



Phase II Interpretative Ground Assessment

At

Former Wheatfields Day Centre,
Whitefield

Client: Onward

Reference: 31990-SUT-ZZ-00-RP-G-702-0002

Date: July 2022

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SUTCLIFFE INVESTIGATIONS

Phase II Interpretative Ground Assessment

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Foreword (Geotechnical and Environmental Assessment)

This report has been prepared for the sole internal use and reliance of the Client named on page 1. This report shall not be relied upon or transferred to any other parties without the express written authorisation of Sutcliffe Investigation; such authorisation not to be unreasonably withheld. If any unauthorised third party comes into possession of this report, they rely on it at their risk and the authors owe them no duty of care and skill.

The report presents observations and factual data obtained during our site investigation and provides an assessment of Geotechnical and environmental issues with respect to information provided by the Client regarding the proposed development. Further advice should be sought from Sutcliffe Investigation prior to significant revision of the development proposals. Primary aims of this exploratory phase of investigation were to identify salient geotechnical and environmental issues affecting the site to enable the client to obtain budget costs for the necessary site preparatory and remedial works.

The report should be read in its entirety, including all associated drawings and appendices. Sutcliffe Investigation cannot be held responsible for any misinterpretations arising from the use of extracts that are taken out of context.

The findings and opinions conveyed in this report (including review of any third-party reports) are based on information obtained from a variety of sources as detailed within this report, and which Sutcliffe Investigation believes are reliable. All reasonable care and skill have been applied in examining the information obtained. Nevertheless, Sutcliffe Investigation cannot and does not guarantee the authenticity or reliability of the information it has relied upon.

The report represents the findings and opinions of experienced Geotechnical and environmental consultants. Sutcliffe Investigations does not provide legal advice and the advice of lawyers may also be required.

Intrusive investigation can only investigate shallow ground beneath a small proportion of the total site area. It is possible therefore that the intrusive investigation undertaken by Sutcliffe Investigation, whilst fully appropriate, may not have encountered all significant subsurface conditions. Any opinions expressed as to the possible configuration of strata between, or below exploratory holes are for guidance only and no responsibility is accepted as to its accuracy.

It should be borne in mind that the timescale over which the investigation was undertaken might not allow the establishment of equilibrium groundwater levels. Particularly relevant in this context is that groundwater levels are susceptible to seasonal and other variations and may be higher during the wetter periods than those encountered during this commission.

Where the report refers to the potential presence of invasive weeds such as Japanese Knotweed, or the presence of asbestos containing materials, it should be noted that the observations are for information only and should be verified by a suitably qualified expert.

This report assumes that ground levels will not change significantly from those existing at present. If this is not to be the case, then some modification to this report may be required.

It should be noted that the banning of the co-disposal of hazardous and non-hazardous waste was introduced in 2011, as a result of the implementation within the UK of the Landfill Directive. This will considerably affect the current practices and procedures for the handling and disposal of wastes, in particular hazardous wastes. In addition, it will be a requirement for all wastes to be pre-treated and to comply with certain waste acceptance procedures prior to sending wastes to landfill. The full potential effects of these important changes are not known at this stage, but it is perceived that disposal costs will rise, particularly for hazardous wastes, and waste pre-treatment may, in some cases, become an 'additional' redevelopment cost with regard to the remediation of contaminated sites.

Should this report recommend materials could be excavated and removed off-site for landfill disposal, then it should be noted that the costs, timescales and implications of the pending changes to waste management legislation could not be predicted at this stage. Sutcliffe Investigation will not be responsible for changing practices, etc that may affect the viability of necessary remedial actions or of the implications of potential alternative treatment techniques.

Sutcliffe Investigation reserves the right to amend their conclusions and recommendations in the light of further information that may become available. General notes and limitations relevant to all Sutcliffe Investigations are described in the Foreword and should be read in conjunction with this report.

Executive Summary

INTRODUCTION	Sutcliffe Investigations was instructed by Onward (the “client”) to undertake a Phase II ground assessment for the site at the former Wheatfield Day Centre, Victoria Ave, Whitefield, Manchester M45 6DP. The site is centred on National Grid Reference (NGR) 381190, 405710 and is approximately 0.908ha in area This report assesses the ground based geotechnical and environmental risks, constraints and liabilities associated with the proposed development of the site. This is required in support of the discharge of contaminated land planning conditions assigned to the site and to allow the design of economic foundation solutions.
SITE DESCRIPTION	The site is rectangular in shape, 0.908ha and can be accessed via Victoria Avenue along the southwestern boundary of the site.
DEVELOPMENT PROPOSAL	The proposed layout is shown in Paddock Johnson Drawing Ref: 21056-PJA-00-ZZ-DR-A-100-B (June 2021). This report has been prepared in support of a planning application to develop the site for 30No. residential units / houses with gardens and associated car parking facilities. Based on information received from the architect, it is anticipated that site levels will be retained to facilitate the proposed development option.
PRELIMINARY CONCEPTUAL MODEL	Historical maps have indicated that the site has previously been developed, and evidence of this remains with the slab of the building previously noted within the centre of the site still be present on-site. Localised Made Ground is anticipated associated with the previous development of unknown composition, though it is not expected to be particularly deep. Areas of car parking were noted from the aerial photography, which may have resulted in hydrocarbon contamination from leaking vehicles. An area of infilled land is present within the north-west of the site, the nature of the backfilled material and the depth is unknown. A backfilled watercourse is alluded to within the Envirocheck Report, however, no evidence of this is noted throughout the historical mapping. With the exception of Made Ground likely being present on-site, both associated with the former development and in the area of infilled ground in the north-east of the site, together with potential limited hydrocarbon contamination, the potential for significant contamination to have arisen at the site as a result of the current and former usage on site is considered to be low. Industry exists within the surrounding area which has the potential to generate contamination that may migrate to the site, however, due to the presence of Glacial Till within the surrounding area, migration potential is considered to be relatively limited. Therefore, the potential for off-site sources of contamination to impact the site is considered low - moderate.
PREVIOUS WORKS	Sutcliffe have completed a Phase I Preliminary Risk Assessment (PRA) Report Ref. 31990-SUT-ZZ-00-RP-701-0001, a synopsis of which is provided in Section 2 of this report. No other previous studies are known to have been undertaken to Sutcliffe's knowledge.
SITE INVESTIGATION	Fieldworks were undertaken on 17th-20th September 2021 and 26th May 2022 by PM Sampling, a specialist ground investigation contractor and comprised:  12No. Window Sample Holes  12No. Trial Pit Excavations  2No. Soakaway Tests  4No. Plate Loading Tests (CBR %)  Contamination samples from various depth in the made ground.  Leachate samples.  Gas monitoring wells.  Monitoring of ground gas / groundwater with installed locations.
GROUND CONDITIONS	Made Ground Made ground was encountered in the majority of sampling positions the site (except WS201, TP201, TP202 and TP203) and was noted to a maximum depth of 2.40m in WS108. Final depth of made ground was not proven in TP109.

