



BETTER SOLUTIONS, INTELLIGENTLY ENGINEERED

ENVIRONMENT

Trowbridge Town Council
Trowbridge Rugby Club
Devizes BA14 6JB

Phase 2 Geo-Environmental Assessment

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EXECUTIVE SUMMARY

EXECUTIVE SUMMARY	
Site Address	The site is located at land adjacent to Trowbridge Rugby Club, Devizes BA14 6JB.
Site Setting	The site is trapezoidal in shape and covers an area of approximately 10 hectares. It is bordered to the south by the A361 and to the north, east and west by open agricultural land. A track runs along the western boundary which provides access to local residential properties.
Proposed Development	The proposed development is anticipated to comprise one full size 3G football training pitch, which can be split into two smaller pitches, with associated facilities.
Published Ground Conditions	BGS mapping indicates that the site is directly underlain by limestone of the Cornbrash Formation. No superficial deposits have been recorded on-site, however, limited thicknesses of Made Ground and Topsoil are anticipated.
Site Investigation	Intrusive ground investigation works comprised the following: <ul style="list-style-type: none"> • Clearance and collection of coordinates and elevations of investigation locations by a specialist buried services tracing company; • Eight boreholes (DS01 – DS08) by dynamic sampling drilling; • Three TRL dynamic probe penetration (TRL DCP) tests; • 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 • Two post investigation ground gas and groundwater level monitoring visits.
Ground Conditions Encountered	The geological sequence encountered during the site investigation consisted of Natural Reworked Ground (with one exception of Made Ground in DS02), Head Deposits, Cornbrash Formation, and Forest Marble Formation.
Geotechnical Appraisal	No specific design loads were available at the time of writing however, based on the proposed development, it is anticipated that lightly loaded shallow spread footings and a ground bearing floor slab would be the preferred foundation solution. It is assumed that a significant earthworks exercise will not be required at the site.
Environmental Appraisal	No gas protection measures are required at the site, based on the gas and groundwater monitoring data available. No significant risk has been identified to human health, based on a public open space (park) end use. Contaminant concentrations obtained from soil leachate indicate that no significant risk is posed to controlled waters.
Waste Assessment	Soil sample results which were characterised against hazardous waste criteria using HazWasteOnline™ indicated soils from across the site to be classified as non-hazardous however, WAC testing undertaken on a sample from Stockpile 1 indicated this material would be unsuitable for disposal as inert waste, due to TOC and Loss on Ignition i.e. high carbon content.
This summary should be read in conjunction with BWB's full report (ref. TRC-BWB-ZZ-XX-RP-YE-0002-Ph2) and reflects an assessment of the Site based on information received by BWB at the time of production.	

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1. INTRODUCTION

Instruction

- 1.1 BWB Consulting (BWB) was instructed by Trowbridge Town Council (the Client) to carry out a Phase 2 Geo-Environmental Assessment for the site at Trowbridge Rugby Club, Devizes BA14 6JB.
- 1.2 The proposed development is anticipated to comprise a detailed planning application to inform the design of a number of proposed sports pitches adjacent to Trowbridge Rugby Club. At the time of writing the proposed work is considered to comprise the following:
 - 1no. full size 3G football training pitch, which can be split into two smaller pitches (110-yard x 70-yard space);
 - 2no. changing rooms;
 - 1no. meeting room;
 - New site access;
 - Car parking; and
 - Ancillaries.
- 1.3 A proposed masterplan, current at the time of writing, is presented in **Appendix 1**.

Previous Reports

- 1.4 The following geo-environmental reports have previously been completed for the site:
 - '*Phase 1 Geo-Environmental Assessment*' by BWB Consulting Ltd for Trowbridge Town Council, reference TRC-BWB-ZZ-XX-RP-YE-0001, dated March 2018.

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 inform foundation options; and
 - The ground gas regime beneath the site.
- 1.6 The above objectives will allow the preliminary Conceptual Site Model presented in the Phase 1 report to be verified and updated. The report has been completed in accordance with BS 10175:2011(+A2:2017) '*Investigation of Potentially Contaminated*

Sites, Code of Practice' and CLR11 '*Model Procedures for the Management of Land Contamination*'.

- 1.7 This report presents the information obtained from the desk study and the ground investigation undertaken at the site.

Scope of Works

- 1.8 The ground investigation scope of works was completed on 31st January and 1st March 2019 and comprised the following:

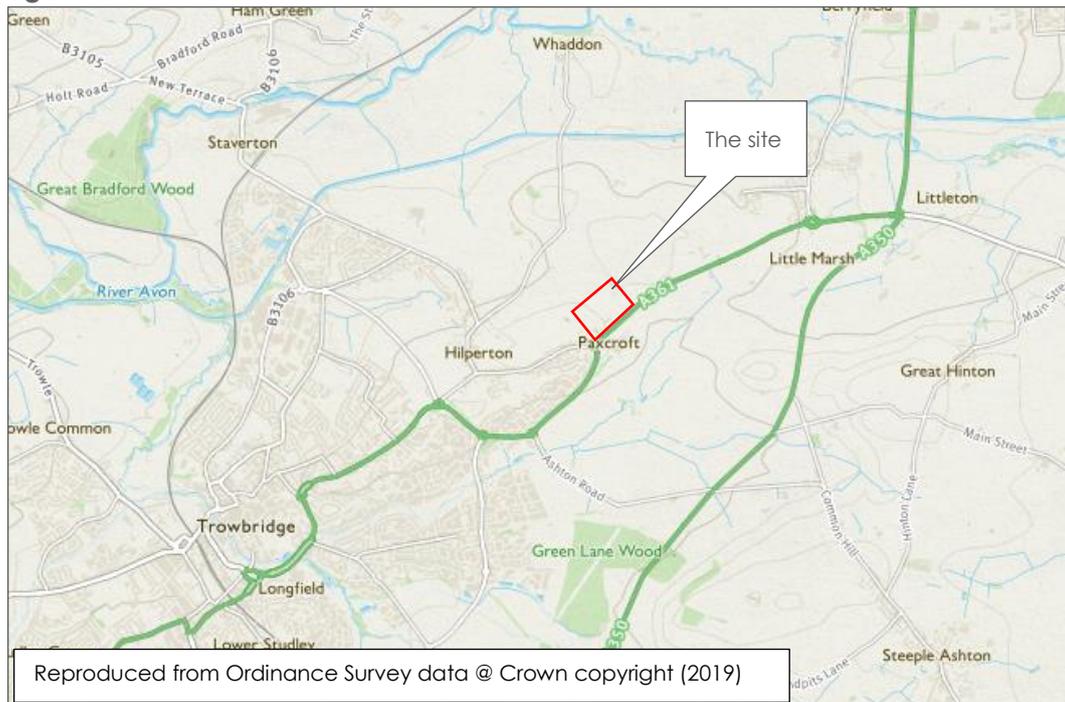
- Non-intrusive survey of excavation locations for underground utilities;
- Eight dynamic sampling boreholes;
- Three TRL Dynamic Cone Penetration (TRL DCP) tests;
- Chemical analysis of soils;
- Geotechnical testing of soil; and
- Two post-investigation gas and groundwater monitoring visits.

2. THE SITE

Site Location

- 2.1 The site is located on land adjacent to Trowbridge Rugby Club, near Devizes BA14 6JB and is centred at National Grid Co-ordinates 388239, 159543. The location of the site is shown below in **Figure 2:1**.

Figure 2:1: Site Location



Site Description

- 2.2 The site is trapezoidal in shape and covers an area of approximately 10 hectares. It is noted to be level, other than the bunds in the east and south. It is bordered to the south by the A361 and to the north, east and west by open agricultural land. A track runs along the western boundary, which provides access to local residential properties.
- 2.3 A full description of the site is presented within the Phase 1 Geo-environmental Assessment.

3. PUBLISHED GROUND CONDITIONS

3.1 Published ground conditions and controlled water vulnerability is discussed within **Table 3:1**.

Table 3:1: Published Ground Conditions

Geology	<p>Information published by the BGS indicates that the site is directly underlain by limestone of the Cornbrash Formation. No superficial deposits have been recorded on site, however, Head Deposits have been mapped approximately 80m to the east. Trowbridge Fault is mapped approximately 220m to the south of the site, down throwing to the south east.</p> <p>The closest BGS borehole (ST85NE1) is located approximately 425m to the north west, which recorded interbedded pale grey and greenish grey calcareous mudstones and siltstones to approximately 9.0m underlain by oolitic limestone.</p> <p>Aerial imagery indicates that the site was historically utilised for arable purposes and therefore a thickness of Topsoil is anticipated from ground level.</p>
Hydrogeology	<p>The EA classifies the underlying Cornbrash Formation and nearby Head Deposits as a Secondary A Aquifers. The underlying bedrock is indicated to have a very high permeability, with groundwater likely to flow through fractures.</p> <p>The site is not indicated to be in a Source Protection Zone and no groundwater abstraction licences have been recorded within 2km of the site.</p>
Hydrology	<p>The nearest surface water feature to the site is Paxcroft Brook, a Tertiary River located approximately 325m to the south east. The risk of flooding at the site is considered to be very low.</p> <p>No surface water abstraction licences have been recorded within 1km of the site and no pollution incidents have been recorded within 500m of the site.</p> <p>The Groundsure® Report indicates that a discharge consent is present on site for treated effluent discharging to groundwater, associated with Trowbridge Rugby Club. A further two discharge consents are present approximately 30m and 50m to the south east, associated with treated effluent discharging to soakaways.</p>
Ground Gas & Radon	<p>The property is not indicated to be in a Radon Affected Area as less than 1% of properties are above the Action Level.</p> <p>No significant sources of ground gas have been identified at the site.</p>
Mineral Extraction	<p>Hilperton Gravel Pit, which is no longer active, is located approximately 335m to the north.</p>
Environmental Sensitivity	<p>The site lies within an Archaeologically Sensitive Area as designated by Wiltshire Council.</p>

4. PRELIMINARY ENVIRONMENTAL RISK ASSESSMENT

Introduction

- 4.1 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.
- 4.2 A Source, Pathway, Receptor analysis was undertaken for the site as part of the Phase 1 Geo-Environmental Assessment. This is replicated as **Table 4:1** and further information about the risk classification scheme is included within **Appendix 2**.

Table 4.1: Preliminary Conceptual Site Model

Source	Pathway	Receptor	Con	Prob	Risk
S1: On site: Localised Made Ground associated with construction of the current Rugby Club and historical stables in the north east. Potential contaminants may include heavy metals, petroleum hydrocarbons and asbestos.	P1: Direct contact, incidental ingestion and inhalation of particulates.	R1: Construction workers	Md	Lw	M/L
		R2: Future site users (commercial)	Md	UI	L
	P2: Vertical migration of contaminants in the soil leachate.	R3: Underlying Secondary A Aquifer (Cornbrash Formation)	Mi	Lw	L
	P3: Lateral migration of contaminated groundwater.	R4: Paxcroft Brook	Md	UI	L
	P4: Direct contact.	R5: Water utility pipes	Mi	UI	VL
		R6: Buried structures/ foundations.	Mi	UI	VL
<p style="text-align: center;"> VH = Very High, H = High, M = Moderate, M/L = Moderate/Low, L = Low, VL = Very Low </p> <p style="text-align: center;"> KEY: Sv = Severe, Md = Medium, Mi = Mild, Mr = Minor Hi = High, Li = Likely, Lw = Low Likelihood, UI = Unlikely </p>					
Pollutant Linkage Assessment Summary					
<p>Ground conditions are anticipated to comprise limited Made Ground associated with the current development overlying the Cornbrash Formation. The main driver for the risk rating is considered to be the historical stables in the north east.</p> <p>Ground investigation is likely to be required in the eastern third of the site, to confirm the chemical and geotechnical parameters of underlying soils, particularly in the vicinity of the historical stables. Gloves should be worn during excavations to limit the risk to construction workers.</p> <p>No potential sources of ground gas have been identified during the Geo-Environmental Assessment and therefore ground gas protection measures are not anticipated to be required.</p> <p>When considered in the context of the conceptual site model and the historical activities that have taken place (former agricultural land currently utilised as a rugby training facility), the proposed development is considered to pose a LOW to MODERATE risk to human health receptors and a LOW risk to controlled waters receptors.</p>					

5. PHASE II ENVIRONMENTAL AND GEOTECHNICAL GROUND INVESTIGATION

- 5.1 Intrusive ground investigation works were undertaken on the 31st of January 2019 and the 1st of March 2019 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;
 - Advancement of eight boreholes (DS01 – DS08) by dynamic sampling drilling techniques, to a maximum depth of 4.00m bgl with completion of SPTs and installations of gas and groundwater monitoring wells;
 - Three TRL dynamic cone penetration (TRL DCP) testing at selected locations in order to infer CBR values;
 - 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
 - Two post-investigation ground gas and groundwater level monitoring visits.
- 5.2 An exploratory hole location plan is presented as **Drawing 1**. BWB exploratory hole records are presented as **Appendix 3**, the SPT calibration certificate is presented in **Appendix 4**, and the post-investigation gas and groundwater monitoring data is presented as **Appendix 5**.
- 5.3 The site investigation works were carried out in general accordance with BS 5930:2015 'Code of Practice for Site Investigations' and BS 10175:2011 'Investigation of Potentially Contaminated Sites'.

Exploratory Hole Location Strategy

- 5.4 The chemical sampling strategy for the site is presented in **Table 5:1**.

Table 5:1: Exploratory Hole Location Strategy

Location	Reason
DS01, DS02	Identify potential contamination from stables within the north eastern corner of the site.
DS03, DS04, DS05, DS06, DS07, DS08	General ground conditions.
Stockpile within centre of site	Identify composition and any potential contamination.

Chemical Analytical Strategy

- 5.5 Selected soil samples collected from exploratory hole locations were sent to i2 Analytical Ltd (UKAS and MCERTS accredited) for chemical analysis, with the following testing being undertaken:

- Eleven 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;
- Six soil samples for asbestos screening;
- 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; and
- One Full Waste Acceptance Criteria (WAC) test.

5.6 The results of the soil chemical testing are presented as **Appendix 6**.

5.7 The above soil chemical testing was targeted based on the following rationale presented within **Table 5:2**.

Table 5:2: Analytical Strategy

Location	Depth (m bgl)	Stratum	Analysis	Reason
DS02	0.03- 0.12	Made Ground	BWB Standard suite, BWB Standard Leachate suite, Asbestos ID	General Made Ground Screen
DS01 DS04	0.2- 0.3 0.4- 0.5	Reworked Natural	BWB Standard suite, BWB Standard Leachate suite, Asbestos ID	General Reworked Natural Screen
DS03 DS05 DS06	0.2- 0.3 0.2- 0.3 0.5- 0.6		BWB Standard suite, Asbestos ID	
DS07	0.3- 0.4		BWB Standard suite	
DS02 DS05 DS08	1.0- 1.1 1.1- 1.2 0.5- 0.6		Head	
DS04	2.9- 3.0	Forest Marble Formation		
Stockpile in centre of site	0.1	Made Ground	Full WAC	Identify composition and contaminants.

Geotechnical Strategy

5.8 Dynamic sampling boreholes DS04, DS05 and DS06 were positioned under the proposed 3G football pitch and DS07 was positioned beneath the proposed building to assess underlying ground conditions for geotechnical purposes. The remaining dynamic sampling boreholes were positioned to assess ground conditions, strength properties

and characteristics across the wider site, with the TRL DCP tests undertaken within the vicinity of the proposed road access to allow for pavement design.

- 5.9 In-situ soil strength testing comprising SPTs were undertaken with the dynamic sampling boreholes. SPT 'N' values are included on the exploratory hole logs presented as **Appendix 3**.
- 5.10 Selected disturbed and bulk samples were collected from the investigation locations and sent to the geotechnical project laboratory (i2 Analytical Ltd), which is UKAS accredited. The following geotechnical testing was undertaken;
- Twelve samples tested for moisture content;
 - Twelve samples tested for Atterberg (liquid and plastic) limits; and
 - Five samples tested for BRE Suite comprising aqueous sulphate and pH.
- 5.11 The results of the geotechnical testing are included as **Appendix 7**.

6. GROUND CONDITIONS ENCOUNTERED

Geological Summary

- 6.1 The ground conditions encountered in the ground investigation differ from the published geology discussed in the Phase 1 report. The recorded ground conditions are summarised in **Table 6:1**. Corrected SPT results collected from the borehole locations are presented on the exploratory hole records presented in **Appendix 3**.

Table 6:1: Summary of Ground Conditions

Stratum	Top Depth (m)		Base Depth (m)		Thickness (m)		SPT N Value	
	Min	Max	Min	Max	Min	Max	Min	Max
Reworked Natural	0.00	0.00	0.30	0.60	0.30	0.60	NR	NR
Made Ground	0.00	0.00	1.00	1.00	1.00	1.00	NR	NR
Head	0.30	1.00	0.80	2.20	0.50	1.25	9	40
Cornbrash Formation	0.80	2.20	1.70	3.30	0.10	1.40	17	31
Forest Marble Formation	1.70	3.30	2.60	4.00	0.60	2.30	15	50

Geological Descriptions

Natural Reworked

- 6.2 Natural reworked ground was encountered within seven of the eight boreholes across the site, at thicknesses of between 0.30m and 0.60m. The composition also displayed consistency, typically comprising grass over soft dark or reddish brown slightly sandy/sandy slightly gravelly clay with abundant rootlets. The sand was described as fine and medium within four locations and fine to coarse in three locations. The general composition of the gravel comprised angular to subrounded, fine to coarse coal, quartzite and calcareous sandstone, with brick being found in three locations.

Made Ground

- 6.3 Made Ground was encountered within one exploratory hole (DS02) at the site with a thickness of 1.00m.
- 6.4 The composition of the Made Ground, from ground level to 0.03m bgl, was dark brown slightly sandy clayey gravel with frequent rootlets. The sand was fine to coarse throughout. The gravel was angular to subrounded, fine to coarse quartzite, calcareous sandstone, coal and siltstone.
- 6.5 From 0.03m to 0.12m bgl, the Made Ground consisted of black gravelly sand with rare rootlets. The gravel was angular to rounded fine and medium coal, brick, quartzite and calcareous sandstone. From 0.12m to 1.00m bgl, the Made Ground comprised soft to firm reddish brown slightly sandy slightly gravelly clay with rare rootlets. Gravel was angular to rounded fine and medium brick, coal and calcareous sandstone.

Head

- 6.6 Head deposits were encountered in all locations with thicknesses ranging between 0.50m and 1.25m. Geological descriptions of the Head deposits were generally described as loose to medium dense orangish/yellowish brown, in two positions mottled orange, slightly clayey sandy gravel. The sand was fine to coarse and the gravel was angular to subrounded fine to coarse calcareous sandstone, with quartzite being present in two locations (DS01 and DS03).
- 6.7 Within two boreholes (DS07 and DS08), cohesive deposits were encountered below the natural reworked ground, before the granular stratum, which was described as firm to stiff yellowish-brown gravelly clay, the gravel was angular to subrounded fine to coarse coal and calcareous sandstone.

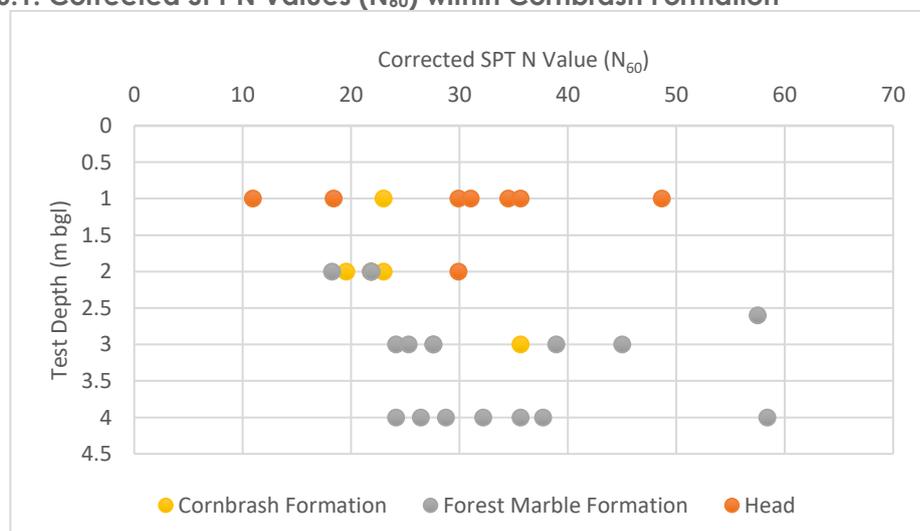
Cornbrash Formation

- 6.8 The Cornbrash Formation was encountered in all exploratory hole locations with thicknesses ranging between 0.10m and 1.40m. The Cornbrash Formation was generally described as firm to stiff fissured orangish brown and/or grey slightly sandy slightly gravelly clay with rare iron nodules and dark brown staining along fissures, where three positions had no sand. The sand was described as fine and medium and the gravel was described as angular to subrounded fine and medium limestone. One position (DS07) was described as orangish brown clayey fine to coarse sand.

Forest Marble Formation

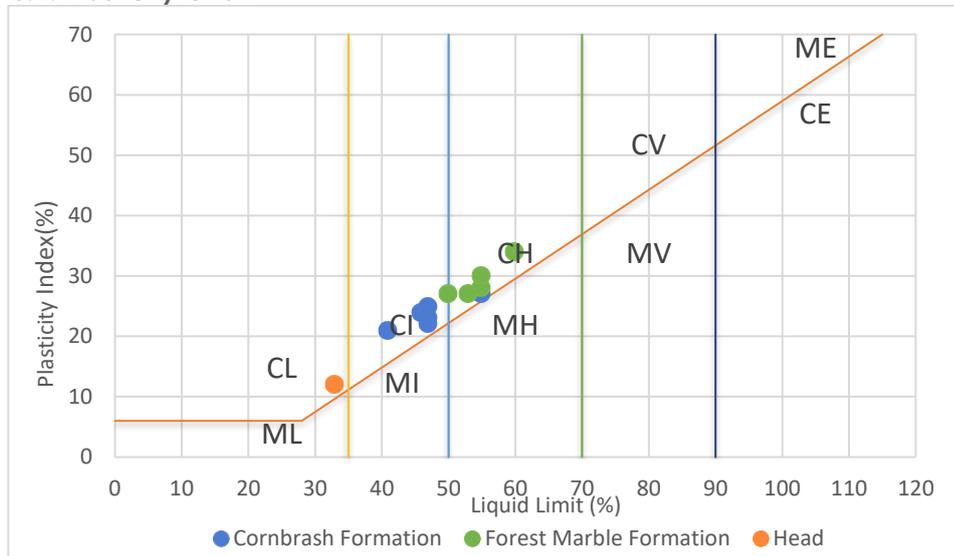
- 6.9 Below the Cornbrash Formation, the Forest Marble Formation was encountered to the base of each borehole. This stratum was generally described as stiff to very stiff fissured bluish grey and/or greyish brown clay with dark brown staining along fissures found in five positions and iron nodules found in three positions. One position (DS03) was noted to be slightly sandy; sand was fine.
- 6.10 A graph presenting the SPT results are presented in **Figure 6:1**.

Figure 6:1: Corrected SPT N Values (N_{60}) within Cornbrash Formation



6.11 The geotechnical laboratory testing has indicated PIs for the Cornbrash Formation ranged between 21% and 27% and 27% and 34% for the Forest Marble Formation; one PI value was found to be 12% for the Head deposits. All PI tests were indicated to be low plasticity. A Plasticity Chart is presented below as **Figure 6:2**.

Figure 6:2: Plasticity Chart



In Situ Testing

Dynamic Cone Penetrometer Testing

6.12 Dynamic Cone Penetrometer Tests were undertaken in order to infer California Bearing Ratio (CBR) values to inform pavement design. The testing was undertaken in accordance with Transport Research Laboratory (TRL) methodology. The results of the testing are presented as **Appendix 8** and are summarised in **Table 6:2**.

Table 6:2: DCP TRL Results Summary

Stratum	Min CBR (%)	Max CBR (%)
1	5.6	7.0
2	10.7	57.1
3	11.4	19.1
4	12.7	38.7

Hydrogeology

6.13 A summary of water depths and strike information from the investigation is provided in

6.14 **Table 6:3.**

Table 6:3: Water Strikes

Location	Depth (m bgl)	Flow Rate Remarks	Stratum
DS01	1.20	Water strike, rising to 1.40m bgl after 20 minutes	Cornbrash Formation
DS02	3.30	Seepage	Forest Marble Formation
DS07	1.00	Water strike, rising to 0.65m bgl after an hour	Head
DS08	0.30	Water strike, rising to 0.08m bgl after an hour	Reworked Natural

6.15 During subsequent monitoring, groundwater was recorded between 0.47m and 1.40m bgl at boreholes DS08 and DS04, respectively. No boreholes were noted as dry during the monitoring visits.

Contamination Observations

6.16 No visual or olfactory evidence of contamination was observed during the investigation or subsequent gas and groundwater monitoring period.

7. GEOTECHNICAL ASSESSMENT

Introduction

- 7.1 The proposed development is anticipated to comprise:
- 1 no. full size 3G football training pitch, which can be split into two smaller pitches (110-yard x 70-yard space);
 - 2 no. changing rooms;
 - 1 no. meeting room;
 - New site access;
 - Car parking; and
 - Ancillaries.
- 7.2 At the time of writing, no specific design loads were available. However, based on the proposed development, it is envisaged that lightly loaded shallow spread footings and a ground bearing floor slab would be the preferred foundation solution for the buildings.

Foundation Solutions

- 7.3 Consideration has been given to utilising traditional shallow spread foundations across the site. It is recommended that foundations are not constructed bearing into Made Ground/reworked natural material in order to avoid unpredictable and excessive total and differential settlements.
- 7.4 Based on the encountered ground conditions, the Head, Cornbrash Formation and Forest Marble Formation would all be considered as suitable founding stratum.
- 7.5 Based on the topography, earthworks and localised cut and fill may be required to provide acceptable levels. The foundation solution should be confirmed when the development plans are finalised.

