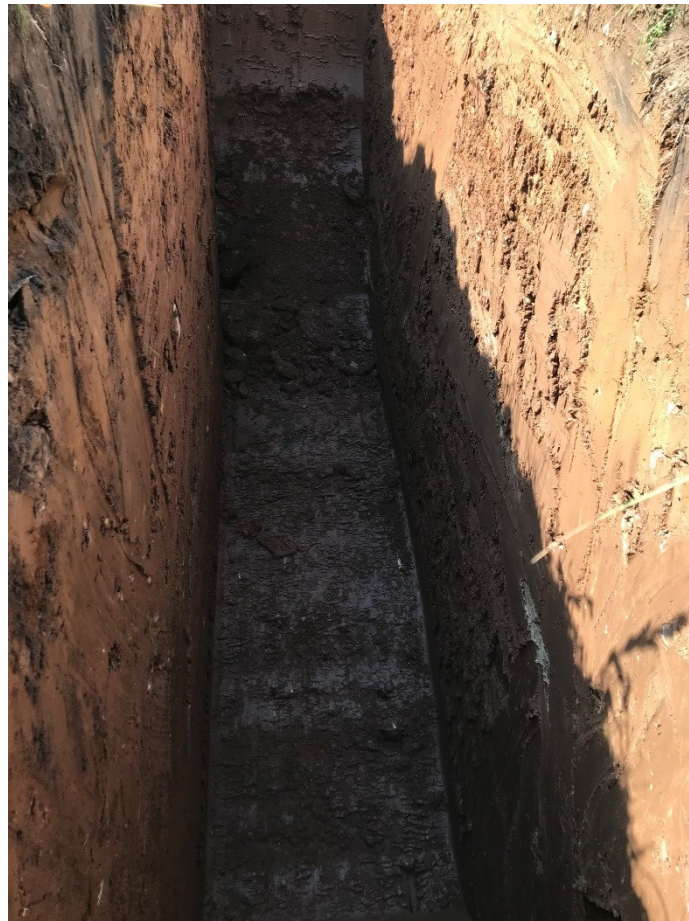
Client: BWB Consulting Ltd

Title: TP25

Drawing: N10017.SP_1

Date: 28/07/21





Contract: Cronton Road, Huyton

Contract No.: N10017

Client: BWB Consulting Ltd

Title: TP20

Drawing: N10017.SP_1

Date: 26/07/21





Contract: Cronton Road, Huyton

Contract No.: N10017

Client: BWB Consulting Ltd

Title: TP27

Drawing: N10017.SP_1

Date: 28/07/21





Contract: Cronton Road, Huyton

Contract No.: N10017

Client: BWB Consulting Ltd

Title: TP29

Drawing: N10017.SP_1

Date: 30/07/21



Contract: Cronton Road, Huyton

Contract No.: N10017

Client: BWB Consulting Ltd

Title: TP31

Drawing: N10017.SP_1

Date: 28/07/21





Contract: Cronton Road, Huyton

Contract No.: N10017

Client: BWB Consulting Ltd

Title: TP32

Drawing: N10017.SP_1

Date: 30/07/21



Contract: Cronton Road, Huyton

Contract No.: N10017

Client: BWB Consulting Ltd

Title: TP033

Drawing: N10017.SP_1

Date: 30/07/21





Contract: Cronton Road, Huyton

Contract No.: N10017

Client: BWB Consulting Ltd

Title: TP33A

Drawing: N10017.SP_1

Date: 29/07/21



APPENDIX 3: CHEMICAL TESTING



Results

Exploration & Testing Associates Limited
3 Siskin Drive
Middlemarch Business Park
Coventry
CV3 4FJ

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404

f: 01923 237404

e: reception@i2analytical.com

e: results@explorationtesting.uk

Analytical Report Number : 21-90180

Project / Site name:	Cronton Road	Samples received on:	29/07/2021
Your job number:	N10017	Samples instructed on/ Analysis started on:	01/08/2021
Your order number:	PO 1387	Analysis completed by:	06/08/2021
Report Issue Number:	1	Report issued on:	06/08/2021
Samples Analysed:	1 leachate sample - 5 soil samples		

Signed: *A. Czerwińska*

Agnieszka Czerwińska
Technical Reviewer (Reporting Team)
For & on behalf of i2 Analytical Ltd.

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

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

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

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 21-90180
Project / Site name: Cronton Road
Your Order No: PO 1387

Lab Sample Number				1957259	1957260	1957261	1957262	1957263
Sample Reference				TP02	TP03	TP07	TP19	TP20
Sample Number				1	2	1	1	2
Depth (m)				0.40	0.50	0.50	0.40	0.80
Date Sampled				26/07/2021	27/07/2021	27/07/2021	26/07/2021	26/07/2021
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	8.1	12	4.0	10	12
Total mass of sample received	kg	0.001	NONE	0.40	1.1	1.0	1.0	1.0

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	-	Not-detected	-
------------------	------	-----	-----------	--------------	--------------	---	--------------	---

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.1	8.1	7.7	7.6	8.0
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Complex Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.010	0.067	0.33	0.041	0.10
Total Sulphur	mg/kg	50	MCERTS	120	110	1200	160	160
Organic Matter	%	0.1	MCERTS	0.8	0.4	3.8	1.7	2.1

Total Phenols

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

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.99	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.21	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	1.2	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.47	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.43	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.32	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.35	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	3.97	< 0.80	< 0.80
-----------------------------	-------	-----	--------	--------	--------	------	--------	--------

Analytical Report Number: 21-90180
Project / Site name: Cronton Road
Your Order No: PO 1387

Lab Sample Number				1957259	1957260	1957261	1957262	1957263
Sample Reference				TP02	TP03	TP07	TP19	TP20
Sample Number				1	2	1	1	2
Depth (m)				0.40	0.50	0.50	0.40	0.80
Date Sampled				26/07/2021	27/07/2021	27/07/2021	26/07/2021	26/07/2021
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.0	5.8	16	6.6	8.9
Barium (aqua regia extractable)	mg/kg	1	MCERTS	43	53	100	57	88
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.42	0.59	0.89	0.44	0.77
Boron (water soluble)	mg/kg	0.2	MCERTS	0.3	0.3	0.9	0.4	0.4
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	24	22	15	17	34
Copper (aqua regia extractable)	mg/kg	1	MCERTS	9.4	9.9	41	14	17
Lead (aqua regia extractable)	mg/kg	1	MCERTS	15	6.2	22	16	11
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	16	20	32	15	27
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	33	24	19	18	31
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	33	30	97	34	50

Petroleum Hydrocarbons

TPH C10 - C40	mg/kg	10	MCERTS	46	< 10	< 10	< 10	< 10
TPH2 (C6 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

U/S = Unsuitable Sample I/S = Insufficient Sample



Analytical Report Number: 21-90180

Project / Site name: Cronton Road

Your Order No: PO 1387

Lab Sample Number				1957264
Sample Reference				TP07
Sample Number				1
Depth (m)				0.50
Date Sampled				27/07/2021
Time Taken				None Supplied
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status	

General Inorganics

pH	pH Units	N/A	ISO 17025	7.0
Total Cyanide	µg/l	10	ISO 17025	< 10
Sulphate as SO ₄	mg/l	0.1	ISO 17025	1.9

Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	1	ISO 17025	1.3
Barium (dissolved)	µg/l	0.05	ISO 17025	8.5
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2
Boron (dissolved)	µg/l	10	ISO 17025	28
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08
Chromium (dissolved)	µg/l	0.4	ISO 17025	< 0.4
Copper (dissolved)	µg/l	0.7	ISO 17025	6.3
Lead (dissolved)	µg/l	1	ISO 17025	< 1.0
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5
Nickel (dissolved)	µg/l	0.3	ISO 17025	2.9
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0
Vanadium (dissolved)	µg/l	1.7	ISO 17025	< 1.7
Zinc (dissolved)	µg/l	0.4	ISO 17025	9.8

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 21-90180

Project / Site name: Cronton Road

* 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 *
1957259	TP02	1	0.4	Brown clay and loam with gravel and vegetation.
1957260	TP03	2	0.5	Brown clay and loam with gravel and vegetation.
1957261	TP07	1	0.5	Brown clay and sand with gravel and vegetation.
1957262	TP19	1	0.4	Brown loam and clay with gravel and vegetation.
1957263	TP20	2	0.8	Brown clay and loam with gravel and vegetation.

Analytical Report Number : 21-90180

Project / Site name: Cronton Road

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
BS EN 12457-1 (2:1) Leachate Prep	2:1 (as recieved, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis.	In-house method based on BSEN12457-1.	L043-PL	W	NONE
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Boron in leachate	Determination of boron in leachate. Sample acidified and followed by ICP-OES.	In-house method based on MEWAM	L039-PL	W	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
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 (Skalar)	L080-PL	W	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, 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 (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
pH at 20oC in leachate	Determination of pH in leachate by electrometric measurement.	In house method.	L005-PL	W	ISO 17025
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE

Analytical Report Number : 21-90180

Project / Site name: Cronton Road

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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.	L038-PL	D	MCERTS
TPH2 (Soil)	Determination of hydrocarbons C6-C10 by headspace GC-MS.	In-house method based on USEPA8260	L088-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 (Skalar)	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 (Skalar)	L080-PL	W	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	W	MCERTS
Sulphate in leachates	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil"	L039-PL	W	ISO 17025
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

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

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

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

Results

Exploration & Testing Associates Limited
3 Siskin Drive
Middlemarch Business Park
Coventry
CV3 4FJ

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404

f: 01923 237404

e: reception@i2analytical.com

e: results@explorationtesting.uk

Analytical Report Number : 21-91188

Project / Site name:	Cronton Road	Samples received on:	04/08/2021
Your job number:	N10017	Samples instructed on/ Analysis started on:	04/08/2021
Your order number:	PO-1387	Analysis completed by:	12/08/2021
Report Issue Number:	1	Report issued on:	12/08/2021
Samples Analysed:	2 leachate samples - 9 soil samples		

Signed: *Karolina Marek*

Karolina Marek
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

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

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

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

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 21-91188
Project / Site name: Cronton Road
Your Order No: PO-1387

Lab Sample Number				1963316	1963317	1963318	1963319	1963320
Sample Reference				BH05	BH06	TP16	TP17	TP23
Sample Number				2	3	2	1	2
Depth (m)				1.00	2.00	1.50	0.50	0.40
Date Sampled				30/07/2021	29/07/2021	29/07/2021	29/07/2021	28/07/2021
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	-
Moisture Content	%	0.01	NONE	11	11	4.9	6.9	-
Total mass of sample received	kg	0.001	NONE	1.0	1.0	1.1	1.0	-

Asbestos in Soil	Type	N/A	ISO 17025	-	Not-detected	-	-	Not-detected
------------------	------	-----	-----------	---	--------------	---	---	--------------

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.4	8.5	8.2	7.6	-
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	-
Complex Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	-
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	-
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.034	0.069	0.019	0.046	-
Total Sulphur	mg/kg	50	MCERTS	390	380	150	1300	-
Organic Matter (automated)	%	0.1	MCERTS	3.0	1.2	1.2	5.0	-

Total Phenols

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

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	0.43	< 0.05	< 0.05	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	0.43	< 0.05	< 0.05	-
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	2.8	< 0.05	0.41	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	0.67	< 0.05	< 0.05	-
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	2.5	< 0.05	0.22	-
Pyrene	mg/kg	0.05	MCERTS	< 0.05	2.3	< 0.05	0.28	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	1.2	< 0.05	< 0.05	-
Chrysene	mg/kg	0.05	MCERTS	< 0.05	0.96	< 0.05	< 0.05	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	1.2	< 0.05	< 0.05	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.29	< 0.05	< 0.05	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.80	< 0.05	< 0.05	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.36	< 0.05	< 0.05	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.10	< 0.05	< 0.05	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	0.47	< 0.05	< 0.05	-

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	14.5	< 0.80	0.91	-
-----------------------------	-------	-----	--------	--------	------	--------	------	---

Analytical Report Number: 21-91188
Project / Site name: Cronton Road
Your Order No: PO-1387

Lab Sample Number	1963316	1963317	1963318	1963319	1963320
Sample Reference	BH05	BH06	TP16	TP17	TP23
Sample Number	2	3	2	1	2
Depth (m)	1.00	2.00	1.50	0.50	0.40
Date Sampled	30/07/2021	29/07/2021	29/07/2021	29/07/2021	28/07/2021
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	14	12	4.8	44	-
Barium (aqua regia extractable)	mg/kg	1	MCERTS	120	120	110	200	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.87	0.84	0.99	1.1	-
Boron (water soluble)	mg/kg	0.2	MCERTS	0.6	0.8	0.5	0.6	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.5	1.1	0.2	< 0.2	-
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	26	29	20	19	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	39	61	32	56	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	71	52	13	36	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	28	41	40	40	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	30	32	20	30	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	190	240	100	71	-

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	-	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
p & m-xylene	µg/kg	1	MCERTS	-	-	-	-	-
o-xylene	µg/kg	1	MCERTS	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	-

Petroleum Hydrocarbons

TPH C10 - C40	mg/kg	10	MCERTS	< 10	27	< 10	< 10	-
TPH2 (C6 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	-

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-	-

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	-	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 21-91188
Project / Site name: Cronton Road
Your Order No: PO-1387

Lab Sample Number				1963321	1963322	1963323	1963324
Sample Reference				TP26	TP32	TP33	SP01
Sample Number				1	3	1	1
Depth (m)				0.50	2.50	1.00	0.50
Date Sampled				29/07/2021	30/07/2021	30/07/2021	30/07/2021
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	9.0	9.5	9.7	11
Total mass of sample received	kg	0.001	NONE	1.0	1.1	1.0	1.0

Asbestos in Soil	Type	N/A	ISO 17025	-	-	Not-detected	Not-detected
------------------	------	-----	-----------	---	---	--------------	--------------

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.3	7.9	8.3	8.4
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Complex Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Free Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0088	0.069	0.022	0.027
Total Sulphur	mg/kg	50	MCERTS	120	150	180	160
Organic Matter (automated)	%	0.1	MCERTS	1.4	0.8	1.0	1.0

Total Phenols

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

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	1.3
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.19
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	1.4
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	1.4
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.80
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.68
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.86
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.22
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.56
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.32
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.42

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	< 0.80	8.18
-----------------------------	-------	-----	--------	--------	--------	--------	------

Analytical Report Number: 21-91188
Project / Site name: Cronton Road
Your Order No: PO-1387

Lab Sample Number				1963321	1963322	1963323	1963324
Sample Reference				TP26	TP32	TP33	SP01
Sample Number				1	3	1	1
Depth (m)				0.50	2.50	1.00	0.50
Date Sampled				29/07/2021	30/07/2021	30/07/2021	30/07/2021
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Heavy Metals / Metalloids							
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.8	12	10	3.3
Barium (aqua regia extractable)	mg/kg	1	MCERTS	78	93	96	110
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.64	0.88	0.76	0.85
Boron (water soluble)	mg/kg	0.2	MCERTS	0.4	< 0.2	< 0.2	0.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	0.2
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	31	35	28	33
Copper (aqua regia extractable)	mg/kg	1	MCERTS	13	21	31	32
Lead (aqua regia extractable)	mg/kg	1	MCERTS	14	17	26	33
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	25	31	29	30
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	38	33	30	33
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	39	49	68	85

Monoaromatics & Oxygenates

Benzene	µg/kg	1	MCERTS	-	-	< 1.0	-
Toluene	µg/kg	1	MCERTS	-	-	< 1.0	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	< 1.0	-
p & m-xylene	µg/kg	1	MCERTS	-	-	< 1.0	-
o-xylene	µg/kg	1	MCERTS	-	-	< 1.0	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	< 1.0	-

Petroleum Hydrocarbons

TPH C10 - C40	mg/kg	10	MCERTS	< 10	< 10	23	34
TPH2 (C6 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	-	< 0.001	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	-	< 0.001	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	< 0.001	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	< 1.0	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	< 2.0	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	-	< 8.0	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	-	< 8.0	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	< 10	-

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	-	< 0.001	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	-	< 0.001	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	< 0.001	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	< 1.0	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	< 2.0	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	-	< 10	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	-	15	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	19	-

U/S = Unsuitable Sample I/S = Insufficient Sample



Analytical Report Number: 21-91188
Project / Site name: Cronton Road

Your Order No: PO-1387

Lab Sample Number				1963325	1963326
Sample Reference				TP16	TP32
Sample Number				2	3
Depth (m)				1.50	2.50
Date Sampled				29/07/2021	30/07/2021
Time Taken				None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status		

General Inorganics

pH	pH Units	N/A	ISO 17025	8.0	7.6
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10
Sulphate as SO ₄	mg/l	0.1	ISO 17025	10.1	29.9

Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	1	ISO 17025	< 1.0	4.6
Barium (dissolved)	µg/l	0.05	ISO 17025	110	24
Beryllium (dissolved)	µg/l	0.2	ISO 17025	0.4	0.3
Boron (dissolved)	µg/l	10	ISO 17025	34	45
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08
Chromium (dissolved)	µg/l	0.4	ISO 17025	1.0	2.4
Copper (dissolved)	µg/l	0.7	ISO 17025	2.9	5.2
Lead (dissolved)	µg/l	1	ISO 17025	4.3	1.2
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5
Nickel (dissolved)	µg/l	0.3	ISO 17025	2.4	3.0
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0
Vanadium (dissolved)	µg/l	1.7	ISO 17025	< 1.7	< 1.7
Zinc (dissolved)	µg/l	0.4	ISO 17025	10	16

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 21-91188
Project / Site name: Cronton Road

* 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 *
1963316	BH05	2	1	Brown clay and sand with gravel and vegetation.
1963317	BH06	3	2	Brown clay with gravel.
1963318	TP16	2	1.5	Grey clay and sand with gravel.
1963319	TP17	1	0.5	Brown loam and sand with gravel and vegetation.
1963321	TP26	1	0.5	Light brown loam and sand with gravel and vegetation.
1963322	TP32	3	2.5	Light brown clay and sand with gravel.
1963323	TP33	1	1	Brown clay and sand with gravel and vegetation.
1963324	SP01	1	0.5	Brown clay and sand with gravel.

Analytical Report Number : 21-91188
Project / Site name: Cronton Road

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
BS EN 12457-1 (2:1) Leachate Prep	2:1 (as recieved, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis.	In-house method based on BSEN12457-1.	L043-PL	W	NONE
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Boron in leachate	Determination of boron in leachate. Sample acidified and followed by ICP-OES.	In-house method based on MEWAM	L039-PL	W	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
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 (Skalar)	L080-PL	W	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, 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 (Skalar)	L080-PL	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
pH at 20oC in leachate	Determination of pH in leachate by electrometric measurement.	In house method.	L005-PL	W	ISO 17025
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE

Analytical Report Number : 21-91188
Project / Site name: Cronton Road

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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.	L038-PL	D	MCERTS
TPH2 (Soil)	Determination of hydrocarbons C6-C10 by headspace GC-MS.	In-house method based on USEPA8260	L088-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 (Skalar)	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 (Skalar)	L080-PL	W	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L0738-PL	W	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	W	MCERTS
Sulphate in leachates	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil TM	L039-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

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

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

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



Exploration & Testing Associates Limited
3 Siskin Drive
Middlemarch Business Park
Coventry
CV3 4FJ

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

e: results@explorationtesting.uk

Analytical Report Number : 21-91719

Project / Site name:	Cronton Road	Samples received on:	06/08/2021
Your job number:	N10017	Samples instructed on/ Analysis started on:	06/08/2021
Your order number:	PO-1367	Analysis completed by:	16/08/2021
Report Issue Number:	1	Report issued on:	16/08/2021
Samples Analysed:	1 bulk sample		

Signed: *Karolina Marek*

Karolina Marek
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

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

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

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

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.



Analytical Report Number: 21-91719
Project / Site name: Cronton Road

Your Order No: PO-1367

Lab Sample Number				1965857
Sample Reference				TP26
Sample Number				1
Depth (m)				2.00
Date Sampled				29/07/2021
Time Taken				None Supplied
Analytical Parameter (Bulk Analysis)				
	Units	Limit of detection	Accreditation Status	

Asbestos Identification	Type	N/A	ISO 17025	Chrysotile-Hard/Cement Type Material
-------------------------	------	-----	-----------	--------------------------------------

U/S = Unsuitable Sample I/S = Insufficient Sample



Analytical Report Number : 21-91719
Project / Site name: Cronton Road

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Bults	Asbestos Identification in bulk material with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

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

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

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

**Liv Gatehouse**

Exploration & Testing Associates Limited
3 Siskin Drive
Middlemarch Business Park
Coventry
CV3 4FJ

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404

f: 01923 237404

e: reception@i2analytical.com

e: results@explorationtesting.uk

Analytical Report Number : 21-91740

Project / Site name:	Huyton	Samples received on:	06/08/2021
Your job number:		Samples instructed on/ Analysis started on:	06/08/2021
Your order number:	1410	Analysis completed by:	12/08/2021
Report Issue Number:	1	Report issued on:	12/08/2021
Samples Analysed:	3 water samples		

Signed: *Karolina Marek*

Karolina Marek
PL Head of Reporting Team
For & on behalf of i2 Analytical Ltd.

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

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

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

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.