	Made ground consisted of gravelly silty clayey SAND / sandy GRAVEL / gravelly sandy silty CLAY. Sand is fine to medium. Gravel is fine to coarse sub-angular limestone, brick, concrete, wood, plastic and natural stone of mixed lithology. Natural Ground Natural ground was encountered in all sampling positions (except TP109) extending to a proven depth of 6.02m bgl and generally comprised firm to stiff gravelly sandy silty CLAY, with bands of loose to medium dense clayey fine to medium grained SAND. PEAT was noted in WS202 and TP202 at depths between 0.90-1.10m bgl.
GROUNDWATER	Groundwater was recorded during the site investigation in WS101, WS104, WS105, WS106, WS107 and TP109 observed at 2.50-3.00m bgl (except TP109 which was recorded at 0.30m bgl). The water level rose after 20mins in WS101 and WS104 to 1.50m bgl and 2.00m bgl accordingly. Groundwater was observed to be standing at depths between 0.31-1.64m bgl during the monitoring phase.
SOIL INFILTRATION	2No. infiltration tests in accordance with BRE 365 were carried out on site at TP103(SA) and TP104(SA). Due to the inefficient infiltration characteristics of the ground at the excavation depths, the soakaway test comprised a single fill. The test results did not provide an infiltration rate due to the inefficiencies of the ground to infiltrate, hence it is advised that alternative methods of sustainable drainage are explored.
ENVIRONMENTAL RISK ASSESSMENT	Long Term Human Health Elevated levels of Arsenic, Lead, Benzo(b)fluoranthene, Benzo(a)pyrene and Dibenzo(ah)anthracene were observed in samples screened at WS105, WS203 TP106 and TP107. Based on the results of the statistical analysis, the site is considered unlikely to pose a risk to long term human health. Construction workers may be exposed via dermal contact, ingestion and inhalation of soil / dust during the construction period. Adjacent site users may also be exposed to contaminated soils via inhalation of dust generated during the construction phase. Controlled Waters Risk Assessment For controlled waters there are two assessment criteria, the Environmental Quality Standard (EQS) and the UK Drinking Water Standard (UK DWS). The UK DWS Leachate screening identified concentrations of Lead and Benzo(a)pyrene that could pose a risk to the Principal aquifer. However, due to the lack of nearby groundwater abstractions, the presence of cohesive natural clay inhibiting downward migration and the effects of natural attenuation, the risk is unlikely to be significant. The EQS Leachate screening identified concentrations of Copper, Lead, Zinc, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(ghi)perylene and Indeno(123cd)pyrene that could pose a risk to the local surface water features. However, the nearest surface water feature is noted 206m south of the site, as such the risk is unlikely to be significant.
ASBESTOS	Asbestos containing materials (ACM) were not observed within samples screened.
GROUND GAS RISK ASSESSMENT	Ground gas monitoring has indicated elevated levels of Carbon Dioxide on-site. It is recommended that the site is classified as Amber 2 under the NHBC Traffic light system as outlined in CIRIA C665. As such gas protection measures will be required as part of the development of the site in accordance with Table 8.3 and BS8485 (2015+A1:2019).
RADON	The site is not within a radon affected area, as <1% of homes are above the action level. No radon protection measures are necessary in the construction of new dwellings or extensions.
GEOTECHNICAL ASSESSMENT	General It is understood that consideration is being given to the development of 30No. residential units / houses with gardens and associated car parking facilities.

	Due to the ground conditions encountered, it would be Sutcliffe's recommendation that concrete strip footings (bearing on stiff clay at 1.50-2.00m bgl) can be adopted on site, with potential mass fill being required in areas of deeper competent ground. We would anticipate an allowable bearing pressure in the region of 125kN/m². Foundations should be designed in accordance with NHBC Section 4.2. Groundwater was observed to be standing at depths between 0.31-1.64m bgl during the monitoring phase. Sub-surface concrete that is only in contact with Made Ground can be Design Sulphate Class DS-1, with an ACEC Classification of AC-1s. Ground Floor Construction Based upon the amount of Made Ground noted on site it is not recommended that a ground-bearing slab is utilised on site. Sutcliffe Investigations therefore propose a suspended P.C Unit ground floor be adopted. Geotechnical Uncertainty The site has been subject to previous development and therefore, the potential for relic foundations and obstructions cannot be discounted.
WASTE CLASSIFICATION	A preliminary waste classification was carried out to determine the classification of soil contamination data using HazWasteOnline program, which creates the standard 'Hazardous / Non-Hazardous' classification of soils. The Waste Classification Report states that all soils analysed are classified as 'Non-Hazardous' waste, with the exception of soils at TP202 which can be downgraded based on the WAC analysis to an 'Inert' classification. The final decision on waste classification is determined by the accepting landfill, and consultation with landfill operators be carried out during the development of the SMMP.
RECOMMENDATIONS	The following actions are recommended:  Design a Phase III Remediation & Validation Proposal for submission to planning department.  Design SMMP – management of material on and off site.  Good hygiene practices should be employed during construction work, in addition, the findings of this investigation should be included within the contractors H&S file and an assessment of risks associated with short term human health completed. No consumption of food or smoking should occur without prior hand washing. If dust is encountered, dust masks should be worn, and dust suppression employed.

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1 Introduction

1.1 Terms of Reference

Sutcliffe Investigations was instructed by Onward (*the “client”*) to undertake a Phase II ground assessment for the site at the former Wheatfield Day Centre, Victoria Ave, Whitefield, Manchester M45 6DP.

The location of the site is presented as *Figure 1*. The site is centred on National Grid Reference (NGR) 381190, 405710 and is approximately 0.908ha in area. An aerial photograph of the site is presented as *Figure 2*.

A plan detailing the sites existing site layout is presented as *Drawing Ref. 31990-SUT-ZZ-00-DR-G-720-0001* and *31990-SUT-ZZ-00-DR-G-720-0002*.

This report assesses the ground based geotechnical and environmental risks, constraints and liabilities associated with the proposed development of the site. This is required in support of the discharge of contaminated land planning conditions assigned to the site and to allow the design of economic foundation solutions.

1.2 Development Proposal & Legislative Context

Development Proposal

The proposed layout is shown in Paddock Johnson *Drawing Ref: 21056-PJA-00-ZZ-DR-A-100-B (June 2021)*. This report has been prepared in support of a planning application to develop the site for 30No. residential units / houses with gardens and associated car parking facilities. Based on information received from the architect, it is anticipated that site levels will be retained to facilitate the proposed development option.

Legislative Context

The presence of contaminants which may pose a risk to human health, or the environment is a material planning consideration. For planning it should be considered whether the site is suitable for its new use, and the responsibility for securing a safe development (including cumulative effects of pollution on health, and the potential sensitivity of the proposed development to adverse effects from pollution,) rests with the developer and/or landowner. Planning is concerned with the site's proposed use not its current use, where the amount of contamination is expected to be low relative to the level of risk. This is the opposite to Part 2A which considers high levels (significant harm) and the current use of the site.

Section 57 of the Environment Act 1995 adds Part 2A (ss.78A-18YC) to the Environmental Protection Act 1990 and contains the legislative framework for identifying and dealing with contaminated land. Where development is undertaken on land which may be affected by contamination, the National Planning Policy Framework, paragraph 120 to 122 considers pollution and remediation. This links the contaminated land regime within the development process.

For there to be an environmental liability associated with the site there must be a perceived source (a contaminant), a receptor (humans, living organisms or property) and a pathway

between them. The potential presence of all of these aspects would result in a complete contaminant linkage.