Floor Slabs

- 7.6 On the basis that a significant earthworks exercise will not be required on site, with only localised cut and fill, a lightly loaded ground bearing floor slab bearing onto the natural strata should be suitable within maximum settlements of $\leq 25\text{mm}$.

Treatment of Ground Prior to Casting

- 7.7 Based on the investigation undertaken, no gas protection measures are indicated to be required for the proposed development.

Roads and Pavements

- 7.8 Based on the guidance within Interim Note 73/06 (IAN73/06) Revision 1 2009, the car park and footpath pavement design should be based on CBR values between 2% for cohesive material and 5% for granular material.
- 7.9 The majority of CBRs calculated using the DCP are above 2%, with the lowest typically recorded in upper 300mm.

Drainage

- 7.10 Falling head tests were not conducted as part of this investigation due to shallow groundwater being encountered during drilling.

Excavations

Ease and Stability of Excavation

- 7.11 Based on the ground conditions encountered during the intrusive investigation, conventional plant and equipment is expected to be suitable for shallow excavations.
- 7.12 Excavation may become unstable if left open for any significant periods, and where shallow groundwater is encountered. Where personnel entry is required for inspection; excavations should be sufficiently enlarged, and an assessment of safe temporary angles should be made. Alternatively, temporary shoring should be provided.

Legislation on Personnel Entry to Excavations

- 7.13 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

- 7.14 Groundwater was encountered at four locations during the ground investigation between depths of 0.30m bgl (DS08) and 3.30m bgl (DS02), across all strata. It was encountered in all installed boreholes during the monitoring period at depths between 0.47m bgl (DS08) and 1.40m bgl (DS04).
- 7.15 The presence of water has the potential to destabilise excavations and where groundwater is encountered during foundation excavations or the creation of developable plateaus, it may require removal. It is considered that conventional dewatering techniques comprising a sump and submersible pump are likely to provide an adequate form of water abstraction from these areas. However, care must be taken to avoid pumping out fine material (i.e. silt) as this could destabilise the localised ground.
- 7.16 No groundwater testing has been undertaken; contamination of groundwater is not considered an issue at the site.

Chemical Attack on Buried Concrete

- 7.17 Water soluble sulphate concentrations in natural soils varied from 7.4 mg/l to 1600 mg/l with soil pH values ranging from 7.4 to 8.4. Total sulphur concentration ranged from 0.032% to 1.3%.
- 7.18 In accordance with the recommendations of BRE Special Digest 1, '*Concrete in Aggressive Ground*' 2005, the conditions of the soils at the site would be classified as:
- Reworked natural, Made Ground, Head and Cornbrash Formation: Design Sulphate Class DS-1 and ACEC Class AC-1s; and
 - Forest Marble Formation: Design Sulphate Class DS-3 and ACEC Class AC-2s.

8. GROUND GAS ASSESSMENT

Introduction

- 8.1 Ground gas assessment has been undertaken to assess the risks associated with ground gases to new buildings and their occupants. The results obtained have been assessed in line with relevant guidance (notably CIRIA C665).
- 8.2 CIRIA C665 guidance indicates that for a site with a very low gas generation potential based on the presence of typical Made Ground and a low sensitivity development (recreational use), a typical monitoring programme may comprise four visits over a period of one month.
- 8.3 BWB has undertaken two visits over a period of one months and therefore this assessment is considered to be preliminary and additional monitoring may be required to support the proposed development.

Methodology

- 8.4 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 (VOCs) within the borehole response zones.

Results

- 8.5 The minimum and maximum steady state concentrations recorded for borehole flow, oxygen, carbon dioxide and methane are summarised below in **Table 8:1**. The full ground gas monitoring results are presented in **Appendix 5**.

Table 8:1: 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.
DS02	Head/Cornbrash Formation/Forest Marble Formation	<0.1	<0.1	0.1	0.2	<0.1	<0.1
DS04	Head	<0.1	<0.1	0.7	0.9	<0.1	<0.1
DS07	Head/Cornbrash Formation	<0.1	<0.1	0.3	0.3	<0.1	<0.1
DS08	Head	<0.1	<0.1	0.1	0.1	<0.1	<0.1

- 8.6 The atmospheric pressures were recorded as follows:
- Round 1 – 1012mB during the site visit falling from 1014mB over the preceding 12 hours; and
 - Round 2 – 997mB during the site visit falling from 999mB over the preceding 12 hours.
- 8.7 On this basis, the monitoring is considered likely to have captured the worst-case gassing scenario at the site as generally, ground gas emissions tend to increase when atmospheric pressure falls rapidly.
- 8.8 Hydrogen sulphide and carbon monoxide concentrations were not recorded above the limit of detection of the equipment during the monitoring visits.
- 8.9 PID concentrations were not recorded above the limit of detection of the equipment during the monitoring visits.

Risk Assessment

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

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

- 8.11 Maximum gas screening values of 0.0009 l/hr for carbon dioxide and 0.0001 l/hr for methane were calculated giving a classification of CS1, where no gas protection measures are required.

Recommendations

- 8.12 Based on the monitoring data available, gas protection measures are not required at the site.

9. HUMAN HEALTH RISK ASSESSMENT

Introduction

- 9.1 Soil contaminant data have been compared against published assessment criteria, which includes reference to the LQM/CIEH S4ULs for Human Health Risk Assessment Copyright Land Quality Management Limited reproduced with permission; publication number S4UL3271.
- 9.2 The soil chemical laboratory results are presented as **Appendix 6**.

Adopted Criteria

- 9.3 The site is to be developed for a recreational end use and therefore the key receptor is considered to be a female child in the first six years of life; therefore S4ULs for a public open space (park) end use (organic matter content of 1%) have been adopted.

Results

- 9.4 No significant elevated concentrations were observed from any of the soil samples tested from across the site in relation to the more commonly occurring contaminants analysed (e.g. heavy metals, PAHs, Total TPH). All contaminants were below the respective criteria and are not considered to require further assessment, as presented in **Appendix 9**.
- 9.5 No asbestos was detected in the six samples submitted for analysis.

Risk Assessment

- 9.6 Based on a public open space (park) end use, all contaminants were reported below their respective criteria, therefore no significant risk to human health has been identified and no further assessment is required.

10. CONTROLLED WATERS RISK ASSESSMENT

10.1 The controlled water assessment considers the potential impact of on-site contamination to pertinent controlled waters receptors identified at the site including:

- Underlying Secondary Undifferentiated Aquifer (Head deposits);
- Secondary A Aquifer (Cornbrash Formation and Forest Marble Formation); and
- Paxcroft Brook.

10.2 No groundwater or surface water testing has been undertaken as part of this assessment. However, soil leachability has been undertaken for a number of metals and the results are presented within **Appendix 10**.

Pathways

10.3 Controlled water risk assessment has been undertaken through assessment of leachable concentrations of contaminants in soil referring to exposure pathways considered and referencing **Table 10:1**.

Table 10:1: 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	✓

10.4 The site is underlain by Head deposits (Secondary Undifferentiated Aquifer), Cornbrash Formation (Secondary A Aquifer) and the Forest Marble Formation (Secondary A Aquifer). Paxcroft Brook is located approximately 325m south-east from the site. In the absence of a sensitive potable supply, it is considered appropriate to adopt environmental quality standards (EQS) for freshwater when assessing 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.

10.5 Water hardness has been adopted as >200mg/l CaCO₃ based on information available through Wessex Water indicating water hardness in the area to be 277.91 mg/l CaCO₃ (hard).

Soil Leachability

10.6 A summary of the soil leachate results exceeding the adopted screening criteria is presented in **Table 10:2**.

Table 10:2: Summary of Leachate Exceedances

Contaminant	No. of Samples	Range of Concentrations (µg/l)	Adopted Screening Criteria (µg/l)	No. of Exceedances
Copper	3	3.8- 4.7	1	3
Lead	3	2.6- 3.8	1.2	3
Zinc	3	3.3- 15.0	10.9	1

*For mercury and cyanide (total), the laboratory limit of detection is greater than the adopted screening criteria. It is considered likely that the concentrations are below the screening criteria, therefore, these exceedances are not considered within the assessment.

10.7 Exceedances of copper, lead and zinc are considered to be marginal as they are within an order of magnitude of the adopted screening criteria.

Summary

10.8 Based on the above findings it is considered that the recorded contaminant concentrations do not pose an unacceptable risk to controlled waters.

11. REVISED ENVIRONMENTAL RISK ASSESSMENT

- 11.1 The environmental risk assessment has not identified any contamination issues that represent a risk to human health or controlled waters with respect to the proposed development.

12. ENVIRONMENT LIABILITY ASSESSMENT/DEVELOPMENT CONSTRAINTS

Statutory Liability

- 12.1 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:

“Any land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land, that:

- a) Significant harm is being caused or there is a significant possibility of such harm being caused; or*
- b) Significant pollution of controlled waters is being caused or there is a significant possibility of such pollution being caused.”*

- 12.2 Harm is defined in Section 78(4) of the Environmental Protection Act 1990 as:

“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 his property.”

- 12.3 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.

- 12.4 Where no Class A appropriate persons can be identified, then Class B appropriate persons may become liable.

- 12.5 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 the results of the testing undertaken as part of the ground investigation.

Third Party Liability

- 12.6 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** when considering the absence of significant contamination sources.

Development Implications

- 12.7 There are deemed to be no significant implications to the proposed development with respect to contamination issues at the site.

13. WASTE MANAGEMENT

Waste Classification

- 13.1 Soil samples have been characterised against hazardous waste criteria using HazWasteOnline™. The results of the waste classification are presented in **Appendix 11**. 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.
- 13.2 Asbestos has not been found at the site. 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.
- 13.3 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.

Waste Acceptance Criteria

WAC testing was completed on one sample, the results are presented in **Appendix 12** and indicated the waste would be unsuitable for disposal as inert waste due to TOC and Loss on Ignition i.e. high carbon content.

14. CONCLUSION AND RECOMMENDATIONS

Conclusions and Recommendations

- 14.1 The site is proposed for a recreational end use. The geological sequence encountered during the site investigation consisted of the following:
- Natural Reworked Ground (with one exception of Made Ground in DS02);
 - Head Deposits;
 - Cornbrash Formation; and
 - Forest Marble Formation.
- 14.2 At the time of writing, no specific design loads were available. However, based on the proposed development, it is envisaged that lightly loaded shallow spread footings and a ground bearing floor slab would be the preferred foundation solution. It is assumed that a significant earthworks exercise will not be required at the site.
- 14.3 Gas and groundwater monitoring data available at the site indicates that no gas protection measures are not required at the site.
- 14.4 Based on a public open space (park) end use, all contaminants were reported below their respective assessment criteria, therefore no significant risk to human health has been identified and no further assessment is required.
- 14.5 Soil leachate results show contaminant concentrations do not pose an unacceptable risk to controlled waters and no further assessment is necessary.
- 14.6 Soil sample results which were characterised against hazardous waste criteria using HazWasteOnline™ indicated soils from across the site to be classified as non-hazardous however, WAC testing undertaken on a sample from Stockpile 1 indicated this material would be unsuitable for disposal as inert waste, due to TOC and Loss on Ignition i.e. high carbon content.

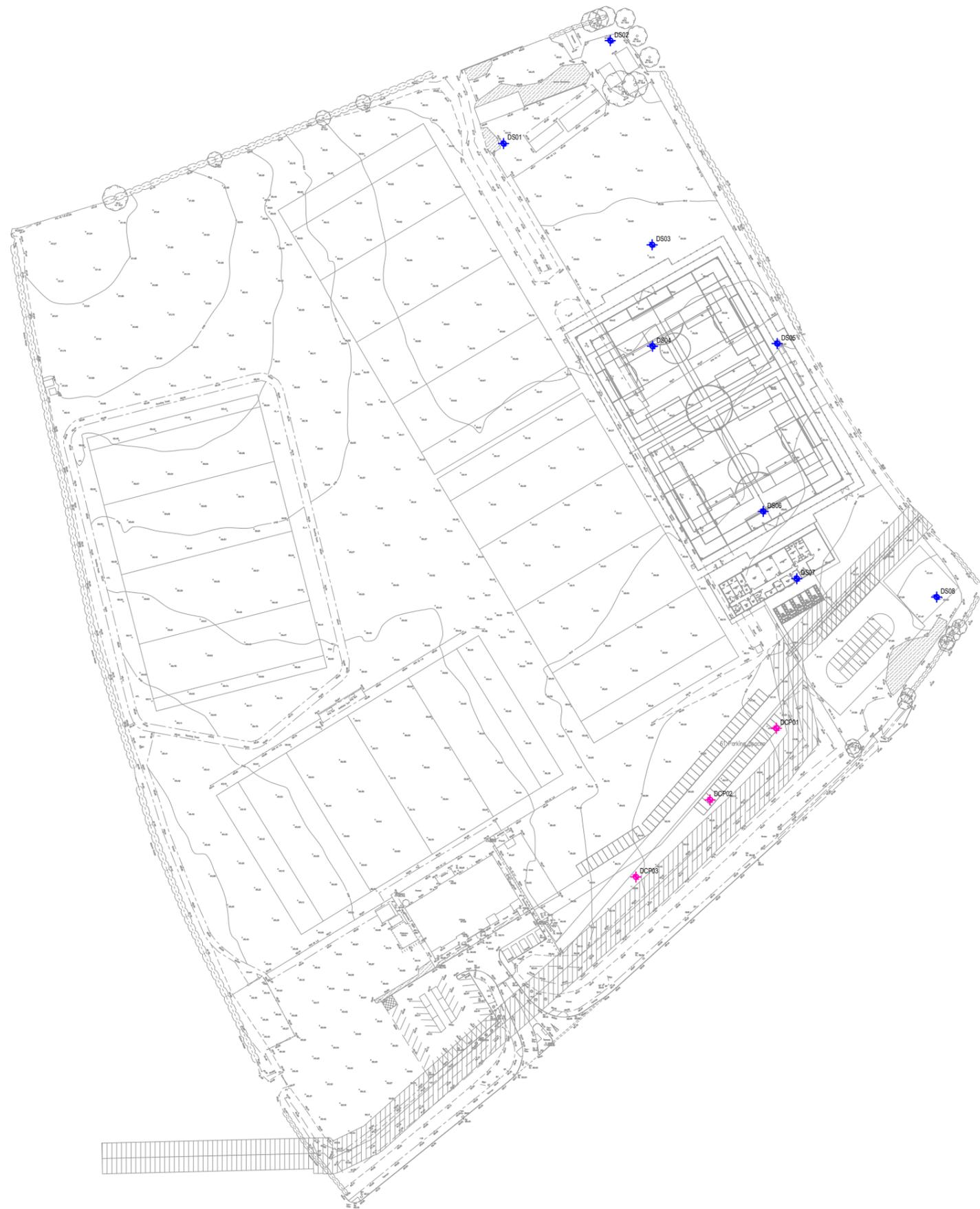
15. REFERENCES

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DRAWINGS

Drawing 1: Exploratory Hole Location Plan



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.

Legend

- DS** Dynamic Sampling Borehole Location
- DCP** DCP Location

P1	20/03/19	PRELIMINARY ISSUE	JA	RPD
Rev	Date	Details of issue / revision	Drw	Rev

Issues & Revisions

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Client
Trowbridge Town Council

Project Title
Trowbridge Rugby Club

Drawing Title
Exploratory Hole Location Plan

Drawn:	JA	Reviewed:	RPD
BWB Ref:	LDC2048	Date:	20/03/19
		Scale@A3:	NTS

Drawing Status
PRELIMINARY

Project - Originator - Zone - Level - Type - Role - Number	Status	Rev
TRC-BWB-ZZ-XX-YE-EHLP_S2_P62	P62	P01

APPENDICES

APPENDIX 1: Masterplan

notes
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client	Trowbridge Town Council	created	16apr18
project	Trowbridge	job N°	170815
title	Site Plan Overall	scale	1:1000 @ A1

APPENDIX 2: CIRIA Risk Matrix

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 (UI)	There is a pollutant linkage but circumstances are such that it is improbable that an event would occur even in the very long term.

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

Once the consequence and probability have been classified these can be compared using a matrix (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 (UI)	Mod/low risk (M/L)	Low risk (L)	Very low risk (VL)	Very low risk (VL)

Table A4 Risk Categorisations

<p>Very high risk (VH)</p>	<p>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.</p>
<p>High risk (H)</p>	<p>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.</p>
<p>Moderate risk (M)</p>	<p>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.</p>
<p>Low risk (L)</p>	<p>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.</p>
<p>Very low risk (VL)</p>	<p>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.</p>

Reference

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

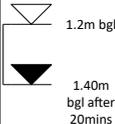
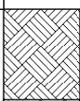
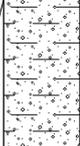
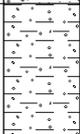
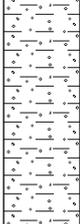
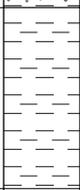
APPENDIX 3: Engineer's Logs

BOREHOLE LOG

Scale 1:25

Sheet 1 of 1

LOCATION ID DS01	Project Name: Trowbridge	Ground Level (m AOD): 60.06		
	Project Number: LDQ2048	Eastings: 388268.27		
	Client: Trowbridge Town Council	Northings: 159703.51		
Hole Type: WS	Rig: Geo 32	Start & End Date: 31/01/2019	Engineer: JA	Checker: AO

Groundwater			Strata				Samples			In-Situ Tests				
Strike	Strike Details	Well	Level (m AOD) & Thickness (m)	Description	Legend	Depth (m bgl)	Type (U/blows)	From (m)	To (m)	Type	Depth (m)	Result	Casing Depth & (Water Level)	
			0.30	Grass over soft reddish brown slightly gravelly sandy CLAY with frequent rootlets. Gravel is angular to subrounded fine to coarse quartzite, limestone and coal. Sand is fine to coarse.		0.30	ES	0.20	0.30					
			59.76 0.50	(Reworked Natural) Yellowish brown clayey sandy GRAVEL. Sand fine to coarse. Gravel is angular to subrounded fine to coarse limestone and quartz.		0.30	B	0.30	0.50					
			59.26 1.20	(Head) Stiff light bluish grey slightly gravelly CLAY. Gravel is angular fine and medium limestone.		0.80	ES	0.60	0.80					
			58.06 0.60	(Cornbrash Formation) Stiff fissured light greyish brown CLAY.		2.00	D	1.70	1.80		C	1.00	N=20 (1,3/4,4,6,6)	
			57.46	(Forest Marble Formation) Hole Terminated at 2.60m bgl.		2.60	D	2.20	2.30		C	2.00	N=19 (3,4/4,4,5,6)	
						2.60				C	2.60	50 (5,4/50 for 275mm)		

Chiseling From (m bgl) To (m bgl) Time (hh:mm)			Remarks Reason for Termination: Hole terminated on hard ground. Groundwater Remarks: Groundwater was encountered at 1.20m bgl decreasing to 1.40m bgl after 20 minutes.				Legend Sample Type: B - Bulk C - Core D - Disturbed ES - Environmental Sample U - Undisturbed Groundwater:  Groundwater Strike  Resting Groundwater NR = Not Recorded						
Water Added From (m bgl) To (m bgl) Volume (l)			Other Remarks: 1. No visual or olfactory evidence of contamination identified. 2. Borehole backfilled with arisings.				BWB Consulting Ltd Waterfront House Station Street Nottingham NG2 3DQ			Web: bwbcconsulting.com P: 0115 9241100 E: nottingham@bwbcconsulting.com		 CONSULTANCY ENVIRONMENT INFRASTRUCTURE BUILDINGS	

BOREHOLE LOG

Scale 1:25

Sheet 1 of 1

LOCATION ID DS02	Project Name: Trowbridge	Ground Level (m AOD): 61.29		
	Project Number: LDQ2048	Eastings: 388309.98		
	Client: Trowbridge Town Council	Northings: 159743.68		
Hole Type: WS	Rig: Geo 32	Start & End Date: 31/01/2019	Engineer: JA	Checker: AO

Groundwater			Strata				Samples			In-Situ Tests			
Strike	Strike Details	Well	Level (m AOD) & [Thickness (m)]	Description	Legend	Depth (m bgl)	Type (Blows)	From (m)	To (m)	Type	Depth (m)	Result	Casing Depth & (Water Level)
			[0.03] 61.26 [0.09] 61.17 [0.88]	Grass over dark brown slightly sandy clayey GRAVEL with frequent rootlets. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse quartzite, limestone, coal and siltstone. (Made Ground)		0.03 0.12	ES	0.03	0.12				
				Black gravelly fine to coarse SAND with rare rootlets. Gravel is angular to rounded fine and medium coal, brick, quartzite and limestone. (Made Ground)			D	0.50	0.60				
			60.29 [1.20]	Soft to firm reddish brown slightly sandy slightly gravelly CLAY with rare rootlets. Sand is fine to coarse. Gravel is angular to rounded fine and medium brick, coal and limestone. (Made Ground) <i>From 0.40m bgl: No brick gravels.</i>		1.00	ES	1.00	1.10	C	1.00	N=26 (6,5/5,7,7,7)	
				Medium dense light yellowish brown slightly clayey sandy GRAVEL. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse limestone. (Head)			B	1.90	2.10		C	2.00	N=26 (3,6/5,6,7,8)
			59.09 [1.10]	Stiff fissured light greyish brown mottled bluish grey slightly gravelly CLAY with rare iron nodules and dark brown staining along fissures. Gravel is angular fine and medium limestone. (Cornbrash Formation)		2.20							
				<i>From 3.00m bgl: Very stiff.</i>			D	3.00	3.10		C	3.00	N=31 (4,6/6,8,8,9)
			57.99 [0.50]	Very stiff fissured bluish grey CLAY with frequent iron nodules. (Forest Marble Formation)		3.30							
			57.49 [0.20]	Very stiff fissured light greyish brown CLAY. (Forest Marble Formation)		3.80							
			57.29	Hole Terminated at 4.00m bgl.		4.00					C	4.00	N=25 (4,5/5,6,6,8)

Chiseling From (m bgl) To (m bgl) Time (hh:mm)			Remarks Reason for Termination: Target depth reached. Groundwater Remarks: Groundwater was encountered at 3.30m bgl. Other Remarks: 1. No visual or olfactory evidence of contamination identified. 2. Borehole installed with 50mm HDPE pipe, gas tap, bung and flush cover.				Legend Sample Type: B - Bulk C - Core D - Disturbed ES - Environmental Sample U - Undisturbed Groundwater: Groundwater Strike Resting Groundwater NR = Not Recorded In-Situ Tests: C - Cone Penetration Test HSV - Hand Shear Vane Test PID - Photo Ionisation Detection Screen S - Standard Penetration Test			
Water Added From (m bgl) To (m bgl) Volume (l)			BWB Consulting Ltd Waterfront House Station Street Nottingham NG2 3DQ				Web: bwbconsulting.com P: 0115 9241100 E: nottingham@bwbconsulting.com			



BOREHOLE LOG

Scale 1:25

Sheet 1 of 1

LOCATION ID DS03	Project Name: Trowbridge	Ground Level (m AOD): 59.77		
	Project Number: LDQ2048	Eastings: 388326.33		
	Client: Trowbridge Town Council	Northings: 159663.96		
Hole Type: WS	Rig: Geo 32	Start & End Date: 31/01/2019	Engineer: JA	Checker: AO

Groundwater			Strata				Samples			In-Situ Tests			
Strike	Strike Details	Well	Level (m AOD) & [Thickness (m)]	Description	Legend	Depth (m bgl)	Type (Ublows)	From (m)	To (m)	Type	Depth (m)	Result	Casing Depth & (Water Level)
			[0.40]	Grass over soft reddish brown slightly gravelly sandy CLAY with frequent rootlets. Gravel is angular to subrounded fine to coarse quartzite and limestone. Sand is fine and medium. (Reworked Natural)		0.40	ES	0.20	0.30				
			59.37 [1.20]	Medium dense to dense light yellowish brown slightly clayey sandy GRAVEL. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse limestone and quartzite. (Head)			B	0.80	1.00			N=30 (4,5/5,5,8,12)	
			58.17 [0.40]	Firm to stiff fissured orangish brown mottled grey slightly gravelly sandy CLAY. Gravel is angular to subrounded fine and medium limestone. Sand is fine. (Cornbrash Formation)		1.60	ES	1.60	1.70				
			57.77 [1.00]	Stiff light greyish brown slightly sandy CLAY with frequent iron nodules and dark brown staining along fissures.. Sand is fine. (Forest Marble Formation)		2.00	D	1.90	2.00			N=19 (4,3/5,4,5,5)	
			56.77 [1.00]	Stiff fissured grey CLAY. (Forest Marble Formation)		3.00				C	3.00	N=24 (3,4/5,6,6,7)	
			55.77	Hole Terminated at 4.00m bgl.		4.00	D	3.80	3.90				
												N=31 (5,5/7,6,8,10)	