Analytical Report Number: 21-91740

Project / Site name: Huyton

Your Order No: 1410

Lab Sample Number	1965957			1965958	1965959
Sample Reference	BH01			BH03	BH04
Sample Number	1			1	1
Depth (m)	1.42			3.53	4.96
Date Sampled	05/08/2021			05/08/2021	05/08/2021
Time Taken	None Supplied			None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status		

General Inorganics

pH	pH Units	N/A	ISO 17025	7.4	7.3	7.5
Electrical Conductivity at 20 °C	µS/cm	10	ISO 17025	650	770	2000
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10	< 10
Sulphate as SO ₄	mg/l	0.045	ISO 17025	120	259	492
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	80	76	130
Dissolved Organic Carbon (DOC)	mg/l	0.1	ISO 17025	2.51	2.70	2.83

Total Phenols

Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	< 10	< 10
----------------------------	------	----	-----------	------	------	------

Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01

Total PAH

Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16	< 0.16	< 0.16
-------------------	------	------	-----------	--------	--------	--------

Heavy Metals / Metalloids

Boron (dissolved)	µg/l	10	ISO 17025	53	54	100
Calcium (dissolved)	mg/l	0.012	ISO 17025	120	170	160
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0

Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.72	0.95	3.65
Barium (dissolved)	µg/l	0.06	ISO 17025	90	48	120
Beryllium (dissolved)	µg/l	0.1	ISO 17025	< 0.1	< 0.1	< 0.1
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.28	0.12	0.29
Chromium (dissolved)	µg/l	0.2	ISO 17025	3.7	3.8	3.3
Copper (dissolved)	µg/l	0.5	ISO 17025	4.0	2.9	7.7
Lead (dissolved)	µg/l	0.2	ISO 17025	0.4	0.9	1.3
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	3.7	6.5	4.0
Selenium (dissolved)	µg/l	0.6	ISO 17025	0.9	0.7	5.6
Vanadium (dissolved)	µg/l	0.2	ISO 17025	0.8	1.1	2.9
Zinc (dissolved)	µg/l	0.5	ISO 17025	13	14	14



Analytical Report Number: 21-91740

Project / Site name: Huyton

Your Order No: 1410

Lab Sample Number				1965957	1965958	1965959
Sample Reference				BH01	BH03	BH04
Sample Number				1	1	1
Depth (m)				1.42	3.53	4.96
Date Sampled				05/08/2021	05/08/2021	05/08/2021
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status			

Petroleum Hydrocarbons

TPH1 (C10 - C40)	µg/l	10	NONE	< 10	< 10	< 10
------------------	------	----	------	------	------	------

TPH2 (C6 - C10)	µg/l	10	ISO 17025	< 10	< 10	< 10
-----------------	------	----	-----------	------	------	------

U/S = Unsuitable Sample I/S = Insufficient Sample



Analytical Report Number : 21-91740

Project / Site name: Huyton

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Boron in water	Determination of boron in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM	L039-PL	W	ISO 17025
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW.	L080-PL	W	ISO 17025
Electrical conductivity at 20oC of water	Determination of electrical conductivity in water by electrometric measurement. Accredited Matrices SW, GW, PW	In-house method	L031-PL	W	ISO 17025
Monohydric phenols in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
TPH1 (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS.	In-house method	L070-PL	W	NONE
TPH2 (Waters)	Determination of hydrocarbons C6-C10 by headspace GC-MS. Accredited Matrices SW, PW. GW.	In-house method based on USEPA8260	L088-PL	W	ISO 17025
Total cyanide in water	Determination of total cyanide by distillation followed by colorimetry. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Dissolved Organic Carbon in water	Determination of dissolved inorganic carbon in water by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	ISO 17025
Ammoniacal Nitrogen as N in water	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the discrete analyser (colorimetric) salicylate/nitroprusside method. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
pH at 20oC in water (automated)	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In house method.	L099-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

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

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

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

Sample Deviation Report



Analytical Report Number : 21-91740

Project / Site name: Huyton

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
BH01	1	W	1965957	c	Ammoniacal Nitrogen as N in water	L082-PL	c
BH01	1	W	1965957	c	Electrical conductivity at 20oC of water	L031-PL	c
BH01	1	W	1965957	c	pH at 20oC in water (automated)	L099-PL	c
BH03	1	W	1965958	c	Ammoniacal Nitrogen as N in water	L082-PL	c
BH03	1	W	1965958	c	Electrical conductivity at 20oC of water	L031-PL	c
BH03	1	W	1965958	c	pH at 20oC in water (automated)	L099-PL	c
BH04	1	W	1965959	c	Ammoniacal Nitrogen as N in water	L082-PL	c
BH04	1	W	1965959	c	Electrical conductivity at 20oC of water	L031-PL	c
BH04	1	W	1965959	c	pH at 20oC in water (automated)	L099-PL	c

**Liv Gatehouse**

Exploration & Testing Associates Limited
3 Siskin Drive
Middlemarch Business Park
Coventry
CV3 4FJ

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404

f: 01923 237404

e: reception@i2analytical.com

e: results@explorationtesting.uk

Analytical Report Number : 21-94760

Project / Site name:	Cronton Road, Huyton	Samples received on:	18/08/2021
Your job number:	N10017	Samples instructed on/ Analysis started on:	23/08/2021
Your order number:	PO-1440	Analysis completed by:	02/09/2021
Report Issue Number:	1	Report issued on:	02/09/2021
Samples Analysed:	8 soil samples		

Signed:

Joanna Wawrzeczko
Technical Reviewer (Reporting Team)
For & on behalf of i2 Analytical Ltd.

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

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

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

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 21-94760
 Project / Site name: Cronton Road, Huyton
 Your Order No: PO-1440

Lab Sample Number				1983328	1983329	1983330	1983331	1983332
Sample Reference				BH01	BH04	BH06	TP02	TP04
Sample Number				6	8	8	1	3
Depth (m)				6.50	9.30	8.00	1.00	2.00
Date Sampled				29/07/2021	27/07/2021	29/07/2021	26/07/2021	26/07/2021
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	8.1	7.9	6.6	9.7	12
Total mass of sample received	kg	0.001	NONE	0.70	1.0	0.50	0.50	0.50

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	9.0	8.8	8.5	7.7	8.5
Total Sulphate as SO ₄	%	0.005	MCERTS	0.043	0.045	0.031	0.022	0.021
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.051	0.080	0.022	0.014	0.011
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	50.7	80.1	21.5	13.5	10.8
Total Sulphur	%	0.005	MCERTS	0.060	0.135	0.013	0.013	0.008

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 21-94760
 Project / Site name: Cronton Road, Huyton
 Your Order No: PO-1440

Lab Sample Number				1983333	1983334	1983335
Sample Reference				TP07	TP09	TP31
Sample Number				1	3	1
Depth (m)				0.60	3.00	0.40
Date Sampled				27/07/2021	28/07/2021	30/07/2021
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status			
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	8.0	10	10
Total mass of sample received	kg	0.001	NONE	1.0	0.50	0.80

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.9	8.9	8.0
Total Sulphate as SO ₄	%	0.005	MCERTS	0.094	0.031	0.030
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.023	0.034	0.049
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	22.6	33.9	48.9
Total Sulphur	%	0.005	MCERTS	0.059	0.019	0.028

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 21-94760

Project / Site name: Cronton Road, Huyton

* 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 *
1983328	BH01	6	6.5	Brown clay and sand.
1983329	BH04	8	9.3	Brown clay and sand.
1983330	BH06	8	8	Brown clay and sand.
1983331	TP02	1	1	Brown loam and clay with gravel and vegetation.
1983332	TP04	3	2	Brown clay and loam with gravel and vegetation.
1983333	TP07	1	0.6	Brown clay and loam with gravel and vegetation.
1983334	TP09	3	3	Brown clay and sand.
1983335	TP31	1	0.4	Brown loam and clay with gravel and vegetation.

Analytical Report Number : 21-94760

Project / Site name: Cronton Road, Huyton

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
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
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total Sulphate in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total Sulphur in soil as %	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

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

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

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

Sample Deviation Report



Analytical Report Number : 21-94760

Project / Site name: Cronton Road, Huyton

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
TP02	1	S	1983331	c	pH in soil (automated)	L099-PL	c
TP04	3	S	1983332	c	pH in soil (automated)	L099-PL	c

APPENDIX 4: GEOTECHNICAL TESTING





Contract Number: 55452

Client Ref: **N1001**

Report Date: **10-09-2021**

Client PO: **PO-1439**

Client **Exploration & Testing Associates Limited**
Unit 8b Bowburn South Industrial Estate,
Durham
DH6 5AD

Contract Title: **N10017**
For the attention of: **Anthony Owen**

Date Received: **23-08-2021**

Date Completed: **10-09-2021**

Test Description	Qty
Samples Received - @ Non Accredited Test	3
Determination of moisture content BS EN ISO 17892-1:2014 - @ Non Accredited Test	3
4 Point Liquid & Plastic Limit BS 1377:1990 - Part 2 : 4.3 & 5.3 - * UKAS	3
Quick Undrained Triaxial Compression test - single specimen at one confining pressure (100mm or 38mm diameter) BS 1377:1990 - Part 7 : 8 - * UKAS	2
One-dimensional Consolidation 75mm or 50mm diameter specimens (5 days) BS 1377:1990 - Part 5 : 3 - * UKAS	2
Natural Shear Strength by Hand Vane (3 measurements) - @ Non Accredited Test	1
As 5.01, 5.03 & 5.04 each extra additional day BS 1377:1990 - Part 5 : 3	4
Disposal of samples for job	1

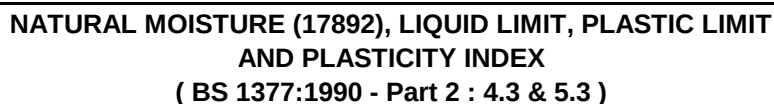
Notes: Observations and Interpretations are outside the UKAS Accreditation
* - denotes test included in laboratory scope of accreditation
- denotes test carried out by approved contractor
@ - denotes non accredited tests

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

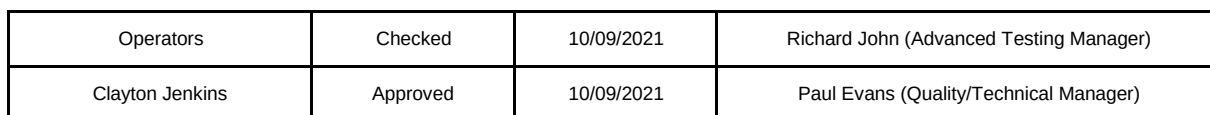
Approved Signatories:

Emma Sharp (Business Support Manager) - Paul Evans (Director) - Richard John (Quality/Technical Manager)

Shaun Jones (Laboratory manager) - Shaun Thomas (Site Manager) - Wayne Honey (Quality Assistant / Administrator / Health and Safety Coordinator)

[illegible]

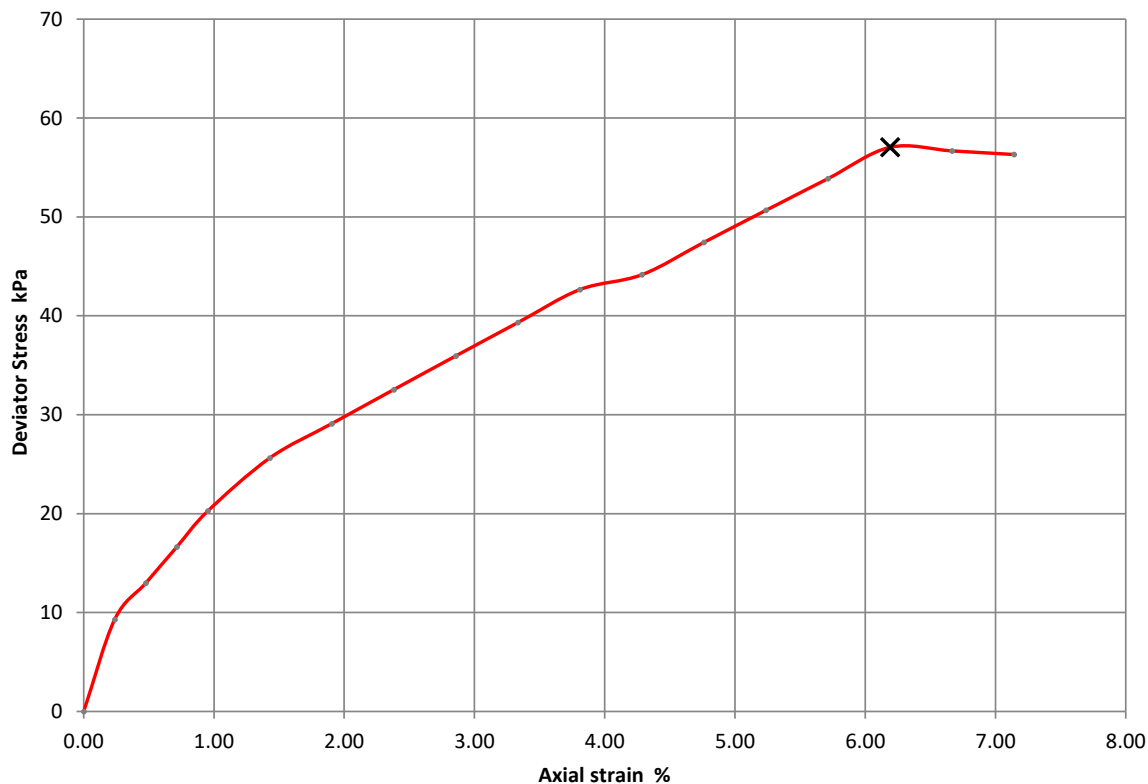
PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION BS 5930:1999+A2:2010





Single Stage Unconsolidated-Undrained Triaxial Test
BS 1377 : 1990 Part 7 : 8

Contract Number	55452
Borehole/Pit No.	BH03
Site Name	N10017
Sample No.	2
Soil Description	Brown fine to coarse gravelly silty CLAY
Depth Top (m)	4.00
Depth Base (m)	
Date Tested	02/09/2021
Sample Type	U
Technician	Daniel B



Moisture Content (%)	13
Bulk Density (Mg/m ³)	2.13
Dry Density (Mg/m ³)	1.87
Specimen Length (mm)	210
Specimen Diameter (mm)	105
Cell Pressure (kPa)	80
Deviator Stress (kPa)	57
Undrained Shear Strength (kPa)	29
Failure Strain (%)	6
Mode Of Failure	Plastic
Membrane Used/Thickness	Rubber/0.3mm
Rate of Strain (%/min)	1.43

Specimen Post Test



Sample Split



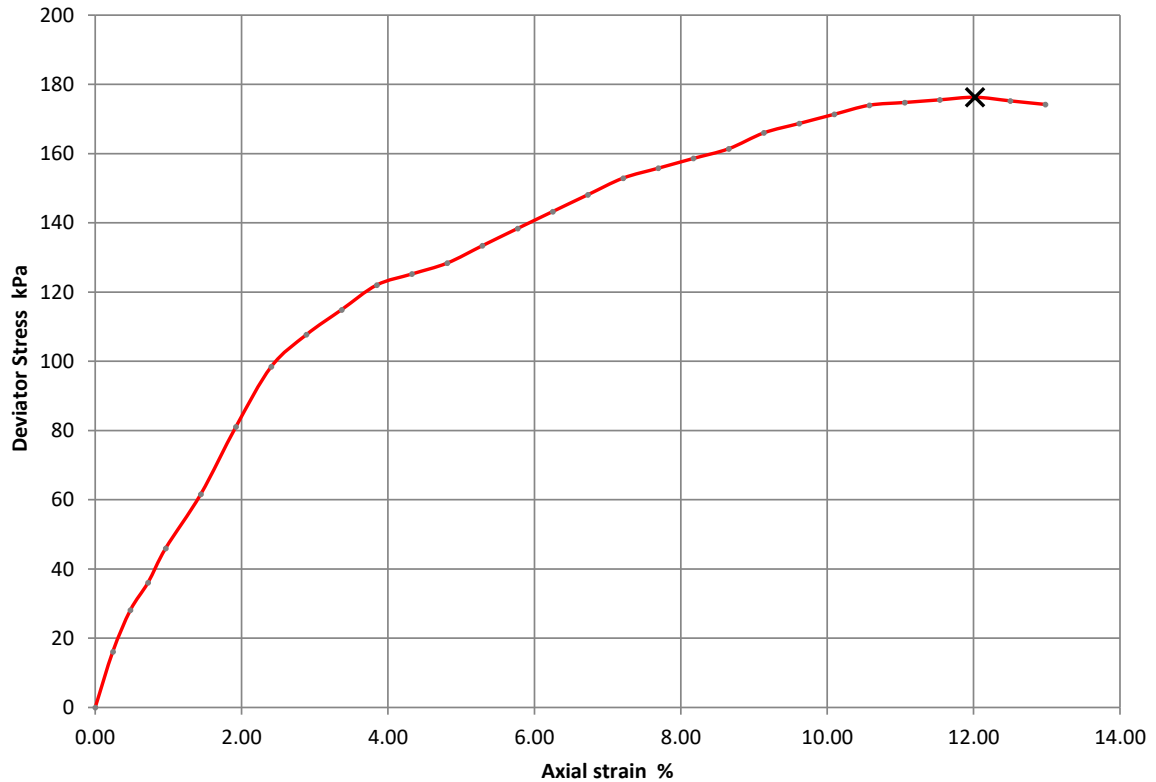
Checked	09/09/2021	Richard John	
Approved	10/09/2021	Paul Evans	





**Single Stage Unconsolidated-Undrained Triaxial
Test
BS 1377 : 1990 Part 7 : 8**

	Single Stage Unconsolidated-Undrained Triaxial Test BS 1377 : 1990 Part 7 : 8	Contract Number	55452
		Borehole/Pit No.	BH05
Site Name	N10017	Sample No.	1
Soil Description	Brown fine to medium gravelly silty CLAY	Depth Top (m)	3.00
		Depth Base (m)	
Date Tested	02/09/2021	Sample Type	U
		Technician	Daniel B



Moisture Content (%)	16
Bulk Density (Mg/m ³)	2.20
Dry Density (Mg/m ³)	1.90
Specimen Length (mm)	208
Specimen Diameter (mm)	101
Cell Pressure (kPa)	60
Deviator Stress (kPa)	176
Undrained Shear Strength (kPa)	88
Failure Strain (%)	12
Mode Of Failure	Plastic
Membrane Used/Thickness	Rubber/0.3mm
Rate of Strain (%/min)	1.44

Specimen Post Test



Sample Split



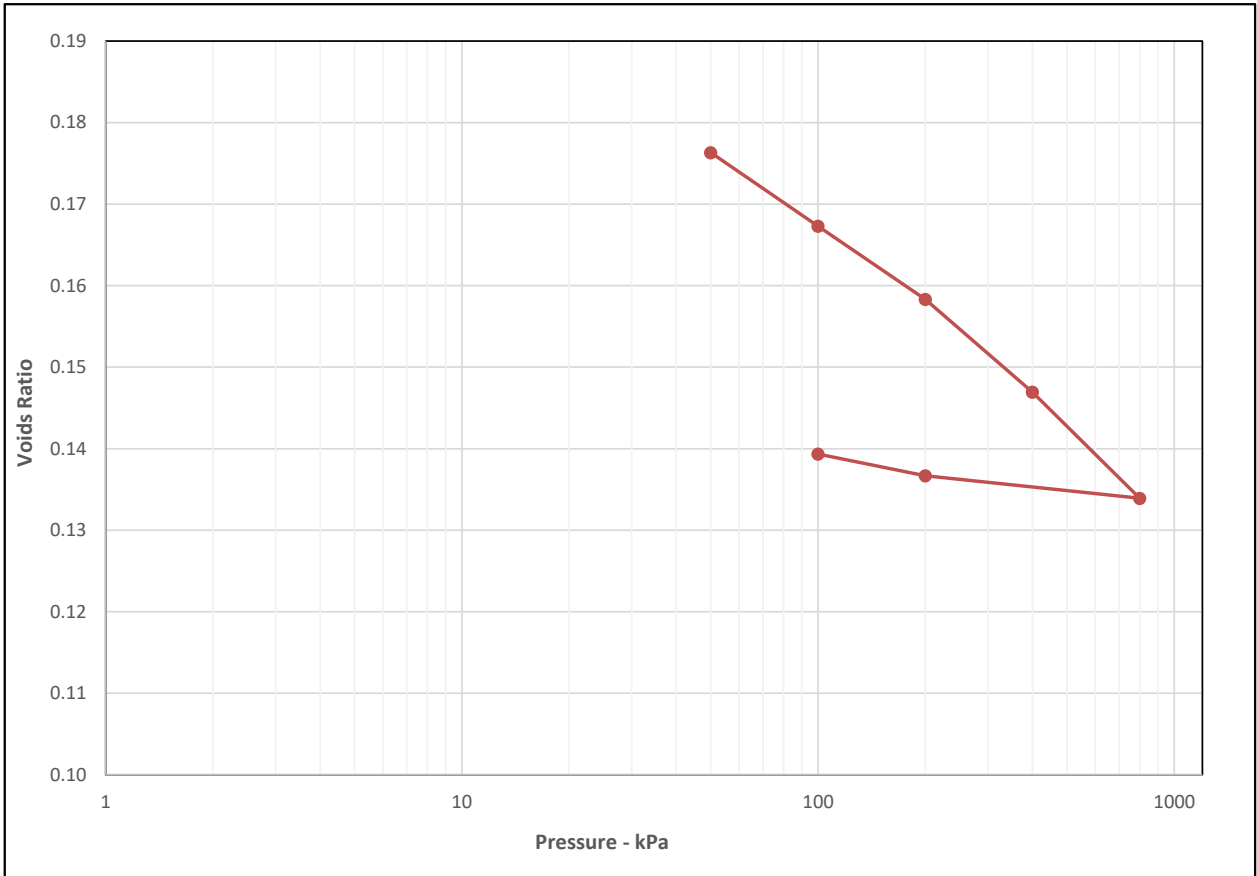
Checked	09/09/2021	Richard John	
Approved	10/09/2021	Paul Evans	





ONE DIMENSIONAL CONSOLIDATION TEST **BS1377:Part 5:1990, clause 3**

		Contract Number	55452
		Borehole/Trialpit No.	BH02
Site Name	N10017	Sample No.	3
Soil Description	Brown fine to medium gravelly firm silty CLAY	Depth Top (m)	5.00
		Depth Base (m)	
Lab Temperature	20°C	Sample Location	Top
Remarks	Cv Calculated Using T90 Particle Density Assumed Unless Stated Otherwise	Sample Type	U
Date Tested	25/08/2021		



Initial Sample Conditions		Pressure Range			Mv m2/MN	Cv m2/yr	Pressure Range			Mv m2/MN	Cv m2/yr
Moisture Content (%)	10	0	-	50	0.6	17		-			
Bulk Density (Mg/m3)	2.42	50	-	100	0.15	9.2		-			
Dry Density (Mg/m3)	2.19	100	-	200	0.077	9.1		-			
Voids Ratio	0.2120	200	-	400	0.05	6.0		-			
Degree of saturation	131.1	400	-	800	0.028	6.1		-			
Height (mm)	19.73	800	-	200	0.0041	3.3		-			
Diameter (mm)	75.1	200	-	100	0.023	15		-			
Particle Density (Mg/m3)	2.65		-					-			

Operators	Checked	09/09/2021	Richard John	
Wayne W	Approved	10/09/2021	Paul Evans	





ONE DIMENSIONAL CONSOLIDATION TEST
BS1377:Part 5:1990, clause 3

Contract Number

55452

Borehole/Trialpit No.