In accordance with environmental legislation and the associated guidelines, assuming the site is to be redeveloped as housing, it should be noted that any redevelopment of the site could actually create new pathways that could increase the liabilities associated with the site. In addition, the basis of the intrusive ground assessment is to refine the preliminary conceptual model.

1.3 Site Location and Setting

The site is located at Wheatfield Day Centre, Victoria Ave, Whitefield, Manchester M45 6DP at National Grid Reference (NGR) 381190, 405710 (*Figure 1*), within a predominantly residential area with local amenities also noted in the area.

A location plans and aerial photograph of the site are shown as *Figure 1 & 2*.

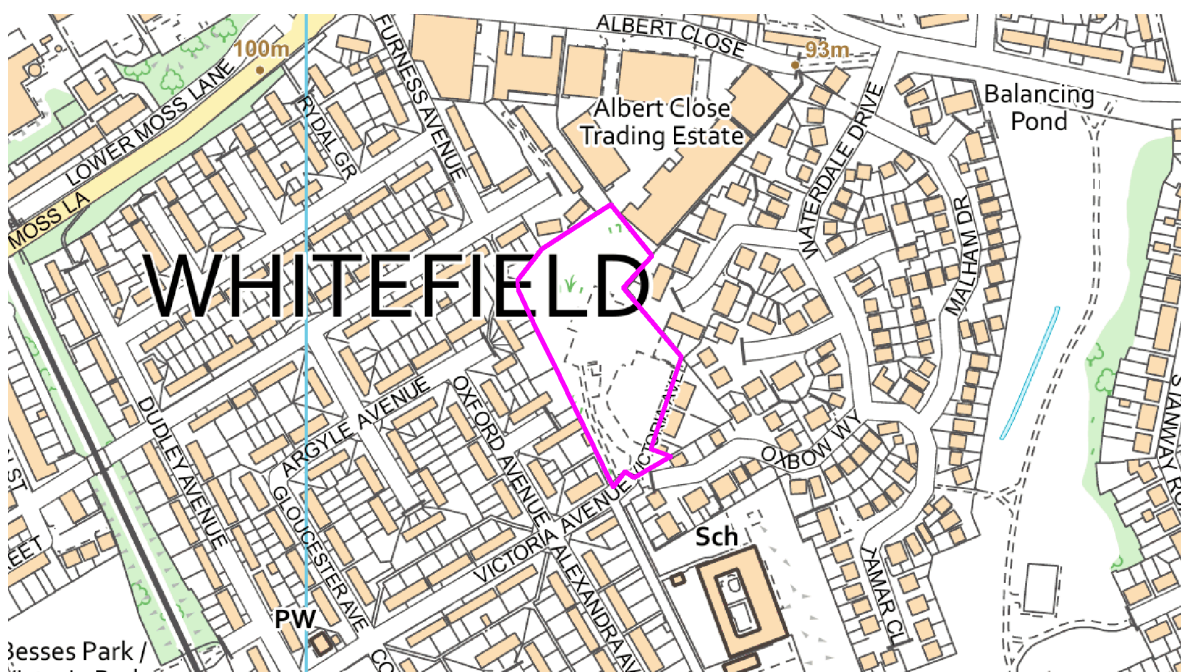


Figure 1: General Location of Site

1.4 Site Description and Layout

The site is rectangular in shape, 0.908ha and can be accessed via Victoria Avenue along the southwestern boundary of the site. The site was home to a former extra care facility which was demolished within the past ten years with the only remnant being the main access road.

The site is covered in overgrown vegetation consisting of young trees, bushes brambles and areas of grass. The site is generally flat however the far northwestern third of the site is covered in a large ridge of high ground, approximately 3m to 4m higher than the rest of the site, again this ridge is covered in overgrown vegetation.

Towards the northern boundary there appears to be an area of limestone hardcore that could be an old “soakaway” or possibly an infilled cellar.

There is a small amount of fly tipping and some of the existing manholes have had their covers removed.



Figure 2: Aerial Photograph of the Site

1.5 Previous Studies

Sutcliffe have completed a Phase I Preliminary Risk Assessment (PRA) Report Ref. 31990-SUT-ZZ-00-RP-701-0001, a synopsis of which is provided in *Section 2* of this report. No other previous studies are known to have been undertaken to Sutcliffe's knowledge.

1.6 Objectives & Scope of Assessment

The aim of the intrusive ground investigation is to identify potential geotechnical & environmental liabilities and constraints, associated with the development of the site area in support of the following:

-  A planning application and the discharge of contaminated land conditions where reasonably practicable that may have been assigned to the site and to include the design of a remediation scheme, if required as part of the National Planning Policy Framework (NPPF).
-  To assess the likelihood of reuse of materials that are site won or disposal options for surplus material.
-  The preliminary design of detailed and economic foundations options inclusive of all information and specifications relating to foundation types, the location of underlying rock, (if encountered), preparation of ground, concrete grades, reuse of materials for both the proposed building, and the existing foundations.

2 Preliminary Conceptual Risk Assessment

2.1 Introduction

The Phase I PRA completed by Sutcliffe is summarised below. This report should be read in conjunction with Report Ref. 31990-SUT-ZZ-00-RP-701-0001.

2.2 Site History

On-site

The earliest available historical map (1848) shows the site to comprise sections of three separate open fields. No significant changes are noted on-site until the 1932 mapping when a small unlabelled rectangular feature is mapped along the northern boundary on-site. Another map dated in 1932, does not have this before mentioned rectangular feature, and also shows the pit which has been shown historically to be present adjacent north-east of the boundary to have crossed the site boundary and extend a relatively short distance into the site. This pit extending on-site is no longer mapped on-site by the 1953 – 1958 mapping.

No further significant changes occur until the 1964 – 1973 mapping, at which point two relatively large buildings are mapped on-site, labelled as 'Knowle Hill View', which is positioned roughly within the southeast of the site, and 'Wheatfields' located roughly within the centre of the site. Part of an electrical substation is also mapped crossing the site boundary within the south of the site. No other significant changes occur until between 1992 and 1996 mapping, where the Wheatfields appears to have been extended. An area of car parking is apparent on the 2000 aerial photography within the southwest of the site, as well as close by the Wheatfields.

The 2006 mapping shows the building within the southeast of the site to no longer be present, and the Wheatfields building appears to have altered in footprint. No further significant changes are evident until the 2021 mapping, which no longer shows any building on site, however, some of the infrastructures are still apparent.

The 2021 aerial photography shows the site appears to be largely vegetated, with what appears to be a relict slab of the central building still occupying the centre of the site. The area of the former south-eastern building seems to show signs of vegetative stress in comparison to other vegetated areas on site.

Off-site

The earliest historical map dated 1848 shows the majority of the surroundings are to primarily comprise open fields with sporadic dwellings/farms. A Brick Field is located approximately 300m north-east of the site boundary, and a gravel pit is located approximately 260m northwest of the site. Four ponds are mapped within proximity to the site, located 30m northeast, 50m north, 50m south-east and 100m northwest from the site boundary.

By the 1894 mapping, many more Brick Fields are evident within the surrounding area, the closest noted started adjacent north-east from the site and extending approximately 150m northeast from the site boundary. Another Brick Field is recorded 260m southeast of the

site, and a Brick Works is mapped 400m southeast of the site. The 'Victoria Mill (Cotton)' is mapped approximately 200m southwest of the site boundary. A general increase in residential housing is noted within the wider surrounding area.