Chiseling From (m bgl) To (m bgl) Time (hh:mm)			Remarks Reason for Termination: Target depth reached. Groundwater Remarks: No groundwater encountered. Other Remarks: 1. No visual or olfactory evidence of contamination identified. 2. Borehole backfilled with arisings.				Legend <table border="0"> <tr> <td>Sample Type:</td> <td>Groundwater:</td> <td>In-Situ Tests</td> </tr> <tr> <td>B - Bulk</td> <td> Groundwater</td> <td>C - Cone Penetration Test</td> </tr> <tr> <td>C - Core</td> <td> Strike</td> <td>HSV - Hand Shear Vane Test</td> </tr> <tr> <td>D - Disturbed</td> <td> Resting</td> <td>PID - Photo Ionisation Detection Screen</td> </tr> <tr> <td>ES - Environmental Sample</td> <td> Groundwater</td> <td>S - Standard Penetration Test</td> </tr> <tr> <td>U - Undisturbed</td> <td>NR = Not Recorded</td> <td></td> </tr> </table>						Sample Type:	Groundwater:	In-Situ Tests	B - Bulk	Groundwater	C - Cone Penetration Test	C - Core	Strike	HSV - Hand Shear Vane Test	D - Disturbed	Resting	PID - Photo Ionisation Detection Screen	ES - Environmental Sample	Groundwater	S - Standard Penetration Test	U - Undisturbed	NR = Not Recorded	
Sample Type:	Groundwater:	In-Situ Tests																												
B - Bulk	Groundwater	C - Cone Penetration Test																												
C - Core	Strike	HSV - Hand Shear Vane Test																												
D - Disturbed	Resting	PID - Photo Ionisation Detection Screen																												
ES - Environmental Sample	Groundwater	S - Standard Penetration Test																												
U - Undisturbed	NR = Not Recorded																													
Water Added From (m bgl) To (m bgl) Volume (l)			BWB Consulting Ltd Waterfront House Station Street Nottingham NG2 3DQ				Web: bwbconsulting.com P: 0115 9241100 E: nottingham@bwbconsulting.com		CONSULTANCY ENVIRONMENT INFRASTRUCTURE BUILDINGS																					

BOREHOLE LOG

Scale 1:25

Sheet 1 of 1

LOCATION ID DS04	Project Name: Trowbridge	Ground Level (m AOD): 59.49		
	Project Number: LDQ2048	Eastings: 388326.49		
	Client: Trowbridge Town Council	Northings: 159624.35		
Hole Type: WS	Rig: Geo 32	Start & End Date: 31/01/2019	Engineer: JA	Checker: AO

Groundwater			Strata				Samples			In-Situ Tests			
Strike	Strike Details	Well	Level (m AOD) & [Thickness (m)]	Description	Legend	Depth (m bgl)	Type (U/blows)	From (m)	To (m)	Type	Depth (m)	Result	Casing Depth & (Water Level)
			0.50	Soft reddish brown slightly sandy slightly gravelly CLAY with frequent rootlets. Sand is fine and medium. Gravel is angular to subrounded fine brick, coal, quartzite and limestone. (Reworked Natural)		0.50	ES	0.40	0.50				
			58.99 [1.00]	Medium dense orangish brown slightly clayey sandy GRAVEL. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse limestone. (Head)			D	1.10	1.20	C	1.00	N=27 (5,7/9,8,5,5)	
			57.99 [1.15]	Stiff fissured orangish brown mottled grey slightly sandy slightly gravelly CLAY with rare iron modules and and dark brown staining along fissures. Sand is fine and medium. Gravel is angular to subrounded fine and medium limestone. (Cornbrash Formation)		1.50	D	1.50	1.60				
			56.84 [1.35]	Stiff fissured bluish grey CLAY with frequent dark brown staining along fissures. (Forest Marble Formation)		2.65	ES	2.90	3.00	C	3.00	N=21 (4,3/5,4,6,6)	
			55.49	Hole Terminated at 4.00m bgl.		4.00				C	4.00	N=23 (4,5/4,5,6,8)	

Chiseling From (m bgl) To (m bgl) Time (hh:mm)			Remarks Reason for Termination: Target depth reached. Groundwater Remarks: No groundwater encountered. Other Remarks: 1. No visual or olfactory evidence of contamination identified. 2. Borehole installed with 50mm HDPE pipe, gas tap, bung and flush cover.				Legend Sample Type: B - Bulk C - Core D - Disturbed ES - Environmental Sample U - Undisturbed Groundwater: Groundwater Strike Resting Groundwater NR = Not Recorded In-Situ Tests: C - Cone Penetration Test HSV - Hand Shear Vane Test PID - Photo Ionisation Detection Screen S - Standard Penetration Test			
Water Added From (m bgl) To (m bgl) Volume (l)			BWB Consulting Ltd Waterfront House Station Street Nottingham NG2 3DQ				Web: bwbconsulting.com P: 0115 9241100 E: nottingham@bwbconsulting.com			
							CONSULTANCY ENVIRONMENT INFRASTRUCTURE BUILDINGS			

BOREHOLE LOG

Scale 1:25

Sheet 1 of 1

LOCATION ID DS05	Project Name: Trowbridge	Ground Level (m AOD): 59.09		
	Project Number: LDQ2048	Eastings: 388375.21		
	Client: Trowbridge Town Council	Northings: 159625.42		
Hole Type: WS	Rig: Geo 32	Start & End Date: 31/01/2019	Engineer: JA	Checker: AO

Groundwater			Strata				Samples			In-Situ Tests			
Strike	Strike Details	Well	Level (m AOD) & Thickness (m)	Description	Legend	Depth (m bgl)	Type (U/blows)	From (m)	To (m)	Type	Depth (m)	Result	Casing Depth & (Water Level)
			0.40	Soft reddish brown slightly sandy slightly gravelly CLAY with frequent rootlets. Sand is fine and medium. Gravel is angular to subrounded fine brick, coal, quartzite and limestone.		0.40	ES	0.20	0.30				
			58.69 [1.20]	(Reworked Natural) Dense orangish brown slightly clayey sandy GRAVEL. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse limestone.			D	0.90	1.00	C	1.00	N=31 (6,8/7,6,10,8)	
			57.49 [1.40]	Stiff fissured orangish brown mottled grey slightly sandy slightly gravelly CLAY with rare iron modules and organic matter relics. Sand is fine and medium. Gravel is angular to subrounded fine and medium limestone.		1.60				C	2.00	N=20 (4,3/5,4,5,6)	
			56.09 [1.00]	Stiff fissured bluish grey CLAY with frequent dark brown staining along fissures.		3.00	D	2.90	3.00	C	3.00	N=24 (3,4/5,6,6,7)	
			55.09	Hole Terminated at 4.00m bgl.		4.00	B	3.60	3.80				
										C	4.00	N=21 (3,4/4,4,7,6)	

Chiseling From (m bgl) To (m bgl) Time (hh:mm)			Remarks Reason for Termination: Target depth reached. Groundwater Remarks: No groundwater encountered. Other Remarks: 1. No visual or olfactory evidence of contamination identified. 2. Borehole backfilled with arisings.				Legend <table border="0"> <tr> <td>Sample Type:</td> <td>Groundwater:</td> <td>In-Situ Tests</td> </tr> <tr> <td>B - Bulk</td> <td> Groundwater Strike</td> <td>C - Cone Penetration Test</td> </tr> <tr> <td>C - Core</td> <td> Resting Groundwater</td> <td>HSV - Hand Shear Vane Test</td> </tr> <tr> <td>D - Disturbed</td> <td></td> <td>NR = Not Recorded</td> </tr> <tr> <td>ES - Environmental Sample</td> <td></td> <td>NR = Not Recorded</td> </tr> <tr> <td>U - Undisturbed</td> <td></td> <td>NR = Not Recorded</td> </tr> </table>						Sample Type:	Groundwater:	In-Situ Tests	B - Bulk	Groundwater Strike	C - Cone Penetration Test	C - Core	Resting Groundwater	HSV - Hand Shear Vane Test	D - Disturbed		NR = Not Recorded	ES - Environmental Sample		NR = Not Recorded	U - Undisturbed		NR = Not Recorded
Sample Type:	Groundwater:	In-Situ Tests																												
B - Bulk	Groundwater Strike	C - Cone Penetration Test																												
C - Core	Resting Groundwater	HSV - Hand Shear Vane Test																												
D - Disturbed		NR = Not Recorded																												
ES - Environmental Sample		NR = Not Recorded																												
U - Undisturbed		NR = Not Recorded																												
Water Added From (m bgl) To (m bgl) Volume (l)			BWB Consulting Ltd Waterfront House Station Street Nottingham NG2 3DQ				Web: bwbconsulting.com P: 0115 9241100 E: nottingham@bwbconsulting.com		CONSULTANCY ENVIRONMENT INFRASTRUCTURE BUILDINGS																					

BOREHOLE LOG

Scale 1:25

Sheet 1 of 1

LOCATION ID DS06	Project Name: Trowbridge	Ground Level (m AOD): 58.77		
	Project Number: LDQ2048	Eastings: 388369.79		
	Client: Trowbridge Town Council	Northings: 159559.80		
Hole Type: WS	Rig: Geo 32	Start & End Date: 31/01/2019	Engineer: JA	Checker: AO

Groundwater			Strata				Samples			In-Situ Tests			
Strike	Strike Details	Well	Level (m AOD) & [Thickness (m)]	Description	Legend	Depth (m bgl)	Type (U/blows)	From (m)	To (m)	Type	Depth (m)	Result	Casing Depth & (Water Level)
			0.60	Soft reddish brown slightly sandy slightly gravelly CLAY with frequent rootlets. Sand is fine and medium. Gravel is angular to subrounded fine brick, coal, quartzite and limestone. (Reworked Natural)		0.60	ES	0.50	0.60				
			58.17 [1.25]	Medium dense orangish brown slightly clayey sandy GRAVEL. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse limestone. (Head)			B	1.00	1.30	C	1.00	N=16 (5,6/5,4,4,3)	
			56.92 [0.95]	Stiff fissured orangish brown mottled grey slightly sandy slightly gravelly CLAY with rare iron modules and dark brown staining along fissures. Sand is fine and medium. Gravel is angular to subrounded fine and medium limestone. (Cornbrash Formation)		1.85				C	2.00	N=19 (2,4/4,4,5,6)	
			55.97 [1.20]	Stiff fissured bluish grey CLAY with frequent dark brown staining along fissures. (Forest Marble Formation)		2.80				C	3.00	N=22 (2,3/4,5,6,7)	
			54.77	Hole Terminated at 4.00m bgl.		4.00				C	4.00	N=28 (4,4/6,6,8,8)	

Chiseling From (m bgl) To (m bgl) Time (hh:mm)			Remarks Reason for Termination: Target depth reached. Groundwater Remarks: No groundwater encountered. Other Remarks: 1. No visual or olfactory evidence of contamination identified. 2. Borehole backfilled with arisings.				Legend Sample Type: B - Bulk C - Core D - Disturbed ES - Environmental Sample U - Undisturbed Groundwater: Groundwater Strike Resting Groundwater NR = Not Recorded In-Situ Tests: C - Cone Penetration Test HSV - Hand Shear Vane Test PID - Photo Ionisation Detection Screen S - Standard Penetration Test			
Water Added From (m bgl) To (m bgl) Volume (l)			BWB Consulting Ltd Waterfront House Station Street Nottingham NG2 3DQ				Web: bwbconsulting.com P: 0115 9241100 E: nottingham@bwbconsulting.com			
							CONSULTANCY ENVIRONMENT INFRASTRUCTURE BUILDINGS			

BOREHOLE LOG

Scale 1:25

Sheet 1 of 1

LOCATION ID DS07	Project Name: Trowbridge	Ground Level (m AOD): 58.18		
	Project Number: LDQ2048	Eastings: 388382.88		
	Client: Trowbridge Town Council	Northings: 159533.57		
Hole Type: WS	Rig: Dart 346	Start & End Date: 01/03/2019	Engineer: JA	Checker: AO

Groundwater			Strata				Samples			In-Situ Tests			
Strike	Strike Details	Well	Level (m AOD) & [Thickness (m)]	Description	Legend	Depth (m bgl)	Type (Ublows)	From (m)	To (m)	Type	Depth (m)	Result	Casing Depth & (Water Level)
			[0.40]	Grass over soft dark brown slightly gravelly slightly sandy CLAY with abundant rootlets. Sand is fine to coarse. Gravel is subangular and subrounded fine and medium coal and quartzite.		0.40	ES	0.30	0.40				
			57.78 [0.30]	Firm to stiff yellowish brown gravelly CLAY. Gravel is angular to subrounded fine to coarse coal and limestone. (Head)		0.70	B	0.70	1.00				
			57.48 [0.90]	Dense yellowish brown mottled orange slightly clayey sandy GRAVEL. Sand is fine to coarse. Gravel is angular and subangular fine to coarse limestone. (Head)		1.60	D	1.60	1.70				
			56.58 [0.10]	Orangish brown clayey fine to coarse SAND. (Cornbrash Formation)		1.70							
			56.48 [2.30]	Firm friable greyish brown mottled orange, bluish grey and yellow CLAY with rare iron nodules. (Forest Marble Formation)		1.90	ES	1.90	2.00			N=40 (4,6/7,10,13,10)	
				<i>From 2.60m to 3.50m bgl: Grey, fissured and occasional dark brown staining along fissures.</i>									
				<i>From 3.00m bgl: Very stiff.</i>								N=37 (4,7/7,9,10,11)	
				<i>From 3.50m bgl: Fissured, bluish grey and rare dark brown staining along fissures.</i>									
			54.18	Hole Terminated at 4.00m bgl.		4.00						N=31 (6,6/6,8,8,9)	

Chiseling From (m bgl) To (m bgl) Time (hh:mm)			Remarks Reason for Termination: Target depth reached. Groundwater Remarks: Groundwater was encountered at 1.00m bgl rising to 0.65m bgl after an hour. Other Remarks: 1. No visual or olfactory evidence of contamination identified. 2. Borehole installed with 50mm HDPE pipe, gas tap, bung and flush cover.				Legend Sample Type: B - Bulk C - Core D - Disturbed ES - Environmental Sample U - Undisturbed Groundwater: Groundwater Strike Resting Groundwater NR = Not Recorded In-Situ Tests: C - Cone Penetration Test HSV - Hand Shear Vane Test PID - Photo Ionisation Detection Screen S - Standard Penetration Test			
Water Added From (m bgl) To (m bgl) Volume (l)			BWB Consulting Ltd Waterfront House Station Street Nottingham NG2 3DQ				Web: bwbconsulting.com P: 0115 9241100 E: nottingham@bwbconsulting.com			
							CONSULTANCY ENVIRONMENT INFRASTRUCTURE BUILDINGS			

BOREHOLE LOG

Scale 1:25

Sheet 1 of 1

LOCATION ID DS08	Project Name: Trowbridge	Ground Level (m AOD): 57.45		
	Project Number: LDQ2048	Eastings: 388437.51		
	Client: Trowbridge Town Council	Northings: 159526.40		
Hole Type: WS	Rig: Dart 346	Start & End Date: 01/03/2019	Engineer: JA	Checker: AO

Groundwater			Strata				Samples			In-Situ Tests			
Strike	Strike Details	Well	Level (m AOD) & [Thickness (m)]	Description	Legend	Depth (m bgl)	Type (Ublows)	From (m)	To (m)	Type	Depth (m)	Result	Casing Depth & (Water Level)
▼	0.08m bgl after 20mins		[0.40]	Grass over soft dark brown slightly gravelly slightly sandy CLAY with abundant rootlets. Sand is fine to coarse. Gravel is subangular and subrounded fine and medium coal and quartzite. (Reworked Natural)		0.40							
▽	0.3m bgl		57.05 [0.10]	Firm to stiff yellowish brown slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse coal and limestone. (Head)		0.50	ES	0.50	0.60				
			56.95 [1.00]	Loose yellowish brown mottled orange slightly clayey sandy GRAVEL. Sand is fine to coarse. Gravel is angular and subangular fine to coarse limestone. (Head)		1.50	B	1.00	1.50	C	1.00	N=9 (2,2/1,2,3,3)	
			55.95 [0.40]	Firm fissured greyish brown mottled orange and yellow CLAY. (Cornbrash Formation)		1.90							
			55.55 [2.10]	Stiff fissured greyish brown mottled orange and bluish grey CLAY with rare dark brown staining along fissures. (Forest Marble Formation)		3.00				C	2.00	N=15 (3,2/3,3,4,5)	
				<i>From 2.60m to 3.70m bgl: Brownish grey.</i>									
				<i>From 2.00m bgl: Very stiff.</i>						C	3.00	N=32 (4,5/7,7,9,9)	
				<i>From 3.70m to 3.80m bgl: Bluish grey with occasional dark brown staining along fissures.</i>									
				<i>From 3.80m bgl: Grey and fissured.</i>									
			53.45	Hole Terminated at 4.00m bgl.		4.00	D	3.90	4.00	C	4.00	N=48 (5,7/8,12,13,15)	

Chiseling			Remarks				Legend					
From (m bgl)	To (m bgl)	Time (hh:mm)					Sample Type:		Groundwater:		In-Situ Tests	
			Reason for Termination: Target depth reached.				B - Bulk		Groundwater:		C - Cone Penetration Test	
			Groundwater Remarks: Groundwater was encountered at 0.30m bgl rising to 0.08m bgl after an hour.				C - Core		NR = Not Recorded		HSV - Hand Shear Vane Test	
			Other Remarks: 1. No visual or olfactory evidence of contamination identified. 2. Borehole installed with 50mm HDPE pipe, gas tap, bung and flush cover.				D - Disturbed				PID - Photo Ionisation Detection Screen	
							ES - Environmental Sample				S - Standard Penetration Test	
							U - Undisturbed					
Water Added						BWB Consulting Ltd Waterfront House Station Street Nottingham NG2 3DQ		Web: bwbconsulting.com P: 0115 9241100 E: nottingham@bwbconsulting.com				
From (m bgl)	To (m bgl)	Volume (l)									CONSULTANCY ENVIRONMENT INFRASTRUCTURE BUILDINGS	

APPENDIX 4: SPT Certificates

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

ARCHWAY ENGINEERING
AINLEYS INDUSTRIAL ESTATE
ELLAND
WEST YORKSHIRE
HX5 9JP

SPT Hammer Ref: 0032
Test Date: 08/08/2018
Report Date: 08/08/2018
File Name: 0032.spt
Test Operator: SH

Instrumented Rod Data

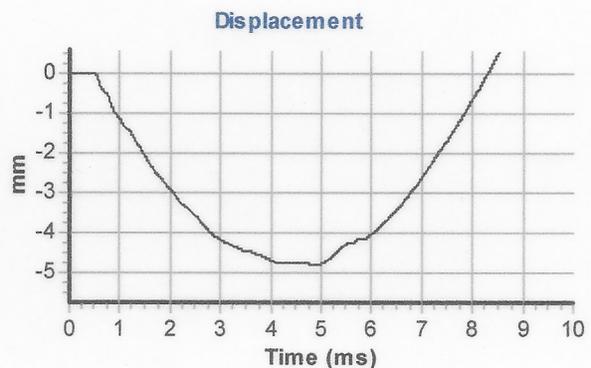
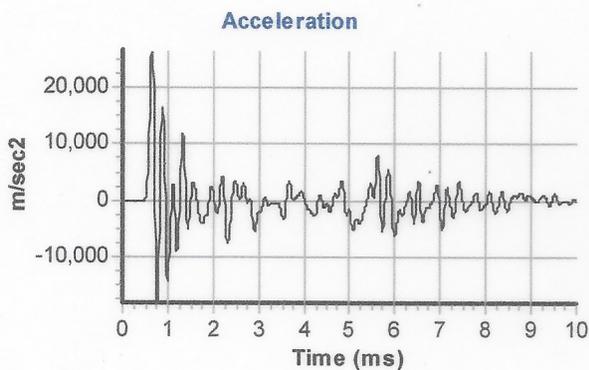
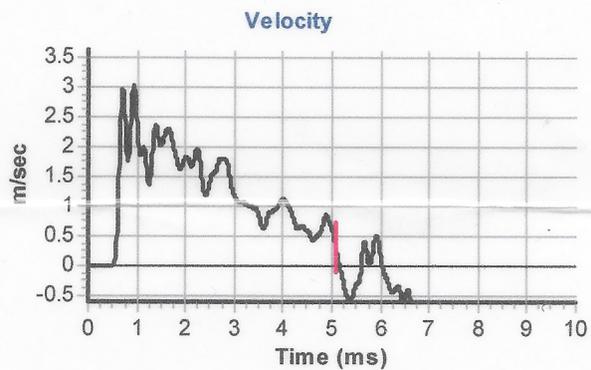
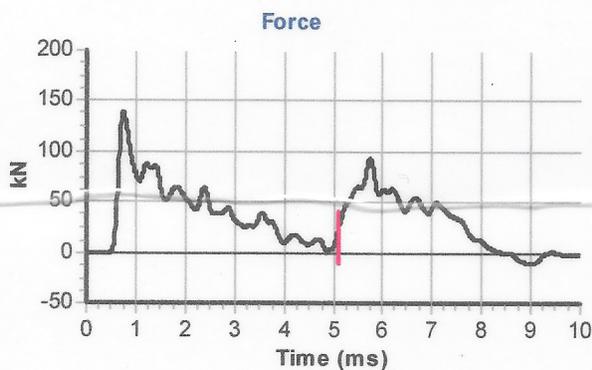
Diameter d_r (mm): 54
Wall Thickness t_r (mm): 6.0
Assumed Modulus E_a (GPa): 208
Accelerometer No.1: 7080
Accelerometer No.2: 11609

SPT Hammer Information

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

Comments / Location

CALIBRATION



Calculations

Area of Rod A (mm²): 905
Theoretical Energy E_{theor} (J): 473
Measured Energy E_{meas} (J): 328

Energy Ratio E_r (%):

69

Signed: M.GARDNER

Title: FITTER

The recommended calibration interval is 12 months

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

ARCHWAY ENGINEERING (UK) LTD
AINLEYS INDUSTRIAL ESTATE
ELLAND
WEST YORKSHIRE
HX5 9JP

SPT Hammer Ref: DART346
Test Date: 01/11/2018
Report Date: 01/11/2018
File Name: DART346.spt
Test Operator: SH

Instrumented Rod Data

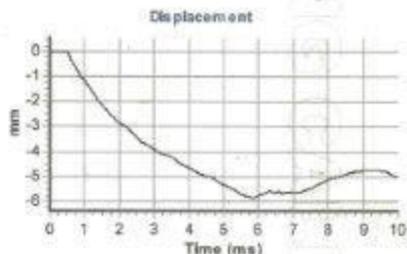
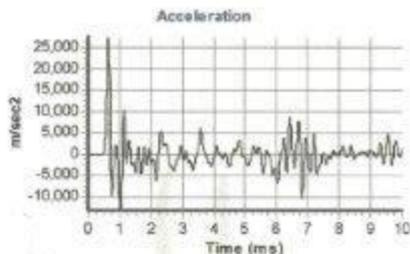
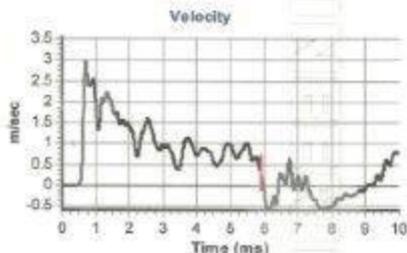
Diameter d_r (mm): 54
Wall Thickness t_r (mm): 6.1
Assumed Modulus E_d (GPa): 200
Accelerometer No.1: 7079
Accelerometer No.2: 7080

SPT Hammer Information

Hammer Mass m (kg): 63.5
Falling Height h (mm): 760
SPT String Length L (m): 13.0

Comments / Location

CALIBRATION



Calculations

Area of Rod A (mm^2): 918
Theoretical Energy E_{theor} (J): 473
Measured Energy E_{meas} (J): 344

Energy Ratio E_r (%): **73**

Signed: S. HOWARTH
Title: FITTER

The recommended calibration interval is 12 months

APPENDIX 5: Gas and Groundwater Monitoring Results

APPENDIX 6: Soil Chemical Analysis Results



Jade Allen
BWB Consulting Limited
Livery Place
35 Livery Street Birmingham
B3 2PB

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
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Analytical Report Number : 19-27699

Project / Site name:	Trowbridge	Samples received on:	04/02/2019
Your job number:	LDQ2048	Samples instructed on:	06/02/2019
Your order number:	POR023737	Analysis completed by:	13/02/2019
Report Issue Number:	1	Report issued on:	13/02/2019
Samples Analysed:	3 leachate samples - 9 soil samples		

Signed: 

Dr Claire Stone
Quality Manager
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

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Analytical Report Number: 19-27699

Project / Site name: Trowbridge

Your Order No: POR023737

Lab Sample Number	1148679			1148680			1148681			1148682			1148683		
Sample Reference	DS01			DS02			DS02			DS03			DS04		
Sample Number	1			1			3			1			1		
Depth (m)	0.20-0.30			0.03-0.12			1.00-1.10			0.20-0.30			0.40-0.50		
Date Sampled	31/01/2019			31/01/2019			31/01/2019			31/01/2019			31/01/2019		
Time Taken	1214			1246			1248			1337			1429		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status												
Stone Content	%	0.1	NONE	53	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	
Moisture Content	%	N/A	NONE	12	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	
Total mass of sample received	kg	0.001	NONE	0.96	0.97	1.0	0.84	0.93							

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

pH - Automated	pH Units	N/A	MCERTS	7.9	7.9	8.2	7.9	7.7
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Complex Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.023	0.066	0.070	0.041	0.27
Total Sulphur	mg/kg	50	MCERTS	530	790	420	730	490
Fraction Organic Carbon (FOC)	N/A	0.001	NONE	0.020	0.043	< 0.0010	0.034	0.0088

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 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	< 0.05	< 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	< 0.05	< 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	< 0.05	0.28	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.22	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 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	< 0.80	< 0.80	< 0.80
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	18	24	11	25	19
Barium (aqua regia extractable)	mg/kg	1	MCERTS	64	370	19	120	36
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.73	2.4	0.51	1.0	0.55
Boron (water soluble)	mg/kg	0.2	MCERTS	1.5	1.5	0.7	2.7	1.2
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	0.6	< 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	21	18	11	31	18
Copper (aqua regia extractable)	mg/kg	1	MCERTS	15	77	6.3	28	11
Lead (aqua regia extractable)	mg/kg	1	MCERTS	16	20	4.3	32	10
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	46	10	24	16
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	53	65	34	74	58
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	100	1100	25	130	48