BH05

Site Name

N10017

Sample No.

1

Soil Description

Brown fine to medium gravelly firm silty CLAY

Depth Top (m)

3.00

Depth Base (m)

Lab Temperature

20°C

Sample Location

Top

Remarks

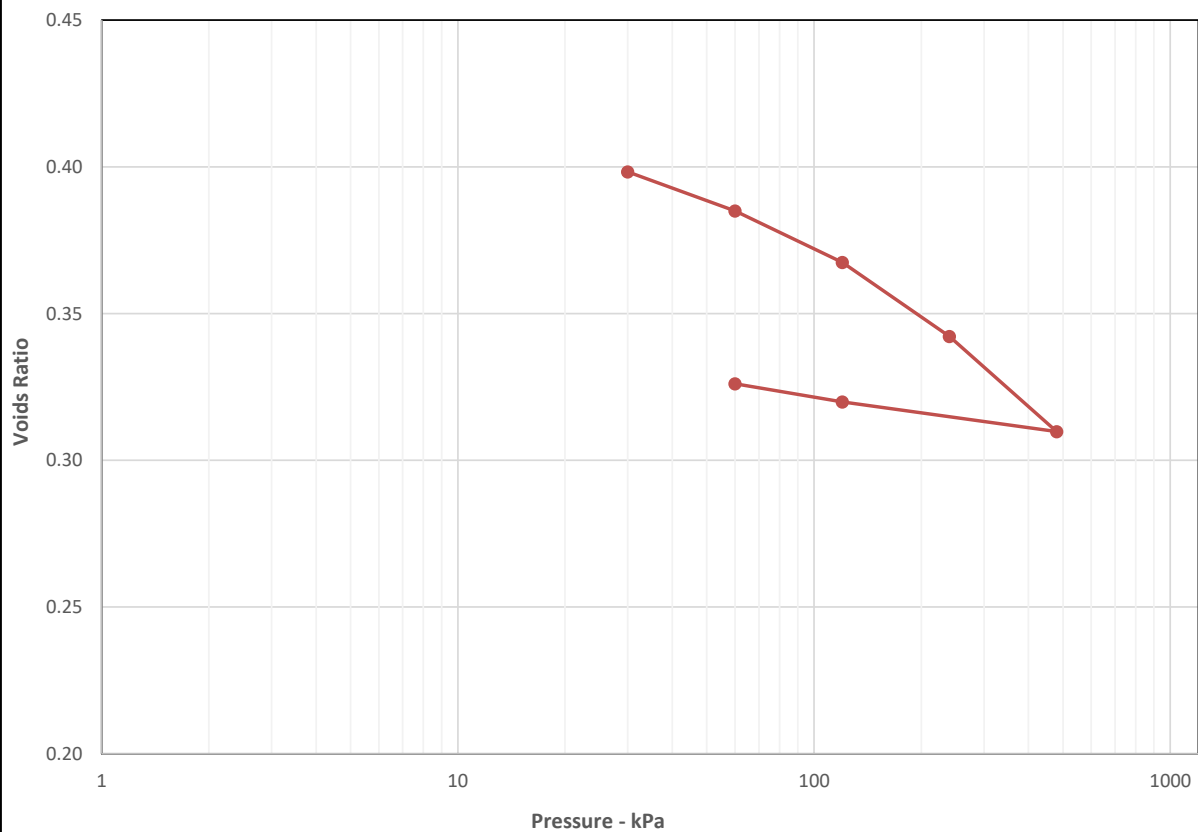
Cv Calculated Using T90
Particle Density Assumed Unless Stated Otherwise

Sample Type

U

Date Tested

25/08/2021



Initial Sample Conditions		Pressure Range			Mv m2/MN	Cv m2/yr	Pressure Range			Mv m2/MN	Cv m2/yr
Moisture Content (%)	20	0	-	30	0.5	4.9		-			
Bulk Density (Mg/m3)	2.23	30	-	60	0.32	2.5		-			
Dry Density (Mg/m3)	1.87	60	-	120	0.21	2.4		-			
Voids Ratio	0.4200	120	-	240	0.15	3.8		-			
Degree of saturation	124.1	240	-	480	0.1	6.5		-			
Height (mm)	19.74	480	-	120	0.021	6.3		-			
Diameter (mm)	75.15	120	-	60	0.078	4.3		-			
Particle Density (Mg/m3)	2.65		-					-			

Operators	Checked	09/09/2021	Richard John	
Wayne W	Approved	10/09/2021	Paul Evans	



[illegible]

Operators	Checked	09/09/2021	Richard John	
Daniel B	Approved	10/09/2021	Paul Evans	

Laboratory Test Report

Client:	Exploration and Testing Associates Limited
Job Number:	N10017
Project:	Cronton Rd, Huyton
Report Number:	L21-518
Date Received:	16.08.2021
Client Contact:	Liv Gatehouse
Address:	'number three' Siskin Drive, Middlemarch Business Park, Coventry, CV3 4FJ
Testing Required:	Water Content – BS EN ISO 17892-1:2014 Determination of Liquid and Plastic Limits and Plasticity Index – BS EN ISO 17892-12:2018 Particle Size Distribution – BS EN ISO 17892-4:2016 Determination of Maximum Dry Density / Optimum Moisture Content by 2.5kg Rammer – BS:1377-4:1990 Determination of Maximum Dry Density / Optimum Moisture Content by 4.5kg Rammer – BS:1377-4:1990 Determination of Particle Density by Gas Jar – BS:1377-2:1990 Clause 8.2
Date Testing Started:	16.08.2021
Date Testing Finished:	10.09.2021
Date Report Issued:	11.09.2021
Reviewed By:	 K Gargett – Quality Technician
Authorised By:	 N. O'Brien – Laboratory Manager
Remarks:	(*) Denotes testing is outside of UKAS Accreditation Scope.

Samples will be stored for one month after the report has been issued before being disposed of.

The published results are appertaining only to the specimens tested.

Exploration & Testing Associates Limited, registered in England and Wales # 11803869 at 8B Bowburn South Ind Est, Bowburn, Durham, DH6 5AD

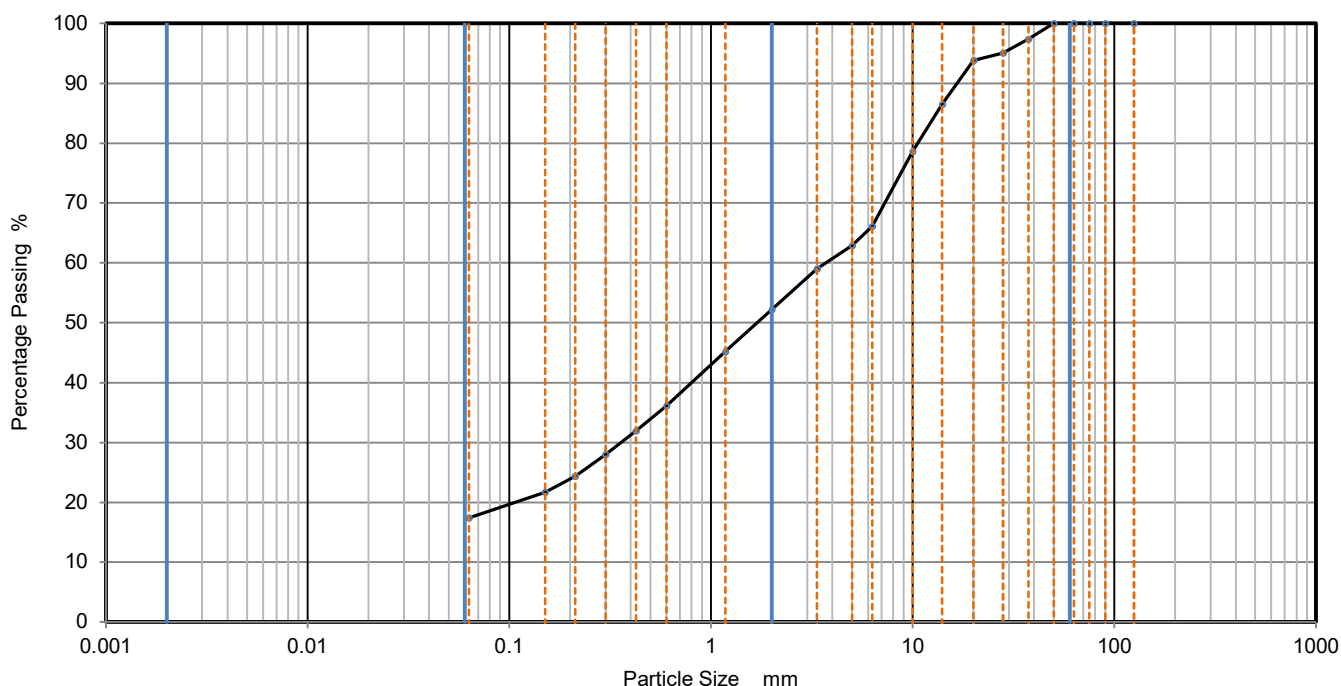
				Determination of Water Content, Liquid Limit, Plastic Limit and Derivation of Plasticity Index						
Project No.				Project Name						
N10017				Cronton Road, Huyton						
Hole No.		Sample		Soil Description	Water Content %	Passing 425µm %	Liquid Limit %	Plastic Limit %	Plasticity Index %	Remarks
	Type	Ref	Depth							
TP13	D	1	0.50	Brown with orange and grey mottling slightly sandy clay	17	99	33	15	18	Sample tested in natural state - material passing 425um estimated by hand picking
TP07	B	1	0.60	Grey clayey sandy gravel of mudstone	9.6					
TP06	D	3	0.70	Brown with orange mottling slightly sandy clay	14	100	27	6	21	Sample tested in natural state - material passing 425um estimated by hand picking
TP23	D	1	1.00	Brown with orange and grey mottling slightly sandy clay	15	97	30	12	18	Sample tested in natural state - material passing 425um estimated by hand picking
TP26	D	1	1.00	Brown slightly sandy clay	16	99	30	13	17	Sample tested in natural state - material passing 425um estimated by hand picking
TP01	D	1	1.00	Brown with orange mottling slightly sandy clay	17	96	29	14	15	Sample tested in natural state - material passing 425um estimated by hand picking
TP17	D	1	1.30	Brown with orange mottling slightly sandy slightly gravelly clay	14	98	28	13	15	Sample tested in natural state - material passing 425um estimated by hand picking
TP12	B	2	1.30	Brown sandy clay	17					
TP32	D	1	1.50	Brown slightly sandy slightly gravelly clay	15	97	29	12	17	Sample tested in natural state - material passing 425um estimated by hand picking
TP34	B	2	1.80	Brown slightly sandy slightly gravelly clay	13					
TP32	B	1	2.00	Brown slightly sandy slightly gravelly clay	13					
TP03	D	2	2.00	Brown with orange mottling slightly sandy clay (desiccated)	17	86	25	14	11	Sample tested in natural state - material passing 425um estimated by hand picking
TP09	D	2	2.00	Brown slightly sandy clay	14	100	25	13	12	Sample tested in natural state - material passing 425um estimated by hand picking
BH02	D	2	2.00	Brown slightly sandy slightly gravelly clay	17					
TP21	D	2	2.10	Brown with orange mottling slightly sandy slightly gravelly clay	14	96	26	11	15	Sample tested in natural state - material passing 425um estimated by hand picking
TP04	B	1	2.50	Brown slightly sandy slightly gravelly clay	16					
TP29	D	1	2.50	Brown with orange mottling slightly sandy clay	19	93	31	13	18	Sample tested in natural state - material passing 425um estimated by hand picking
BH03	D	2	2.50	Brown slightly sandy slightly gravelly clay	13					
TP09	B	2	3.00	Brown slightly sandy clay	13					
TP32	D	2	3.00	Brown with orange mottling slightly sandy slightly gravelly clay	20	95	30	14	16	Sample tested in natural state - material passing 425um estimated by hand picking
TP31	D	2	3.40	Brown slightly sandy clay	12	97	25	10	15	Sample tested in natural state - material passing 425um estimated by hand picking
Water Content carried out in accordance with BS EN ISO 17892: Part 1: 2014: Clause 5.1 & 5.2 Liquid Limit, Plastic Limit & Plasticity Index all performed in accordance with BS EN ISO 17892: Part 12: 2018 - Fall cone four point method - Cone 80g/30°						Date 11/09/2021 14:27		Approved By N O'Brien		UKAS Accredited Laboratory No. 20632
										

Notes Tests performed in accordance with BS 1377 unless annotated otherwise. Gas Jar tests to BS1377: Part 2 : 1990, clause 8.2	Comments	Date	Approved	UKAS Accredited Laboratory No. 20632
			N O'Brien	
		11/09/2021 14:31		

PARTICLE SIZE DISTRIBUTION

Job Ref	N10017
Borehole/Pit No.	TP16
Sample No.	1
Depth, m	0.70
Sample Type	B
KeyLAB ID	EAT_2021082495

Site Name	Cronton Road, Huyton		
Soil Description	Grey clayey sandy gravel of weathered mudstone		
Specimen Reference		Specimen Depth	0.7 m
Test Method	BS EN ISO 17892-4:2016 - Wet & Dry Sieving		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	97		
28	95		
20	94		
14	87		
10	79		
6.3	66		
5	63		
3.35	59		
2	52		
1.18	45		
0.6	36		
0.425	32		
0.3	28		
0.212	24		
0.15	22		
0.063	17.4		

Sample Proportions	% dry mass
Very coarse	0
Gravel	48
Sand	35
Fines <0.063mm	17

Grading Analysis	
D ₁₀₀	mm
D ₆₀	mm
D ₃₀	mm
D ₁₀	mm
Uniformity Coefficient	
Curvature Coefficient	

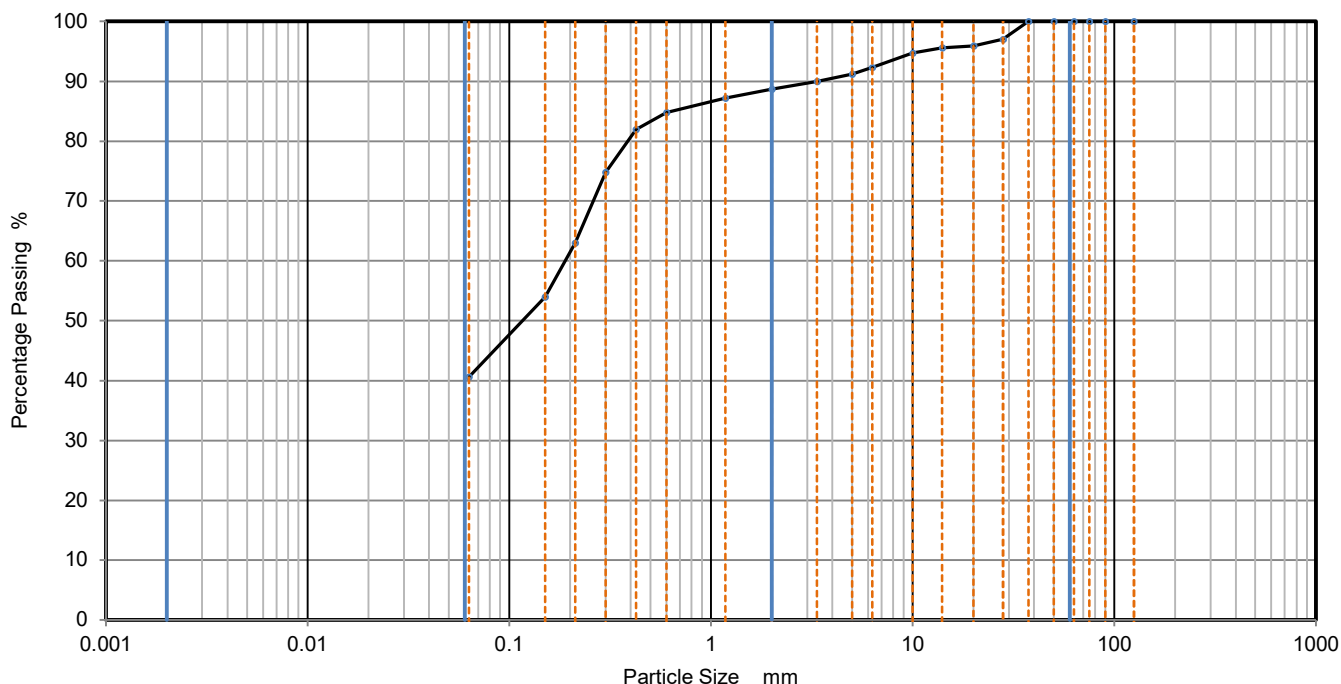
Remarks
Preparation and testing in accordance with BS EN ISO 17892-4:2016 unless noted below

Date	Approved By		UKAS Accredited Laboratory No. 20632
11/09/2021 14:37	N O'Brien		

PARTICLE SIZE DISTRIBUTION

Job Ref	N10017
Borehole/Pit No.	TP26
Sample No.	1
Depth, m	0.50
Sample Type	B
KeyLAB ID	EAT_20210824100

Site Name	Cronton Road, Huyton		
Soil Description	Brown sandy slightly gravelly clay		
Specimen Reference		Specimen Depth	0.5 m
Test Method	BS EN ISO 17892-4:2016 - Wet & Dry Sieving		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	97		
20	96		
14	96		
10	95		
6.3	92		
5	91		
3.35	90		
2	89		
1.18	87		
0.6	85		
0.425	82		
0.3	75		
0.212	63		
0.15	54		
0.063	40.6		

Sample Proportions	% dry mass
Very coarse	0
Gravel	11
Sand	48
Fines <0.063mm	41

Grading Analysis	
D ₁₀₀	mm
D ₆₀	mm
D ₃₀	mm
D ₁₀	mm
Uniformity Coefficient	
Curvature Coefficient	

Remarks
Preparation and testing in accordance with BS EN ISO 17892-4:2016 unless noted below

Date	Approved By		UKAS Accredited Laboratory No. 20632
11/09/2021 14:36	N O'Brien		

PARTICLE SIZE DISTRIBUTION

Job Ref

N10017

Borehole/Pit No.

TP31

Site Name

Cronton Road, Huyton

Sample No.

2

Soil Description

Brown clayey fine sand (clay in pockets)

Depth, m

2.50

Specimen Reference

Specimen Depth

2.5

m

Sample Type

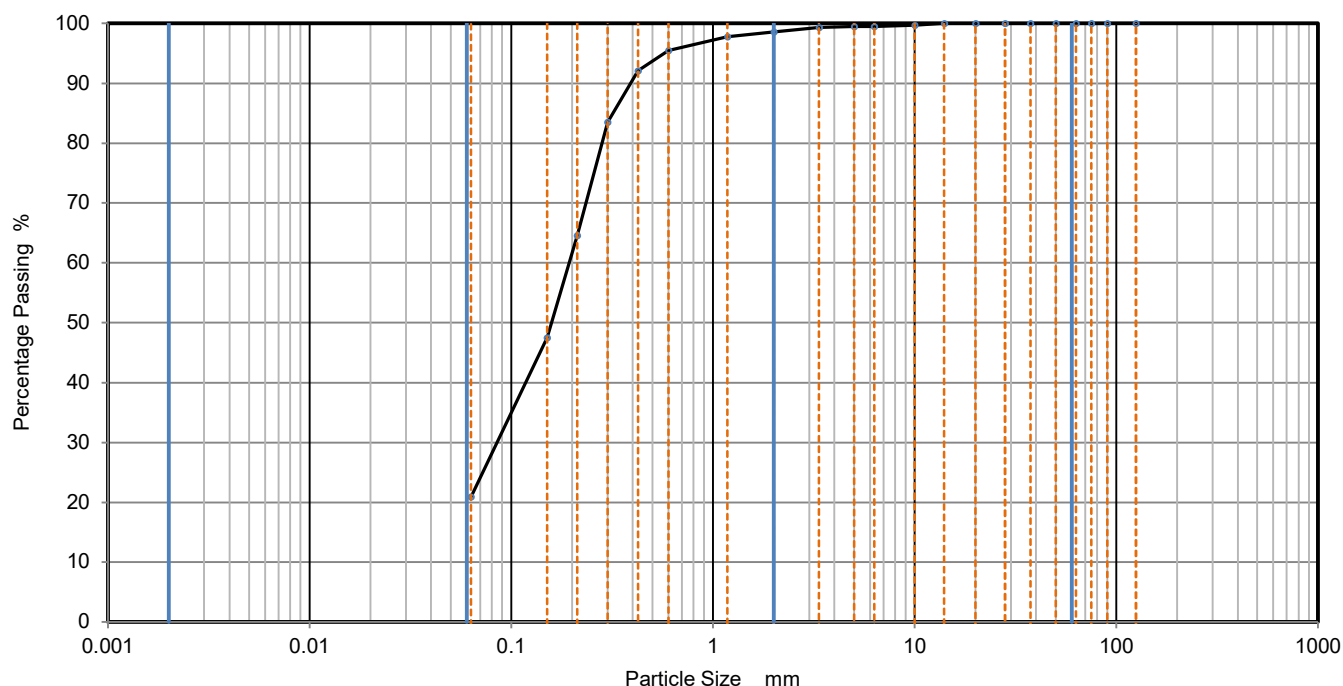
B

Test Method

BS EN ISO 17892-4:2016 - Wet & Dry Sieving

KeyLAB ID

EAT_20210824103



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	99		
2	99		
1.18	98		
0.6	96		
0.425	92		
0.3	84		
0.212	65		
0.15	48		
0.063	20.9		

Sample Proportions	% dry mass
Very coarse	0
Gravel	1
Sand	78
Fines <0.063mm	21

Grading Analysis	
D ₁₀₀	mm
D ₆₀	mm
D ₃₀	mm
D ₁₀	mm
Uniformity Coefficient	
Curvature Coefficient	

Remarks

Preparation and testing in accordance with BS EN ISO 17892-4:2016 unless noted below

Date

11/09/2021 14:38

Approved By

N O'Brien

UKAS Accredited
Laboratory No. 20632



Dry Density / Moisture Content Relationship Light Compaction

Job Ref

N10017

Borehole / Pit No

TP04

Site Name

Cronton Road, Huyton

Sample No

1

Soil Description

Brown slightly sandy slightly gravelly clay

Depth

2.50 m

Specimen Ref.