By 1909, the brickworks adjacent northeast of the site is mapped as rough pasture, and the brickfield 260m southeast of the site is also now mapped as an open field. The Victoria Mill is now noted as producing 'Smallware'. 'Moss Lane Works (Printing)' is now present approximately 250m northwest of the site; by the 1910 mapping, a well is shown within the Moss Lane Works footprint.

By the 1923 mapping 'Victoria Work' is now labelled next to the Victoria Mill, with several associated 'Tanks'. Moss Lane Works has also expanded its building footprint and is mapped with associated 'Tanks' and a 'Sand Pit'.

The 1932 mapping shows the brickfield formally adjacent northeast of the site to be mapped as a depression. Two new relatively small industrial buildings have been erected north of the site, with the 'Croft Mill (Smallware)' and the 'Albert New Mill (Cotton)' mapped 120m and 200m from the site boundary, respectively. Significant residential expansion is apparent west of the site, with the Victoria Mill and Works both no longer present, with the former footprint of the buildings now occupied by residential housing. The remaining Brick Field southeast of the site is no longer mapped. The pond formerly mapped 100m northwest of the site is no longer mapped.

By the 1964 – 1973 mapping, the ponds located at 30m northeast, 50m north and 100m south-east of the site are no longer mapped. A 'Dairy' is located 75m north of the site. Moss Lane Works is now labelled as a 'Rubber Works', and the pit adjacent northeast of the site is now mapped as flat, and by the 1970-1976 mapping two rectangular buildings are present within this area; several more buildings are apparent in the area by the 1974 – 1979 mapping.

The 1977 – 1985 mapping no longer references the Moss Lane Works, the footprint of the building appears different, and the site is now referred to as a 'Warehouse'.

No other significant changes are evident throughout the historical mapping.

Historical Contamination Potential

Historical maps have indicated that the site has previously been developed, and evidence of this remains with the slab of the building previously noted within the centre of the site still be present on-site. Localised Made Ground is anticipated associated with the previous development of unknown composition, though it is not expected to be particularly deep. Areas of car parking were noted from the aerial photography, which may have resulted in hydrocarbon contamination from leaking vehicles.

An area of infilled land is present within the north-west of the site, the nature of the backfilled material and the depth is unknown. A backfilled watercourse is alluded to within the Envirocheck Report, however, no evidence of this is noted throughout the historical mapping.

With the exception of Made Ground likely being present on-site, both associated with the former development and in the area of infilled ground in the north-east of the site, together with potential limited hydrocarbon contamination, the potential for significant contamination to have arisen at the site as a result of the current and former usage on site is considered to be low.

Industry exists within the surrounding area which has the potential to generate contamination that may migrate to the site, however, due to the presence of Glacial Till within the surrounding area, migration potential is considered to be relatively limited.

Therefore, the potential for off-site sources of contamination to impact the site is considered low - moderate.

2.3 Geotechnical Constraints

Coal Mining

The site does lie within a Coal Authority Coal Mining Reporting Area, however upon review of the information provided in the Coal Mining Report (Report Ref. 51002673821001), there are no risks associated with Coal Mining for this site and as such no further investigation is required.

Geology

There are no records of any artificial ground on-site or within 500m of the site boundary. 2No. faults have been identified within the development site boundary; foundation design may have to take this into consideration. 2No. other faults are located within 500m of the site.

Historical Land Use

The site has been subject to previous development and therefore, the potential for relic foundations and obstructions cannot be discounted.

2.4 Potential Contaminant Linkages

Sources

Based on the information from the desk study, historical maps, published information, and a site walkover a summary of potential contaminant sources is provided in *Table 2.1*.

Table 2.1: Potential Source(s) of Contamination

Ref.	Potential Sources	Potential Contaminants
S1 (On-site)	Made Ground associated with the Former buildings on-site & backfilled pit within the north-east of the site. Hydrocarbon leaks from former vehicle parking.	All metals, PAHs, asbestos hydrocarbons and oils, and permanent and volatile ground gas.
S2 (Off-site)	Infilled Ground & Surrounding Industry	All metals, PAHs, hydrocarbons and oils, PFAS and permanent and volatile ground gas.

S1

The site is at least partially cover with Made Ground, specifically in the areas where the former developments were present and within the area of the backfilled pits within the north-east of the site.

The pits appear to have been backfilled by 1963, due to the age of the backfill if the Made Ground was producing any ground gas, it will likely have off-gassed by the present day, and as such is likely no longer a viable source of permanent gases.

By its nature, Made Ground can contain a wide range of potential contaminants that can pose a risk to human health if present and in significant quantities. The composition of the Made Ground is currently unknown, and as such, there is uncertainty as to whether the Made Ground poses a risk to the proposed future site users.

Any hydrocarbon spills that may be present will by their nature pose a risk to human health.

S2

Multiple instances of infilled ground are noted within the surrounding area, including both multiple ponds and backfilled pits related to historic brickfields and brickworks. Such backfilled depression may act as a source of permanent ground gas, dependent on the age of the backfill and the composition of the material used for the backfill. It appears that backfilling within the area had been completed by 1963, and as such, any potential gas generation would likely have ceased by the present day.

Multiple potential contaminative industrial land uses are noted within the surrounding area which has the potential to produce contamination with the potential for migration.

Pathways

Exposure pathways are the potential routes and mechanisms by which potential on-site sources could be linked to the identified potential receptors and thereby expose them to potential harm.

The following potential exposure pathways have been identified at the site:

Table 2.2: Pathways

Ref.	Pathway	Description
P1	Direct contact with potential contaminants.	Dermal absorption, ingestion and inhalation of contaminants via direct contact. Construction workers may come into contact during the site works; however, this will be for a short time and therefore limited exposure will occur. PPE can be used and worn as a precaution to reduce the risk.
P2	Ingestion of potential contaminants.	
P3	Inhalation of potential contaminants.	
P4	Leaching and migration of contaminants.	Leaching of possible contaminants could migrate into the underlying Secondary A & Principal Aquifers via shallow groundwater. On-site drainage is also at risk from shallow contamination if present.
P5	Vertical and lateral migration of ground gases / vapours.	There is the potential for contaminants to be present on the site, which could generate ground gas & vapours on site.

P1-P3

If Made Ground of unknown composition is left in situ at or near ground level (for example in garden areas of the proposed development), the proposed end-users will likely be exposed to the Made Ground.

P4

Across the majority of the site, it is anticipated that a substantial thickness of cohesive Glacial Till is likely to be present, which will inhibit the downward migration of any leachable and / or hydrocarbon contamination due to its inherent impermeability.

The exception to the above is within the north-eastern area of the site, where the former pit may have removed the Glacial Till and potentially exposing the Chester Formation, notable as being a Principal Aquifer. Should this scenario be true, Made Ground containing potentially leachable contaminants could be in hydraulic conductivity with the Principal Aquifer.

The impermeable Glacial Till may facilitate lateral migration of off-site contaminants to the site; however, this is generally considered unlikely given the distances at which the potentially contaminative sources are noted.