Analytical Report Number: 19-27699

Project / Site name: Trowbridge

Your Order No: POR023737

Lab Sample Number	1148679	1148680	1148681	1148682	1148683			
Sample Reference	DS01	DS02	DS02	DS03	DS04			
Sample Number	1	1	3	1	1			
Depth (m)	0.20-0.30	0.03-0.12	1.00-1.10	0.20-0.30	0.40-0.50			
Date Sampled	31/01/2019	31/01/2019	31/01/2019	31/01/2019	31/01/2019			
Time Taken	1214	1246	1248	1337	1429			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

Petroleum Hydrocarbons

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

Analytical Report Number: 19-27699

Project / Site name: Trowbridge

Your Order No: POR023737

Lab Sample Number	1148684	1148685	1148686	1148687	
Sample Reference	DS04	DS05	DS05	DS06	
Sample Number	5	1	3	1	
Depth (m)	2.90-3.00	0.20-0.30	1.10-1.20	0.50-0.60	
Date Sampled	31/01/2019	31/01/2019	31/01/2019	31/01/2019	
Time Taken	1432	1503	1505	1548	
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	18	15
Total mass of sample received	kg	0.001	NONE	1.0	0.98

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

pH - Automated	pH Units	N/A	MCERTS	7.4	8.1	8.4	8.1
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1
Complex Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	1.6	0.011	0.010	0.012
Total Sulphur	mg/kg	50	MCERTS	13000	400	320	370
Fraction Organic Carbon (FOC)	N/A	0.001	NONE	0.0037	0.015	< 0.0010	0.015

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
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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	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 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
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	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	< 0.80	< 0.80
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	4.4	28	4.4	22
Barium (aqua regia extractable)	mg/kg	1	MCERTS	20	110	12	73
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.80	1.2	0.43	0.96
Boron (water soluble)	mg/kg	0.2	MCERTS	7.8	1.7	0.5	1.7
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.5	< 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	17	37	8.8	32
Copper (aqua regia extractable)	mg/kg	1	MCERTS	12	22	6.3	20
Lead (aqua regia extractable)	mg/kg	1	MCERTS	8.8	20	3.7	14
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	17	30	8.1	24
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	19	90	23	70
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	35	120	16	97



Analytical Report Number: 19-27699

Project / Site name: Trowbridge

Your Order No: POR023737

Lab Sample Number				1148684	1148685	1148686	1148687
Sample Reference				DS04	DS05	DS05	DS06
Sample Number				5	1	3	1
Depth (m)				2.90-3.00	0.20-0.30	1.10-1.20	0.50-0.60
Date Sampled				31/01/2019	31/01/2019	31/01/2019	31/01/2019
Time Taken				1432	1503	1505	1548
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status				
Petroleum Hydrocarbons							
TPH C10 - C40	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10
TPH2 (C6 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1



Analytical Report Number: 19-27699

Project / Site name: Trowbridge

Your Order No: POR023737

Lab Sample Number	1148688	1148689	1148690		
Sample Reference	DS01	DS02	DS04		
Sample Number	1	1	1		
Depth (m)	0.20-0.30	0.03-0.12	0.40-0.50		
Date Sampled	31/01/2019	31/01/2019	31/01/2019		
Time Taken	1214	1246	1429		
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status		

General Inorganics

	pH Units	N/A	ISO 17025	8.1	8.0	7.9		
pH								
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10	< 10		
Sulphate as SO ₄	mg/l	0.1	ISO 17025	3.3	3.2	1.1		

Heavy Metals / Metalloids

	µg/l	1.1	ISO 17025	8.3	9.4	7.4		
Arsenic (dissolved)								
Barium (dissolved)	µg/l	0.05	ISO 17025	6.3	40	3.4		
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	< 0.2		
Boron (dissolved)	µg/l	10	ISO 17025	14	27	20		
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08	< 0.08		
Chromium (dissolved)	µg/l	0.4	ISO 17025	0.9	0.5	0.5		
Copper (dissolved)	µg/l	0.7	ISO 17025	4.1	4.7	3.8		
Lead (dissolved)	µg/l	1	ISO 17025	3.8	3.6	2.6		
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5	< 0.5		
Nickel (dissolved)	µg/l	0.3	ISO 17025	< 0.3	0.4	< 0.3		
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0	< 4.0		
Vanadium (dissolved)	µg/l	1.7	ISO 17025	1.7	3.2	< 1.7		
Zinc (dissolved)	µg/l	0.4	ISO 17025	3.8	15	3.3		



Analytical Report Number : 19-27699

Project / Site name: Trowbridge

* 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 *
1148679	DS01	1	0.20-0.30	Light brown loam and clay with stones and vegetation.
1148680	DS02	1	0.03-0.12	Black sandy loam with vegetation and clinker
1148681	DS02	3	1.00-1.10	Light brown clay and sand with gravel.
1148682	DS03	1	0.20-0.30	Brown loam and clay with gravel and vegetation.
1148683	DS04	1	0.40-0.50	Brown loam and clay with gravel and vegetation.
1148684	DS04	5	2.90-3.00	Grey clay.
1148685	DS05	1	0.20-0.30	Brown loam and clay with gravel and vegetation.
1148686	DS05	3	1.10-1.20	Light brown sandy clay with gravel.
1148687	DS06	1	0.50-0.60	Brown loam and clay with gravel and vegetation.

Analytical Report Number : 19-27699

Project / Site name: Trowbridge

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	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
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
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
Fraction of Organic Carbon in soil	Determination of fraction of organic carbon in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L009-PL	D	NONE
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
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
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
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	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
pH at 20oC in leachate	Determination of pH in leachate by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	ISO 17025
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-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
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
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

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The results included within the report are representative of the samples submitted for analysis.

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Analytical Report Number : 19-27699

Project / Site name: Trowbridge

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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 based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	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 Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038-PL	D	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
TPH2 (Soil)	Determination of hydrocarbons C6-C10 by headspace GC-MS.	In-house method based on USEPA8260	L088-PL	W	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.



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Analytical Report Number : 19-31397

Project / Site name:	Trowbridge	Samples received on:	04/03/2019
Your job number:	LDQ2048	Samples instructed on:	04/03/2019
Your order number:	POR024382	Analysis completed by:	11/03/2019
Report Issue Number:	1	Report issued on:	11/03/2019
Samples Analysed:	2 soil samples		

Signed:

Rexona Rahman
Head of Customer Services
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

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Analytical Report Number: 19-31397
 Project / Site name: Trowbridge
 Your Order No: POR024382

Lab Sample Number				1168838	1168839			
Sample Reference				DS07	DS08			
Sample Number				1	1			
Depth (m)				0.30-0.40	0.50-0.60			
Date Sampled				04/03/2019	04/03/2019			
Time Taken				1335	1339			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1			
Moisture Content	%	N/A	NONE	21	11			
Total mass of sample received	kg	0.001	NONE	1.5	1.7			

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.1	8.4			
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1			
Complex Cyanide	mg/kg	1	MCERTS	< 1	< 1			
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1			
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.017	0.026			
Total Sulphur	mg/kg	50	MCERTS	580	430			
Fraction Organic Carbon (FOC)	N/A	0.001	MCERTS	0.027	0.0058			

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Phenanthrene	mg/kg	0.05	MCERTS	0.28	< 0.05			
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Fluoranthene	mg/kg	0.05	MCERTS	0.61	< 0.05			
Pyrene	mg/kg	0.05	MCERTS	0.52	< 0.05			
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.39	< 0.05			
Chrysene	mg/kg	0.05	MCERTS	0.43	< 0.05			
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.47	< 0.05			
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.22	< 0.05			
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.42	< 0.05			
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.23	< 0.05			
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.23	< 0.05			

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	3.80	< 0.80			
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Analytical Report Number: 19-31397
 Project / Site name: Trowbridge
 Your Order No: POR024382

Lab Sample Number	1168838	1168839				
Sample Reference	DS07	DS08				
Sample Number	1	1				
Depth (m)	0.30-0.40	0.50-0.60				
Date Sampled	04/03/2019	04/03/2019				
Time Taken	1335	1339				
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status			

Heavy Metals / Metalloids

	mg/kg	1	MCERTS	24	9.6		
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	24	9.6		
Barium (aqua regia extractable)	mg/kg	1	MCERTS	98	22		
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.2	0.47		
Boron (water soluble)	mg/kg	0.2	MCERTS	2.9	1.0		
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2		
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0		
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	33	12		
Copper (aqua regia extractable)	mg/kg	1	MCERTS	22	9.3		
Lead (aqua regia extractable)	mg/kg	1	MCERTS	36	9.7		
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3		
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	26	10		
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	2.6		
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	80	34		
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	120	34		

Petroleum Hydrocarbons

	mg/kg	10	MCERTS	14	< 10		
TPH C10 - C40	mg/kg	10	MCERTS	14	< 10		
TPH2 (C6 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1		



Analytical Report Number : 19-31397

Project / Site name: Trowbridge

* 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 *
1168838	DS07	1	0.30-0.40	Light brown clay and loam with vegetation.
1168839	DS08	1	0.50-0.60	Light brown clay and sand with gravel.



4041



Environmental Science

Analytical Report Number : 19-31397

Project / Site name: Trowbridge

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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
Fraction of Organic Carbon in soil	Determination of fraction of organic carbon in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L009-PL	D	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
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	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
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-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
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
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 based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
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
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 based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038-PL	D	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
TPH2 (Soil)	Determination of hydrocarbons C6-C10 by headspace GC-MS.	In-house method based on USEPA8260	L088-PL	W	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 30°C.

Iss No 19-31397-1 Trowbridge LDQ2048

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The results included within the report are representative of the samples submitted for analysis.

Page 5 of 5

APPENDIX 7: Geotechnical Laboratory Testing Results



TEST CERTIFICATE

Liquid and Plastic Limits

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



Environmental Science

4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client: BWB Consulting Limited
Client Address: Livery Place, 35 Livery Street Birmingham, B3 2PB
Contact: Jade Allen
Site Name: Trowbridge
Site Address: Not Given

Client Reference: LDQ2048
Job Number: 19-28029
Date Sampled: 31/01/2019
Date Received: 04/02/2019
Date Tested: 12/02/2019
Sampled By: Not Given

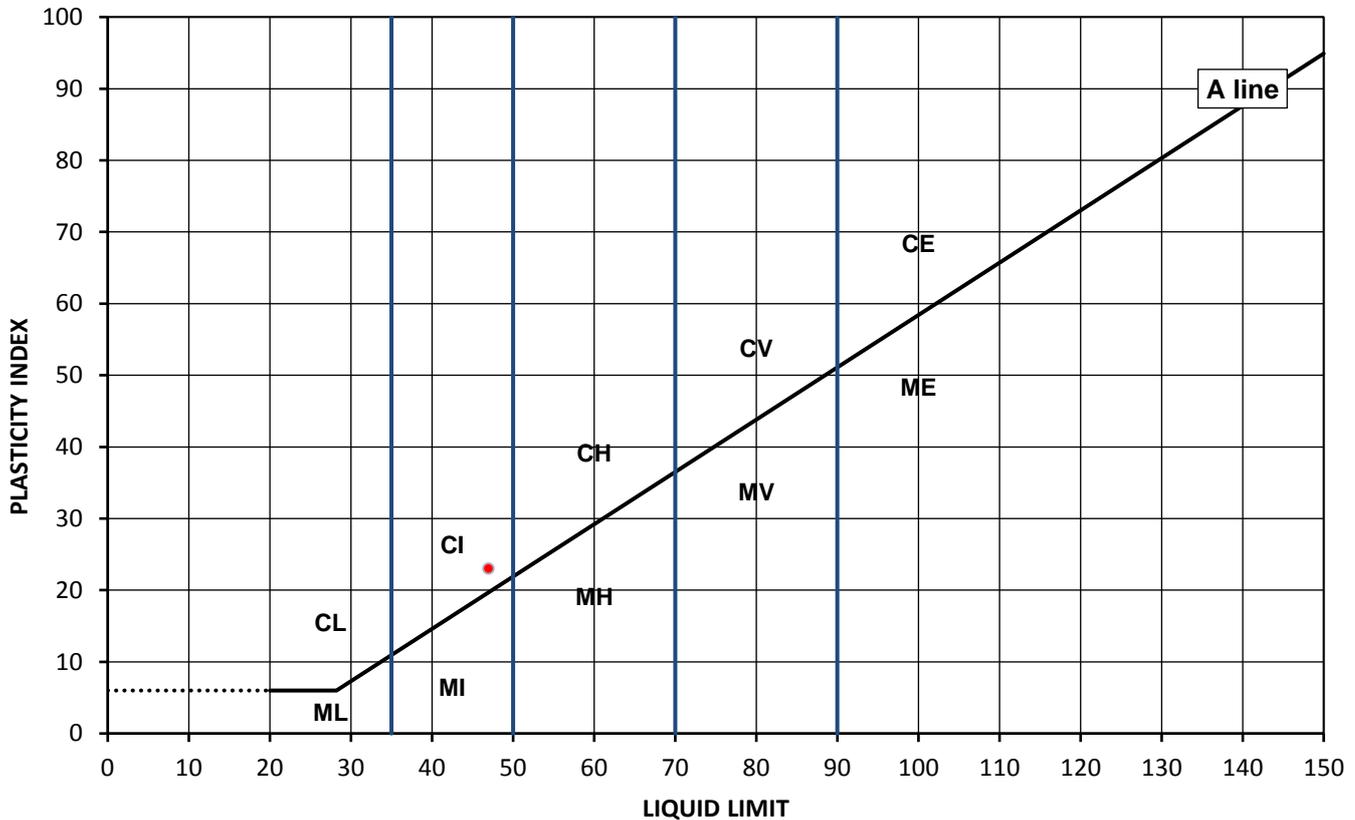
Test Results

Laboratory Reference: 1150418
Hole No.: DS01
Sample Reference: 4
Soil Description: Brownish grey slightly gravelly slightly sandy CLAY

Depth Top [m]: 1.70
Depth Base [m]: 1.80
Sample Type: D

Sample Preparation: Tested after >425um removed by hand

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
23	47	24	23	96



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	Liquid Limit
M	Silt	L	below 35
		I	35 to 50
		H	50 to 70
		V	70 to 90
		E	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 20/02/2019

Signed: Darren Berrill
Geotechnical General Manager

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Sampled By: Not Given

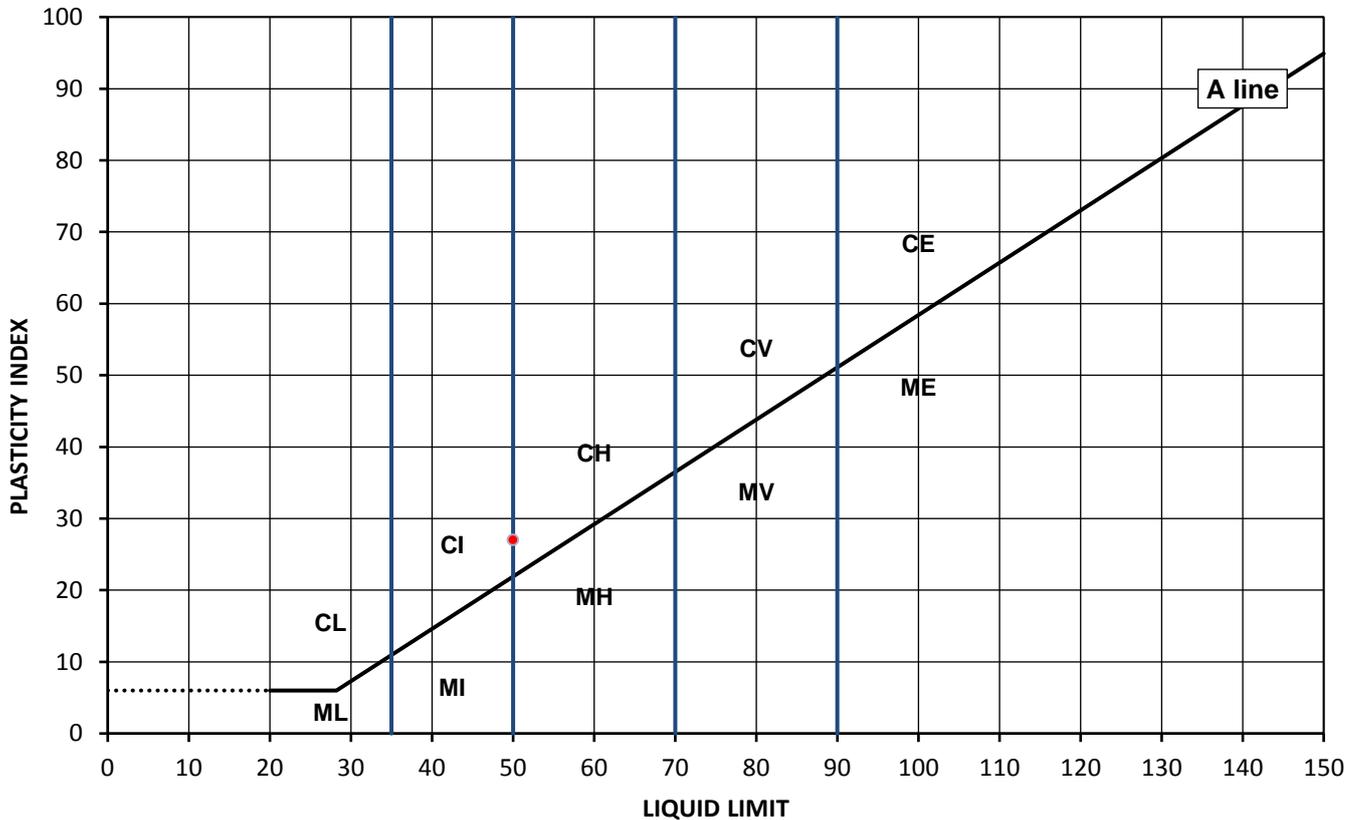
Test Results

Laboratory Reference: 1150419
Hole No.: DS01
Sample Reference: 5
Soil Description: Brown mottled grey slightly sandy CLAY

Depth Top [m]: 2.20
Depth Base [m]: 2.30
Sample Type: D

Sample Preparation: Tested in natural condition

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
31	50	23	27	100



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	Liquid Limit
M	Silt	L	Low
		I	Medium
		H	High
		V	Very high
		E	Extremely high
			below 35
			35 to 50
			50 to 70
			70 to 90
			exceeding 90
	Organic	O	append to classification for organic material (eg CHO)

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 20/02/2019

Signed: Darren Berrill
Geotechnical General Manager

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Date Sampled: 31/01/2019
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Date Tested: 12/02/2019
Sampled By: Not Given

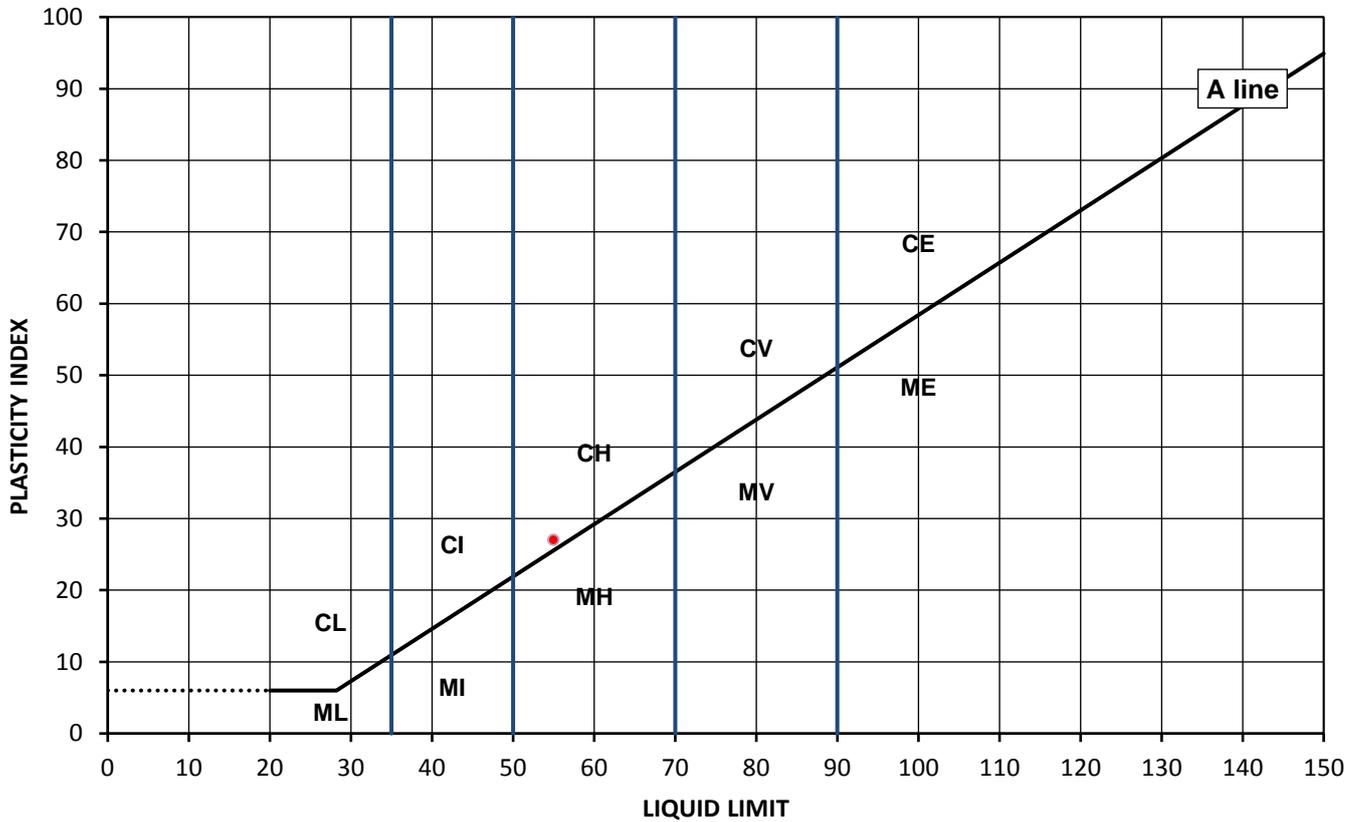
Test Results

Laboratory Reference: 1150420
Hole No.: DS02
Sample Reference: 5
Soil Description: Brownish grey slightly sandy CLAY

Depth Top [m]: 3.00
Depth Base [m]: 3.10
Sample Type: D

Sample Preparation: Tested in natural condition

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
27	55	28	27	100



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	Liquid Limit
M	Silt	L	Low
		I	Medium
		H	High
		V	Very high
		E	Extremely high
			below 35
			35 to 50
			50 to 70
			70 to 90
			exceeding 90
	Organic	O	append to classification for organic material (eg CHO)

Remarks:

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PL Geotechnical Laboratory Manager
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Contact: Jade Allen
Site Name: Trowbridge
Site Address: Not Given

Client Reference: LDQ2048
Job Number: 19-28029
Date Sampled: 31/01/2019
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Sampled By: Not Given

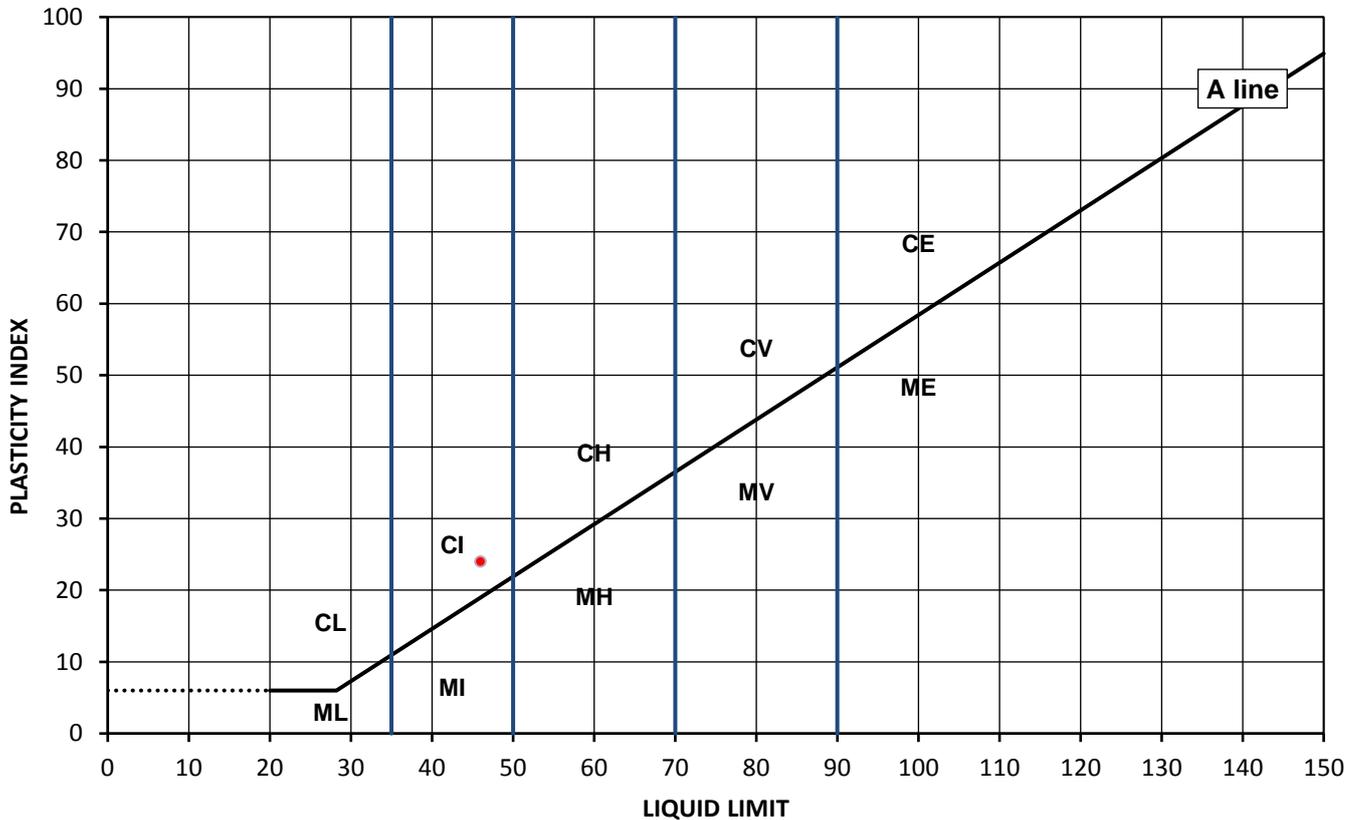
Test Results

Laboratory Reference: 1150421
Hole No.: DS03
Sample Reference: 4
Soil Description: Brownish grey slightly sandy CLAY