Specimen Depth

2.5 m

Sample Type

B

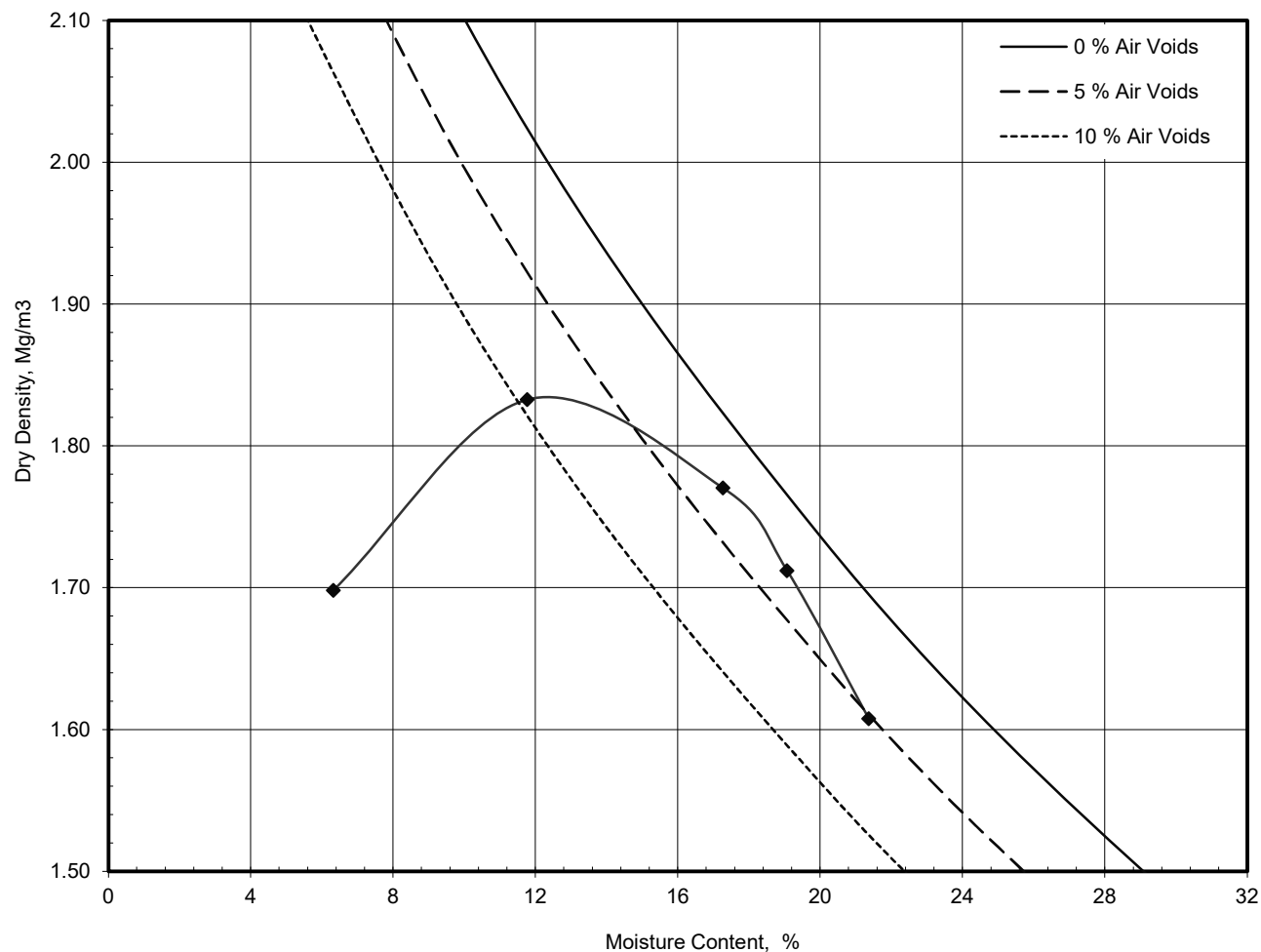
Test Method

BS1377:Part 4:1990, clause 3.3, 2.5kg rammer

Keylab ID

EAT_2021082488

Compaction Test Reference/No.



Preparation	Material used was air dried	
Mould Type	One Litre	
Samples Used	Single sample tested	
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Measured using gas jar	Mg/m³	2.66
Maximum Dry Density		Mg/m³
		1.83
Optimum Moisture Content		%
		12

Comments

Date

11/09/2021 14:42

Checked By

J. Round

Approved

N. O'Brien

UKAS Accredited
Laboratory No.
20632



Dry Density / Moisture Content Relationship Light Compaction

Job Ref

N10017

Borehole / Pit No

TP09

Site Name

Cronton Road, Huyton

Sample No

2

Soil Description

Brown slightly sandy clay

Depth

3.00 m

Specimen Ref.

Specimen Depth

3

m

Sample Type

B

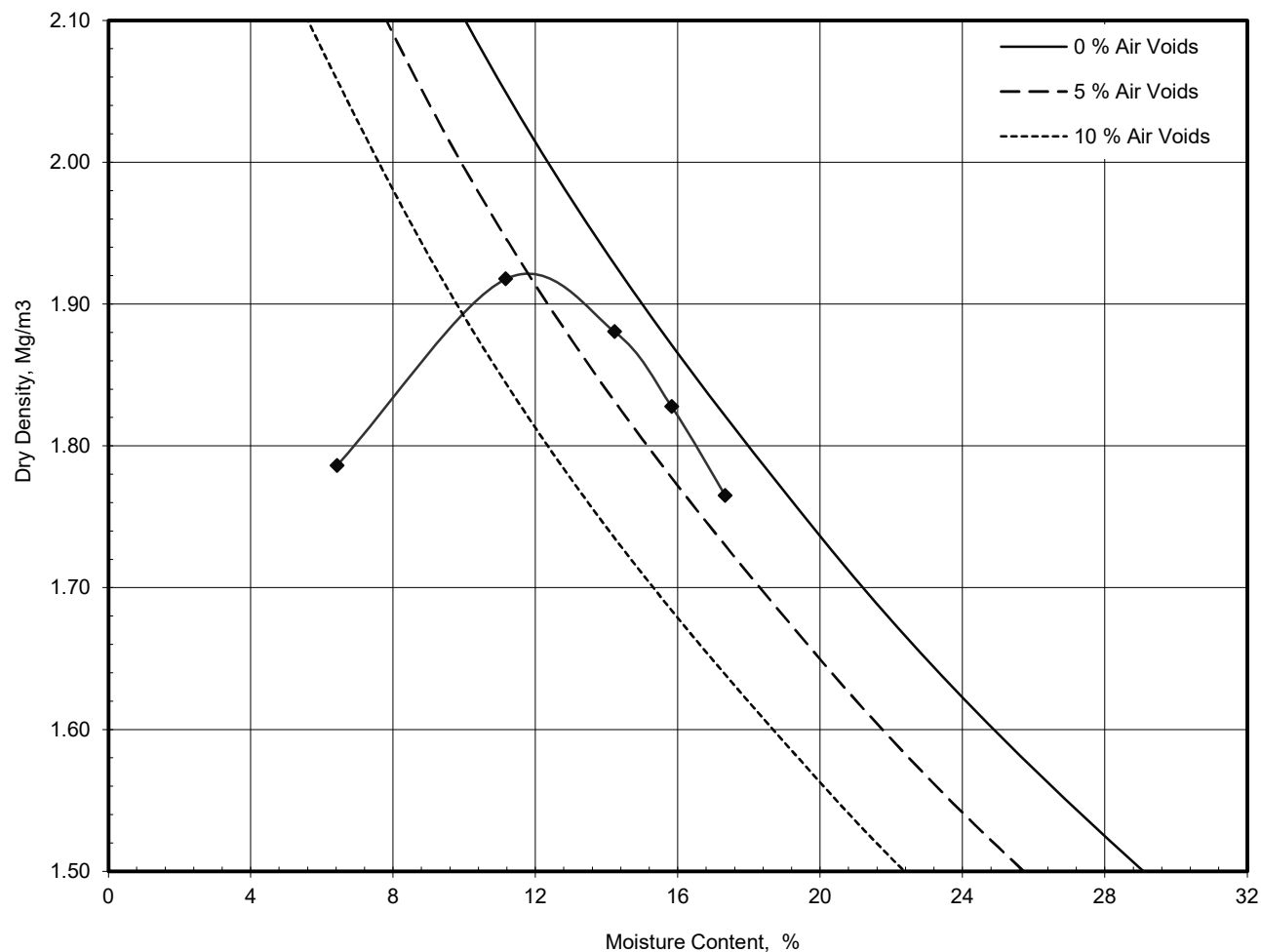
Test Method

BS1377:Part 4:1990, clause 3.3, 2.5kg rammer

Keylab ID

EAT_2021082492

Compaction Test Reference/No.



Preparation	Material used was air dried	
Mould Type	One Litre	
Samples Used	Single sample tested	
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Measured using gas jar	Mg/m³	2.66
Maximum Dry Density		Mg/m³
		1.92
Optimum Moisture Content		%
		11

Comments

Date

11/09/2021 14:44

Checked By

J. Round

Approved

N. O'Brien

UKAS Accredited
Laboratory No.
20632



Dry Density / Moisture Content Relationship Light Compaction

Job Ref

N10017

Borehole / Pit No

TP34

Site Name

Cronton Road, Huyton

Sample No

2

Soil Description

Brown slightly sandy slightly gravelly clay

Depth

1.80 m

Specimen Ref.

Specimen Depth

1.8 m

Sample Type

B

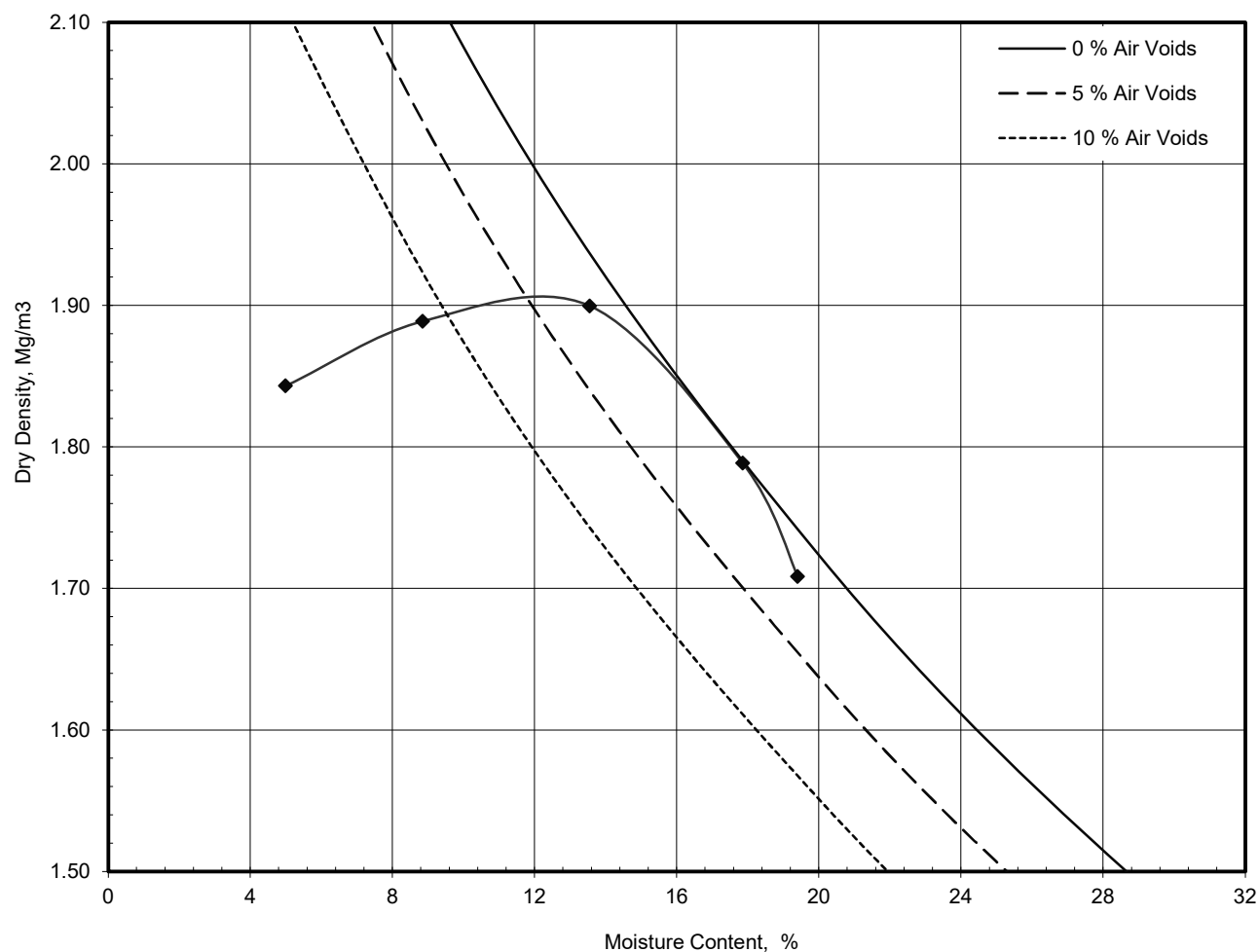
Test Method

BS1377:Part 4:1990, clause 3.3, 2.5kg rammer

Keylab ID

EAT_20210824107

Compaction Test Reference/No.



Preparation	Material used was air dried	
Mould Type	One Litre	
Samples Used	Separate specimens tested	
Material Retained on 37.5 mm Sieve	%	2
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Measured using gas jar	Mg/m ³	2.63
Maximum Dry Density		Mg/m ³ 1.90
Optimum Moisture Content		% 14

Comments

Date

11/09/2021 14:41

Checked By

J. Round

Approved

N. O'Brien

UKAS Accredited
Laboratory No.
20632



Dry Density / Moisture Content Relationship Heavy Compaction

Job Ref

N10017

Borehole / Pit No

TP07

Site Name

Cronton Road, Huyton

Sample No

1

Soil Description

Grey clayey sandy gravel of mudstone

Depth

0.60 m

Specimen Ref.

Specimen Depth

0.6 m

Sample Type

B

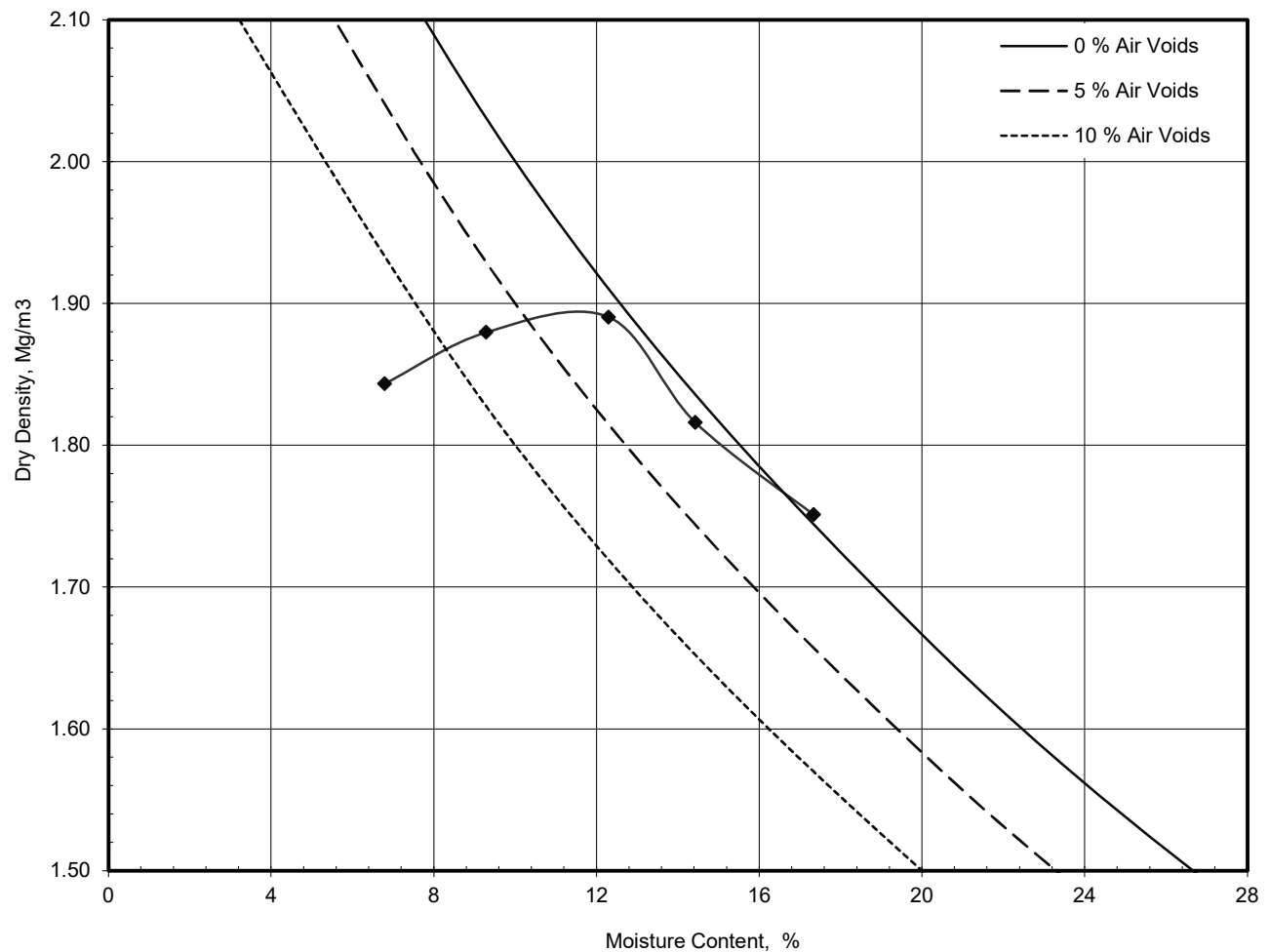
Test Method

BS1377:Part 4:1990, clause 3.6, 4.5kg rammer

Keylab ID

EAT_2021082490

Compaction Test Reference/No.



Preparation	Material used was air dried	
Mould Type	CBR	
Samples Used	Single sample tested	
Material Retained on 37.5 mm Sieve	%	10
Material Retained on 20.0 mm Sieve	%	25
Particle Density - Measured using gas jar	Mg/m³	2.50

Maximum Dry Density	Mg/m³	1.89
Optimum Moisture Content	%	12

Comments

Date

11/09/2021 14:45

Checked

J. Round

Approved

N. O'Brien

UKAS Accredited
Laboratory No. 20632



Dry Density / Moisture Content Relationship Heavy Compaction

Job Ref

N10017

Borehole / Pit No

TP12

Site Name

Cronton Road, Huyton

Sample No

2

Soil Description

Brown sandy clay

Depth

1.30 m

Specimen Ref.

Specimen Depth

1.3 m

Sample Type

B

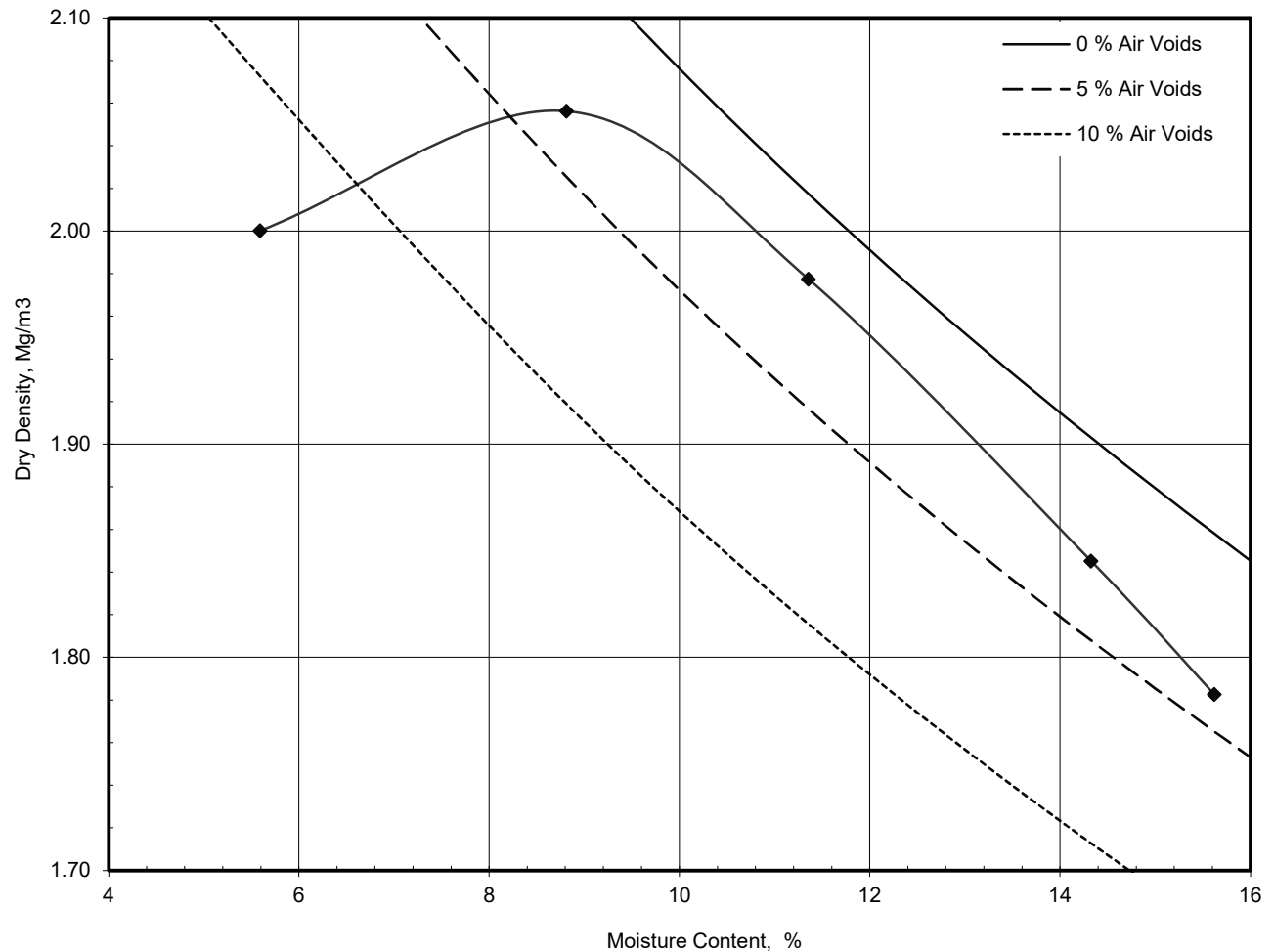
Test Method

BS1377:Part 4:1990, clause 3.5, 4.5kg rammer

Keylab ID

EAT_2021082493

Compaction Test Reference/No.