The exception to the above is the industrial / commercial area noted adjacent north-east of the site, which is placed upon the same backfilled area as noted within the north-east of the site. As such there is potential for any below-ground contamination to migrate on to the site within the area of backfilled area, however, further migration across the site is again considered likely to be impeded by the presence of the cohesive Glacial Till.

P5

Pathways are envisioned for on-site sources of permanent and volatile gases as the new building to be erected on-site will likely be at least in part placed upon the Made Ground expected to be present at and / or near to the surface in places across the site thought to potentially contain such gases.

Pathways for off-site Ground Gas sources are considered unlikely given the widespread Glacial Till within the area likely inhibiting lateral gas migration.

Receptors

Based on the site's environmental setting and the proposed future end-use of the area following redevelopment, the following potential receptors have been identified:

Table 2.3: Receptors

Ref.	Receptor	Description
R1	Current & future site users	Site users; personnel, general workers and maintenance workers,
R2	Construction Workers	Contractors working on the development of the site. Construction workers, maintenance workers or other personnel who may be directly exposed to contaminated materials in the course of their activities).
R3	Controlled Waters	Principal Aquifer and on-site drainage
R4	Adjacent Site Users	Adjacent site users. Third-party land (i.e., the possibility of contamination migrating off-site onto third party land via contaminated groundwater, surface water run-off).
R5	Infrastructure / Buried services	Proposed buildings and buried services

R1

The site is proposed to have a residential end-use, considered to be a vulnerable end-user due to elevated potential exposure times.

R2

Construction works will be required for any redevelopment.

R3

Principal Aquifer have been identified below site, which is considered to be a relatively vulnerable receptor.

R4

The site is surrounded by residential houses, considered to be relatively vulnerable receptors.

R5

The proposed development will be founded below ground level and will be in contact with any soils below ground level.

2.5 Risk Evaluation

An evaluation of the risk that each contaminant linkage poses to the project (as identified in the *Section 2*) has been undertaken, in general accordance with CIRIA guidance document C552, 2001 (as detailed in *Appendix B*) and in *Tables 2.4, 2.5 and 2.6* below.

The evaluation and resultant actions identified are based on available information presented within the Phase I PRA (*Report Ref. 31990-SUT-ZZ-00-RP-701-0001*)

Table 2.4: Classification of consequence

Classification	Definition
Severe	Acute risks to human health, catastrophic damage to buildings/property, major pollution of controlled waters.
Medium	Chronic risk to human health, pollution of sensitive controlled waters, significant effects on sensitive ecosystems or species, significant damage to buildings or structures.
Mild	Pollution of non-sensitive waters, minor damage to buildings or structures.
Minor	Requirement for protective equipment during site works to mitigate health effects, damage to non-sensitive ecosystems or species.

Table 2.5: Classification of Probability

Classification	Definition
High Likelihood	There is a pollution linkage and an event that either appears very likely in the short term and almost inevitable over the long term or there is evidence at the receptor of harm or pollution.
Likely	There is a pollution 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	There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such event would take place and is less likely in the shorter term.
Unlikely	There is a pollution linkage, but circumstances are such that it is improbable that an event would occur even in the very long term.

Table 2.6: Risk Assessment Matrix

Consequence					
Severe	Medium	Mild	Minor		
Very High Risk	High Risk	Moderate Risk	Moderate / Low Risk	High Likelihood	Probability
High Risk	Moderate Risk	Moderate / Low Risk	Low Risk	Likely	
Moderate Risk	Moderate / Low Risk	Low Risk	Very Low Risk	Low Likelihood	
Moderate / Low Risk	Low Risk	Very Low Risk	Very Low Risk	Unlikely	

Each potential contaminant linkage is identified in *Table 2.7* below.

The evaluation and the resultant actions identified are based on the available information presented within this report. A visual representation of the Preliminary CSM is presented as *Figure 3*.

During the development there is a potential for short term human health risk to construction workers. These should be assessed and anticipated by the contractor under CDM Regulations 2015.

Table 2.7: Preliminary Risk Evaluation of Potential Contaminant Linkages

1. Hazard Identification		2. Hazard Assessment				3. Risk Estimation		4. Risk Evaluation	5. Managing the Risk
Contaminant Source		Pathway		Receptor		Consequence	Probability	Classification	Action required
S1 / S2	On-site / Off-site Sources	P1	Dermal contact	R1/2	Site users	Medium	Likely	Moderate Risk	Made Ground anticipated onsite which may contain a range of contaminants, which, if left in situ, may pose a risk to the proposed site end-user. Possibility of offsite contaminants migrating onsite, particularly in the north-east of the site in the backfilled pit area.
		P2	Ingestion of soil / soil dust	R1/2	Site users	Medium	Likely	Moderate Risk	
		P3	Inhalation of vapours / soil gas	R1/2	Site users	Severe	Likely	High Risk	
		P4	Leaching and migration of contaminants	R3/5	Principal Aquifer	Medium	Low Likelihood	Moderate / Low Risk	A relatively small area of backfilled material potentially backfilled with contaminated Made Ground present in the north-east of the site which may be in hydraulic conductivity with the underlying Principal Aquifer.
		P5	Lateral migration of soil gas / vapours	R1	Site users	Severe	Unlikely	Moderate / Low Risk	Potential sources present but deemed unlikely due to age of backfill likely resulting in any potential off-gassing having likely ceased by the present day.
				R4	Property	Severe	Unlikely	Moderate / Low Risk	Widespread Glacial Till likely to inhibit migration of any generated gas to/across site. Possibility of localised hydrocarbons perched / pooled near-surface on impermeable Glacial Till possible.

3 Ground Investigation

3.1 Design Rationale

The aim and design of the ground assessment is to satisfy planning conditions assigned to the site by reference to the National Planning Policy Framework (NPPF). This will identify elevated concentrations of determinands with the aim of assessing long term human health risks to site users and groundwater resources. In addition, the works have been designed to allow the design of economic foundation solutions for the proposed new builds.

3.2 Fieldwork

Fieldworks were undertaken on 17th-20th September 2021 and 26th May 2022 by PM Sampling, a specialist ground investigation contractor and comprised:

-  12No. Window Sample Holes
-  12No. Trial Pit Excavations
-  2No. Soakaway Tests
-  4No. Plate Loading Tests (CBR %)
-  Contamination samples from various depth in the made ground.
-  Leachate samples.
-  Gas monitoring wells.
-  Monitoring of ground gas / groundwater with installed locations.

All works were supervised by a suitably qualified Sutcliffe engineer. The investigation was carried out in general accordance with the following standards:

-  BS10175:2011+A2:2017 Investigation of Potentially Contaminated Sites – Code of Practice.
-  R&D Technical Report P5-066/TR Secondary Model Procedure for the Development of Appropriate Soil Sampling Strategies for Land Contamination, 2001 (Environment Agency).
-  BS 5930:2015 Code of practice for site investigations; and,
-  BS EN ISO 22475-1:2006 Geotechnical investigation and testing. Sampling methods and groundwater measurements. Technical principles for execution.

Site Investigation logs collated as part of the ground investigation completed by Sutcliffe are presented in *Appendix C*.

3.3 Health & Safety

Service plans for the development site have been obtained and are included as part of the Phase I PRA. A copy of these plans is maintained on site by the Sutcliffe engineer who is also responsible for clearing the areas to be investigated by use of a Cable Avoidance Tool (CAT) and signal generator (Genny).