Depth Top [m]: 1.90
Depth Base [m]: 2.00
Sample Type: D

Sample Preparation: Tested in natural condition

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
22	46	22	24	100



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	Liquid Limit
M	Silt	L	Low
		I	Medium
		H	High
		V	Very high
		E	Extremely high
			below 35
			35 to 50
			50 to 70
			70 to 90
			exceeding 90
	Organic	O	append to classification for organic material (eg CHO)

Remarks:

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Site Address: Not Given

Client Reference: LDQ2048
Job Number: 19-28029
Date Sampled: 31/01/2019
Date Received: 04/02/2019
Date Tested: 12/02/2019
Sampled By: Not Given

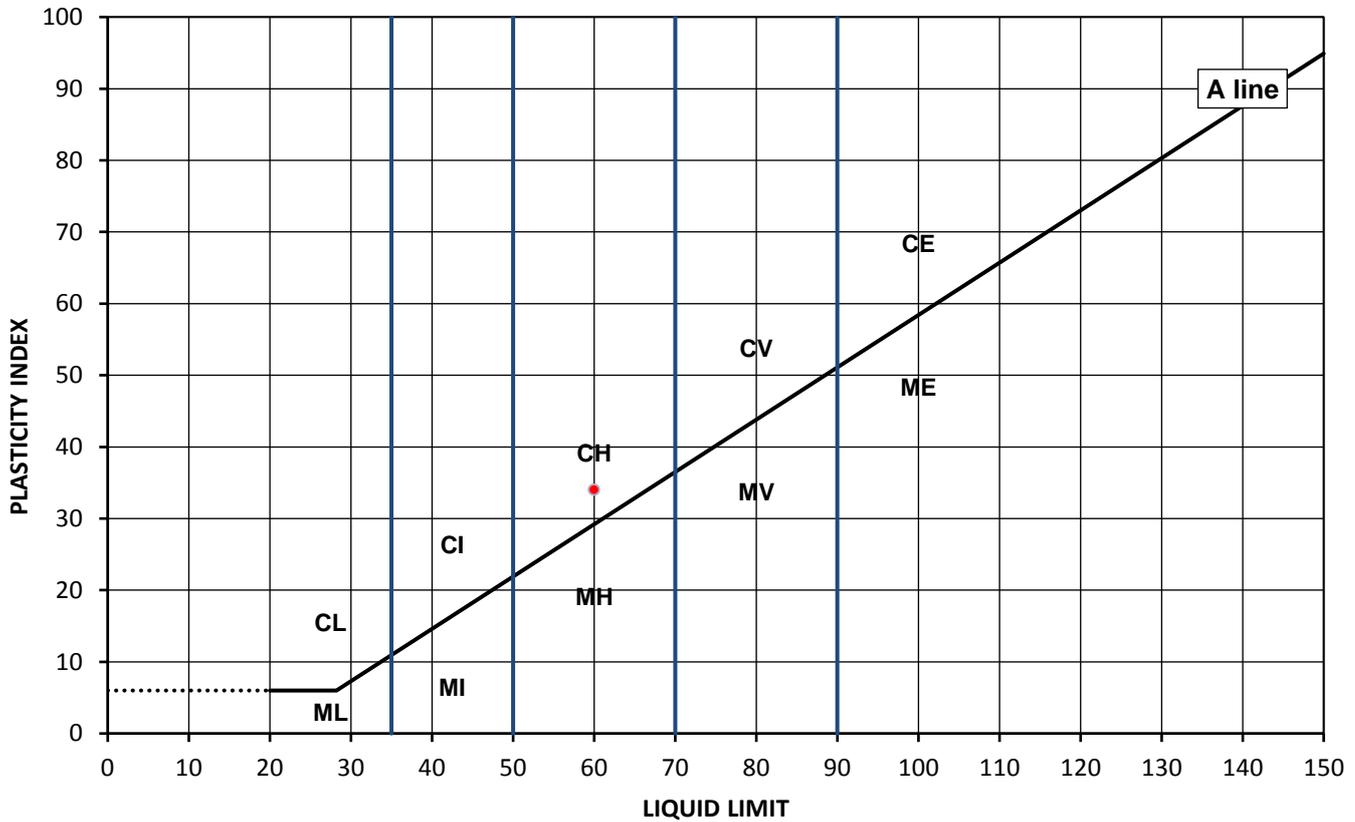
Test Results

Laboratory Reference: 1150422
Hole No.: DS03
Sample Reference: 5
Soil Description: Greyish brown CLAY

Depth Top [m]: 3.80
Depth Base [m]: 3.90
Sample Type: D

Sample Preparation: Tested in natural condition

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
24	60	26	34	100



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	Liquid Limit
M	Silt	L	Low
		I	Medium
		H	High
		V	Very high
		E	Extremely high
			below 35
			35 to 50
			50 to 70
			70 to 90
			exceeding 90
	Organic	O	append to classification for organic material (eg CHO)

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Site Name: Trowbridge
Site Address: Not Given

Client Reference: LDQ2048
Job Number: 19-28029
Date Sampled: 31/01/2019
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Date Tested: 12/02/2019
Sampled By: Not Given

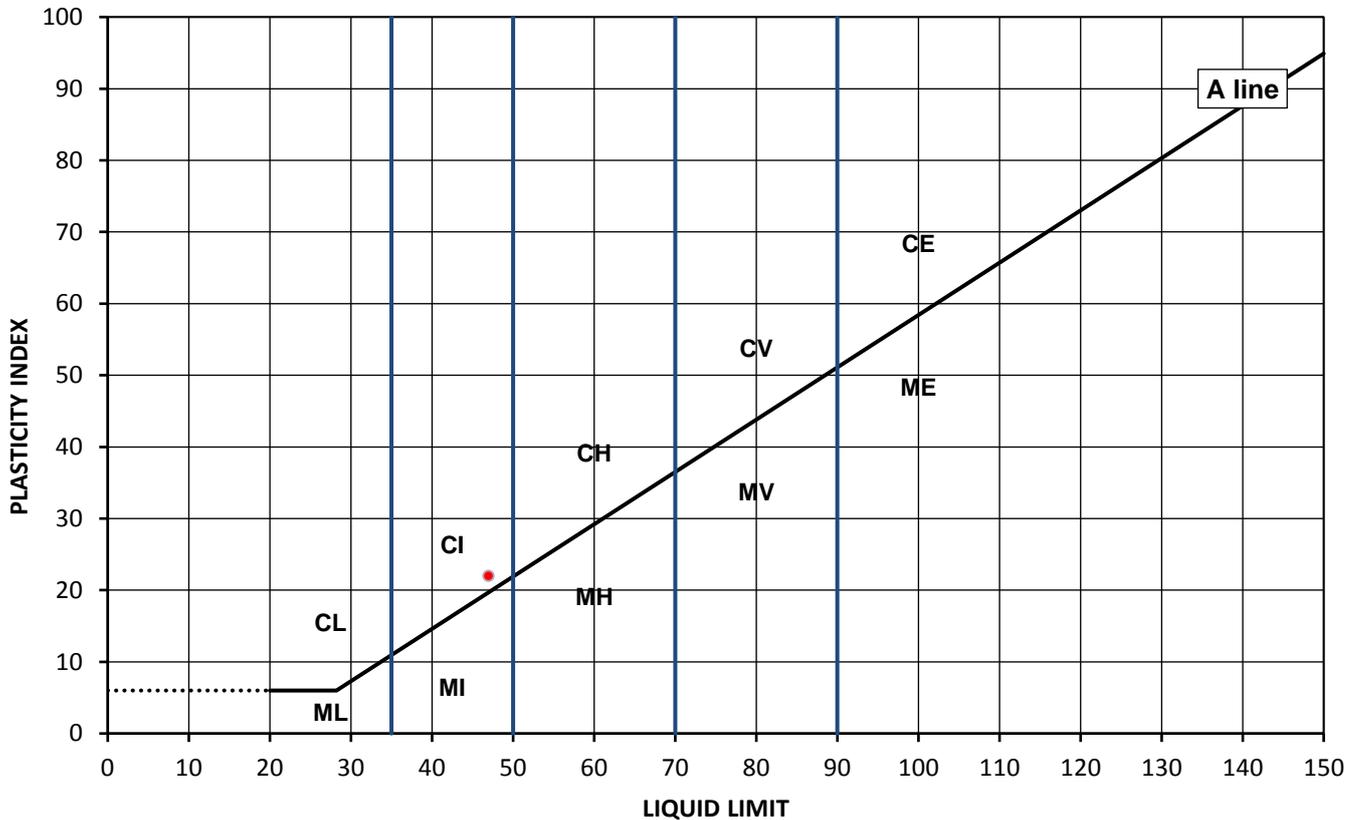
Test Results

Laboratory Reference: 1150423
Hole No.: DS04
Sample Reference: 4
Soil Description: Brownish grey slightly gravelly slightly sandy CLAY

Depth Top [m]: 1.50
Depth Base [m]: 1.60
Sample Type: D

Sample Preparation: Tested after >425um removed by hand

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
23	47	25	22	99



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	Liquid Limit
M	Silt	L	below 35
		I	35 to 50
		H	50 to 70
		V	70 to 90
		E	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)

Remarks:

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Site Name: Trowbridge
Site Address: Not Given

Client Reference: LDQ2048
Job Number: 19-28029
Date Sampled: 31/01/2019
Date Received: 04/02/2019
Date Tested: 12/02/2019
Sampled By: Not Given

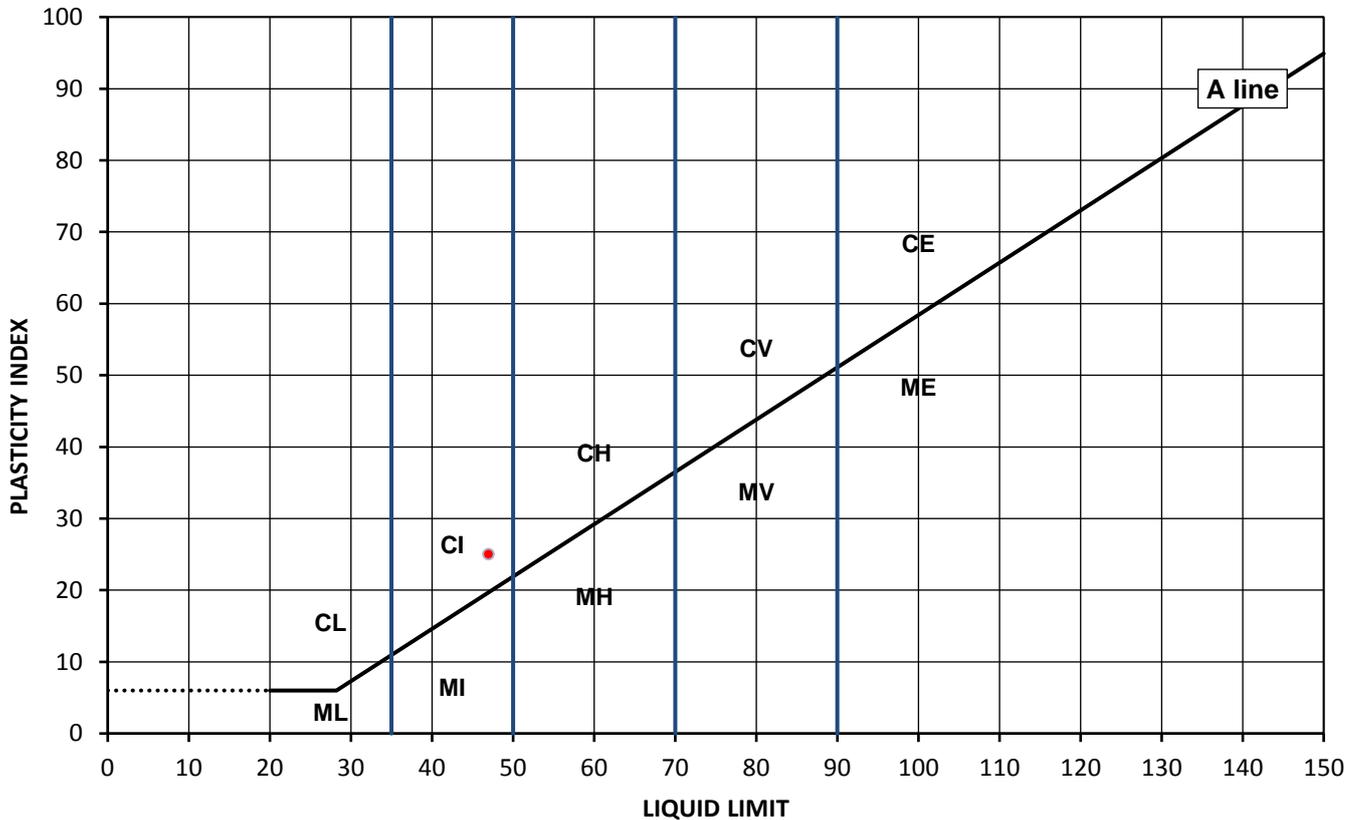
Test Results

Laboratory Reference: 1150424
Hole No.: DS05
Sample Reference: 4
Soil Description: Brownish grey slightly sandy CLAY

Depth Top [m]: 2.90
Depth Base [m]: 3.00
Sample Type: D

Sample Preparation: Tested in natural condition

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
25	47	22	25	100



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	Liquid Limit
M	Silt	L	Low
		I	Medium
		H	High
		V	Very high
		E	Extremely high
			below 35
			35 to 50
			50 to 70
			70 to 90
			exceeding 90
	Organic	O	append to classification for organic material (eg CHO)

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
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TEST CERTIFICATE

Liquid and Plastic Limits

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Watford Herts WD18 8YS



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Client: BWB Consulting Limited
Client Address: Livery Place, 35 Livery Street Birmingham, B3 2PB
Contact: Jade Allen
Site Name: Trowbridge
Site Address: Not Given

Client Reference: LDQ2048
Job Number: 19-28029
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Sampled By: Not Given

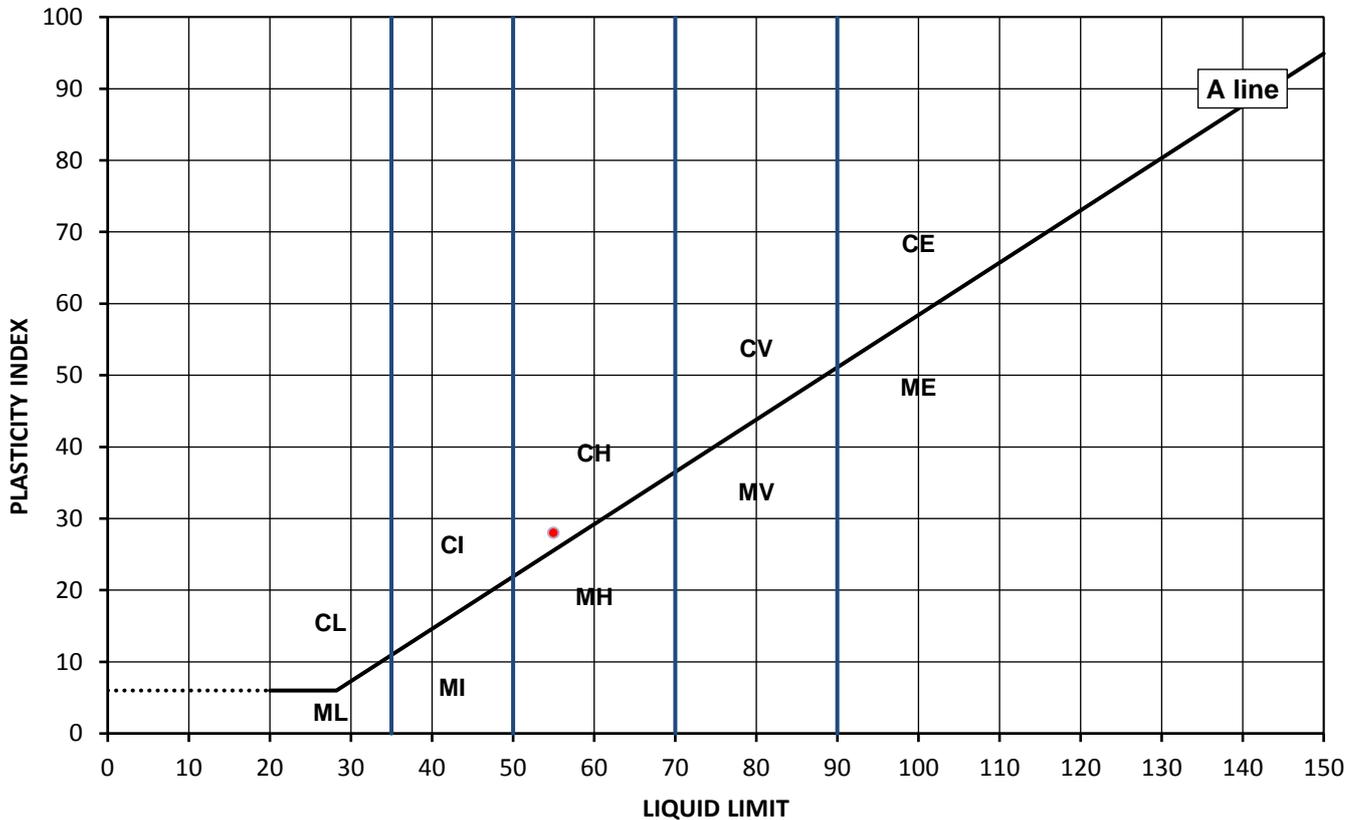
Test Results

Laboratory Reference: 1150425
Hole No.: DS05
Sample Reference: 5
Soil Description: Brownish grey slightly sandy CLAY

Depth Top [m]: 3.60
Depth Base [m]: 3.80
Sample Type: D

Sample Preparation: Tested in natural condition

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
27	55	27	28	100



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	Liquid Limit
M	Silt	L	Low
		I	Medium
		H	High
		V	Very high
		E	Extremely high
			below 35
			35 to 50
			50 to 70
			70 to 90
			exceeding 90
	Organic	O	append to classification for organic material (eg CHO)

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 20/02/2019

Signed: Darren Berrill
Geotechnical General Manager

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The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland.*



TEST CERTIFICATE

Liquid and Plastic Limits

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



Environmental Science

4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client: BWB Consulting Limited
Client Address: Livery Place, 35 Livery Street Birmingham, B3 2PB
Contact: Jade Allen
Site Name: Trowbridge
Site Address: Not Given

Client Reference: LDQ2048
Job Number: 19-28029
Date Sampled: 31/01/2019
Date Received: 04/02/2019
Date Tested: 12/02/2019
Sampled By: Not Given

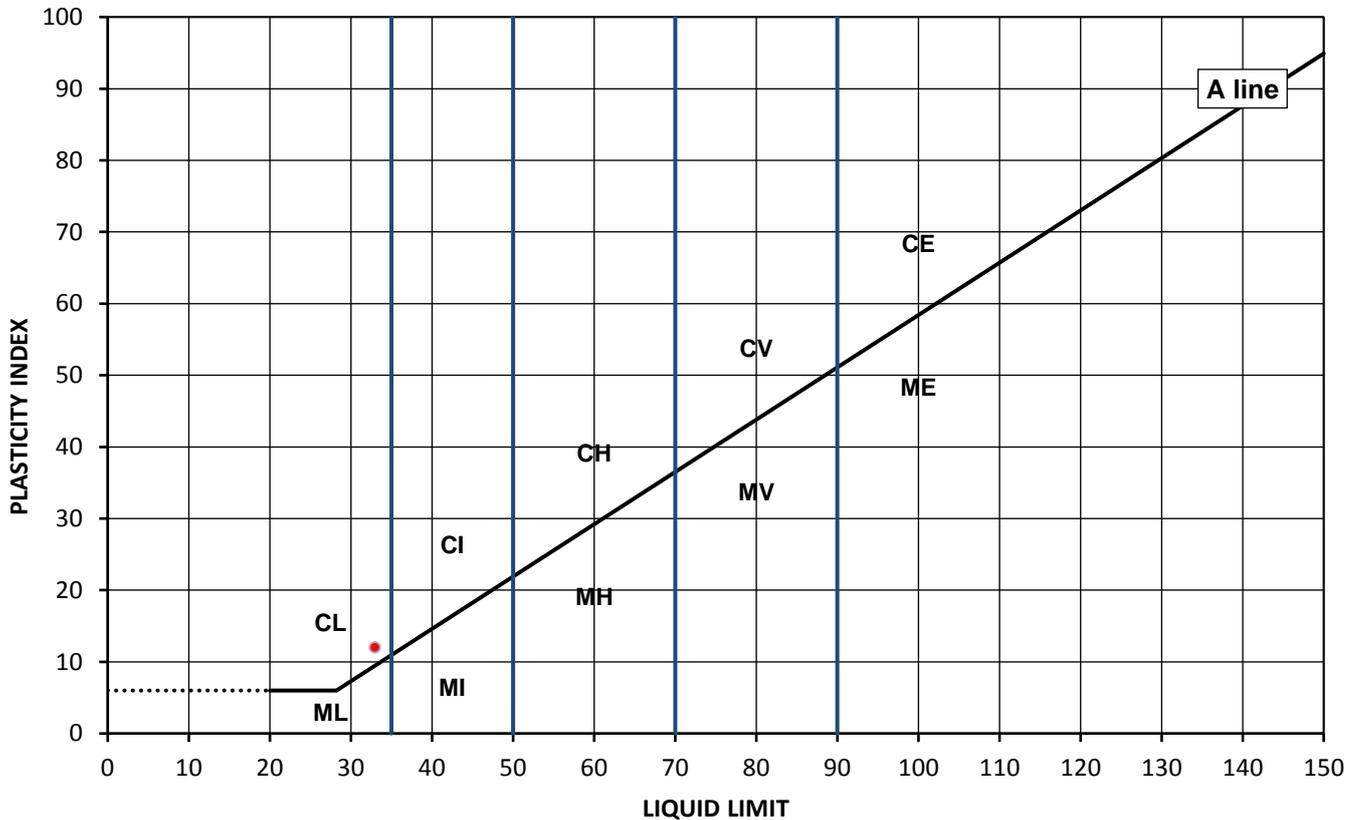
Test Results

Laboratory Reference: 1150426
Hole No.: DS06
Sample Reference: 2
Soil Description: Yellowish brown very gravelly very sandy CLAY

Depth Top [m]: 1.50
Depth Base [m]: 1.60
Sample Type: D

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
11	33	21	12	45



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	Liquid Limit
M	Silt	L	Low
		I	Medium
		H	High
		V	Very high
		E	Extremely high
			below 35
			35 to 50
			50 to 70
			70 to 90
			exceeding 90
	Organic	O	append to classification for organic material (eg CHO)

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 20/02/2019

Signed: Darren Berrill
Geotechnical General Manager

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Liquid and Plastic Limits

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



Environmental Science

4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client: BWB Consulting Limited
Client Address: Livery Place, 35 Livery Street Birmingham, B3 2PB
Contact: Jade Allen
Site Name: Trowbridge
Site Address: Not Given

Client Reference: LDQ2048
Job Number: 19-28029
Date Sampled: 31/01/2019
Date Received: 04/02/2019
Date Tested: 12/02/2019
Sampled By: Not Given

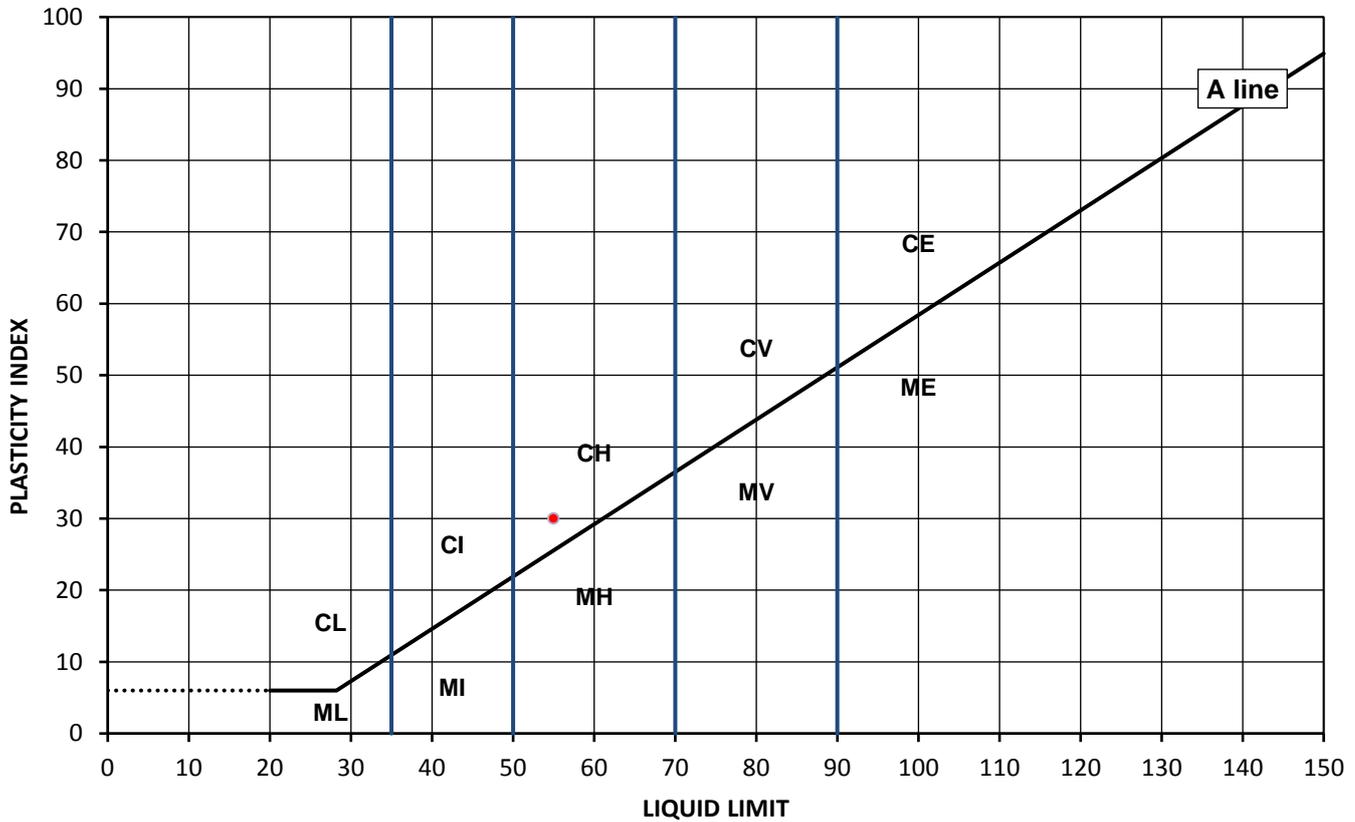
Test Results

Laboratory Reference: 1150427
Hole No.: DS06
Sample Reference: 4
Soil Description: Brownish grey slightly sandy CLAY