Preparation	Material used was	air dried
Mould Type		One Litre
Samples Used		Single sample tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Measured using gas jar	Mg/m³	2.62

Maximum Dry Density	Mg/m³	2.06
Optimum Moisture Content	%	9

Comments

Date

11/09/2021 14:47

Checked

J. Round

Approved

N. O'Brien

UKAS Accredited
Laboratory No. 20632



Dry Density / Moisture Content Relationship Heavy Compaction

Job Ref

N10017

Borehole / Pit No

TP32

Site Name

Cronton Road, Huyton

Sample No

1

Soil Description

Brown slightly sandy slightly gravelly clay

Depth

2.00 m

Specimen Ref.

Specimen Depth

2 m

Sample Type

B

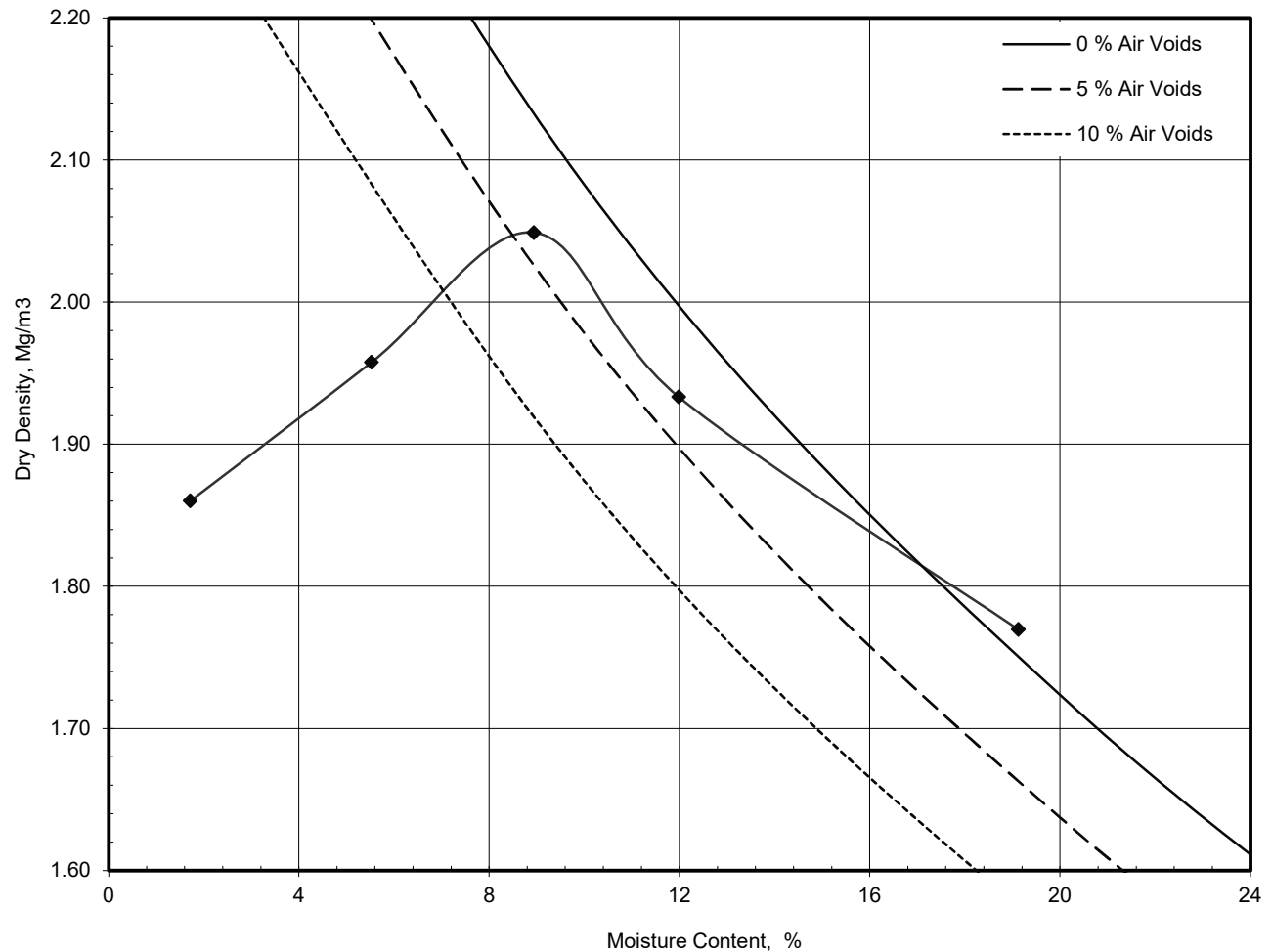
Test Method

BS1377:Part 4:1990, clause 3.5, 4.5kg rammer

Keylab ID

EAT_20210824106

Compaction Test Reference/No.



Preparation	Material used was air dried	
Mould Type	One Litre	
Samples Used	Single sample tested	
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Measured using gas jar	Mg/m ³	2.63
Maximum Dry Density		Mg/m ³ 2.05
Optimum Moisture Content		% 9

Comments

Date

11/09/2021 14:51

Checked

J. Round

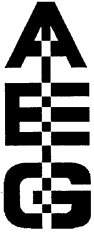
Approved

N. O'Brien

UKAS Accredited
Laboratory No. 20632

ALLIED EXPLORATION & GEOTECHNICS LIMITED

Head Office: Unit 25 Stella Gill Industrial Estate, Pelton Fell, Chester-le-Street, Co. Durham, DH2 2RG - Tel: 0191 3874700 Fax: 0191 3874710
Regional Office: Unit 20 Business Development Centre, Eanam Wharf, Blackburn, BB1 5BL - Tel: 01722 735 300 Fax: 01722 735 999



LABORATORY REPORT CERTIFICATE



Contract Title: Cranton Road

AEG Reference: SLS1258

Client: Exploration & Testing Associates

We certify that Laboratory testing was carried out on samples from the above contract in accordance with techniques outlined in BS 1377: 1990, BS EN ISO 17892:2014 or other appropriate standards as quoted. The samples were received on 1st September 2021 and the following results, given on the attached enclosures, were obtained.

The tests carried out are indicated in the attached table showing the enclosure number and the total number of pages.

For and on behalf of Allied Exploration & Geotechnics Limited



Nick Vater (Managing Director)



Michelle Selkirk (Laboratory Manager)

Signed

A handwritten signature in black ink, appearing to read 'MSelkirk', is written over a horizontal line.

Date: 17 September 2021

Tests marked not UKAS accredited in this certificate are not included in the UKAS accreditation schedule for our laboratory. Any opinions and interpretations expressed herein are outside the scope of the laboratory's UKAS accreditation.

Please note the material was derived from samples taken outside the control of the laboratory.

LABORATORY REPORT CERTIFICATE

ENCLOSURES

Enclosure Number	Description	UKAS Accredited	Reference	No. of Pages
0	Laboratory Report Certificate	N/A		3
1	Sample Description Sheets	N/A		1
2	Determination of California Bearing Ratio	Yes	BS 1377 Part 4 1990	3

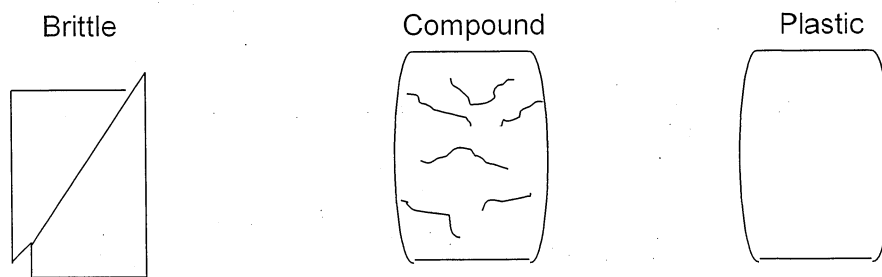
LABORATORY REPORT CERTIFICATE

ABBREVIATIONS

All the abbreviations used on the laboratory certificates are given below:

Br	Brittle	PSD	Particle Size Distribution by sieve analysis
C	Compound	SB	Shear Box
CBR	California Bearing Ratio	SED	Sedimentation Analysis
CDT	Consolidated Drained Triaxial	SO4	Sulphate (total, water extract, groundwater)
CL	Chloride content (water or soil)	CP2	Dry Density/Moisture Content 2.5kg rammer
US	Unsuitable sample for test	CP4	As above using 4.5kg rammer
UUT	Undrained Unconsolidated Triaxial	CPV	As above using vibrating hammer
HSV	Vane Test	CUT	Consolidated Undrained Triaxial
IS	Insufficient sample for test	R	Remoulded
LOI	Loss On Ignition	U	Undisturbed
M	Multi-stage testing	MC	Moisture Content
MCV	Moisture Content Value	PL	Point Load
NAT	Natural preparation method	NMC	Natural (or as received) moisture content
P	Plastic	PFH	Permeability Falling Head Method
OED	Oedometer	PTXL	Permeability in Triaxial Cell
OMC	Optimum Moisture Content	ORG	Organic content
B	Large disturbed (bulk) sample	PD	Particle Density (SG)
J	Small disturbed (jar) sample	PI	Liquid limit, plastic limit and plasticity index

Typical Mode of Failure for Triaxial Testing



ALLIED EXPLORATION & GEOTECHNICS LIMITED

Head Office: Unit 25 Stella Gilt Industrial Estate, Pelton Fell, Chester-le-Street, Co. Durham, DH2 2RG - Tel: 0191 387 4700 Fax: 0191 387 4710
Regional Office: Unit 20, Business Development Centre, Eanam Wharf, Blackburn, BB1 5BL - Tel: 01772 735 300 Fax: 01772 735 999

LABORATORY SAMPLE DESCRIPTION SHEET

Exploratory Hole No.	Sample Depth (m) ID	Description	Laboratory Tests/Remarks
TP04	2.50 B1	Brown slightly sandy slightly gravelly CLAY.	CBR
TP09	3.00 B2	Brown slightly sandy CLAY.	CBR
TP34	1.80 B2	Brown slightly sandy CLAY.	CBR

Contract Title :-

Cranton Road

Client :-

Exploration & Testing Associates



Signed :-

M. Selkirk

Name :-

M. SELKIRK

Page 1 of 1

Date of issue :-

17/09/2021

Certificate No :-

SD/SLS1258/1

AEG Contract No. :-

SLS1258



ALLIED EXPLORATION & GEOTECHNICS LIMITED

Head Office: Unit 25 Stella Gill Industrial Estate, Pelton Fell, Chester-le-Street, Co. Durham, DH2 2RG - Tel: 0191 387 4700 Fax: 0191 387 4710
Regional Office: Unit 20, Business Development Centre, Eanam Wharf, Blackburn, BB1 5BL - Tel: 01772 735 300 Fax: 01772 735 999

DETERMINATION OF THE CALIFORNIA BEARING RATIO

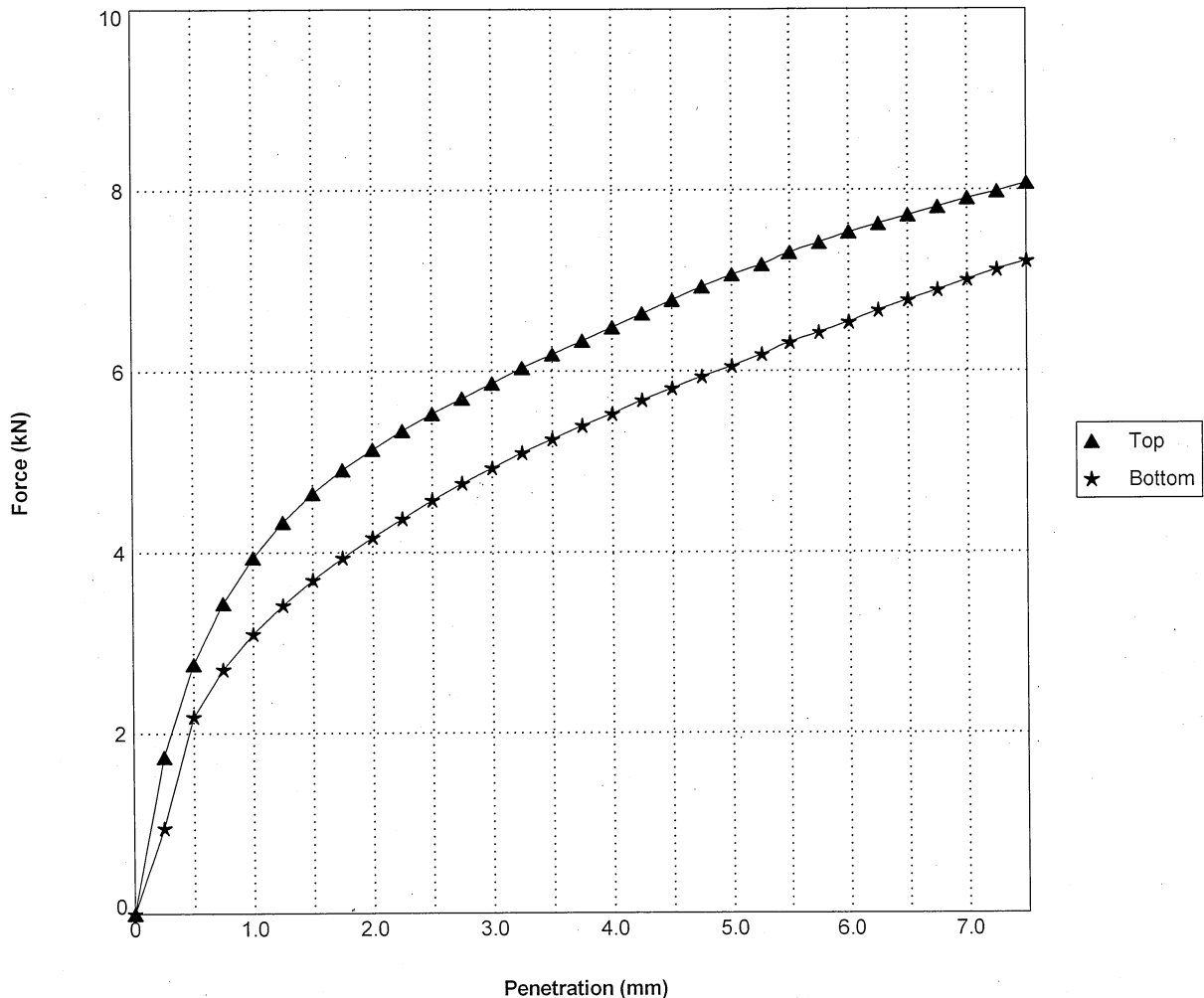
BS 1377 : Part 4 : 1990 and Part 2 : Clause 3.2 : 1990

Exploratory Hole No.- TP04

Sample No.- B1

Depth (m)- 2.50

"As Received" Moisture Content (%) :		Surcharge (Kg) :	6
Retained on 20mm (%) :	0.0	Seating Load (N) :	Top 250 / Bottom 250
Correction Needed :	No	Test Moisture Content (%) :	Top 12 / Bottom 12
Soaking Time (Days) :	N/A	Bulk Density (Mg/m ³) :	2.02
Swelling (mm) :	N/A	Dry Density (Mg/m ³) :	1.81
Date Tested :	13/09/2021	CBR Value (%) :	Top 42 / Bottom 35
Preparation Method :	2.5kg Compaction @ OMC		
Remarks :			



For description of sample please refer to the Laboratory Sample Description Sheet

Contract Title :-

Cranton Road

Client :-

Exploration & Testing Associates



Signed :- *msere*

Name :-

M. SELKIRK

Page 1 of 1

Date of issue :-

17/09/2021

Certificate No :-

CBR/SLS1258/TP04/B1/2.50/1

AEG Contract No. :-

SLS1258



ALLIED EXPLORATION & GEOTECHNICS LIMITED

Head Office: Unit 25 Stella Gill Industrial Estate, Pelton Fell, Chester-le-Street, Co. Durham, DH2 2RG - Tel: 0191 387 4700 Fax: 0191 387 4710
Regional Office: Unit 20, Business Development Centre, Eanam Wharf, Blackburn, BB1 5BL - Tel: 01772 735 300 Fax: 01772 735 999

DETERMINATION OF THE CALIFORNIA BEARING RATIO

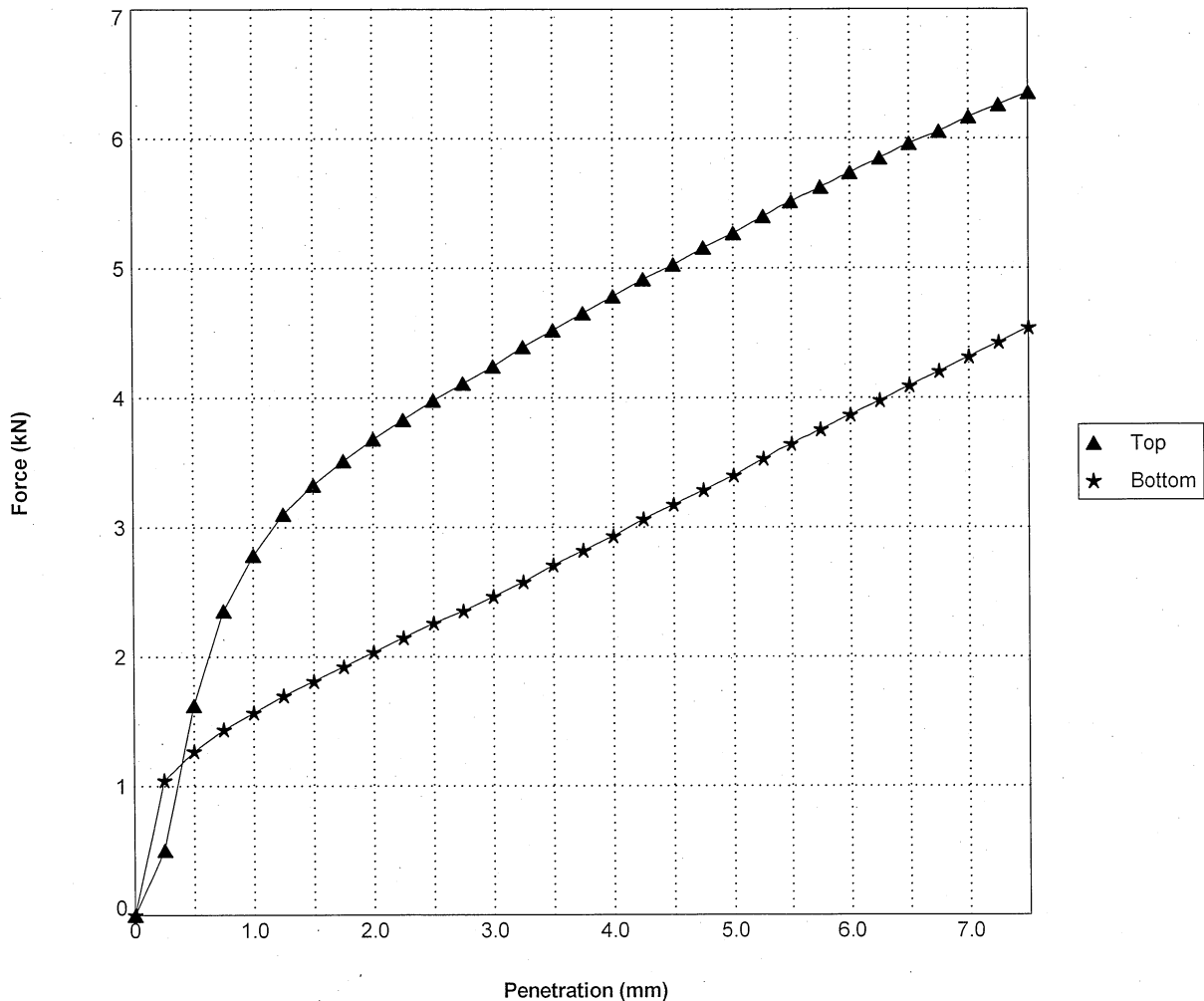
BS 1377 : Part 4 : 1990 and Part 2 : Clause 3.2 : 1990

Exploratory Hole No.- TP09

Sample No.- B2

Depth (m)- 3.00

"As Received" Moisture Content (%) :		Surcharge (Kg) :	6
Retained on 20mm (%) :	0.0	Seating Load (N) :	Top 250 / Bottom 250
Correction Needed :	No	Test Moisture Content (%) :	Top 9.9 / Bottom 9.9
Soaking Time (Days) :	N/A	Bulk Density (Mg/m ³) :	2.06
Swelling (mm) :	N/A	Dry Density (Mg/m ³) :	1.88
Date Tested :	14/09/2021	CBR Value (%) :	Top 30 / Bottom 17
Preparation Method :	2.5kg Compaction @ OMC		
Remarks :			



For description of sample please refer to the Laboratory Sample Description Sheet

Contract Title :-

Cranton Road

Client :-

Exploration & Testing Associates



Signed :-

M. Selkirk

Name :-

M. SELKIRK

Page 1 of 1

Date of issue :-

17/09/2021

Certificate No :-

CBR/SLS1258/TP09/B2/3.00/1

AEG Contract No. :-

SLS1258



ALLIED EXPLORATION & GEOTECHNICS LIMITED

Head Office: Unit 25 Stella Gill Industrial Estate, Pelton Fell, Chester-le-Street, Co. Durham, DH2 2RG - Tel: 0191 387 4700 Fax: 0191 387 4710
Regional Office: Unit 20, Business Development Centre, Eanam Wharf, Blackburn, BB1 5BL - Tel: 01772 735 300 Fax: 01772 735 999