3.4 Sampling Strategy

A summary of exploratory hole detailing rationale is shown in *Table 3.1* below.

Table 3.1: Summary of Site Activities

Exploratory Hole ID	Location Rationale	Method	Completed Depth (mbgl)	Installation Details	Testing & Sampling details
WS101	General Site Coverage (GG, HH)	Dynamic Sampler	5.45	Standpipe installed to 4.00m bgl	SPTs, Shear Vane & Environmental sample
WS102	General Site Coverage (HH)	Dynamic Sampler	5.45	No Installation	SPTs, Shear Vane & Environmental sample
WS103	General Site Coverage (GG, HH)	Dynamic Sampler	5.45	Standpipe installed to 2.00m bgl	SPTs, Shear Vane & Environmental sample
WS104	General Site Coverage (GG, HH)	Dynamic Sampler	5.45	Standpipe installed to 3.00m bgl	SPTs, Shear Vane & Environmental sample
WS105	General Site Coverage (GG, HH)	Dynamic Sampler	5.45	Standpipe installed to 3.00m bgl	SPTs & Environmental sample
WS106	General Site Coverage (HH)	Dynamic Sampler	5.45	No Installation	SPTs, Shear Vane & Environmental sample
WS107	General Site Coverage (GG, HH)	Dynamic Sampler	5.45	Standpipe installed to 2.00m bgl	SPTs, Shear Vane & Environmental sample
WS108	General Site Coverage (HH)	Dynamic Sampler	5.45	No Installation	SPTs, Shear Vane & Environmental sample
WS201	General Site Coverage (	Dynamic Sampler	5.45	No Installation	SPTs & Environmental sample
WS202	General Site Coverage (HH)	Dynamic Sampler	6.45	No Installation	SPTs & Environmental sample
WS203	General Site Coverage (HH)	Dynamic Sampler	6.00	No Installation	SPTs & Environmental sample
WS204	General Site Coverage (HH)	Dynamic Sampler	6.02	No Installation	SPTs & Environmental sample
TP101	General Site Coverage	Trial Pit Excavation	2.00	No Installation	No Testing / Sampling
TP102	General Site Coverage (HH)	Trial Pit Excavation	2.10	No Installation	Environmental sample
TP103 (SA)	General Site Coverage (CW, HH)	Trial Pit Excavation	2.30	No Installation	Environmental sample
TP104 (SA)	General Site Coverage (HH)	Trial Pit Excavation	2.15	No Installation	Environmental sample

Exploratory Hole ID	Location Rationale	Method	Completed Depth (mbgl)	Installation Details	Testing & Sampling details
TP105	General Site Coverage (CW, HH)	Trial Pit Excavation	2.20	No Installation	Environmental sample
TP106	General Site Coverage (HH)	Trial Pit Excavation	2.00	No Installation	Environmental samples
TP107	General Site Coverage (CW, HH)	Trial Pit Excavation	2.30	No Installation	Environmental sample
TP108	General Site Coverage (HH)	Trial Pit Excavation	2.30	No Installation	Environmental sample
TP109	General Site Coverage	Trial Pit Excavation	0.60	No Installation	No Testing / Sampling
TP201	General Site Coverage	Trial Pit Excavation	2.40	No Installation	No Testing / Sampling
TP202	General Site Coverage (HH)	Trial Pit Excavation	2.60	No Installation	No Testing / Sampling
TP203	General Site Coverage	Trial Pit Excavation	2.00	No Installation	No Testing / Sampling

GG – Ground Gas / CW – Controlled Water / HH – Human Health

A plan detailing the position of sampling locations on an existing layout of the site is presented as Drawing Ref. 31990-SUT-ZZ-00-DR-G-720-0001.

3.5 Chemical Laboratory Testing

Selected soil samples (made ground) were collected at various depths and horizons and submitted for chemical analysis, details of which are presented in Table 3.2.

Table 3.2: Summary of Soils Analysis (Total & Leachate Concentrations)

Suite Reference	Analysis Suite
Soils Suite – total	Metals suite, speciated (16) polycyclic aromatic hydrocarbons (PAHs), total petroleum hydrocarbons according to the Total Petroleum Hydrocarbon Working Group (TPHCWG), asbestos screen, total cyanide, phenols and soil organic matter.
Leachate – total	Metals suite, speciated (16) PAHs.
Pipeline RA Suite	EPH CWG, VOCs, SVOCs, VPH CWG, Ph, Electrical Conductivity and Redox Potential
WAC E (Inert, SNRHW + Hazardous Landfills) 2 Stage	Antimony, Arsenic, Barium, Cadmium, Chloride, Chromium, Copper, DOC, Fluoride, Lead, Mercury, Molybdenum, Nickel, Phenol, Selenium, Sulphate, Total Dissolved Solids, Zinc.

All samples were analysed by MCERTS accredited soil analysis laboratory Envirolab under UKAS accredited methods. All samples have been taken in accordance with current British Standards.

Envirolab are appropriately accredited for the works required and are an approved supplier under the Sutcliffe's Quality Management System.

Analytical test certificates are presented in Appendix D.

TPH Speciated aromatic and aliphatic bands with BTEX analysis have been carried out in line with the TPHCWG. The toxicity and migration risk associated with a TPH is dependent on the specific aliphatic aromatic carbon banding. Of particular concern are the low molecular weight compounds, which are highly mobile and show a greater level of toxicity than the higher molecular weight compounds. Therefore, a low TPH consisting of low molecular weight aliphatic and aromatic carbon banding compounds may present more of a risk than a high TPH consisting of heavy weight aliphatic and aromatic carbon banding compounds.

Based on the TPHCWG the aromatic band C5 – C7 is considered to consist only of Benzene and the aromatic band C7 – C8 of Toluene. Therefore, the more specific BTEX analysis has been used for risk assessment rather than the aromatic bands.

3.6 Drainage

It is recommended that the client / developer contact United Utilities with respect to capacity in existing foul and surface water sewers in the vicinity of the development area.

3.7 Water Supply

Please note the testing suite carried out for this site is for human health purposes and may not cover the suite of contaminants required by United Utilities for pipe selection and therefore further testing may be required.

3.8 Services

It is recommended that the client / developer contact the relevant service provided to ascertain the requirements for power reinforcement and / or relocation / diversion of existing services.

4 Ground Model

4.1 General

The following section describes the ground conditions encountered during the intrusive ground assessment completed by Sutcliffe.

4.2 Made Ground & Topsoil

A summary of the strata depths and thicknesses for Topsoil / Made Ground is detailed in Table 4.1 and 4.2 below.