Depth Top [m]: 3.50
Depth Base [m]: 3.60
Sample Type: D

Sample Preparation: Tested in natural condition

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
26	55	25	30	100



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	Liquid Limit
M	Silt	L	Low
		I	Medium
		H	High
		V	Very high
		E	Extremely high
			below 35
			35 to 50
			50 to 70
			70 to 90
			exceeding 90
	Organic	O	append to classification for organic material (eg CHO)

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 20/02/2019

Signed: Darren Berrill
Geotechnical General Manager

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4041

Client: BWB Consulting Limited
 Client Address: Livery Place, 35 Livery Street Birmingham, B3 2PB
 Contact: Jade Allen
 Site Name: Trowbridge
 Site Address: Not Given

SUMMARY REPORT

Summary of Classification Test Results

Tested in Accordance with:

MC by BS 1377-2: 1990: Clause 3.2; Atterberg by BS 1377-2: 1990: Clause 4.3, Clause 4.4 and 5; PD by BS 1377-2: 1990: Clause 8.2

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



Environmental Science

Client Reference: LDQ2048
 Job Number: 19-28029
 Date Sampled: 31/01/2019
 Date Received: 04/02/2019
 Date Tested: 12/02/2019
 Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	MC#	Atterberg#				Density		Total Porosity %				
		Reference	Depth Top m	Depth Base m	Type				% Passing 425um %	LL %	PL %	PI %	bulk Mg/m3	PD Mg/m3					
1150418	DS01	4	1.70	1.80	D	Brownish grey slightly gravelly slightly sandy CLAY	Atterberg 1 Point	23	96	47	24	23							
1150419	DS01	5	2.20	2.30	D	Brown mottled grey slightly sandy CLAY	Atterberg 1 Point	31	100	50	23	27							
1150420	DS02	5	3.00	3.10	D	Brownish grey slightly sandy CLAY	Atterberg 1 Point	27	100	55	28	27							
1150421	DS03	4	1.90	2.00	D	Brownish grey slightly sandy CLAY	Atterberg 1 Point	22	100	46	22	24							
1150422	DS03	5	3.80	3.90	D	Greyish brown CLAY	Atterberg 1 Point	24	100	60	26	34							
1150423	DS04	4	1.50	1.60	D	Brownish grey slightly gravelly slightly sandy CLAY	Atterberg 1 Point	23	99	47	25	22							
1150424	DS05	4	2.90	3.00	D	Brownish grey slightly sandy CLAY	Atterberg 1 Point	25	100	47	22	25							
1150425	DS05	5	3.60	3.80	D	Brownish grey slightly sandy CLAY	Atterberg 1 Point	27	100	55	27	28							
1150426	DS06	2	1.50	1.60	D	Yellowish brown very gravelly very sandy CLAY	Atterberg 1 Point	11	45	33	21	12							
1150427	DS06	4	3.50	3.60	D	Brownish grey slightly sandy CLAY	Atterberg 1 Point	26	100	55	25	30							

Note: # UKAS accredited; NP - Non plastic

Comments:

Approved: Dariusz Piotrowski
 PL Geotechnical Laboratory Manager
 Date Reported: 20/02/2019

Signed: Darren Berrill
 Geotechnical General Manager

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Jade Allen
BWB Consulting Limited
Livery Place
35 Livery Street Birmingham
B3 2PB

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

t: 01217962087
e: jade.allen@bwbconsulting.com

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

Analytical Report Number : 19-28037

Project / Site name:	Trowbridge	Samples received on:	04/02/2019
Your job number:	LDQ2048	Samples instructed on:	06/02/2019
Your order number:	POR023736	Analysis completed by:	18/02/2019
Report Issue Number:	1	Report issued on:	18/02/2019
Samples Analysed:	5 soil samples		

Signed:

Jordan Hill
Reporting Manager
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

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Analytical Report Number: 19-28037

Project / Site name: Trowbridge

Your Order No: POR023736

Lab Sample Number	1150459	1150460	1150461	1150462	1150463			
Sample Reference	DS01	DS02	DS04	DS05	DS06			
Sample Number	2	4	3	2	5			
Depth (m)	0.30-0.50	1.90-2.10	2.00-2.30	0.90-1.00	1.00-1.30			
Date Sampled	31/01/2019	31/01/2019	31/01/2019	31/01/2019	31/01/2019			
Time Taken	1224	1248	1431	1504	1551			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	26
Moisture Content	%	N/A	NONE	9.5	9.5	18	8.1	8.3
Total mass of sample received	kg	0.001	NONE	2.0	2.0	2.0	0.63	2.0

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.1	8.2	7.9	8.3	8.2
Total Sulphate as SO ₄	%	0.005	MCERTS	0.077	0.076	0.238	0.073	0.072
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.012	0.023	0.25	0.0074	0.019
Total Sulphur	%	0.005	MCERTS	0.036	0.040	0.093	0.038	0.036



Analytical Report Number : 19-28037

Project / Site name: Trowbridge

* 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 *
1150459	DS01	2	0.30-0.50	Light brown clay and sand with gravel.
1150460	DS02	4	1.90-2.10	Brown clay and sand with gravel and vegetation.
1150461	DS04	3	2.00-2.30	Light grey clay.
1150462	DS05	2	0.90-1.00	Light brown clay and sand with gravel.
1150463	DS06	5	1.00-1.30	Light brown clay and sand with gravel and stones.



Analytical Report Number : 19-28037

Project / Site name: Trowbridge

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	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 based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	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
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 based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total Sulphate in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests"	L038	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 based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038	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.



TEST CERTIFICATE

Liquid and Plastic Limits

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



Environmental Science

4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client: BWB Consulting Limited
Client Address: 5th Floor, Waterfront House,
Nottingham, NG2 3DQ

Client Reference: LDQ2048
Job Number: 19-31461
Date Sampled: 31/01/2019
Date Received: 04/03/2019
Date Tested: 12/03/2019
Sampled By: Not Given

Contact: Jade Allen
Site Name: Trowbridge
Site Address: Not Given

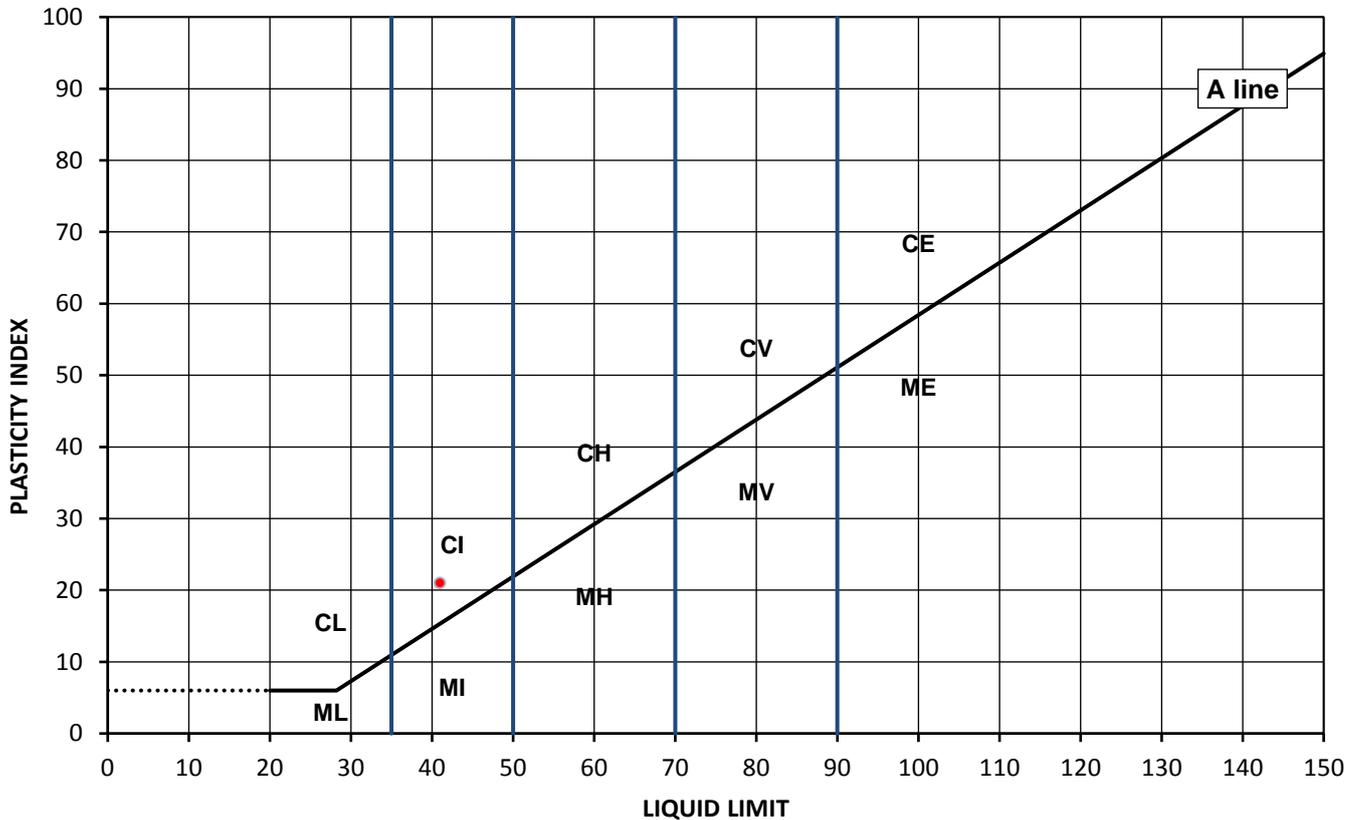
Test Results

Laboratory Reference: 1169107
Hole No.: DS07
Sample Reference: BWB4190304003
Soil Description: Brown slightly gravelly sandy CLAY

Depth Top [m]: 1.60
Depth Base [m]: 1.70
Sample Type: D

Sample Preparation: Tested after washing to remove >425um

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
19	41	20	21	88



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	Liquid Limit
M	Silt	L	below 35
		I	35 to 50
		H	50 to 70
		V	70 to 90
		E	exceeding 90

Organic

O append to classification for organic material (eg CHO)

Note: Moisture Content by BS 1377-2: 1990: Caluse 3.2

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 18/03/2019

Signed: Darren Berrill
Geotechnical General Manager

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TEST CERTIFICATE

Liquid and Plastic Limits

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



Environmental Science

4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.4 and 5

Client: BWB Consulting Limited
Client Address: 5th Floor, Waterfront House,
Nottingham, NG2 3DQ

Client Reference: LDQ2048
Job Number: 19-31461
Date Sampled: 31/01/2019
Date Received: 04/03/2019
Date Tested: 12/03/2019
Sampled By: Not Given

Contact: Jade Allen
Site Name: Trowbridge
Site Address: Not Given

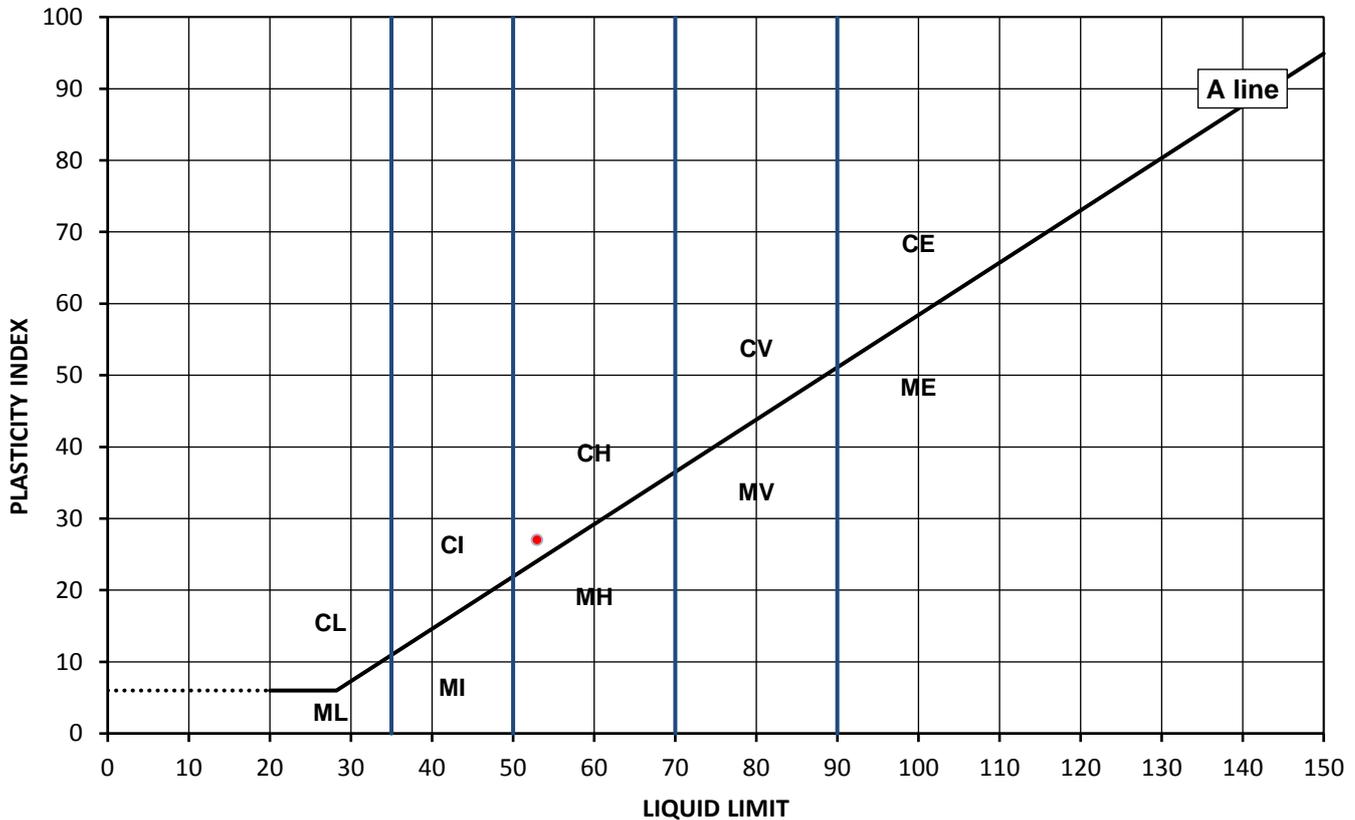
Test Results

Laboratory Reference: 1169108
Hole No.: DS08
Sample Reference: BWB4190304008
Soil Description: Brownish grey slightly sandy CLAY

Depth Top [m]: 1.90
Depth Base [m]: 2.00
Sample Type: D

Sample Preparation: Tested in natural condition

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
11	53	26	27	100



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	Liquid Limit
M	Silt	L	Low
		I	Medium
		H	High
		V	Very high
		E	Extremely high

Organic

O append to classification for organic material (eg CHO)

Note: Moisture Content by BS 1377-2: 1990: Caluse 3.2

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 18/03/2019

Signed: Darren Berrill
Geotechnical General Manager

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4041

Client: BWB Consulting Limited
Client Address: 5th Floor, Waterfront House, Nottingham, NG2 3DQ

Contact: Jade Allen
Site Name: Trowbridge
Site Address: Not Given

SUMMARY REPORT

Summary of Classification Test Results

Tested in Accordance with:

MC by BS 1377-2: 1990: Clause 3.2; WC by BS EN 17892-1: 2014; Atterberg by BS 1377-2: 1990: Clause 4.3, Clause 4.4 and 5; PD by BS 1377-2: 1990: Clause 8.2

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



Environmental Science

Client Reference: LDQ2048
Job Number: 19-31461
Date Sampled: 31/01/2019
Date Received: 04/03/2019
Date Tested: 12/03/2019
Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	MC	WC	Atterberg				Density			Total Porosity#
		Reference	Depth Top	Depth Base	Type					% Passing 425um	LL	PL	PI	bulk	dry	PD	
			m	m													
1169107	DS07	BWB4190304003	1.60	1.70	D	Brown slightly gravelly sandy CLAY	Atterberg 1 Point	19		88	41	20	21				
1169108	DS08	BWB4190304008	1.90	2.00	D	Brownish grey slightly sandy CLAY	Atterberg 1 Point	11		100	53	26	27				

Note: # Non accredited; NP - Non plastic

Comments:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 18/03/2019

Signed: Darren Berrill
Geotechnical General Manager

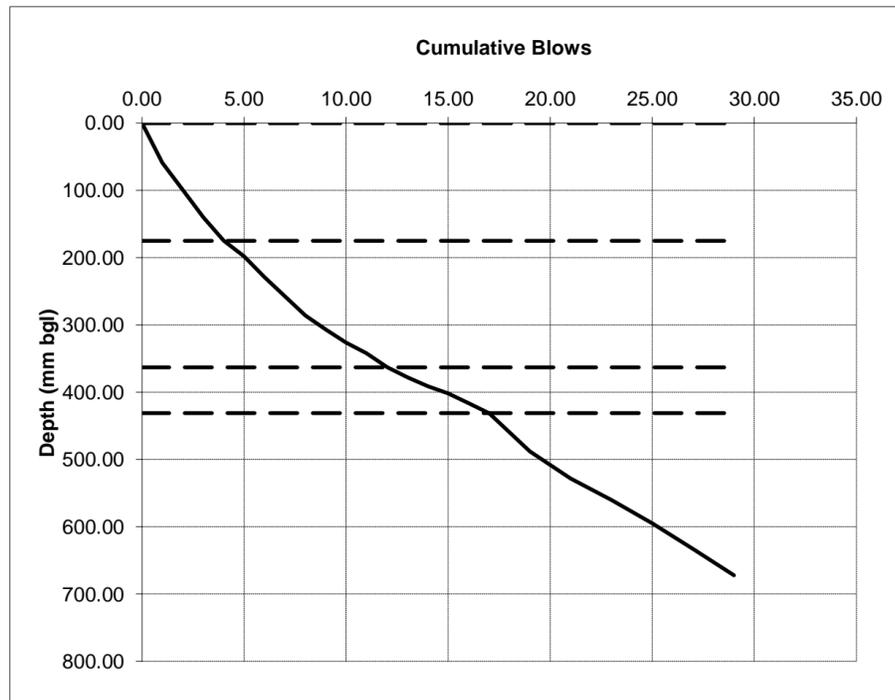
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APPENDIX 8: DCP Testing Results

Dynamic Cone Penetrometer

PROJECT NUMBER	LDQ2048	 CONSULTANCY ENVIRONMENT INFRASTRUCTURE BUILDINGS
PROJECT TITLE	Trowbridge Rugby Club	
TEST REFERENCE	DCP 1	
DATE	05-Mar-19	
MATERIAL/ STRATA TYPE		
START DEPTH (mm bgl)	0	
WEATHER/ GROUND CONDITION	Dry	

Layer	Blows	Cumulative Blows	Layer Thickness (mm)	Total Depth (mm bgl)	CBR (%)
1	4	4	175	175	5.6
2	8	12	188	363	10.7
3	5	17	68	431	19.1
4	12	29	241	672	12.7



CBR Interpretation based on the TRL Equation: $\text{Log}_{10}(\text{CBR}) = 2.480 - [1.057 \times \text{Log}_{10}(\text{DCP Strength})]$

APPENDIX 9: Soils 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

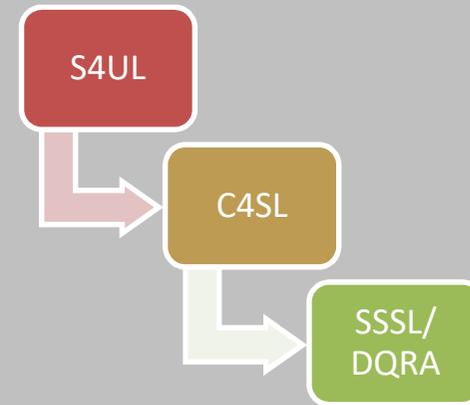
true mean is greater than critical concentration
Further action required

Human Health Generic QRA Worksheet

Trowbridge Rugby Club	LDQ2048
All Data	

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 Hierarchy



GSAC Type (BWB, LQM S4UL, C4SL, Bespoke)	LQM_CIEH_S4UL
Key Receptor/CSM (Residential/Commercial/POS)	S4UL Public open space (park)
Organic Matter % (If unknown use 1%)	1

Generic Assessment Criteria



CONSULTANCY | ENVIRONMENT
INFRASTRUCTURE | BUILDINGS

Trowbridge Rugby Club
LDQ2048

S4UL Public open
space (park)

Source

Arsenic	1.70E+02	LQM_CIEH_S4UL
Barium	1.35E+03	LQM_CIEH_S4UL
Beryllium	6.30E+01	LQM_CIEH_S4UL
Boron	4.60E+04	LQM_CIEH_S4UL
Cadmium	5.32E+02	LQM_CIEH_S4UL
Chromium VI	2.20E+02	LQM_CIEH_S4UL
Chromium III	3.30E+04	LQM_CIEH_S4UL
Copper	4.40E+04	LQM_CIEH_S4UL
Lead*	1.30E+03	DEFRA_C4SL
Inorganic Mercury	2.40E+02	LQM_CIEH_S4UL
Nickel	3.40E+03	LQM_CIEH_S4UL
Selenium	1.80E+03	LQM_CIEH_S4UL
Vanadium	5.00E+03	LQM_CIEH_S4UL
Zinc	1.70E+05	LQM_CIEH_S4UL
Cyanide (Free)	4.30E+01	BWB
Cyanide (Complex)	2.13E+02	BWB
Phenols (Total)	4.40E+02	LQM_CIEH_S4UL
Total TPH	5.00E+02	BWB
Naphthalene	1.20E+03	LQM_CIEH_S4UL
Acenaphthylene	2.90E+04	LQM_CIEH_S4UL
Acenaphthene	2.90E+04	LQM_CIEH_S4UL
Fluorene	2.00E+04	LQM_CIEH_S4UL
Phenanthrene	6.20E+03	LQM_CIEH_S4UL
Anthracene	1.50E+05	LQM_CIEH_S4UL
Fluoranthene	6.30E+03	LQM_CIEH_S4UL
Pyrene	1.50E+04	LQM_CIEH_S4UL
Benzo(a)anthracene	4.90E+01	LQM_CIEH_S4UL
Chrysene	9.30E+01	LQM_CIEH_S4UL
Benzo(b)fluoranthene	1.30E+01	LQM_CIEH_S4UL
Benzo(k)fluoranthene	3.70E+02	LQM_CIEH_S4UL
Benzo(a)pyrene	1.10E+01	LQM_CIEH_S4UL
Indeno(1,2,3-c,d)pyrene	1.50E+02	LQM_CIEH_S4UL
Dibenzo(a,h)anthracene	1.10E+00	LQM_CIEH_S4UL
Benzo(g,hi)perylene	1.40E+03	LQM_CIEH_S4UL

Location	Sample depth	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		1	1	0.06	0.2	0.2	4	1	1	1	0.3	1	1	1	1	1	1	1
GSAC		1.70E+02	1.35E+03	6.30E+01	4.60E+04	5.32E+02	2.20E+02	3.30E+04	4.40E+04	1.30E+03	2.40E+02	3.40E+03	1.80E+03	5.00E+03	1.70E+05	4.30E+01	2.13E+02	4.40E+02
DS01	0.20-0.30	18	64	0.73	1.5	0.2	4	21	15	16	0.3	16	1	53	100	1	1	1
DS02	0.03-0.12	24	370	2.4	1.5	0.2	4	18	77	20	0.3	46	1	65	1100	1	1	1
DS02	1.00-1.10	11	19	0.51	0.7	0.2	4	11	6.3	4.3	0.3	10	1	34	25	1	1	1
DS03	0.20-0.30	25	120	1	2.7	0.6	4	31	28	32	0.3	24	1	74	130	1	1	1
DS04	0.40-0.50	19	36	0.55	1.2	0.2	4	18	11	10	0.3	16	1	58	48	1	1	1
DS04	2.90-3.00	4.4	20	0.8	7.8	0.2	4	17	12	8.8	0.3	17	1	19	35	1	1	1
DS05	0.20-0.30	28	110	1.2	1.7	0.5	4	37	22	20	0.3	30	1	90	120	1	1	1
DS05	1.10-1.20	4.4	12	0.43	0.5	0.2	4	8.8	6.3	3.7	0.3	8.1	1	23	16	1	1	1
DS06	0.50-0.60	22	73	0.96	1.7	0.2	4	32	20	14	0.3	24	1	70	97	1	1	1
DS07	0.30-0.40	24	98	1.2	2.9	0.2	4	33	22	36	0.3	26	1	80	120	1	1	1
DS08	0.50-0.60	9.6	22	0.47	1	0.2	4	12	9.3	9.7	0.3	10	2.6	34	34	1	1	1