DETERMINATION OF THE CALIFORNIA BEARING RATIO

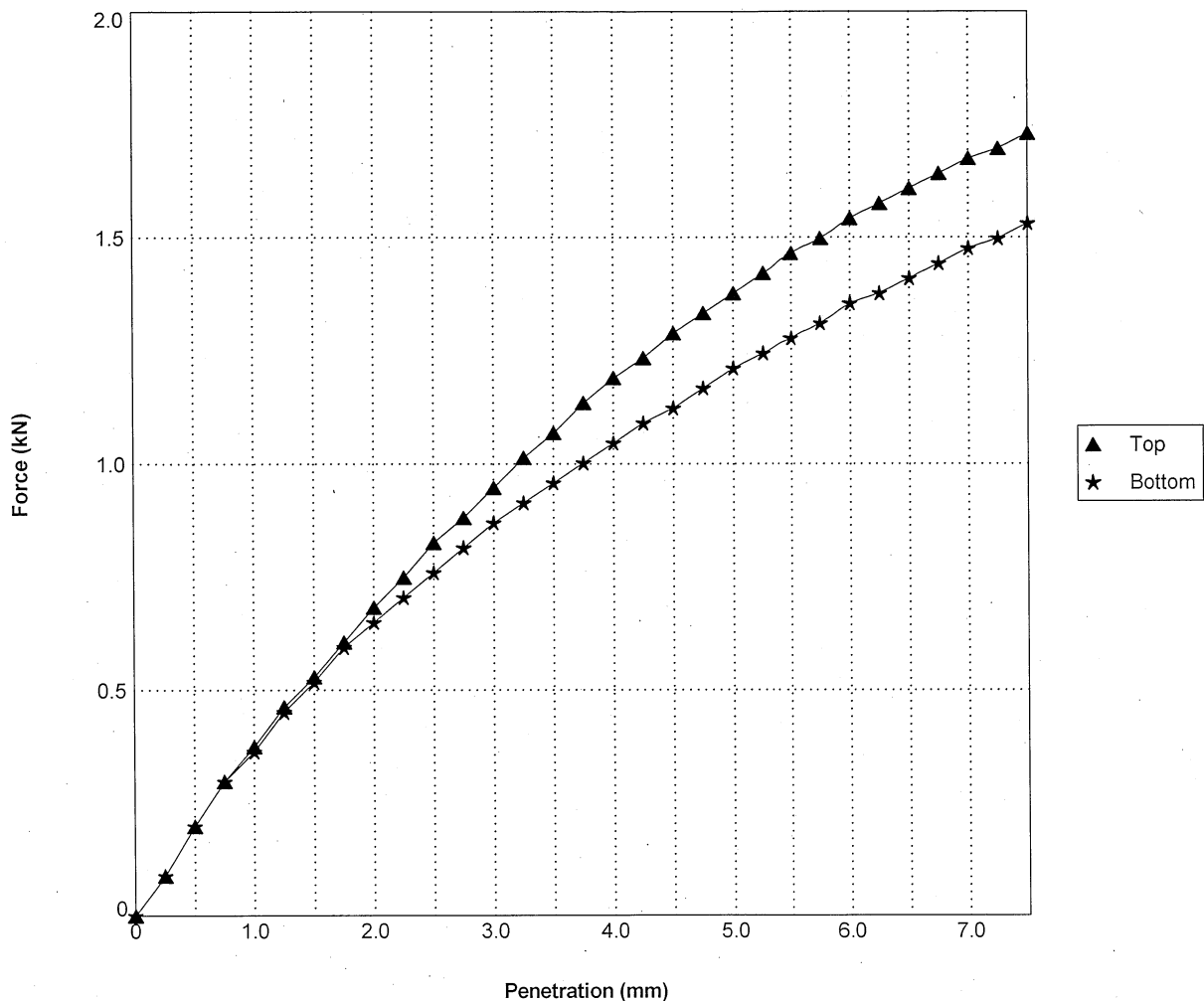
BS 1377 : Part 4 : 1990 and Part 2 : Clause 3.2 : 1990

Exploratory Hole No.- **TP34**

Sample No.- **B2**

Depth (m)- **1.80**

"As Received" Moisture Content (%) :		Surcharge (Kg) :	6
Retained on 20mm (%) :	0.0	Seating Load (N) :	Top 50 / Bottom 50
Correction Needed :	No	Test Moisture Content (%) :	Top 13 / Bottom 13
Soaking Time (Days) :	N/A	Bulk Density (Mg/m ³) :	2.23
Swelling (mm) :	N/A	Dry Density (Mg/m ³) :	1.97
Date Tested :	09/09/2021	CBR Value (%) :	Top 6.9 / Bottom 6.1
Preparation Method :	2.5kg Compaction @ OMC		
Remarks :			



For description of sample please refer to the Laboratory Sample Description Sheet

Contract Title :-

Cranton Road

Client :-

Exploration & Testing Associates



Signed *M. Selkirk*

Name :-

M. SELKIRK

Page 1 of 1

Date of issue :-

17/09/2021

Certificate No :-

CBR/SLS1258/TP34/B2/1.80/1

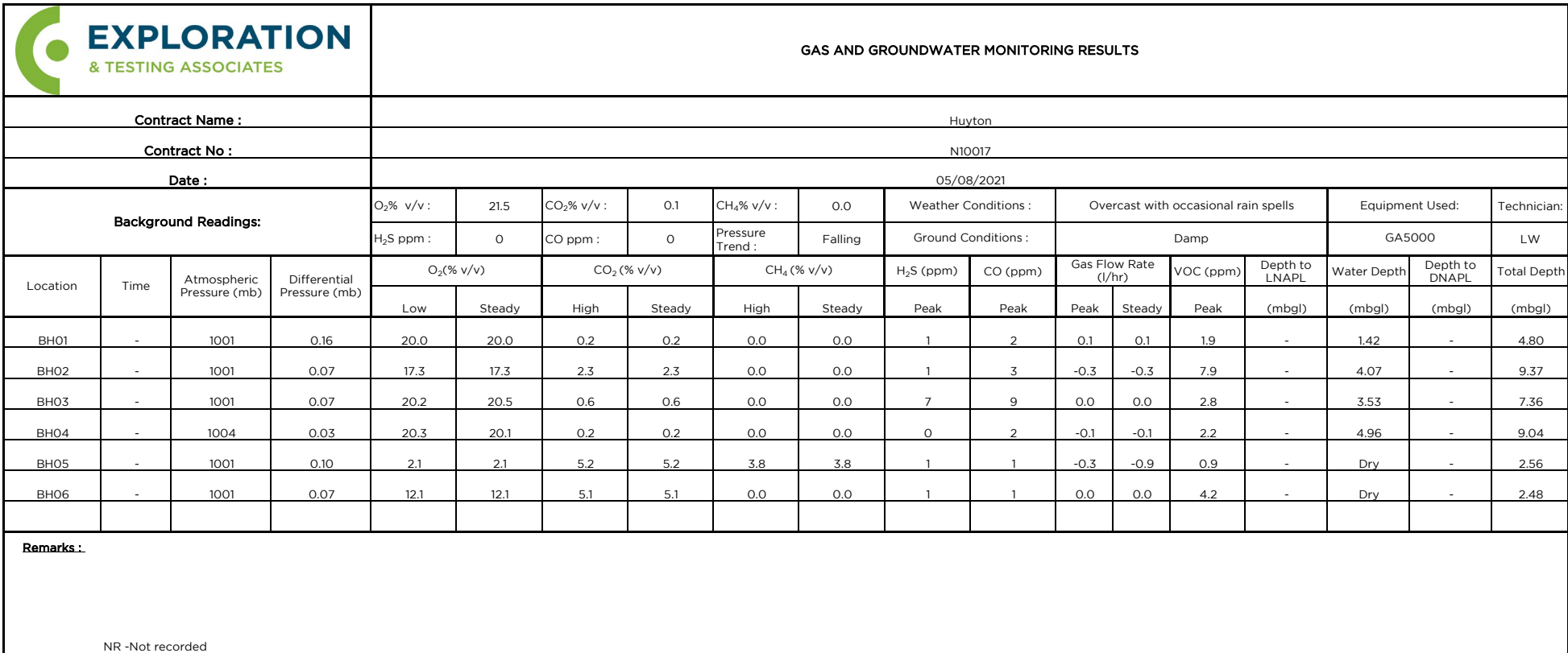
AEG Contract No. :-

SLS1258



APPENDIX 5: MONITORING







GAS AND GROUNDWATER MONITORING RESULTS

Contract Name :

Huyton

Contract No :

N10017

Date :

11/08/2021

Background Readings:

O ₂ % v/v :	21.1	CO ₂ % v/v :	0.1	CH ₄ % v/v :	0.0	Weather Conditions :	Overcast 16°C dry	Equipment Used:	Technician:
H ₂ S ppm :	0	CO ppm :	0	Pressure Trend :	Rising	Ground Conditions :	Damp	GA5000	OG / EMB

Location	Time	Atmospheric Pressure (mb)	Differential Pressure (mb)	O ₂ (% v/v)		CO ₂ (% v/v)		CH ₄ (% v/v)		H ₂ S (ppm)	CO (ppm)	Gas Flow Rate (l/hr)		VOC (ppm)	Depth to LNAPL	Water Depth	Depth to DNAPL	Total Depth
				Low	Steady	High	Steady	High	Steady	Peak	Peak	Peak	Steady	Peak	(mbgl)	(mbgl)	(mbgl)	(mbgl)
BH01	09:37	1016	0.22	16.3	16.3	2.0	2.0	0.0	0.0	1	2	1.4	0.1	-	-	0.97	-	4.80
BH02	08:34	1015	-0.07	16.4	16.4	2.6	2.6	0.0	0.0	0	2	0.1	0.1	-	-	4.04	-	9.36
BH03	09:55	1016	0.03	19.9	20.3	0.6	0.6	0.0	0.0	2	6	0.0	0.0	-	-	2.86	-	7.67
BH04	08:20	1015	-0.12	20.1	20.2	0.4	0.4	0.0	0.0	0	1	0.1	0.1	-	-	4.86	-	8.98
BH05	09:02	1016	-0.02	5.1	5.8	3.1	3	0.4	0.4	0	1	0.1	0.1	-	-	2.55	-	2.61
BH06	09:24	1015	-18.92	13.4	13.4	3.7	3.7	0.0	0.0	0	2	3.2	1.2	-	-	0.94	-	2.46

Remarks :

NR -Not recorded



DURHAM

T. 0191 3896543

E. enquiries@explorationtesting.uk
Unit 8B, Bowburn South Industrial
Estate, Durham,
DH6 5AD.

COVENTRY

T. 02476 880452

E. enquiries@explorationtesting.uk
'number three' Siskin Drive,
Middlemarch Business Park,
Coventry, CV3 4FJ.

explorationtesting.uk

Registered in England and Wales No. 11803869. Registered Office. Unit 8B, Bowburn South Industrial Estate, Durham. DH6 5AD

Appendix 5: CLEA Assessment

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

yes

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

Yes

STAGE 3 ZONING AND OUTLIER CHECK

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

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



Cronton Road, Huyton

BMS2392

All Data

GSAC Hierarchy

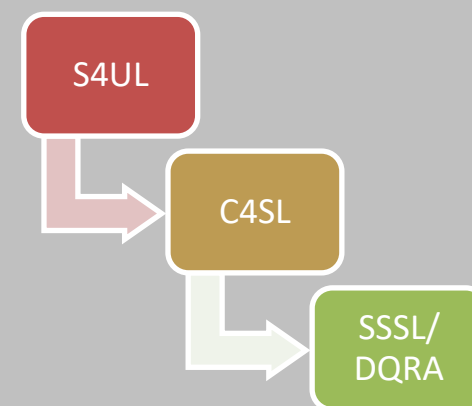
Define CSM – Is site represented by a standard land use?

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

Copyright Land Quality Management Limited reproduced with permission;
Publication Number S4UL3271

V7, December 2018

Generic Assessment Criteria

Cronton Road, Huyton
BMS2392

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
Cyanide (Free)	4.30E+01	BWB
Cyanide (Complex)	2.13E+02	BWB
Phenols (Total)	4.40E+02	LQM_CIEH_S4UL
Benzene	2.70E+01	LQM_CIEH_S4UL
Toluene	5.60E+04	LQM_CIEH_S4UL
Ethyl benzene	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

Generic Assessment Criteria

Cronton Road, Huyton
BMS2392

S4UL Commercial
mg/kg



Source

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
Indeno(1,2,3-c,d)pyrene	5.00E+02	LQM_CIEH_S4UL
Dibenzo(a,h)anthracene	3.50E+00	LQM_CIEH_S4UL
Benzo(g,hi)perylene	3.90E+03	LQM_CIEH_S4UL
Coal Tar (B(a)P as surrogate marker	1.50E+01	LQM_CIEH_S4UL
Tetrachloroethene (PCE)	1.90E+01	LQM_CIEH_S4UL
Trichloroethene (TCE)	1.20E+00	LQM_CIEH_S4UL
cis -1,2-Dichloroethene	1.40E+01	LQM_CIEH_S4UL
Vinyl Chloride (VC)	5.90E-02	LQM_CIEH_S4UL
1,1,2,2-Tetrachloroethane (PCA)	2.70E+02	LQM_CIEH_S4UL
1,1,1-Trichloroethane (TCA)	6.60E+02	LQM_CIEH_S4UL
1,2-Dichloroethane	6.70E-01	LQM_CIEH_S4UL
Carbon Tetrachloride	2.90E+00	LQM_CIEH_S4UL
Carbon disulphide	1.10E+01	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	Cyanide (Free)	Cyanide (Complex)	Phenols (Total)
Detection Limit																					
GSAC					6.40E+02	2.21E+04	1.20E+01	2.40E+05	1.90E+02	3.30E+01	8.60E+03	6.80E+04	2.33E+03	1.10E+03	9.80E+02	1.20E+04	9.00E+03	7.30E+05	4.30E+01	2.13E+02	4.40E+02
BH05	1.00			MG	14	120	0.87	0.6	0.5	4	26	39	71	0.3	28	1	30	190	1	1	1
BH06	2.00			MG	12	120	0.84	0.8	1.1	4	29	61	52	0.3	41	1	32	240	1	1	1
TP16	1.50			MG	4.8	110	0.99	0.5	0.2	4	20	32	13	0.3	40	1	20	100	1	1	1
TP17	0.50			MG	44	200	1.1	0.6	0.2	4	19	56	36	0.3	40	1	30	71	1	1	1
TP23	0.40			Till																	
TP26	0.50			MG	9.8	78	0.64	0.4	0.2	4	31	13	14	0.3	25	1	38	39	1	1	1
TP32	2.50			MG	12	93	0.88	0.2	0.2	4	35	21	17	0.3	31	1	33	49	1	1	1
TP33	1.00			MG	10	96	0.76	0.2	0.2	4	28	31	26	0.3	29	1	30	68	1	1	1
SP01	0.50			MG	3.3	110	0.85	0.6	0.2	4	33	32	33	0.3	30	1	33	85	1	1	1
TP02	0.40			MG	9	43	0.42	0.3	0.2	4	24	9.4	15	0.3	16	1	33	33	1	1	1
TP03	0.50			MG	5.8	53	0.59	0.3	0.2	4	22	9.9	6.2	0.3	20	1	24	30	1	1	1
TP07	0.50			MG	16	100	0.89	0.9	0.2	4	15	41	22	0.3	32	1	19	97	1	1	1
TP19	0.40			MG	6.6	57	0.44	0.4	0.2	4	17	14	16	0.3	15	1	18	34	1	1	1
TP20	0.80			Till	8.9	88	0.77	0.4	0.2	4	34	17	11	0.3	27	1	31	50	1	1	1

Location	Sample depth	Benzene	Toluene	Ethyl benzene	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	TPH (>EC35-44) aromatic	Total TPH
Detection Limit																					
GSAC		2.70E+01	5.60E+04	5.70E+03	5.90E+03	3.20E+03	7.80E+03	2.00E+03	9.70E+03	5.90E+04	1.60E+06	1.60E+06	2.60E+04	5.60E+04	3.50E+03	1.60E+04	3.60E+04	2.80E+04	2.80E+04	2.80E+04	5.00E+02
BH05	1.00																				10
BH06	2.00																				27
TP16	1.50																				10
TP17	0.50																				10
TP23	0.40																				
TP26	0.50																				10
TP32	2.50																				10
TP33	1.00	0.001	0.001	0.001	0.002	0.001	0.001	0.001	1	2	8	8	0.001	0.001	0.001	1	2	10	15		23
SP01	0.50																				34
TP02	0.40																				46
TP03	0.50																				10
TP07	0.50																				10
TP19	0.40																				10
TP20	0.80																				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(1,2,3-c,d)pyrene	Dibenzo(a,h)anthracene	Benzo(g,h,i)perylene
Detection Limit																	
GSAC		1.90E+02	8.30E+04	8.40E+04	6.30E+04	2.20E+04	5.20E+05	2.30E+04	5.40E+04	1.70E+02	3.50E+02	4.40E+01	1.20E+03	3.50E+01	5.00E+02	3.50E+00	3.90E+03
BH05	1.00	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
BH06	2.00	0.05	0.05	0.43	0.43	2.8	0.67	2.5	2.3	1.2	0.96	1.2	0.29	0.8	0.36	0.1	0.47
TP16	1.50	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
TP17	0.50	0.05	0.05	0.05	0.05	0.41	0.05	0.22	0.28	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
TP23	0.40																
TP26	0.50	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
TP32	2.50	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
TP33	1.00	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
SP01	0.50	0.05	0.05	0.05	0.05	1.3	0.19	1.4	1.4	0.8	0.68	0.86	0.22	0.56	0.32	0.05	0.42
TP02	0.40	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
TP03	0.50	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
TP07	0.50	0.99	0.05	0.21	0.05	1.2	0.05	0.47	0.43	0.32	0.35	0.05	0.05	0.05	0.05	0.05	0.05
TP19	0.40	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
TP20	0.80	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05

Appendix 6 : Leachate Assessment Sheet

*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:	Cronton Road, Huyton
Project Number:	BMS2392
Assessment for:	Soil Leachate Assessment
Laboratory:	i2
Receptor:	Freshwater
Receptor Water Hardness:	>200



Contaminant		Units	Detection Limit	Guideline Concentration	Source	Number of Samples	Min	Max	No of Exceedences	TP07	TP16	TP32
										0.50	1.50	2.50
Heavy Metals	Arsenic	µg/l	1	50	EQS Freshwater	2	1.30	4.60	0	1.30	< 1.0	4.60
	Barium	µg/l	0.05	700	UK DWS	3	8.50	110.00	0	8.50	110.00	24.00
	Beryllium	µg/l	0.2	None Available		2	0.30	0.40	0	< 0.2	0.40	0.30
	Cadmium	µg/l	0.08	0.25	EQS Freshwater	0	0.00	0.00	0	< 0.08	< 0.08	< 0.08
	Chromium III	µg/l	0.4	4.7	EQS Freshwater	2	1.00	2.40	0	< 0.4	1.00	2.40
	Chromium VI	µg/l		3.4	EQS Freshwater	0	0.00	0.00	0			
	Copper	µg/l	0.7	1	EQS Freshwater	3	2.90	6.30	3	6.30	2.90	5.20
	Lead	µg/l	1	1.2	EQS Freshwater	2	1.20	4.30	1	< 1.0	4.30	1.20
	Mercury	µg/l	0.5	0.07	EQS Freshwater	0	0.00	0.00	0	< 0.5	< 0.5	< 0.5
	Nickel	µg/l	0.3	4	EQS Freshwater	3	2.40	3.00	0	2.90	2.40	3.00
	Selenium	µg/l	4	10	UK DWS	0	0.00	0.00	0	< 4.0	< 4.0	< 4.0
	Vanadium	µg/l	1.7	None Available		0	0.00	0.00	0	< 1.7	< 1.7	< 1.7
	Zinc	µg/l	0.4	10.9	EQS Freshwater	3	9.80	16.00	1	9.80	10.00	16.00
	Sulphate	mg/l	0.1	400	EQS Freshwater	3	1.90	29.90	0	1.90	10.10	29.90
	Boron	µg/l	10	2000	EQS Freshwater	3	28.00	45.00	0	28.00	34.00	45.00
	pH					3	7.00	8.00	0	7.00	8.00	7.60
☞	Cyanide (total)	µg/l	10	1	EQS Freshwater	0	0.00	0.00	0	< 10	< 10	< 10

Appendix 7: Groundwater Assessment Sheet

*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:	Cronton Road, Huyton
Project Number:	BMS2392
Assessment for:	Water Assessment
Laboratory:	i2
Receptor:	Freshwater
Receptor Water Hardness:	>200