Table 4.1: Ground Conditions Encountered (Made Ground - General)

Strata	Depths encountered (m bgl)		Thickness (m)		
	Min	Max	Min	Max	Average
TOPSOIL.	0.00	0.90	0.05	0.90	0.21
MADE GROUND.	0.00	2.40	0.10	1.55	0.71

Table 4.2: Ground Conditions Encountered (Made Ground – Detailed)

Strata	Depths encountered (m bgl)		Thickness (m)		
	Min	Max	Min	Max	Average
Grass over dark brown fine to medium grained SAND with root material (TOPSOIL).	0.00	0.20	0.05	0.20	0.10
Vegetation over dark brown, sandy CLAY with roots (TOPSOIL).	0.00	0.40	0.20	0.40	0.28
Vegetation over dark brownish grey slightly sandy gravelly CLAY. Sand is fine. Gravel is fine to medium, subangular and of mixed lithologies (TOPSOIL).	0.00	0.90	0.40	0.90	0.65
Light greyish white, sandy fine to coarse angular GRAVEL of limestone with occasional brick fragments, wood and plastic items. Sand is fine to medium (SUBBASE).	0.00	0.80	0.10	0.70	0.37
Brown occasionally grey fine to medium grained SAND with fine to medium brick, concrete, limestone and rare glass fragments.	0.00	1.95	0.20	1.55	0.85
Orangish brown, sandy gravelly CLAY. Sand is fine to medium. Gravel is fine to coarse, angular to subangular and of mixed lithology.	0.00	1.20	0.80	1.00	0.90
Brown occasionally grey slightly silty slightly sandy CLAY. Sand is fine to medium.	0.05	2.40	0.20	1.40	0.74
Black decomposing wood. ¹	1.95	2.15	0.20	0.20	0.20

¹ Only encountered at one location – WS203.

4.3 Natural Ground

A summary of the strata depths and thicknesses for natural ground is detailed in *Table 4.3* and *4.4* below.

Table 4.3: Ground Conditions Encountered (Natural – General)

Strata	Depths encountered (m bgl)		Thickness (m)		
	Min	Max	Min	Max	Average
CLAY.	0.20	6.00**	0.20	3.45**	1.06**
PEAT.	0.90	1.10	0.10	0.20	0.15
SAND.	0.70	6.00**	0.10	2.95**	0.82**
UNKNOWN GROUND. ¹	4.00	6.02**	2.02**	2.02**	2.02**

¹ Only encountered at one location – WS204.

** Final Depth of Strata not proven, average thickness on identified ground.

Table 4.4: Ground Conditions Encountered (Natural – Detailed)

Strata	Depths encountered (m bgl)		Thickness (m)		
	Min	Max	Min	Max	Average
Brown / grey sandy occasionally silty CLAY. Sand is fine occasionally medium.	0.20	6.00**	0.20	2.40**	0.84**
Brown / grey gravelly sandy CLAY. Sand is fine. Gravel is fine to medium subrounded to subangular and of sandstone, mudstone and rare coal.	0.30	5.45**	0.30	3.45**	1.20**
Dark brown / black clayey occasionally sandy PEAT.	0.90	1.10	0.10	0.20	0.15
Orangish brown, clayey slightly gravelly fine to medium grained SAND. Gravel is fine to medium, angular to subangular sandstone.	0.70	1.70	0.40	1.00	0.70
Brown occasionally grey clayey slightly silty, fine to medium grained SAND.	0.70	6.00**	0.10	2.95**	0.88
Brown fine to medium grained SAND.	0.75	5.45**	0.15	1.00**	0.53**
Brown gravelly fine to coarse grained SAND. Gravel is fine to medium subangular and of and of mixed lithology. ¹	4.00	5.45**	1.45	1.45	1.45

¹ Only encountered at one location – WS107.

** Final Depth of Strata not proven, average thickness on identified ground.

4.4 Standard Penetration Tests (SPT)

The standard penetration test (SPT) is used to provide geotechnical engineering properties for foundation design purposes. The results can be used to determine the relative density, bearing capacity, and settlement of granular soil. The results can also be used to correlate the approximate strength of cohesive soil.

The SPT results are detailed in *Table 4.5* and *Figure 4* hereunder.

Table 4.5: SPT Results

Strata	No. of Tests	Test Depth (m bgl)	Range	Average
MADE GROUND	3	1.20-2.00	4-25	11.3
UNKNOWN GROUND	5	4.00-5.80	20-50	34.6
CLAY	47	1.20-6.00	4-31	13.3
SAND	9	1.20-5.00	6-21	13.6

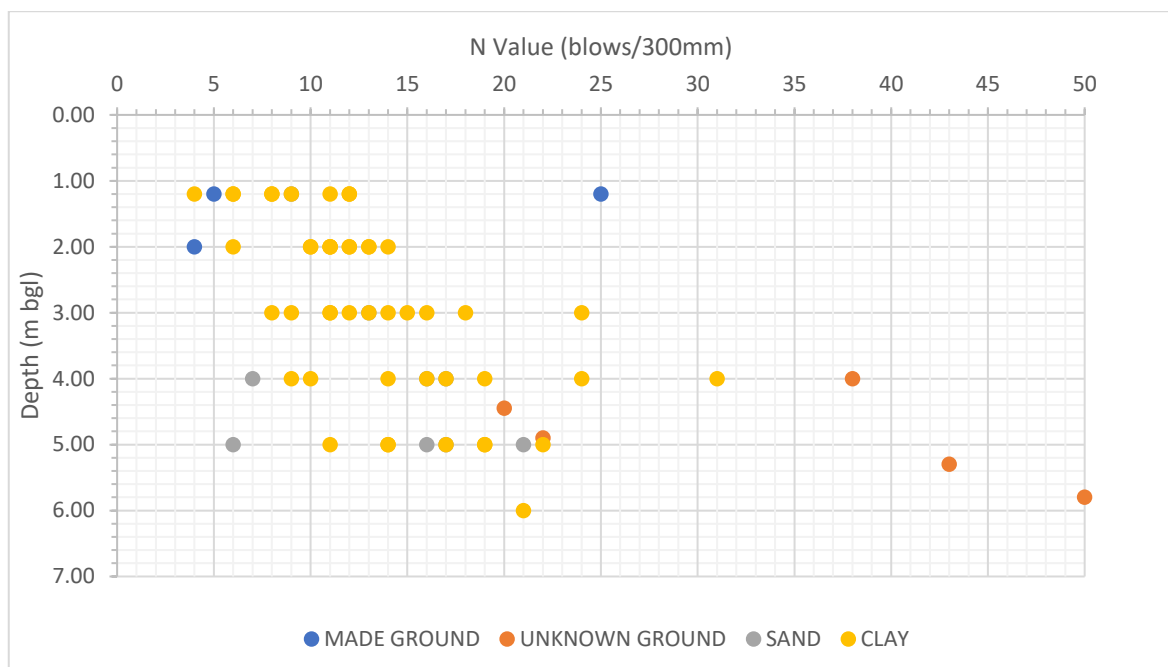


Figure 4: SPT Results

4.5 Field Evidence of Contaminated Soils

There was no visual or olfactory evidence of contaminated soil on the site, beyond the identified made ground.

4.6 Groundwater

Groundwater observations during the site investigation are summarised hereunder:

Table 4.6: Groundwater

Position No.	Water Strike Depth (m bgl)	Rise after 20 mins (m bgl)
WS101	3.00	1.50
WS104	3.00	2.00
WS105	3.00	No Rise
WS106	2.50	No Rise
WS107	3.50	No Rise
TP109	0.30	No Rise

4.7 Soil Infiltration

2No. infiltration tests in accordance with BRE365 were carried out on site at TP103(SA) and TP104(SA).

Due to the inefficient infiltration characteristics of the ground at the excavation depths, the soakaway test comprised a single fill.

The test results did not provide an infiltration rate due to the inefficiencies of the ground to infiltrate, hence it is advised that alternative methods of sustainable drainage are explored.