Location	Sample depth	Total TPH	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		10	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
GSAC		5.00E+02	1.20E+03	2.90E+04	2.90E+04	2.00E+04	6.20E+03	1.50E+05	6.30E+03	1.50E+04	4.90E+01	9.30E+01	1.30E+01	3.70E+02	1.10E+01	1.50E+02	1.10E+00	1.40E+03
DS01	0.20-0.30	10	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
DS02	0.03-0.12	10	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
DS02	1.00-1.10	10	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
DS03	0.20-0.30	10	0.05	0.05	0.05	0.05	0.05	0.05	0.28	0.22	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
DS04	0.40-0.50	10	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
DS04	2.90-3.00	10	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
DS05	0.20-0.30	10	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
DS05	1.10-1.20	10	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
DS06	0.50-0.60	10	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
DS07	0.30-0.40	10	0.05	0.05	0.05	0.05	0.28	0.05	0.61	0.52	0.39	0.43	0.47	0.22	0.42	0.23	0.05	0.23
DS08	0.50-0.60	10	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

Determinand	S4UL Public open space (park) GSAC (mg/kg)						No. of		
	Number of tests	Range (mg/kg)	Detection Limit (mg/kg)	Min	Max	Exceedances	No. Non detects	< or not	
Arsenic	11	4.4 to 28	1.70E+02	1	4.4	28	0	0	
Barium	11	12 to 370	1.35E+03	1	12	370	0	0	
Beryllium	11	0.43 to 2.4	6.30E+01	0.06	0.43	2.4	0	0	
Boron	11	0.5 to 7.8	4.60E+04	0.2	0.5	7.8	0	0	
Cadmium	11	<0.2 to 0.6	5.32E+02	0.2	0.2	0.6	0	9	<
Chromium VI	11	<4 to 4	2.20E+02	4	4	4	0	11	<
Chromium III	11	8.8 to 37	3.30E+04	1	8.8	37	0	0	
Copper	11	6.3 to 77	4.40E+04	1	6.3	77	0	0	
Lead*	11	3.7 to 36	1.30E+03	1	3.7	36	0	0	
Inorganic Mercury	11	<0.3 to 0.3	2.40E+02	0.3	0.3	0.3	0	11	<
Nickel	11	8.1 to 46	3.40E+03	1	8.1	46	0	0	
Selenium	11	<1 to 2.6	1.80E+03	1	1	2.6	0	10	<
Vanadium	11	19 to 90	5.00E+03	1	19	90	0	0	
Zinc	11	16 to 1100	1.70E+05	1	16	1100	0	0	
Cyanide (Free)	11	<1 to 1	4.30E+01	1	1	1	0	11	<
Cyanide (Complex)	11	<1 to 1	2.13E+02	1	1	1	0	11	<
Phenols (Total)	11	<1 to 1	4.40E+02	1	1	1	0	11	<
Total TPH	11	<10 to 10	5.00E+02	10	10	10	0	11	<
Naphthalene	11	<0.05 to 0.05	1.20E+03	0.05	0.05	0.05	0	11	<
Acenaphthylene	11	<0.05 to 0.05	2.90E+04	0.05	0.05	0.05	0	11	<
Acenaphthene	11	<0.05 to 0.05	2.90E+04	0.05	0.05	0.05	0	11	<
Fluorene	11	<0.05 to 0.05	2.00E+04	0.05	0.05	0.05	0	11	<
Phenanthrene	11	<0.05 to 0.28	6.20E+03	0.05	0.05	0.28	0	10	<
Anthracene	11	<0.05 to 0.05	1.50E+05	0.05	0.05	0.05	0	11	<
Fluoranthene	11	<0.05 to 0.61	6.30E+03	0.05	0.05	0.61	0	9	<
Pyrene	11	<0.05 to 0.52	1.50E+04	0.05	0.05	0.52	0	9	<
Benzo(a)anthracene	11	<0.05 to 0.39	4.90E+01	0.05	0.05	0.39	0	10	<
Chrysene	11	<0.05 to 0.43	9.30E+01	0.05	0.05	0.43	0	10	<
Benzo(b)fluoranthene	11	<0.05 to 0.47	1.30E+01	0.05	0.05	0.47	0	10	<
Benzo(k)fluoranthene	11	<0.05 to 0.22	3.70E+02	0.05	0.05	0.22	0	10	<
Benzo(a)pyrene	11	<0.05 to 0.42	1.10E+01	0.05	0.05	0.42	0	10	<
Indeno(1,2,3-c,d)pyrene	11	<0.05 to 0.23	1.50E+02	0.05	0.05	0.23	0	10	<
Dibenzo(a,h)anthracene	11	<0.05 to 0.05	1.10E+00	0.05	0.05	0.05	0	11	<
Benzo(g,hi)perylene	11	<0.05 to 0.23	1.40E+03	0.05	0.05	0.23	0	10	<

APPENDIX 10: Leachates Assessment

*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:	Trowbridge Rugby Club
Project Number:	LDQ2048
Assessment for:	Soil Leachate Assessment
Laboratory:	i2
Receptor:	Freshwater
Receptor Water Hardness:	>200



100 = Assessment Criteria Exceedance
50 = M-BAT Bioavailability Assessment Required

	Contaminant	Units	Detection Limit	Guideline Concentration	Source	Number of Samples	Min	Max	No of Exceedences	DS01	DS02	DS04	
										0.200.30	0.030.12	0.400.50	
Heavy Metals	Arsenic	µg/l	1.1	50	EQS Freshwater	3	7.40	9.40	0	8.30	9.40	7.40	
	Barium	mg/l	0.05	700	UK DWS	3	3.40	40.00	0	6.30	40.00	3.40	
	Beryllium	µg/l	0.2	None Available		3	0.20	0.20	0	0.20	0.20	0.20	
	Cadmium	µg/l	0.08	0.25	EQS Freshwater	3	0.08	0.08	0	0.08	0.08	0.08	
	Chromium III	µg/l	0.4	4.7	EQS Freshwater	3	0.50	0.90	0	0.90	0.50	0.50	
	Chromium VI	µg/l		3.4	EQS Freshwater	3	0.50	0.90	0	0.90	0.50	0.50	
	Copper	µg/l	0.7	1	EQS Freshwater	3	3.80	4.70	3	4.10	4.70	3.80	
	Lead	µg/l	1	1.2	EQS Freshwater	3	2.60	3.80	3	3.80	3.60	2.60	
	Mercury	µg/l	0.5	0.07	EQS Freshwater	3	0.50	0.50	3	0.50	0.50	0.50	
	Nickel	µg/l	0.3	4	EQS Freshwater	3	0.30	0.40	0	0.30	0.40	0.30	
	Selenium	µg/l	4	10	UK DWS	3	4.00	4.00	0	4.00	4.00	4.00	
	Vanadium	µg/l	1.7	None Available		3	1.70	3.20	0	1.70	3.20	1.70	
	Zinc	µg/l	0.4	10.9	EQS Freshwater	3	3.30	15.00	1	3.80	15.00	3.30	
	Boron	mg/l	10	2000	EQS Freshwater	3	14.00	27.00	0	14.00	27.00	20.00	
Inorganics	pH					3	7.90	8.10	0	8.10	8.00	7.90	
	Cyanide (total)	µg/l	10	1	EQS Freshwater	3	10.00	10.00	3	10.00	10.00	10.00	
	Sulphate	mg/l	0.1	400	EQS Freshwater	3	1.10	3.30	0	3.30	3.20	1.10	

APPENDIX 11: HazWasteOnline™ Results

Waste Classification Report



RYSBE-VXXNV-JNE86

Job name

Untitled 23070

Description/Comments

Project

LDQ 2048

Site

Trowbridge Town Council

Related Documents

#	Name	Description
None		

Waste Stream Template

BWB Contaminated Land Suite WM3

Classified by

Name:
Timothy Hull
Date:
19 Mar 2019 10:58 GMT
Telephone:
0115 924 7331

Company:
BWB Consulting Ltd
5th Floor, Waterfront House
Station Street
Nottingham
NG2 3DQ

Report

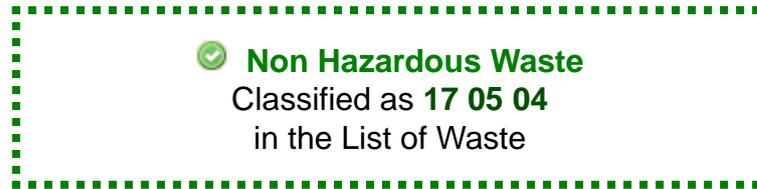
Created by: Timothy Hull
Created date: 19 Mar 2019 10:58 GMT

Job summary

#	Sample Name	Depth [m]	Classification Result	Hazard properties	Page
1	DS01	0.20-0.30	Non Hazardous		3
2	DS02	0.03-0.12	Non Hazardous		5
3	DS02[2]	1.00-1.10	Non Hazardous		7
4	DS03	0.20-0.30	Non Hazardous		9
5	DS04	0.40-0.50	Non Hazardous		11
6	DS04[2]	2.90-3.00	Non Hazardous		13
7	DS05	0.20-0.30	Non Hazardous		15
8	DS05[2]	1.10-1.20	Non Hazardous		17
9	DS06	0.50-0.60	Non Hazardous		19
10	DS07	0.30-0.40	Non Hazardous		21
11	DS08	0.50-0.60	Non Hazardous		24

Appendices	Page
Appendix A: Classifier defined and non CLP determinands	26
Appendix B: Rationale for selection of metal species	27
Appendix C: Version	28

Classification of sample: DS01



Sample details

Sample Name:	LoW Code:	
DS01	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)
0.20-0.30 m		
Moisture content:		
12%		
(no correction)		

Hazard properties

None identified

Determinands

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

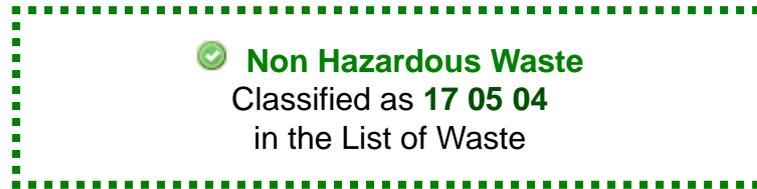
#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	confirm TPH has NOT arisen from diesel or petrol				<input checked="" type="checkbox"/>					
2	arsenic { arsenic trioxide }				18 mg/kg	1.32	23.766 mg/kg	0.00238 %		
	033-003-00-0	215-481-4	1327-53-3							
3	beryllium { beryllium oxide }				0.73 mg/kg	2.775	2.026 mg/kg	0.000203 %		
	004-003-00-8	215-133-1	1304-56-9							
4	boron { boron tribromide/trichloride/trifluoride (combined) }				1.5 mg/kg	13.43	20.145 mg/kg	0.00201 %		
			10294-33-4, 10294-34-5, 7637-07-2							
5	cadmium { cadmium sulfide }			1	<0.2 mg/kg	1.285	<0.257 mg/kg	<0.00002 %		<LOD
	048-010-00-4	215-147-8	1306-23-6							
6	chromium { chromium(III) oxide }				21 mg/kg	1.462	30.693 mg/kg	0.00307 %		
		215-160-9	1308-38-9							
7	copper { dicopper oxide; copper (I) oxide }				15 mg/kg	1.126	16.888 mg/kg	0.00169 %		
	029-002-00-X	215-270-7	1317-39-1							
8	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							
9	mercury { mercury dichloride }				<0.3 mg/kg	1.353	<0.406 mg/kg	<0.0000406 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
10	nickel { nickel dihydroxide }				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]							
11	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
	034-002-00-8									
12	zinc { zinc oxide }				100 mg/kg	1.245	124.471 mg/kg	0.0124 %		
	030-013-00-7	215-222-5	1314-13-2							
13	pH				7.9 pH		7.9 pH	7.9 pH		
			PH							

#	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	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
	006-007-00-5											
15	TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
			TPH									
16	acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9									
17	acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-917-1	208-96-8									
18	anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		204-371-1	120-12-7									
19	benzo[a]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-033-00-9	200-280-6	56-55-3									
20	benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-032-00-3	200-028-5	50-32-8									
21	benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-034-00-4	205-911-9	205-99-2									
22	benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-883-8	191-24-2									
23	benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-036-00-5	205-916-6	207-08-9									
24	chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-048-00-0	205-923-4	218-01-9									
25	dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-041-00-2	200-181-8	53-70-3									
26	fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-912-4	206-44-0									
27	fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-695-5	86-73-7									
28	indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-893-2	193-39-5									
29	naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
30	phenanthrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-581-5	85-01-8									
31	pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		204-927-3	129-00-0									
32	phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	604-001-00-2	203-632-7	108-95-2									
Total:										0.0276 %		

Key

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

Classification of sample: DS02



Sample details

Sample Name:	LoW Code:	
DS02	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)
0.03-0.12 m		
Moisture content:		
16%		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 16% 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	confirm TPH has NOT arisen from diesel or petrol				<input checked="" type="checkbox"/>					
2	arsenic { arsenic trioxide }				24 mg/kg	1.32	31.688 mg/kg	0.00317 %		
	033-003-00-0	215-481-4	1327-53-3							
3	beryllium { beryllium oxide }				2.4 mg/kg	2.775	6.661 mg/kg	0.000666 %		
	004-003-00-8	215-133-1	1304-56-9							
4	boron { boron tribromide/trichloride/trifluoride (combined) }				1.5 mg/kg	13.43	20.145 mg/kg	0.00201 %		
			10294-33-4, 10294-34-5, 7637-07-2							
5	cadmium { cadmium sulfide }			1	<0.2 mg/kg	1.285	<0.257 mg/kg	<0.00002 %		<LOD
	048-010-00-4	215-147-8	1306-23-6							
6	chromium { chromium(III) oxide }				18 mg/kg	1.462	26.308 mg/kg	0.00263 %		
		215-160-9	1308-38-9							
7	copper { dicopper oxide; copper (I) oxide }				77 mg/kg	1.126	86.693 mg/kg	0.00867 %		
	029-002-00-X	215-270-7	1317-39-1							
8	lead { lead chromate }			1	20 mg/kg	1.56	31.196 mg/kg	0.002 %		
	082-004-00-2	231-846-0	7758-97-6							
9	mercury { mercury dichloride }				<0.3 mg/kg	1.353	<0.406 mg/kg	<0.0000406 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
10	nickel { nickel dihydroxide }				46 mg/kg	1.579	72.657 mg/kg	0.00727 %		
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]							
11	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
	034-002-00-8									
12	zinc { zinc oxide }				1100 mg/kg	1.245	1369.185 mg/kg	0.137 %		
	030-013-00-7	215-222-5	1314-13-2							
13	pH				7.9 pH		7.9 pH	7.9 pH		
			PH							

#	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	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
	006-007-00-5											
15	TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
			TPH									
16	acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9									
17	acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-917-1	208-96-8									
18	anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		204-371-1	120-12-7									
19	benzo[a]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-033-00-9	200-280-6	56-55-3									
20	benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-032-00-3	200-028-5	50-32-8									
21	benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-034-00-4	205-911-9	205-99-2									
22	benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-883-8	191-24-2									
23	benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-036-00-5	205-916-6	207-08-9									
24	chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-048-00-0	205-923-4	218-01-9									
25	dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-041-00-2	200-181-8	53-70-3									
26	fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-912-4	206-44-0									
27	fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-695-5	86-73-7									
28	indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-893-2	193-39-5									
29	naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
30	phenanthrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-581-5	85-01-8									
31	pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		204-927-3	129-00-0									
32	phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	604-001-00-2	203-632-7	108-95-2									
Total:										0.165 %		

Key

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

Classification of sample: DS02[2]

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

Sample details

Sample Name:	LoW Code:	
DS02[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)
1.00-1.10 m		
Moisture content:		
8.9%		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 8.9% 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	confirm TPH has NOT arisen from diesel or petrol				✔					
2	arsenic { arsenic trioxide }				11 mg/kg	1.32	14.524 mg/kg	0.00145 %		
	033-003-00-0	215-481-4	1327-53-3							
3	beryllium { beryllium oxide }				0.51 mg/kg	2.775	1.415 mg/kg	0.000142 %		
	004-003-00-8	215-133-1	1304-56-9							
4	boron { boron tribromide/trichloride/trifluoride (combined) }				0.7 mg/kg	13.43	9.401 mg/kg	0.00094 %		
			10294-33-4, 10294-34-5, 7637-07-2							
5	cadmium { cadmium sulfide }			1	<0.2 mg/kg	1.285	<0.257 mg/kg	<0.00002 %		<LOD
	048-010-00-4	215-147-8	1306-23-6							
6	chromium { chromium(III) oxide }				11 mg/kg	1.462	16.077 mg/kg	0.00161 %		
		215-160-9	1308-38-9							
7	copper { dicopper oxide; copper (I) oxide }				6.3 mg/kg	1.126	7.093 mg/kg	0.000709 %		
	029-002-00-X	215-270-7	1317-39-1							
8	lead { lead chromate }			1	4.3 mg/kg	1.56	6.707 mg/kg	0.00043 %		
	082-004-00-2	231-846-0	7758-97-6							
9	mercury { mercury dichloride }				<0.3 mg/kg	1.353	<0.406 mg/kg	<0.0000406 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
10	nickel { nickel dihydroxide }				10 mg/kg	1.579	15.795 mg/kg	0.00158 %		
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]							
11	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
	034-002-00-8									
12	zinc { zinc oxide }				25 mg/kg	1.245	31.118 mg/kg	0.00311 %		
	030-013-00-7	215-222-5	1314-13-2							
13	pH				8.2 pH		8.2 pH	8.2 pH		
			PH							

#	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	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
	006-007-00-5											
15	TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
			TPH									
16	acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9									
17	acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-917-1	208-96-8									
18	anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		204-371-1	120-12-7									
19	benzo[a]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-033-00-9	200-280-6	56-55-3									
20	benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-032-00-3	200-028-5	50-32-8									
21	benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-034-00-4	205-911-9	205-99-2									
22	benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-883-8	191-24-2									
23	benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-036-00-5	205-916-6	207-08-9									
24	chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-048-00-0	205-923-4	218-01-9									
25	dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-041-00-2	200-181-8	53-70-3									
26	fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-912-4	206-44-0									
27	fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-695-5	86-73-7									
28	indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-893-2	193-39-5									
29	naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
30	phenanthrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-581-5	85-01-8									
31	pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		204-927-3	129-00-0									
32	phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	604-001-00-2	203-632-7	108-95-2									
Total:										0.0117 %		

Key

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

Classification of sample: DS03

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

Sample details

Sample Name:	LoW Code:	
DS03	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)
0.20-0.30 m		
Moisture content:		
19%		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 19% No Moisture Correction applied (MC)

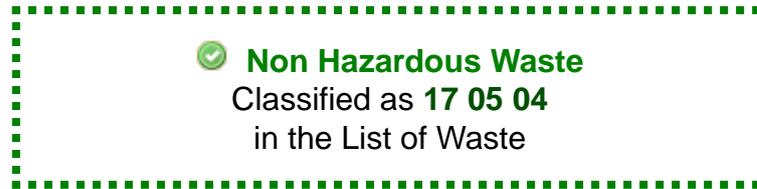
#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	confirm TPH has NOT arisen from diesel or petrol				✔					
2	arsenic { arsenic trioxide }				25 mg/kg	1.32	33.008 mg/kg	0.0033 %		
	033-003-00-0	215-481-4	1327-53-3							
3	beryllium { beryllium oxide }				1 mg/kg	2.775	2.775 mg/kg	0.000278 %		
	004-003-00-8	215-133-1	1304-56-9							
4	boron { boron tribromide/trichloride/trifluoride (combined) }				2.7 mg/kg	13.43	36.261 mg/kg	0.00363 %		
			10294-33-4, 10294-34-5, 7637-07-2							
5	cadmium { cadmium sulfide }			1	0.6 mg/kg	1.285	0.771 mg/kg	0.00006 %		
	048-010-00-4	215-147-8	1306-23-6							
6	chromium { chromium(III) oxide }				31 mg/kg	1.462	45.308 mg/kg	0.00453 %		
		215-160-9	1308-38-9							
7	copper { dicopper oxide; copper (I) oxide }				28 mg/kg	1.126	31.525 mg/kg	0.00315 %		
	029-002-00-X	215-270-7	1317-39-1							
8	lead { lead chromate }			1	32 mg/kg	1.56	49.914 mg/kg	0.0032 %		
	082-004-00-2	231-846-0	7758-97-6							
9	mercury { mercury dichloride }				<0.3 mg/kg	1.353	<0.406 mg/kg	<0.0000406 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
10	nickel { nickel dihydroxide }				24 mg/kg	1.579	37.908 mg/kg	0.00379 %		
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]							
11	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
	034-002-00-8									
12	zinc { zinc oxide }				130 mg/kg	1.245	161.813 mg/kg	0.0162 %		
	030-013-00-7	215-222-5	1314-13-2							
13	pH				7.9 pH		7.9 pH	7.9 pH		
			PH							

#	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	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
	006-007-00-5											
15	TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
			TPH									
16	acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9									
17	acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-917-1	208-96-8									
18	anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		204-371-1	120-12-7									
19	benzo[a]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-033-00-9	200-280-6	56-55-3									
20	benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-032-00-3	200-028-5	50-32-8									
21	benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-034-00-4	205-911-9	205-99-2									
22	benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-883-8	191-24-2									
23	benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-036-00-5	205-916-6	207-08-9									
24	chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-048-00-0	205-923-4	218-01-9									
25	dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-041-00-2	200-181-8	53-70-3									
26	fluoranthene				0.28	mg/kg		0.28	mg/kg	0.000028 %		
		205-912-4	206-44-0									
27	fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-695-5	86-73-7									
28	indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-893-2	193-39-5									
29	naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
30	phenanthrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-581-5	85-01-8									
31	pyrene				0.22	mg/kg		0.22	mg/kg	0.000022 %		
		204-927-3	129-00-0									
32	phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	604-001-00-2	203-632-7	108-95-2									
Total:										0.0398 %		

Key

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

Classification of sample: DS04



Sample details

Sample Name:	LoW Code:	
DS04	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.40-0.50 m		
Moisture content:		
11%		
(no correction)		

Hazard properties

None identified

Determinands

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

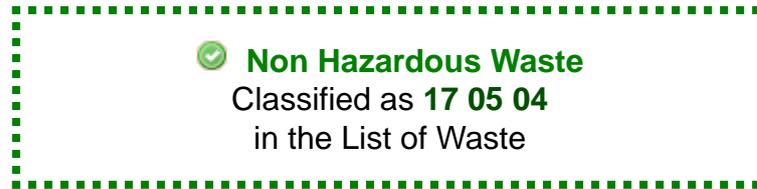
#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	confirm TPH has NOT arisen from diesel or petrol				<input checked="" type="checkbox"/>					
2	arsenic { arsenic trioxide }				19 mg/kg	1.32	25.086 mg/kg	0.00251 %		
	033-003-00-0	215-481-4	1327-53-3							
3	beryllium { beryllium oxide }				0.55 mg/kg	2.775	1.526 mg/kg	0.000153 %		
	004-003-00-8	215-133-1	1304-56-9							
4	boron { boron tribromide/trichloride/trifluoride (combined) }				1.2 mg/kg	13.43	16.116 mg/kg	0.00161 %		
			10294-33-4, 10294-34-5, 7637-07-2							
5	cadmium { cadmium sulfide }			1	<0.2 mg/kg	1.285	<0.257 mg/kg	<0.00002 %		<LOD
	048-010-00-4	215-147-8	1306-23-6							
6	chromium { chromium(III) oxide }				18 mg/kg	1.462	26.308 mg/kg	0.00263 %		
		215-160-9	1308-38-9							
7	copper { dicopper oxide; copper (I) oxide }				11 mg/kg	1.126	12.385 mg/kg	0.00124 %		
	029-002-00-X	215-270-7	1317-39-1							
8	lead { lead chromate }			1	10 mg/kg	1.56	15.598 mg/kg	0.001 %		
	082-004-00-2	231-846-0	7758-97-6							
9	mercury { mercury dichloride }				<0.3 mg/kg	1.353	<0.406 mg/kg	<0.0000406 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
10	nickel { nickel dihydroxide }				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]							
11	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
	034-002-00-8									
12	zinc { zinc oxide }				48 mg/kg	1.245	59.746 mg/kg	0.00597 %		
	030-013-00-7	215-222-5	1314-13-2							
13	pH				7.7 pH		7.7 pH	7.7 pH		
			PH							

#	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	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
	006-007-00-5											
15	TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
			TPH									
16	acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9									
17	acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-917-1	208-96-8									
18	anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		204-371-1	120-12-7									
19	benzo[a]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-033-00-9	200-280-6	56-55-3									
20	benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-032-00-3	200-028-5	50-32-8									
21	benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-034-00-4	205-911-9	205-99-2									
22	benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-883-8	191-24-2									
23	benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-036-00-5	205-916-6	207-08-9									
24	chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-048-00-0	205-923-4	218-01-9									
25	dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-041-00-2	200-181-8	53-70-3									
26	fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-912-4	206-44-0									
27	fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-695-5	86-73-7									
28	indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-893-2	193-39-5									
29	naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
30	phenanthrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-581-5	85-01-8									
31	pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		204-927-3	129-00-0									
32	phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	604-001-00-2	203-632-7	108-95-2									
Total:										0.0193 %		

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
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: DS04[2]