100

50

A CAF GROUP COMPANY

Contaminant		Units	Detection Limit	Guideline Concentration	Source	Number of Samples	Min	Max	No of Exceedences	BH01	BH03	BH04
										1.42	3.53	4.96
Heavy Metals	Arsenic	µg/l	0.15	50	EQS Freshwater	3	0.72	3.65	0	0.72	0.95	3.65
	Barium	µg/l	0.06	700	UK DWS	3	48.00	120.00	0	90.00	48.00	120.00
	Beryllium	µg/l	0.1	None Available		0	0.00	0.00	0	< 0.1	< 0.1	< 0.1
	Cadmium	µg/l	0.02	0.25	EQS Freshwater	3	0.12	0.29	2	0.28	0.12	0.29
	Chromium III	µg/l	0.2	4.7	EQS Freshwater	3	3.30	3.80	0	3.70	3.80	3.30
	Chromium VI	µg/l	5	3.4	EQS Freshwater	0	0.00	0.00	0	< 5.0	< 5.0	< 5.0
	Copper	µg/l		1	EQS Freshwater	0	0.00	0.00	0			
	Lead	µg/l	0.2	1.2	EQS Freshwater	3	0.40	1.30	1	0.40	0.90	1.30
	Mercury	µg/l	0.05	0.07	EQS Freshwater	0	0.00	0.00	0	< 0.05	< 0.05	< 0.05
	Nickel	µg/l	0.5	4	EQS Freshwater	3	3.70	6.50	1	3.70	6.50	4.00
	Selenium	µg/l	0.6	10	UK DWS	3	0.70	5.60	0	0.90	0.70	5.60
	Vanadium	µg/l	0.2	None Available		3	0.80	2.90	0	0.80	1.10	2.90
	Zinc	µg/l	0.5	10.9	EQS Freshwater	3	13.00	14.00	3	13.00	14.00	14.00
	Sulphate	mg/l	0.045	400	EQS Freshwater	3	120.00	492.00	1	120.00	259.00	492.00
	Boron	µg/l	10	2000	EQS Freshwater	3	53.00	100.00	0	53.00	54.00	100.00
	pH					3	7.30	7.50	0	7.40	7.30	7.50
Inorganics	Cyanide (total)	µg/l	10	1	EQS Freshwater	0	0.00	0.00	0	< 10	< 10	< 10
	Phenol*	µg/l	10	7.7	EQS Freshwater	0	0.00	0.00	0	< 10	< 10	< 10
	Ammonia (NH3 as N)	mg/l		0.015	EQS Freshwater	0	0.00	0.00	0			
Polycyclic Aromatic Hydrocarbons	Acenaphthene	µg/l	0.01	None Available		0	0.00	0.00	0	< 0.01	< 0.01	< 0.01
	Acenaphthylene	µg/l	0.01	None Available		0	0.00	0.00	0	< 0.01	< 0.01	< 0.01
	Anthracene	µg/l	0.01	0.1	EQS Freshwater	0	0.00	0.00	0	< 0.01	< 0.01	< 0.01
	Benzo(a)anthracene	µg/l	0.01	None Available		0	0.00	0.00	0	< 0.01	< 0.01	< 0.01
	Benzo(a)pyrene	µg/l	0.01	0.00017	EQS Freshwater	0	0.00	0.00	0	< 0.01	< 0.01	< 0.01
	Benzo(b)fluoranthene	µg/l	0.01	None Available		0	0.00	0.00	0	< 0.01	< 0.01	< 0.01
	Benzo(k)fluoranthene	µg/l	0.01	None Available		0	0.00	0.00	0	< 0.01	< 0.01	< 0.01
	Benzo(g,h,i)perylene	µg/l	0.01	None Available		0	0.00	0.00	0	< 0.01	< 0.01	< 0.01
	Chrysene	µg/l	0.01	None Available		0	0.00	0.00	0	< 0.01	< 0.01	< 0.01
	Dibenzo(a,h)anthracene	µg/l	0.01	None Available		0	0.00	0.00	0	< 0.01	< 0.01	< 0.01
	Fluoranthene	µg/l	0.01	0.0063	EQS Freshwater	0	0.00	0.00	0	< 0.01	< 0.01	< 0.01
	Fluorene	µg/l	0.01	None Available		0	0.00	0.00	0	< 0.01	< 0.01	< 0.01
	Indeno(1,2,3-c,d)pyrene	µg/l	0.01	None Available		0	0.00	0.00	0	< 0.01	< 0.01	< 0.01
	Naphthalene	µg/l	0.01	2	EQS Freshwater	0	0.00	0.00	0	< 0.01	< 0.01	< 0.01
	Phenanthrene	µg/l	0.01	None Available		0	0.00	0.00	0	< 0.01	< 0.01	< 0.01
	Pyrene	µg/l	0.01	None Available		0	0.00	0.00	0	< 0.01	< 0.01	< 0.01
	Total PAH	µg/l	0.16	0.1	WHO (Health)	0	0.00	0.00	0	< 0.16	< 0.16	< 0.16

Appendix 8: HazwasteOnline Waste Classification Report

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)



Y69P6-5A1ZG-4TMXY

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

Job name

BMS2392 Mercury 62

Description/Comments

Project

BMS2392 Mercury 62

Site

BMS2392 Mercury 62

Classified by

Name: **Richard Robinson**
Date: **15 Sep 2021 08:22 GMT**
Telephone: **0115 924 1100**
Company: **BWB Consulting Ltd**
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:

Course
Hazardous Waste Classification
3 year Refresher overdue

Date
08 Dec 2016

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	BH05	1.00	Non Hazardous		2
2	BH06	2.00	Non Hazardous		4
3	TP16	1.50	Non Hazardous		6
4	TP17	0.50	Non Hazardous		8
5	TP23	0.40	Unknown. Chemistry data not provided.		10
6	TP26	0.50	Non Hazardous		11
7	TP32	2.50	Non Hazardous		13
8	TP33	1.00	Non Hazardous		15
9	SP01	0.50	Non Hazardous		18
10	TP02	0.40	Non Hazardous		20
11	TP03	0.50	Non Hazardous		22
12	TP07	0.50	Non Hazardous		24
13	TP19	0.40	Non Hazardous		26
14	TP20	0.80	Non Hazardous		28
15	TP26[2]	2.00	Unknown. Chemistry data not provided.		30

Related documents

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

Report

Created by: Richard Robinson

Created date: 15 Sep 2021 08:22 GMT

Appendices	Page
Appendix A: Classifier defined and non CLP determinands	31
Appendix B: Rationale for selection of metal species	32
Appendix C: Version	33

Classification of sample: BH05

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

Sample details

Sample name:	LoW Code:
BH05	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)
1.00 m	
Moisture content:	
11%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: **11% No Moisture Correction applied (MC)**

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				14	mg/kg	1.32	18.485	mg/kg	0.00185 %		
	033-003-00-0	215-481-4	1327-53-3									
2	beryllium { beryllium oxide }				0.87	mg/kg	2.775	2.415	mg/kg	0.000241 %		
	004-003-00-8	215-133-1	1304-56-9									
3	boron { boron tribromide/trichloride/trifluoride (combined) }				0.6	mg/kg	13.43	8.058	mg/kg	0.000806 %		
			10294-33-4, 10294-34-5, 7637-07-2									
4	cadmium { cadmium sulfide }			1	0.5	mg/kg	1.285	0.643	mg/kg	0.00005 %		
	048-010-00-4	215-147-8	1306-23-6									
5	chromium { chromium(III) oxide (worst case) }				26	mg/kg	1.462	38	mg/kg	0.0038 %		
		215-160-9	1308-38-9									
6	copper { dicopper oxide; copper (I) oxide }				39	mg/kg	1.126	43.91	mg/kg	0.00439 %		
	029-002-00-X	215-270-7	1317-39-1									
7	lead { lead chromate }			1	71	mg/kg	1.56	110.747	mg/kg	0.0071 %		
	082-004-00-2	231-846-0	7758-97-6									
8	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									
9	nickel { nickel dihydroxide }				28	mg/kg	1.579	44.226	mg/kg	0.00442 %		
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
10	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											
11	zinc { zinc chromate }				190	mg/kg	2.774	527.088	mg/kg	0.0527 %		
	024-007-00-3	236-878-9	13530-65-9									
12	pH				8.4	pH		8.4	pH	8.4 pH		
			pH									
13	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
	CLP index number	EC Number	CAS Number							
14	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
			TPH							
15	acenaphthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9							
16	acenaphthylene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		205-917-1	208-96-8							
17	anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		204-371-1	120-12-7							
18	benzo[a]anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-033-00-9	200-280-6	56-55-3							
19	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							
20	benzo[b]fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-034-00-4	205-911-9	205-99-2							
21	benzo[ghi]perylene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		205-883-8	191-24-2							
22	benzo[k]fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-036-00-5	205-916-6	207-08-9							
23	chrysene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-048-00-0	205-923-4	218-01-9							
24	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							
25	fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		205-912-4	206-44-0							
26	fluorene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		201-695-5	86-73-7							
27	indeno[123-cd]pyrene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		205-893-2	193-39-5							
28	naphthalene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
29	phenanthrene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		201-581-5	85-01-8							
30	pyrene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		204-927-3	129-00-0							
31	phenol				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	604-001-00-2	203-632-7	108-95-2							
Total:								0.0769 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: BH06

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

Sample details

Sample name:	LoW Code:
BH06	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)
2.00 m	
Moisture content:	
11%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: **11% No Moisture Correction applied (MC)**

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				12	mg/kg	1.32	15.844	mg/kg	0.00158 %		
	033-003-00-0	215-481-4	1327-53-3									
2	beryllium { beryllium oxide }				0.84	mg/kg	2.775	2.331	mg/kg	0.000233 %		
	004-003-00-8	215-133-1	1304-56-9									
3	boron { boron tribromide/trichloride/trifluoride (combined) }				0.8	mg/kg	13.43	10.744	mg/kg	0.00107 %		
			10294-33-4, 10294-34-5, 7637-07-2									
4	cadmium { cadmium sulfide }			1	1.1	mg/kg	1.285	1.414	mg/kg	0.00011 %		
	048-010-00-4	215-147-8	1306-23-6									
5	chromium { chromium(III) oxide (worst case) }				29	mg/kg	1.462	42.385	mg/kg	0.00424 %		
		215-160-9	1308-38-9									
6	copper { dicopper oxide; copper (I) oxide }				61	mg/kg	1.126	68.679	mg/kg	0.00687 %		
	029-002-00-X	215-270-7	1317-39-1									
7	lead { lead chromate }			1	52	mg/kg	1.56	81.11	mg/kg	0.0052 %		
	082-004-00-2	231-846-0	7758-97-6									
8	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									
9	nickel { nickel dihydroxide }				41	mg/kg	1.579	64.759	mg/kg	0.00648 %		
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
10	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											
11	zinc { zinc chromate }				240	mg/kg	2.774	665.795	mg/kg	0.0666 %		
	024-007-00-3	236-878-9	13530-65-9									
12	pH				8.5	pH		8.5	pH	8.5 pH		
			pH									
13	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
	CLP index number	EC Number	CAS Number							
14	TPH (C6 to C40) petroleum group				27 mg/kg		27 mg/kg	0.0027 %		
			TPH							
15	acenaphthene				0.43 mg/kg		0.43 mg/kg	0.000043 %		
		201-469-6	83-32-9							
16	acenaphthylene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		205-917-1	208-96-8							
17	anthracene				0.67 mg/kg		0.67 mg/kg	0.000067 %		
		204-371-1	120-12-7							
18	benzo[a]anthracene				1.2 mg/kg		1.2 mg/kg	0.00012 %		
	601-033-00-9	200-280-6	56-55-3							
19	benzo[a]pyrene; benzo[def]chrysene				0.8 mg/kg		0.8 mg/kg	0.00008 %		
	601-032-00-3	200-028-5	50-32-8							
20	benzo[b]fluoranthene				1.2 mg/kg		1.2 mg/kg	0.00012 %		
	601-034-00-4	205-911-9	205-99-2							
21	benzo[ghi]perylene				0.47 mg/kg		0.47 mg/kg	0.000047 %		
		205-883-8	191-24-2							
22	benzo[k]fluoranthene				0.29 mg/kg		0.29 mg/kg	0.000029 %		
	601-036-00-5	205-916-6	207-08-9							
23	chrysene				0.96 mg/kg		0.96 mg/kg	0.000096 %		
	601-048-00-0	205-923-4	218-01-9							
24	dibenz[a,h]anthracene				0.1 mg/kg		0.1 mg/kg	0.00001 %		
	601-041-00-2	200-181-8	53-70-3							
25	fluoranthene				2.5 mg/kg		2.5 mg/kg	0.00025 %		
		205-912-4	206-44-0							
26	fluorene				0.43 mg/kg		0.43 mg/kg	0.000043 %		
		201-695-5	86-73-7							
27	indeno[123-cd]pyrene				0.36 mg/kg		0.36 mg/kg	0.000036 %		
		205-893-2	193-39-5							
28	naphthalene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
29	phenanthrene				2.8 mg/kg		2.8 mg/kg	0.00028 %		
		201-581-5	85-01-8							
30	pyrene				2.3 mg/kg		2.3 mg/kg	0.00023 %		
		204-927-3	129-00-0							
31	phenol				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	604-001-00-2	203-632-7	108-95-2							
Total:								0.097 %		

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
- ND Not detected
- CLP: Note 1 Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because No significant flammable materials or contamination identified.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0027%)

Classification of sample: TP16

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

Sample details

Sample name:	LoW Code:
TP16	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)
1.50 m	
Moisture content:	
4.9%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 4.9% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				4.8	mg/kg	1.32	6.338	mg/kg	0.000634 %		
	033-003-00-0	215-481-4	1327-53-3									
2	beryllium { beryllium oxide }				0.99	mg/kg	2.775	2.748	mg/kg	0.000275 %		
	004-003-00-8	215-133-1	1304-56-9									
3	boron { boron tribromide/trichloride/trifluoride (combined) }				0.5	mg/kg	13.43	6.715	mg/kg	0.000672 %		
			10294-33-4, 10294-34-5, 7637-07-2									
4	cadmium { cadmium sulfide }			1	0.2	mg/kg	1.285	0.257	mg/kg	0.00002 %		
	048-010-00-4	215-147-8	1306-23-6									
5	chromium { chromium(III) oxide (worst case) }				20	mg/kg	1.462	29.231	mg/kg	0.00292 %		
		215-160-9	1308-38-9									
6	copper { dicopper oxide; copper (I) oxide }				32	mg/kg	1.126	36.028	mg/kg	0.0036 %		
	029-002-00-X	215-270-7	1317-39-1									
7	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									
8	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									
9	nickel { nickel dihydroxide }				40	mg/kg	1.579	63.18	mg/kg	0.00632 %		
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
10	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											
11	zinc { zinc chromate }				100	mg/kg	2.774	277.415	mg/kg	0.0277 %		
	024-007-00-3	236-878-9	13530-65-9									
12	pH				8.2	pH		8.2	pH	8.2 pH		
			pH									
13	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
	CLP index number	EC Number	CAS Number							
14	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
			TPH							
15	acenaphthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9							
16	acenaphthylene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		205-917-1	208-96-8							
17	anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		204-371-1	120-12-7							
18	benzo[a]anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-033-00-9	200-280-6	56-55-3							
19	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							
20	benzo[b]fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-034-00-4	205-911-9	205-99-2							
21	benzo[ghi]perylene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		205-883-8	191-24-2							
22	benzo[k]fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-036-00-5	205-916-6	207-08-9							
23	chrysene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-048-00-0	205-923-4	218-01-9							
24	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							
25	fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		205-912-4	206-44-0							
26	fluorene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		201-695-5	86-73-7							
27	indeno[123-cd]pyrene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		205-893-2	193-39-5							
28	naphthalene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
29	phenanthrene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		201-581-5	85-01-8							
30	pyrene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		204-927-3	129-00-0							
31	phenol				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	604-001-00-2	203-632-7	108-95-2							
Total:								0.045 %		

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
- ND Not detected
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: TP17

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

Sample details

Sample name:	LoW Code:
TP17	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 m	
Moisture content:	
6.9%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 6.9% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				44	mg/kg	1.32	58.094	mg/kg	0.00581 %		
	033-003-00-0	215-481-4	1327-53-3									
2	beryllium { beryllium oxide }				1.1	mg/kg	2.775	3.053	mg/kg	0.000305 %		
	004-003-00-8	215-133-1	1304-56-9									
3	boron { boron tribromide/trichloride/trifluoride (combined) }				0.6	mg/kg	13.43	8.058	mg/kg	0.000806 %		
			10294-33-4, 10294-34-5, 7637-07-2									
4	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									
5	chromium { chromium(III) oxide (worst case) }				19	mg/kg	1.462	27.77	mg/kg	0.00278 %		
		215-160-9	1308-38-9									
6	copper { dicopper oxide; copper (I) oxide }				56	mg/kg	1.126	63.05	mg/kg	0.0063 %		
	029-002-00-X	215-270-7	1317-39-1									
7	lead { lead chromate }			1	36	mg/kg	1.56	56.153	mg/kg	0.0036 %		
	082-004-00-2	231-846-0	7758-97-6									
8	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									
9	nickel { nickel dihydroxide }				40	mg/kg	1.579	63.18	mg/kg	0.00632 %		
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
10	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											
11	zinc { zinc chromate }				71	mg/kg	2.774	196.964	mg/kg	0.0197 %		
	024-007-00-3	236-878-9	13530-65-9									
12	pH				7.6	pH		7.6	pH	7.6 pH		
			pH									
13	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
	CLP index number	EC Number	CAS Number								
14	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %			<LOD
			TPH								
15	acenaphthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
		201-469-6	83-32-9								
16	acenaphthylene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
		205-917-1	208-96-8								
17	anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
		204-371-1	120-12-7								
18	benzo[a]anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
	601-033-00-9	200-280-6	56-55-3								
19	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								
20	benzo[b]fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
	601-034-00-4	205-911-9	205-99-2								
21	benzo[ghi]perylene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
		205-883-8	191-24-2								
22	benzo[k]fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
	601-036-00-5	205-916-6	207-08-9								
23	chrysene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
	601-048-00-0	205-923-4	218-01-9								
24	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								
25	fluoranthene				0.22 mg/kg		0.22 mg/kg	0.000022 %			
		205-912-4	206-44-0								
26	fluorene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
		201-695-5	86-73-7								
27	indeno[123-cd]pyrene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
		205-893-2	193-39-5								
28	naphthalene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
29	phenanthrene				0.41 mg/kg		0.41 mg/kg	0.000041 %			
		201-581-5	85-01-8								
30	pyrene				0.28 mg/kg		0.28 mg/kg	0.000028 %			
		204-927-3	129-00-0								
31	phenol				<1 mg/kg		<1 mg/kg	<0.0001 %			<LOD
	604-001-00-2	203-632-7	108-95-2								
Total:									0.0473 %		

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
- ND Not detected
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: TP23



Unknown. Chemistry data not provided.

Classified as **17 05 04** or **17 05 03 ***
in the List of Waste

Sample details

Sample name:	LoW Code:
TP23	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 m	

Hazard properties

None identified

Determinands

Moisture content: **0% No Moisture Correction applied (MC)**

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
Total:								0%		

Key

User supplied data

Classification of sample: TP26

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

Sample details

Sample name:	LoW Code:
TP26	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 m	
Moisture content:	
9%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 9% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				9.8	mg/kg	1.32	12.939	mg/kg	0.00129 %		
	033-003-00-0	215-481-4	1327-53-3									
2	beryllium { beryllium oxide }				0.64	mg/kg	2.775	1.776	mg/kg	0.000178 %		
	004-003-00-8	215-133-1	1304-56-9									
3	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									
4	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									
5	chromium { chromium(III) oxide (worst case) }				31	mg/kg	1.462	45.308	mg/kg	0.00453 %		
		215-160-9	1308-38-9									
6	copper { dicopper oxide; copper (I) oxide }				13	mg/kg	1.126	14.637	mg/kg	0.00146 %		
	029-002-00-X	215-270-7	1317-39-1									
7	lead { lead chromate }			1	14	mg/kg	1.56	21.837	mg/kg	0.0014 %		
	082-004-00-2	231-846-0	7758-97-6									
8	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									
9	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]									
10	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											
11	zinc { zinc chromate }				39	mg/kg	2.774	108.192	mg/kg	0.0108 %		
	024-007-00-3	236-878-9	13530-65-9									
12	pH				7.3	pH		7.3	pH	7.3 pH		
			pH									
13	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
		CLP index number	EC Number	CAS Number										
14	●	TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD	
				TPH										
15	●	acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD	
			201-469-6	83-32-9										
16	●	acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD	
			205-917-1	208-96-8										
17	●	anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD	
			204-371-1	120-12-7										
18		benzo[a]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD	
		601-033-00-9	200-280-6	56-55-3										
19		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										
20		benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD	
		601-034-00-4	205-911-9	205-99-2										
21	●	benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD	
			205-883-8	191-24-2										
22		benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD	
		601-036-00-5	205-916-6	207-08-9										
23		chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD	
		601-048-00-0	205-923-4	218-01-9										
24		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										
25	●	fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD	
			205-912-4	206-44-0										
26	●	fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD	
			201-695-5	86-73-7										
27	●	indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD	
			205-893-2	193-39-5										
28		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD	
		601-052-00-2	202-049-5	91-20-3										
29	●	phenanthrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD	
			201-581-5	85-01-8										
30	●	pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD	
			204-927-3	129-00-0										
31		phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD	
		604-001-00-2	203-632-7	108-95-2										
Total:											0.0257 %			

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP32

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

Sample details

Sample name:	LoW Code:
TP32	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)
2.50 m	
Moisture content:	
9.5%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 9.5% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				12 mg/kg	1.32	15.844 mg/kg	0.00158 %		
	033-003-00-0	215-481-4	1327-53-3							
2	beryllium { beryllium oxide }				0.88 mg/kg	2.775	2.442 mg/kg	0.000244 %		
	004-003-00-8	215-133-1	1304-56-9							
3	boron { boron tribromide/trichloride/trifluoride (combined) }				<0.2 mg/kg	13.43	<2.686 mg/kg	<0.000269 %		<LOD
			10294-33-4, 10294-34-5, 7637-07-2							
4	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							
5	chromium { chromium(III) oxide (worst case) }				35 mg/kg	1.462	51.154 mg/kg	0.00512 %		
		215-160-9	1308-38-9							
6	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							
7	lead { lead chromate }			1	17 mg/kg	1.56	26.517 mg/kg	0.0017 %		
	082-004-00-2	231-846-0	7758-97-6							
8	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							
9	nickel { nickel dihydroxide }				31 mg/kg	1.579	48.964 mg/kg	0.0049 %		
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]							
10	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									
11	zinc { zinc chromate }				49 mg/kg	2.774	135.933 mg/kg	0.0136 %		
	024-007-00-3	236-878-9	13530-65-9							
12	pH				7.9 pH		7.9 pH	7.9 pH		
			pH							
13	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
	CLP index number	EC Number	CAS Number									
14	TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
			TPH									
15	acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9									
16	acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-917-1	208-96-8									
17	anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		204-371-1	120-12-7									
18	benzo[a]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-033-00-9	200-280-6	56-55-3									
19	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									
20	benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-034-00-4	205-911-9	205-99-2									
21	benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-883-8	191-24-2									
22	benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-036-00-5	205-916-6	207-08-9									
23	chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-048-00-0	205-923-4	218-01-9									
24	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									
25	fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-912-4	206-44-0									
26	fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-695-5	86-73-7									
27	indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-893-2	193-39-5									
28	naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
29	phenanthrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-581-5	85-01-8									
30	pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		204-927-3	129-00-0									
31	phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	604-001-00-2	203-632-7	108-95-2									
Total:										0.0313 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Classification of sample: TP33