Sample details

Sample Name:	LoW Code:	
DS04[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)
2.90-3.00 m		
Moisture content:		
18%		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 18% 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	confirm TPH has NOT arisen from diesel or petrol				<input checked="" type="checkbox"/>					
2	arsenic { arsenic trioxide }				4.4 mg/kg	1.32	5.809 mg/kg	0.000581 %		
	033-003-00-0	215-481-4	1327-53-3							
3	beryllium { beryllium oxide }				0.8 mg/kg	2.775	2.22 mg/kg	0.000222 %		
	004-003-00-8	215-133-1	1304-56-9							
4	boron { boron tribromide/trichloride/trifluoride (combined) }				7.8 mg/kg	13.43	104.754 mg/kg	0.0105 %		
			10294-33-4, 10294-34-5, 7637-07-2							
5	cadmium { cadmium sulfide }			1	<0.2 mg/kg	1.285	<0.257 mg/kg	<0.00002 %		<LOD
	048-010-00-4	215-147-8	1306-23-6							
6	chromium { chromium(III) oxide }				17 mg/kg	1.462	24.846 mg/kg	0.00248 %		
		215-160-9	1308-38-9							
7	copper { dicopper oxide; copper (I) oxide }				12 mg/kg	1.126	13.511 mg/kg	0.00135 %		
	029-002-00-X	215-270-7	1317-39-1							
8	lead { lead chromate }			1	8.8 mg/kg	1.56	13.726 mg/kg	0.00088 %		
	082-004-00-2	231-846-0	7758-97-6							
9	mercury { mercury dichloride }				<0.3 mg/kg	1.353	<0.406 mg/kg	<0.0000406 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
10	nickel { nickel dihydroxide }				17 mg/kg	1.579	26.851 mg/kg	0.00269 %		
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]							
11	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
	034-002-00-8									
12	zinc { zinc oxide }				35 mg/kg	1.245	43.565 mg/kg	0.00436 %		
	030-013-00-7	215-222-5	1314-13-2							
13	pH				7.4 pH		7.4 pH	7.4 pH		
			PH							

#	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	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
	006-007-00-5											
15	TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
			TPH									
16	acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9									
17	acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-917-1	208-96-8									
18	anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		204-371-1	120-12-7									
19	benzo[a]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-033-00-9	200-280-6	56-55-3									
20	benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-032-00-3	200-028-5	50-32-8									
21	benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-034-00-4	205-911-9	205-99-2									
22	benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-883-8	191-24-2									
23	benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-036-00-5	205-916-6	207-08-9									
24	chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-048-00-0	205-923-4	218-01-9									
25	dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-041-00-2	200-181-8	53-70-3									
26	fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-912-4	206-44-0									
27	fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-695-5	86-73-7									
28	indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-893-2	193-39-5									
29	naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
30	phenanthrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-581-5	85-01-8									
31	pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		204-927-3	129-00-0									
32	phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	604-001-00-2	203-632-7	108-95-2									
Total:										0.0247 %		

Key

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

Classification of sample: DS05

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

Sample details

Sample Name:	LoW Code:	
DS05	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)
0.20-0.30 m		
Moisture content:		
15%		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 15% No Moisture Correction applied (MC)

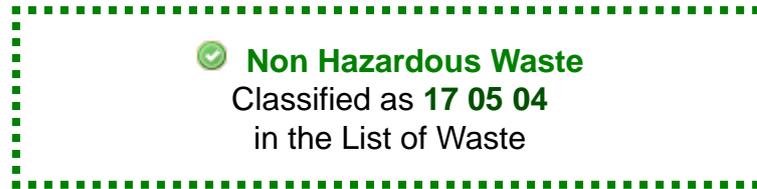
#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	confirm TPH has NOT arisen from diesel or petrol				✔					
2	arsenic { arsenic trioxide }				28 mg/kg	1.32	36.969 mg/kg	0.0037 %		
	033-003-00-0	215-481-4	1327-53-3							
3	beryllium { beryllium oxide }				1.2 mg/kg	2.775	3.33 mg/kg	0.000333 %		
	004-003-00-8	215-133-1	1304-56-9							
4	boron { boron tribromide/trichloride/trifluoride (combined) }				1.7 mg/kg	13.43	22.831 mg/kg	0.00228 %		
			10294-33-4, 10294-34-5, 7637-07-2							
5	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							
6	chromium { chromium(III) oxide }				37 mg/kg	1.462	54.078 mg/kg	0.00541 %		
		215-160-9	1308-38-9							
7	copper { dicopper oxide; copper (I) oxide }				22 mg/kg	1.126	24.77 mg/kg	0.00248 %		
	029-002-00-X	215-270-7	1317-39-1							
8	lead { lead chromate }			1	20 mg/kg	1.56	31.196 mg/kg	0.002 %		
	082-004-00-2	231-846-0	7758-97-6							
9	mercury { mercury dichloride }				<0.3 mg/kg	1.353	<0.406 mg/kg	<0.0000406 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
10	nickel { nickel dihydroxide }				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]							
11	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
	034-002-00-8									
12	zinc { zinc oxide }				120 mg/kg	1.245	149.366 mg/kg	0.0149 %		
	030-013-00-7	215-222-5	1314-13-2							
13	pH				8.1 pH		8.1 pH	8.1 pH		
			PH							

#	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	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
	006-007-00-5											
15	TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
			TPH									
16	acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9									
17	acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-917-1	208-96-8									
18	anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		204-371-1	120-12-7									
19	benzo[a]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-033-00-9	200-280-6	56-55-3									
20	benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-032-00-3	200-028-5	50-32-8									
21	benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-034-00-4	205-911-9	205-99-2									
22	benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-883-8	191-24-2									
23	benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-036-00-5	205-916-6	207-08-9									
24	chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-048-00-0	205-923-4	218-01-9									
25	dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-041-00-2	200-181-8	53-70-3									
26	fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-912-4	206-44-0									
27	fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-695-5	86-73-7									
28	indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-893-2	193-39-5									
29	naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
30	phenanthrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-581-5	85-01-8									
31	pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		204-927-3	129-00-0									
32	phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	604-001-00-2	203-632-7	108-95-2									
Total:										0.0376 %		

Key

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

Classification of sample: DS05[2]



Sample details

Sample Name:	LoW Code:	
DS05[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)
1.10-1.20 m		
Moisture content:		
8.4%		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 8.4% 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	confirm TPH has NOT arisen from diesel or petrol				<input checked="" type="checkbox"/>					
2	arsenic { arsenic trioxide }				4.4 mg/kg	1.32	5.809 mg/kg	0.000581 %		
	033-003-00-0	215-481-4	1327-53-3							
3	beryllium { beryllium oxide }				0.43 mg/kg	2.775	1.193 mg/kg	0.000119 %		
	004-003-00-8	215-133-1	1304-56-9							
4	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							
5	cadmium { cadmium sulfide }			1	<0.2 mg/kg	1.285	<0.257 mg/kg	<0.00002 %		<LOD
	048-010-00-4	215-147-8	1306-23-6							
6	chromium { chromium(III) oxide }				8.8 mg/kg	1.462	12.862 mg/kg	0.00129 %		
		215-160-9	1308-38-9							
7	copper { dicopper oxide; copper (I) oxide }				6.3 mg/kg	1.126	7.093 mg/kg	0.000709 %		
	029-002-00-X	215-270-7	1317-39-1							
8	lead { lead chromate }			1	3.7 mg/kg	1.56	5.771 mg/kg	0.00037 %		
	082-004-00-2	231-846-0	7758-97-6							
9	mercury { mercury dichloride }				<0.3 mg/kg	1.353	<0.406 mg/kg	<0.0000406 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
10	nickel { nickel dihydroxide }				8.1 mg/kg	1.579	12.794 mg/kg	0.00128 %		
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]							
11	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
	034-002-00-8									
12	zinc { zinc oxide }				16 mg/kg	1.245	19.915 mg/kg	0.00199 %		
	030-013-00-7	215-222-5	1314-13-2							
13	pH				8.4 pH		8.4 pH	8.4 pH		
			PH							

#	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	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
	006-007-00-5											
15	TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
			TPH									
16	acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9									
17	acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-917-1	208-96-8									
18	anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		204-371-1	120-12-7									
19	benzo[a]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-033-00-9	200-280-6	56-55-3									
20	benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-032-00-3	200-028-5	50-32-8									
21	benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-034-00-4	205-911-9	205-99-2									
22	benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-883-8	191-24-2									
23	benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-036-00-5	205-916-6	207-08-9									
24	chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-048-00-0	205-923-4	218-01-9									
25	dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-041-00-2	200-181-8	53-70-3									
26	fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-912-4	206-44-0									
27	fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-695-5	86-73-7									
28	indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-893-2	193-39-5									
29	naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
30	phenanthrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-581-5	85-01-8									
31	pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		204-927-3	129-00-0									
32	phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	604-001-00-2	203-632-7	108-95-2									
Total:										0.00869 %		

Key

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

Classification of sample: DS06

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

Sample details

Sample Name:	LoW Code:	
DS06	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.50-0.60 m		
Moisture content:		
14%		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 14% 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	confirm TPH has NOT arisen from diesel or petrol				✔					
2	arsenic { arsenic trioxide }				22 mg/kg	1.32	29.047 mg/kg	0.0029 %		
	033-003-00-0	215-481-4	1327-53-3							
3	beryllium { beryllium oxide }				0.96 mg/kg	2.775	2.664 mg/kg	0.000266 %		
	004-003-00-8	215-133-1	1304-56-9							
4	boron { boron tribromide/trichloride/trifluoride (combined) }				1.7 mg/kg	13.43	22.831 mg/kg	0.00228 %		
			10294-33-4, 10294-34-5, 7637-07-2							
5	cadmium { cadmium sulfide }			1	<0.2 mg/kg	1.285	<0.257 mg/kg	<0.00002 %		<LOD
	048-010-00-4	215-147-8	1306-23-6							
6	chromium { chromium(III) oxide }				32 mg/kg	1.462	46.77 mg/kg	0.00468 %		
		215-160-9	1308-38-9							
7	copper { dicopper oxide; copper (I) oxide }				20 mg/kg	1.126	22.518 mg/kg	0.00225 %		
	029-002-00-X	215-270-7	1317-39-1							
8	lead { lead chromate }			1	14 mg/kg	1.56	21.837 mg/kg	0.0014 %		
	082-004-00-2	231-846-0	7758-97-6							
9	mercury { mercury dichloride }				<0.3 mg/kg	1.353	<0.406 mg/kg	<0.0000406 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
10	nickel { nickel dihydroxide }				24 mg/kg	1.579	37.908 mg/kg	0.00379 %		
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]							
11	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
	034-002-00-8									
12	zinc { zinc oxide }				97 mg/kg	1.245	120.737 mg/kg	0.0121 %		
	030-013-00-7	215-222-5	1314-13-2							
13	pH				8.1 pH		8.1 pH	8.1 pH		
			PH							

#	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	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
	006-007-00-5											
15	TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
			TPH									
16	acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9									
17	acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-917-1	208-96-8									
18	anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		204-371-1	120-12-7									
19	benzo[a]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-033-00-9	200-280-6	56-55-3									
20	benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-032-00-3	200-028-5	50-32-8									
21	benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-034-00-4	205-911-9	205-99-2									
22	benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-883-8	191-24-2									
23	benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-036-00-5	205-916-6	207-08-9									
24	chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-048-00-0	205-923-4	218-01-9									
25	dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-041-00-2	200-181-8	53-70-3									
26	fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-912-4	206-44-0									
27	fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-695-5	86-73-7									
28	indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-893-2	193-39-5									
29	naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
30	phenanthrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-581-5	85-01-8									
31	pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		204-927-3	129-00-0									
32	phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	604-001-00-2	203-632-7	108-95-2									
Total:										0.0313 %		

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
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: DS07

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

Sample details

Sample Name:	LoW Code:	
DS07	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)
0.30-0.40 m		
Moisture content:		
21%		
(no correction)		

Hazard properties

None identified

Determinands

Moisture content: 21% 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	confirm TPH has NOT arisen from diesel or petrol				<input checked="" type="checkbox"/>					
2	arsenic { arsenic trioxide }				24 mg/kg	1.32	31.688 mg/kg	0.00317 %		
	033-003-00-0	215-481-4	1327-53-3							
3	beryllium { beryllium oxide }				1.2 mg/kg	2.775	3.33 mg/kg	0.000333 %		
	004-003-00-8	215-133-1	1304-56-9							
4	boron { boron tribromide/trichloride/trifluoride (combined) }				2.9 mg/kg	13.43	38.947 mg/kg	0.00389 %		
			10294-33-4, 10294-34-5, 7637-07-2							
5	cadmium { cadmium sulfide }			1	<0.2 mg/kg	1.285	<0.257 mg/kg	<0.00002 %		<LOD
	048-010-00-4	215-147-8	1306-23-6							
6	chromium { chromium(III) oxide }				33 mg/kg	1.462	48.231 mg/kg	0.00482 %		
		215-160-9	1308-38-9							
7	copper { dicopper oxide; copper (I) oxide }				22 mg/kg	1.126	24.77 mg/kg	0.00248 %		
	029-002-00-X	215-270-7	1317-39-1							
8	lead { lead chromate }			1	36 mg/kg	1.56	56.153 mg/kg	0.0036 %		
	082-004-00-2	231-846-0	7758-97-6							
9	mercury { mercury dichloride }				<0.3 mg/kg	1.353	<0.406 mg/kg	<0.0000406 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
10	nickel { nickel dihydroxide }				26 mg/kg	1.579	41.067 mg/kg	0.00411 %		
	028-008-00-X	235-008-5 [1] 234-348-1 [2]	12054-48-7 [1] 11113-74-9 [2]							
11	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
	034-002-00-8									
12	zinc { zinc oxide }				120 mg/kg	1.245	149.366 mg/kg	0.0149 %		
	030-013-00-7	215-222-5	1314-13-2							
13	pH				8.1 pH		8.1 pH	8.1 pH		
			PH							

#	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	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
	006-007-00-5											
15	TPH (C6 to C40) petroleum group				14	mg/kg		14	mg/kg	0.0014 %		
			TPH									
16	acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9									
17	acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-917-1	208-96-8									
18	anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		204-371-1	120-12-7									
19	benzo[a]anthracene				0.39	mg/kg		0.39	mg/kg	0.000039 %		
	601-033-00-9	200-280-6	56-55-3									
20	benzo[a]pyrene; benzo[def]chrysene				0.42	mg/kg		0.42	mg/kg	0.000042 %		
	601-032-00-3	200-028-5	50-32-8									
21	benzo[b]fluoranthene				0.47	mg/kg		0.47	mg/kg	0.000047 %		
	601-034-00-4	205-911-9	205-99-2									
22	benzo[ghi]perylene				0.23	mg/kg		0.23	mg/kg	0.000023 %		
		205-883-8	191-24-2									
23	benzo[k]fluoranthene				0.22	mg/kg		0.22	mg/kg	0.000022 %		
	601-036-00-5	205-916-6	207-08-9									
24	chrysene				0.43	mg/kg		0.43	mg/kg	0.000043 %		
	601-048-00-0	205-923-4	218-01-9									
25	dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-041-00-2	200-181-8	53-70-3									
26	fluoranthene				0.61	mg/kg		0.61	mg/kg	0.000061 %		
		205-912-4	206-44-0									
27	fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-695-5	86-73-7									
28	indeno[123-cd]pyrene				0.23	mg/kg		0.23	mg/kg	0.000023 %		
		205-893-2	193-39-5									
29	naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
30	phenanthrene				0.28	mg/kg		0.28	mg/kg	0.000028 %		
		201-581-5	85-01-8									
31	pyrene				0.52	mg/kg		0.52	mg/kg	0.000052 %		
		204-927-3	129-00-0									
32	phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	604-001-00-2	203-632-7	108-95-2									
Total:										0.0398 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Very low concentrations of long chain hydrocarbons. No flammability risk.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0014%)

Classification of sample: DS08

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

Sample details

Sample Name:	DS08	LoW Code:	
Sample Depth:	0.50-0.60 m	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Moisture content:	11% (no correction)	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

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	confirm TPH has NOT arisen from diesel or petrol				<input checked="" type="checkbox"/>							
2	arsenic { arsenic trioxide } 033-003-00-0 215-481-4 1327-53-3				9.6	mg/kg	1.32	12.675	mg/kg	0.00127 %		
3	beryllium { beryllium oxide } 004-003-00-8 215-133-1 1304-56-9				0.47	mg/kg	2.775	1.304	mg/kg	0.00013 %		
4	boron { boron tribromide/trichloride/trifluoride (combined) } 10294-33-4, 10294-34-5, 7637-07-2				1	mg/kg	13.43	13.43	mg/kg	0.00134 %		
5	cadmium { cadmium sulfide } 048-010-00-4 215-147-8 1306-23-6			1	<0.2	mg/kg	1.285	<0.257	mg/kg	<0.00002 %		<LOD
6	chromium { chromium(III) oxide } 215-160-9 1308-38-9				12	mg/kg	1.462	17.539	mg/kg	0.00175 %		
7	copper { dicopper oxide; copper (I) oxide } 029-002-00-X 215-270-7 1317-39-1				9.3	mg/kg	1.126	10.471	mg/kg	0.00105 %		
8	lead { lead chromate } 082-004-00-2 231-846-0 7758-97-6			1	9.7	mg/kg	1.56	15.13	mg/kg	0.00097 %		
9	mercury { mercury dichloride } 080-010-00-X 231-299-8 7487-94-7				<0.3	mg/kg	1.353	<0.406	mg/kg	<0.0000406 %		<LOD
10	nickel { nickel dihydroxide } 028-008-00-X 235-008-5 [1] 12054-48-7 [1] 234-348-1 [2] 11113-74-9 [2]				10	mg/kg	1.579	15.795	mg/kg	0.00158 %		
11	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex } 034-002-00-8				2.6	mg/kg	2.554	6.639	mg/kg	0.000664 %		
12	zinc { zinc oxide } 030-013-00-7 215-222-5 1314-13-2				34	mg/kg	1.245	42.32	mg/kg	0.00423 %		
13	pH PH				8.4	pH		8.4	pH	8.4 pH		

#	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	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1	mg/kg	1.884	<1.884	mg/kg	<0.000188 %		<LOD
	006-007-00-5											
15	TPH (C6 to C40) petroleum group				<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
			TPH									
16	acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-469-6	83-32-9									
17	acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-917-1	208-96-8									
18	anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		204-371-1	120-12-7									
19	benzo[a]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-033-00-9	200-280-6	56-55-3									
20	benzo[a]pyrene; benzo[def]chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-032-00-3	200-028-5	50-32-8									
21	benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-034-00-4	205-911-9	205-99-2									
22	benzo[ghi]perylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-883-8	191-24-2									
23	benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-036-00-5	205-916-6	207-08-9									
24	chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-048-00-0	205-923-4	218-01-9									
25	dibenz[a,h]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-041-00-2	200-181-8	53-70-3									
26	fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-912-4	206-44-0									
27	fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-695-5	86-73-7									
28	indeno[123-cd]pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		205-893-2	193-39-5									
29	naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
30	phenanthrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		201-581-5	85-01-8									
31	pyrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
		204-927-3	129-00-0									
32	phenol				<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
	604-001-00-2	203-632-7	108-95-2									
Total:										0.0144 %		

Key

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

Appendix A: Classifier defined and non CLP determinands

confirm TPH has NOT arisen from diesel or petrol

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

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

Conversion factor: 13.43
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: Skin Corr. 1B H314 , Skin Corr. 1A H314 , Acute Tox. 2 H300 , Acute Tox. 2 H330 , EUH014

chromium(III) oxide (EC Number: 215-160-9, CAS Number: 1308-38-9)

Conversion factor: 1.462
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: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Repr. 1B H360FD , Skin Sens. 1 H317 , Resp. Sens. 1 H334 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 4 H302 , Acute Tox. 4 H332

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)/Risk Phrase(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: Aquatic Chronic 2 H411 , Repr. 2 H361d , Carc. 1B H350 , Muta. 1B H340 , STOT RE 2 H373 , Asp. Tox. 1 H304 , Flam. Liq. 3 H226

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: Aquatic Chronic 2 H411 , Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319

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: Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 1 H310 , Acute Tox. 1 H330 , Acute Tox. 4 H302

• **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: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Sens. 1 H317 , Skin Irrit. 2 H315 , STOT SE 3 H335 , Eye Irrit. 2 H319

• **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 Chronic 1 H410 , Aquatic Acute 1 H400

• **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: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Acute Tox. 4 H302

• **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 Chronic 1 H410 , Aquatic Acute 1 H400

• **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: Skin Irrit. 2 H315 , Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Skin Sens. 1 H317 , Carc. 2 H351 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Acute Tox. 4 H302

• **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: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Skin Irrit. 2 H315

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}

Chromium VI not detected

copper {dicopper oxide; copper (I) oxide}

Most likely common species

lead {lead chromate}

Worst case species based on risk phrases

mercury {mercury dichloride}

Worst case species based on risk phrases

nickel {nickel dihydroxide}

Worst case species based on risk phrases

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

Worst case species based on risk phrases

zinc {zinc oxide}

Chromium VI not detected, low sulphate concentrations, Zinc oxide is most likely mineralogical substance

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: 2019.71.3826.7799 (14 Mar 2019)

HazWasteOnline Database: 2019.71.3826.7799 (14 Mar 2019)

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 Wastes 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

POPs Regulation 2004 - Regulation 850/2004/EC of 29 April 2004

1st ATP to POPs Regulation - Regulation 756/2010/EU of 24 August 2010

2nd ATP to POPs Regulation - Regulation 757/2010/EU of 24 August 2010

APPENDIX 12: WAC Testing Results



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Analytical Report Number : 19-31399

Project / Site name:	Trowbridge	Samples received on:	04/03/2019
Your job number:	LDQ2048	Samples instructed on:	05/03/2019
Your order number:	POR024382	Analysis completed by:	12/03/2019
Report Issue Number:	1	Report issued on:	12/03/2019
Samples Analysed:	1 10:1 WAC sample		

Signed:

Agnieszka Pietrowska
Laboratory Manager
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.

i2 Analytical

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Waste Acceptance Criteria Analytical Results

Report No:	19-31399					
				Client: BWBCONSULT		
Location	Trowbridge					
Lab Reference (Sample Number)	1168844 / 1168845			Landfill Waste Acceptance Criteria		
Sampling Date	04/03/2019			Limits		
Sample ID	Stockpile 1			Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Depth (m)	0.00-0.10					
Solid Waste Analysis						
TOC (%)**	4.7			3%	5%	6%
Loss on Ignition (%) **	10.6			--	--	10%
BTEX (µg/kg) **	< 10			6000	--	--
Sum of PCBs (mg/kg) **	< 0.007			1	--	--
Mineral Oil (mg/kg)	92			500	--	--
Total PAH (WAC-17) (mg/kg)	48			100	--	--
pH (units)**	8.1			--	>6	--
Acid Neutralisation Capacity (mol / kg)	14			--	To be evaluated	To be evaluated
Eluate Analysis	10:1		10:1	Limit values for compliance leaching test		
(BS EN 12457 - 2 preparation utilising end over end leaching procedure)	mg/l		mg/kg	using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.0144		0.121	0.5	2	25
Barium *	0.0179		0.151	20	100	300
Cadmium *	< 0.0001		< 0.0008	0.04	1	5
Chromium *	0.0026		0.022	0.5	10	70
Copper *	0.017		0.14	2	50	100
Mercury *	< 0.0005		< 0.0050	0.01	0.2	2
Molybdenum *	< 0.0004		< 0.0040	0.5	10	30
Nickel *	0.0022		0.019	0.4	10	40
Lead *	0.0088		0.074	0.5	10	50
Antimony *	0.0043		0.036	0.06	0.7	5
Selenium *	< 0.0040		< 0.040	0.1	0.5	7
Zinc *	0.014		0.12	4	50	200
Chloride *	2.3		20	800	4000	25000
Fluoride	0.36		3.0	10	150	500
Sulphate *	6.8		57	1000	20000	50000
TDS*	110		910	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010		< 0.10	1	-	-
DOC	17.4		146	500	800	1000
Leach Test Information						
Stone Content (%)	< 0.1					
Sample Mass (kg)	2.0					
Dry Matter (%)	81					
Moisture (%)	19					
Results are expressed on a dry weight basis, after correction for moisture content where applicable.				* = UKAS accredited (liquid eluate analysis only)		
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation				** = MCERTS accredited		

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



Analytical Report Number : 19-31399

Project / Site name: Trowbridge

* 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 *
1168844	Stockpile 1	None Supplied	0.00-0.10	Brown loam and clay with vegetation and gravel

Analytical Report Number : 19-31399

Project / Site name: Trowbridge

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance on Sampling and Testing of Wastes to Meet Landfill Waste Acceptance"	L046-PL	W	NONE
BS EN 12457-2 (10:1) Leachate Prep	10:1 (as received, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis.	In-house method based on BSEN12457-2.	L043-PL	W	NONE
BTEX in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260.	L082-PL	W	ISO 17025
Dissolved organic carbon 10:1 WAC	Determination of dissolved inorganic carbon in leachate by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	NONE
Fluoride 10:1 WAC	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination"	L033B-PL	W	ISO 17025
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L047-PL	D	MCERTS
Metals in leachate by ICP-OES	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil"	L039-PL	W	ISO 17025
Mineral Oil (Soil) C10 - C40	Determination of mineral oil fraction extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L076-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols 10:1 WAC	Determination of phenols in leachate by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
PCB's By GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	MCERTS
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270. MCERTS accredited except Coronene.	L064-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate 10:1 WAC	Determination of sulphate in leachate by ICP-OES	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil"	L039-PL	W	ISO 17025
Total dissolved solids 10:1 WAC	Determination of total dissolved solids in water by electrometric measurement.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L004-PL	W	NONE

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The results included within the report are representative of the samples submitted for analysis.

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Analytical Report Number : 19-31399

Project / Site name: Trowbridge

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests"	L009-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.



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