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

Sample details

Sample name:	LoW Code:
TP33	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)
1.00 m	
Moisture content:	
9.7%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 9.7% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				10 mg/kg	1.32	13.203 mg/kg	0.00132 %		
	033-003-00-0	215-481-4	1327-53-3							
2	beryllium { beryllium oxide }				0.76 mg/kg	2.775	2.109 mg/kg	0.000211 %		
	004-003-00-8	215-133-1	1304-56-9							
3	boron { boron tribromide/trichloride/trifluoride (combined) }				<0.2 mg/kg	13.43	<2.686 mg/kg	<0.000269 %		<LOD
			10294-33-4, 10294-34-5, 7637-07-2							
4	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							
5	chromium { chromium(III) oxide (worst case) }				28 mg/kg	1.462	40.924 mg/kg	0.00409 %		
		215-160-9	1308-38-9							
6	copper { dicopper oxide; copper (I) oxide }				31 mg/kg	1.126	34.903 mg/kg	0.00349 %		
	029-002-00-X	215-270-7	1317-39-1							
7	lead { lead chromate }			1	26 mg/kg	1.56	40.555 mg/kg	0.0026 %		
	082-004-00-2	231-846-0	7758-97-6							
8	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							
9	nickel { nickel dihydroxide }				29 mg/kg	1.579	45.805 mg/kg	0.00458 %		
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]							
10	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									
11	zinc { zinc chromate }				68 mg/kg	2.774	188.642 mg/kg	0.0189 %		
	024-007-00-3	236-878-9	13530-65-9							
12	pH				8.3 pH		8.3 pH	8.3 pH		
13	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
	CLP index number	EC Number	CAS Number									
14	TPH (C6 to C40) petroleum group				23	mg/kg		23	mg/kg	0.0023 %		
			TPH									
15	benzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	601-020-00-8	200-753-7	71-43-2									
16	ethylbenzene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	601-023-00-4	202-849-4	100-41-4									
17	toluene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	601-021-00-3	203-625-9	108-88-3									
18	xylene				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]									
19	acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9									
20	acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-917-1	208-96-8									
21	anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		204-371-1	120-12-7									
22	benzo[a]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-033-00-9	200-280-6	56-55-3									
23	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									
24	benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-034-00-4	205-911-9	205-99-2									
25	benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-883-8	191-24-2									
26	benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-036-00-5	205-916-6	207-08-9									
27	chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-048-00-0	205-923-4	218-01-9									
28	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									
29	fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-912-4	206-44-0									
30	fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-695-5	86-73-7									
31	indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-893-2	193-39-5									
32	naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
33	phenanthrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-581-5	85-01-8									
34	pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		204-927-3	129-00-0									
35	phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	604-001-00-2	203-632-7	108-95-2									
Total:										0.0387 %		

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
ND	Not detected
CLP: Note 1	Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because No significant flammable materials or contamination identified.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0023%)

Classification of sample: SP01

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

Sample details

Sample name:	LoW Code:
SP01	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 m	
Moisture content:	
11%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: **11% No Moisture Correction applied (MC)**

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				3.3	mg/kg	1.32	4.357	mg/kg	0.000436 %		
	033-003-00-0	215-481-4	1327-53-3									
2	beryllium { beryllium oxide }				0.85	mg/kg	2.775	2.359	mg/kg	0.000236 %		
	004-003-00-8	215-133-1	1304-56-9									
3	boron { boron tribromide/trichloride/trifluoride (combined) }				0.6	mg/kg	13.43	8.058	mg/kg	0.000806 %		
			10294-33-4, 10294-34-5, 7637-07-2									
4	cadmium { cadmium sulfide }			1	0.2	mg/kg	1.285	0.257	mg/kg	0.00002 %		
	048-010-00-4	215-147-8	1306-23-6									
5	chromium { chromium(III) oxide (worst case) }				33	mg/kg	1.462	48.231	mg/kg	0.00482 %		
		215-160-9	1308-38-9									
6	copper { dicopper oxide; copper (I) oxide }				32	mg/kg	1.126	36.028	mg/kg	0.0036 %		
	029-002-00-X	215-270-7	1317-39-1									
7	lead { lead chromate }			1	33	mg/kg	1.56	51.474	mg/kg	0.0033 %		
	082-004-00-2	231-846-0	7758-97-6									
8	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									
9	nickel { nickel dihydroxide }				30	mg/kg	1.579	47.385	mg/kg	0.00474 %		
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
10	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											
11	zinc { zinc chromate }				85	mg/kg	2.774	235.802	mg/kg	0.0236 %		
	024-007-00-3	236-878-9	13530-65-9									
12	pH				8.4	pH		8.4	pH	8.4 pH		
			pH									
13	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
	CLP index number	EC Number	CAS Number								
14	TPH (C6 to C40) petroleum group				34 mg/kg		34	mg/kg	0.0034 %		
			TPH								
15	acenaphthene				<0.05 mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9								
16	acenaphthylene				<0.05 mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-917-1	208-96-8								
17	anthracene				0.19 mg/kg		0.19	mg/kg	0.000019 %		
		204-371-1	120-12-7								
18	benzo[a]anthracene				0.8 mg/kg		0.8	mg/kg	0.00008 %		
	601-033-00-9	200-280-6	56-55-3								
19	benzo[a]pyrene; benzo[def]chrysene				0.56 mg/kg		0.56	mg/kg	0.000056 %		
	601-032-00-3	200-028-5	50-32-8								
20	benzo[b]fluoranthene				0.86 mg/kg		0.86	mg/kg	0.000086 %		
	601-034-00-4	205-911-9	205-99-2								
21	benzo[ghi]perylene				0.42 mg/kg		0.42	mg/kg	0.000042 %		
		205-883-8	191-24-2								
22	benzo[k]fluoranthene				0.22 mg/kg		0.22	mg/kg	0.000022 %		
	601-036-00-5	205-916-6	207-08-9								
23	chrysene				0.68 mg/kg		0.68	mg/kg	0.000068 %		
	601-048-00-0	205-923-4	218-01-9								
24	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								
25	fluoranthene				1.4 mg/kg		1.4	mg/kg	0.00014 %		
		205-912-4	206-44-0								
26	fluorene				<0.05 mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-695-5	86-73-7								
27	indeno[123-cd]pyrene				0.32 mg/kg		0.32	mg/kg	0.000032 %		
		205-893-2	193-39-5								
28	naphthalene				<0.05 mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-052-00-2	202-049-5	91-20-3								
29	phenanthrene				1.3 mg/kg		1.3	mg/kg	0.00013 %		
		201-581-5	85-01-8								
30	pyrene				1.4 mg/kg		1.4	mg/kg	0.00014 %		
		204-927-3	129-00-0								
31	phenol				<1 mg/kg		<1	mg/kg	<0.0001 %		<LOD
	604-001-00-2	203-632-7	108-95-2								
Total:									0.0463 %		

Key

- User supplied data
- Determinand values ignored for classification, see column 'Conc. Not Used' for reason
- Determinand defined or amended by HazWasteOnline (see Appendix A)
- Speciated Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD Below limit of detection
- ND Not detected
- CLP: Note 1 Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because No significant flammable materials or contamination identified.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0034%)

Classification of sample: TP02

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

Sample details

Sample name:	LoW Code:
TP02	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 m	
Moisture content:	
8.1%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 8.1% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				9	mg/kg	1.32	11.883	mg/kg	0.00119 %		
	033-003-00-0	215-481-4	1327-53-3									
2	beryllium { beryllium oxide }				0.42	mg/kg	2.775	1.166	mg/kg	0.000117 %		
	004-003-00-8	215-133-1	1304-56-9									
3	boron { boron tribromide/trichloride/trifluoride (combined) }				0.3	mg/kg	13.43	4.029	mg/kg	0.000403 %		
			10294-33-4, 10294-34-5, 7637-07-2									
4	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									
5	chromium { chromium(III) oxide (worst case) }				24	mg/kg	1.462	35.077	mg/kg	0.00351 %		
		215-160-9	1308-38-9									
6	copper { dicopper oxide; copper (I) oxide }				9.4	mg/kg	1.126	10.583	mg/kg	0.00106 %		
	029-002-00-X	215-270-7	1317-39-1									
7	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									
8	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									
9	nickel { nickel dihydroxide }				16	mg/kg	1.579	25.272	mg/kg	0.00253 %		
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
10	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											
11	zinc { zinc chromate }				33	mg/kg	2.774	91.547	mg/kg	0.00915 %		
	024-007-00-3	236-878-9	13530-65-9									
12	pH				7.1	pH		7.1	pH	7.1 pH		
			pH									
13	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
	CLP index number	EC Number	CAS Number							
14	TPH (C6 to C40) petroleum group				46 mg/kg		46 mg/kg	0.0046 %		
			TPH							
15	acenaphthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9							
16	acenaphthylene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		205-917-1	208-96-8							
17	anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		204-371-1	120-12-7							
18	benzo[a]anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-033-00-9	200-280-6	56-55-3							
19	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							
20	benzo[b]fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-034-00-4	205-911-9	205-99-2							
21	benzo[ghi]perylene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		205-883-8	191-24-2							
22	benzo[k]fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-036-00-5	205-916-6	207-08-9							
23	chrysene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-048-00-0	205-923-4	218-01-9							
24	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							
25	fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		205-912-4	206-44-0							
26	fluorene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		201-695-5	86-73-7							
27	indeno[123-cd]pyrene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		205-893-2	193-39-5							
28	naphthalene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
29	phenanthrene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		201-581-5	85-01-8							
30	pyrene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		204-927-3	129-00-0							
31	phenol				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	604-001-00-2	203-632-7	108-95-2							
Total:								0.0246 %		

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
- ND Not detected
- CLP: Note 1 Only the metal concentration has been used for classification

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because No significant flammable materials or contamination identified.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0046%)

Classification of sample: TP03

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

Sample details

Sample name:	LoW Code:
TP03	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 m	
Moisture content:	
12%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 12% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	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									
2	beryllium { beryllium oxide }				0.59	mg/kg	2.775	1.637	mg/kg	0.000164 %		
	004-003-00-8	215-133-1	1304-56-9									
3	boron { boron tribromide/trichloride/trifluoride (combined) }				0.3	mg/kg	13.43	4.029	mg/kg	0.000403 %		
			10294-33-4, 10294-34-5, 7637-07-2									
4	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									
5	chromium { chromium(III) oxide (worst case) }				22	mg/kg	1.462	32.154	mg/kg	0.00322 %		
		215-160-9	1308-38-9									
6	copper { dicopper oxide; copper (I) oxide }				9.9	mg/kg	1.126	11.146	mg/kg	0.00111 %		
	029-002-00-X	215-270-7	1317-39-1									
7	lead { lead chromate }			1	6.2	mg/kg	1.56	9.671	mg/kg	0.00062 %		
	082-004-00-2	231-846-0	7758-97-6									
8	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									
9	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]									
10	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											
11	zinc { zinc chromate }				30	mg/kg	2.774	83.224	mg/kg	0.00832 %		
	024-007-00-3	236-878-9	13530-65-9									
12	pH				8.1	pH		8.1	pH	8.1 pH		
			pH									
13	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
	CLP index number	EC Number	CAS Number								
14	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg		<0.001 %		<LOD
			TPH								
15	acenaphthene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
		201-469-6	83-32-9								
16	acenaphthylene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
		205-917-1	208-96-8								
17	anthracene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
		204-371-1	120-12-7								
18	benzo[a]anthracene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
	601-033-00-9	200-280-6	56-55-3								
19	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								
20	benzo[b]fluoranthene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
	601-034-00-4	205-911-9	205-99-2								
21	benzo[ghi]perylene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
		205-883-8	191-24-2								
22	benzo[k]fluoranthene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
	601-036-00-5	205-916-6	207-08-9								
23	chrysene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
	601-048-00-0	205-923-4	218-01-9								
24	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								
25	fluoranthene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
		205-912-4	206-44-0								
26	fluorene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
		201-695-5	86-73-7								
27	indeno[123-cd]pyrene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
		205-893-2	193-39-5								
28	naphthalene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
	601-052-00-2	202-049-5	91-20-3								
29	phenanthrene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
		201-581-5	85-01-8								
30	pyrene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
		204-927-3	129-00-0								
31	phenol				<1 mg/kg		<1 mg/kg		<0.0001 %		<LOD
	604-001-00-2	203-632-7	108-95-2								
Total:									0.0193 %		

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
- ND Not detected
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: TP07

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

Sample details

Sample name:	LoW Code:
TP07	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 m	
Moisture content:	
4%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 4% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				16	mg/kg	1.32	21.125	mg/kg	0.00211 %		
	033-003-00-0	215-481-4	1327-53-3									
2	beryllium { beryllium oxide }				0.89	mg/kg	2.775	2.47	mg/kg	0.000247 %		
	004-003-00-8	215-133-1	1304-56-9									
3	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									
4	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									
5	chromium { chromium(III) oxide (worst case) }				15	mg/kg	1.462	21.923	mg/kg	0.00219 %		
		215-160-9	1308-38-9									
6	copper { dicopper oxide; copper (I) oxide }				41	mg/kg	1.126	46.161	mg/kg	0.00462 %		
	029-002-00-X	215-270-7	1317-39-1									
7	lead { lead chromate }			1	22	mg/kg	1.56	34.316	mg/kg	0.0022 %		
	082-004-00-2	231-846-0	7758-97-6									
8	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									
9	nickel { nickel dihydroxide }				32	mg/kg	1.579	50.544	mg/kg	0.00505 %		
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
10	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											
11	zinc { zinc chromate }				97	mg/kg	2.774	269.092	mg/kg	0.0269 %		
	024-007-00-3	236-878-9	13530-65-9									
12	pH				7.7	pH		7.7	pH	7.7 pH		
13	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
	CLP index number	EC Number	CAS Number								
14	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg		<0.001 %		<LOD
			TPH								
15	acenaphthene				0.21 mg/kg		0.21 mg/kg		0.000021 %		
		201-469-6	83-32-9								
16	acenaphthylene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
		205-917-1	208-96-8								
17	anthracene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
		204-371-1	120-12-7								
18	benzo[a]anthracene				0.32 mg/kg		0.32 mg/kg		0.000032 %		
	601-033-00-9	200-280-6	56-55-3								
19	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								
20	benzo[b]fluoranthene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
	601-034-00-4	205-911-9	205-99-2								
21	benzo[ghi]perylene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
		205-883-8	191-24-2								
22	benzo[k]fluoranthene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
	601-036-00-5	205-916-6	207-08-9								
23	chrysene				0.35 mg/kg		0.35 mg/kg		0.000035 %		
	601-048-00-0	205-923-4	218-01-9								
24	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								
25	fluoranthene				0.47 mg/kg		0.47 mg/kg		0.000047 %		
		205-912-4	206-44-0								
26	fluorene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
		201-695-5	86-73-7								
27	indeno[123-cd]pyrene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
		205-893-2	193-39-5								
28	naphthalene				0.99 mg/kg		0.99 mg/kg		0.000099 %		
	601-052-00-2	202-049-5	91-20-3								
29	phenanthrene				1.2 mg/kg		1.2 mg/kg		0.00012 %		
		201-581-5	85-01-8								
30	pyrene				0.43 mg/kg		0.43 mg/kg		0.000043 %		
		204-927-3	129-00-0								
31	phenol				<1 mg/kg		<1 mg/kg		<0.0001 %		<LOD
	604-001-00-2	203-632-7	108-95-2								
Total:									0.0465 %		

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
- ND Not detected
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: TP19

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

Sample details

Sample name:	LoW Code:
TP19	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 m	
Moisture content:	
10%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 10% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				6.6	mg/kg	1.32	8.714	mg/kg	0.000871 %		
	033-003-00-0	215-481-4	1327-53-3									
2	beryllium { beryllium oxide }				0.44	mg/kg	2.775	1.221	mg/kg	0.000122 %		
	004-003-00-8	215-133-1	1304-56-9									
3	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									
4	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									
5	chromium { chromium(III) oxide (worst case) }				17	mg/kg	1.462	24.846	mg/kg	0.00248 %		
		215-160-9	1308-38-9									
6	copper { dicopper oxide; copper (I) oxide }				14	mg/kg	1.126	15.762	mg/kg	0.00158 %		
	029-002-00-X	215-270-7	1317-39-1									
7	lead { lead chromate }			1	16	mg/kg	1.56	24.957	mg/kg	0.0016 %		
	082-004-00-2	231-846-0	7758-97-6									
8	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									
9	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]									
10	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											
11	zinc { zinc chromate }				34	mg/kg	2.774	94.321	mg/kg	0.00943 %		
	024-007-00-3	236-878-9	13530-65-9									
12	pH				7.6	pH		7.6	pH	7.6 pH		
13	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
	CLP index number	EC Number	CAS Number							
14	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %		<LOD
			TPH							
15	acenaphthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9							
16	acenaphthylene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		205-917-1	208-96-8							
17	anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		204-371-1	120-12-7							
18	benzo[a]anthracene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-033-00-9	200-280-6	56-55-3							
19	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							
20	benzo[b]fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-034-00-4	205-911-9	205-99-2							
21	benzo[ghi]perylene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		205-883-8	191-24-2							
22	benzo[k]fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-036-00-5	205-916-6	207-08-9							
23	chrysene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-048-00-0	205-923-4	218-01-9							
24	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							
25	fluoranthene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		205-912-4	206-44-0							
26	fluorene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		201-695-5	86-73-7							
27	indeno[123-cd]pyrene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		205-893-2	193-39-5							
28	naphthalene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
29	phenanthrene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		201-581-5	85-01-8							
30	pyrene				<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
		204-927-3	129-00-0							
31	phenol				<1 mg/kg		<1 mg/kg	<0.0001 %		<LOD
	604-001-00-2	203-632-7	108-95-2							
Total:								0.0206 %		

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
- ND Not detected
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: TP20



Non Hazardous Waste

Classified as **17 05 04**
in the List of Waste

Sample details

Sample name:	LoW Code:
TP20	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)
0.80 m	
Moisture content:	
12%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: **12% No Moisture Correction applied (MC)**

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				8.9	mg/kg	1.32	11.751	mg/kg	0.00118 %		
	033-003-00-0	215-481-4	1327-53-3									
2	beryllium { beryllium oxide }				0.77	mg/kg	2.775	2.137	mg/kg	0.000214 %		
	004-003-00-8	215-133-1	1304-56-9									
3	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									
4	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									
5	chromium { chromium(III) oxide (worst case) }				34	mg/kg	1.462	49.693	mg/kg	0.00497 %		
		215-160-9	1308-38-9									
6	copper { dicopper oxide; copper (I) oxide }				17	mg/kg	1.126	19.14	mg/kg	0.00191 %		
	029-002-00-X	215-270-7	1317-39-1									
7	lead { lead chromate }			1	11	mg/kg	1.56	17.158	mg/kg	0.0011 %		
	082-004-00-2	231-846-0	7758-97-6									
8	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									
9	nickel { nickel dihydroxide }				27	mg/kg	1.579	42.646	mg/kg	0.00426 %		
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]									
10	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											
11	zinc { zinc chromate }				50	mg/kg	2.774	138.707	mg/kg	0.0139 %		
	024-007-00-3	236-878-9	13530-65-9									
12	pH				8	pH		8	pH	8pH		
13	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
	CLP index number	EC Number	CAS Number								
14	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg		<0.001 %		<LOD
			TPH								
15	acenaphthene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
		201-469-6	83-32-9								
16	acenaphthylene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
		205-917-1	208-96-8								
17	anthracene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
		204-371-1	120-12-7								
18	benzo[a]anthracene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
	601-033-00-9	200-280-6	56-55-3								
19	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								
20	benzo[b]fluoranthene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
	601-034-00-4	205-911-9	205-99-2								
21	benzo[ghi]perylene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
		205-883-8	191-24-2								
22	benzo[k]fluoranthene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
	601-036-00-5	205-916-6	207-08-9								
23	chrysene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
	601-048-00-0	205-923-4	218-01-9								
24	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								
25	fluoranthene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
		205-912-4	206-44-0								
26	fluorene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
		201-695-5	86-73-7								
27	indeno[123-cd]pyrene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
		205-893-2	193-39-5								
28	naphthalene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
	601-052-00-2	202-049-5	91-20-3								
29	phenanthrene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
		201-581-5	85-01-8								
30	pyrene				<0.05 mg/kg		<0.05 mg/kg		<0.000005 %		<LOD
		204-927-3	129-00-0								
31	phenol				<1 mg/kg		<1 mg/kg		<0.0001 %		<LOD
	604-001-00-2	203-632-7	108-95-2								
Total:									0.0296 %		

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
- ND Not detected
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: TP26[2]



Unknown. Chemistry data not provided.

Classified as **17 05 04** or **17 05 03 ***
in the List of Waste

Sample details

Sample name:	LoW Code:
TP26[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)
2.00 m	

Hazard properties

None identified

Determinands

Moisture content: **0% No Moisture Correction applied (MC)**

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
Total:								0%		

Key

User supplied data

Appendix A: Classifier defined and non CLP determinands

• **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**

CLP index number: 006-007-00-5

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

Data source: Commission Regulation (EC) No 790/2009 - 1st Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP1)

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

Reason for additional Hazards Statement(s):

14 Dec 2015 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

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

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

Hazard Statements: Flam. Liq. 3 H226 , Asp. Tox. 1 H304 , STOT RE 2 H373 , Muta. 1B H340 , Carc. 1B H350 , Repr. 2 H361d , Aquatic Chronic 2 H411

• **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

• **ethylbenzene** (EC Number: 202-849-4, CAS Number: 100-41-4)

CLP index number: 601-023-00-4
Description/Comments:
Data source: Commission Regulation (EU) No 605/2014 – 6th Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP6)
Additional Hazard Statement(s): Carc. 2 H351
Reason for additional Hazards Statement(s):
03 Jun 2015 - 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)}

No chromium VI concentrations above the LoD (4mg/kg).

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 sulposelenide 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 v1.1, May 2018**

HazWasteOnline Classification Engine Version: 2021.246.4869.9247 (05 Sep 2021)

HazWasteOnline Database: 2021.246.4869.9247 (05 Sep 2021)

This classification utilises the following guidance and legislation:

WM3 v1.1 - Waste Classification - 1st Edition v1.1 - May 2018

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 2019 - UK: 2019 No. 720 of 27th March 2019

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

POPs Regulation 2019 - Regulation (EU) 2019/1021 of 20 June 2019