5 Geotechnical Laboratory Testing and Assessment

5.1 General

In total, 7No. samples were submitted for the purpose of geotechnical laboratory testing. A breakdown of the testing scheduled is set out in *Table 5.1* below.

Table 5.1: Geotechnical Testing

Ref. No.	Depth (m bgl)	Plasticity Index	Triaxial	Moisture Content
WS101	2.50-2.70	✓	✓	✓
WS103	2.60	✓		✓
WS104	2.50	✓		✓
WS105	1.70-1.90	✓	✓	✓
WS107	1.50-1.70	✓	✓	✓
WS202	1.00-2.00	✓		✓
WS204	1.50-2.00	✓	✓	✓

5.2 Plasticity Index

A total of 7No. samples were tested to determine the plasticity index of the underlying CLAY strata spread across WS101, WS103, WS104, WS105, WS107, WS202 and WS204, and taken from depths of between 1.00-2.70m bgl. The plasticity results and the modified plasticity index are outlined in *Table 5.2* below.

Table 5.2: Plasticity Test Results

Ref. No.	Depth (m bgl)	Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 0.425mm (%)	Modified Plasticity Index (%)	Soil Classification
WS101	2.50-2.70	12	26	14	12	91	10.92	CL
WS103	2.60	15	25	13	12	90	10.80	CL
WS104	2.50	14	25	14	11	92	10.12	CL
WS105	1.70-1.90	22	40	18	22	93	20.46	CI
WS107	1.50-1.70	16	36	17	19	92	17.48	CL
WS202	1.00-2.00	43	56	26	30	99	29.7	CI
WS204	1.50-2.00	28	46	23	23	100	23	CI

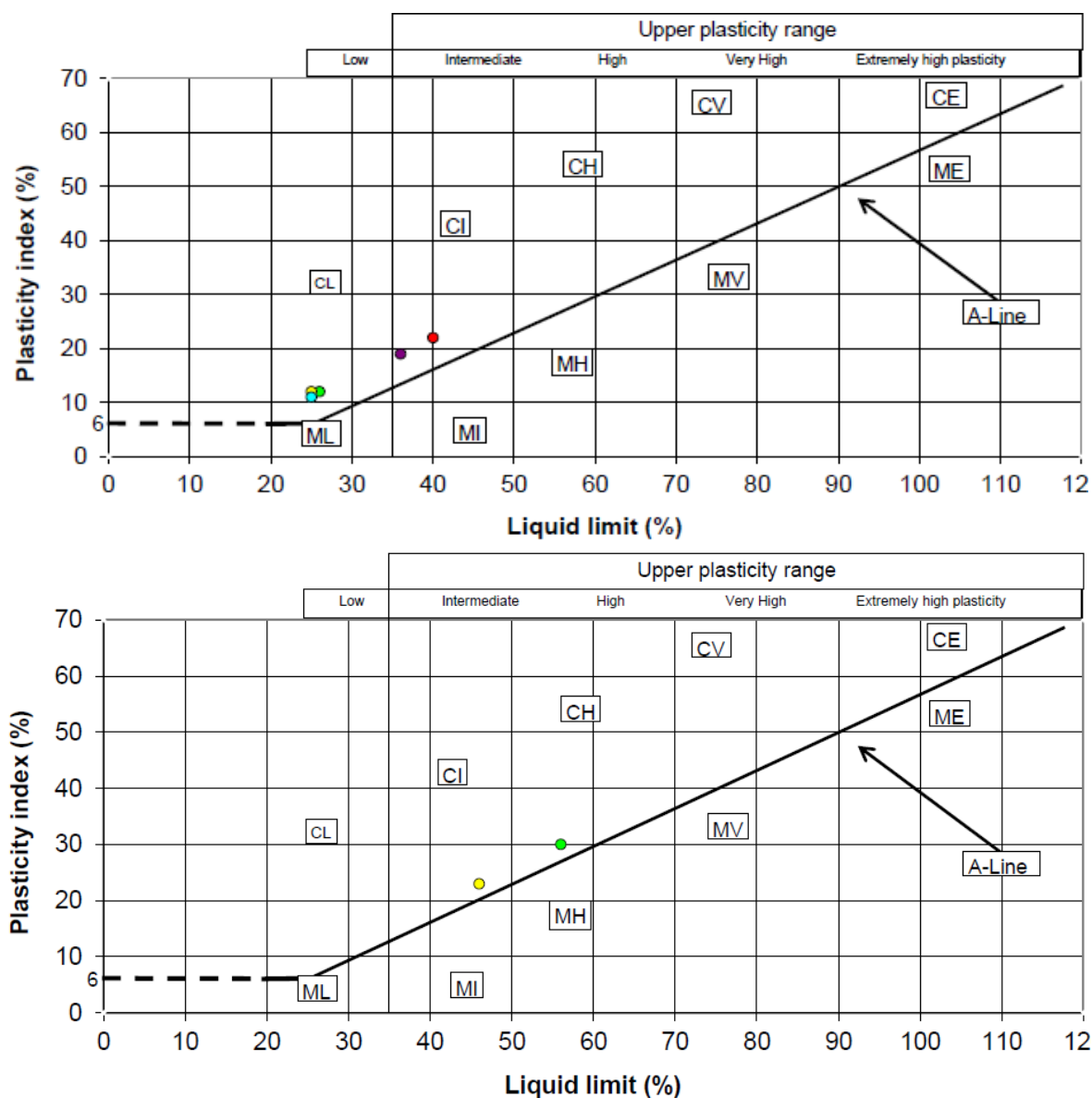


Figure 5: Plasticity Test Results

The results indicate that the underlying CLAY is low to medium plasticity. Plasticity test results are included in *Appendix F*.

5.3 Shear Strength

Triaxial Testing

Triaxial testing was scheduled on 3No. samples recovered from site spread across WS101, WS105 & WS107. The result of this testing is outlined below in *Table 5.3*.

Table 5.3: Triaxial Test Results

Ref. No.	Depth (m bgl)	Shear Strength (kPa)
WS101	2.50	73
WS105	1.70	102
WS107	1.50	115
WS204	1.50-2.00	90

Hand Shear Vane (HSV) Testing

20No. HSV tests were carried out during site investigation works and are presented in *Table 5.4* hereunder:

Table 5.4: Field HSV Test Results

Ref. No.	Depth (m bgl)	Shear Strength (kPa)
WS101	1.60	130
WS101	3.70	130
WS101	4.70	130
WS102	2.70	118
WS102	3.40	68
WS102	3.80	112
WS103	1.50	45
WS103	1.90	98
WS103	3.70	130
WS103	4.70	130
WS104	1.60	58
WS104	3.60	80
WS104	4.60	110
WS106	1.60	110
WS106	1.80	92
WS106	2.60	54
WS107	3.70	78
WS108	1.60	48
WS108	2.60	68
WS108	3.60	90

2No. HSV Tests were carried out on samples submitted from WS103 & WS104. The results are outlined below in *Table 5.5*.

Table 5.5: Laboratory HSV Test Results

Ref. No.	Depth (m bgl)	Shear Strength (kPa)
WS103	2.60	90
WS104	2.50	80
WS202	1.00-2.00	50

Shear Strength Testing Summary

A summary of the Shear Strength Testing including Triaxial and HSV Testing is presented in *Figure 6*.

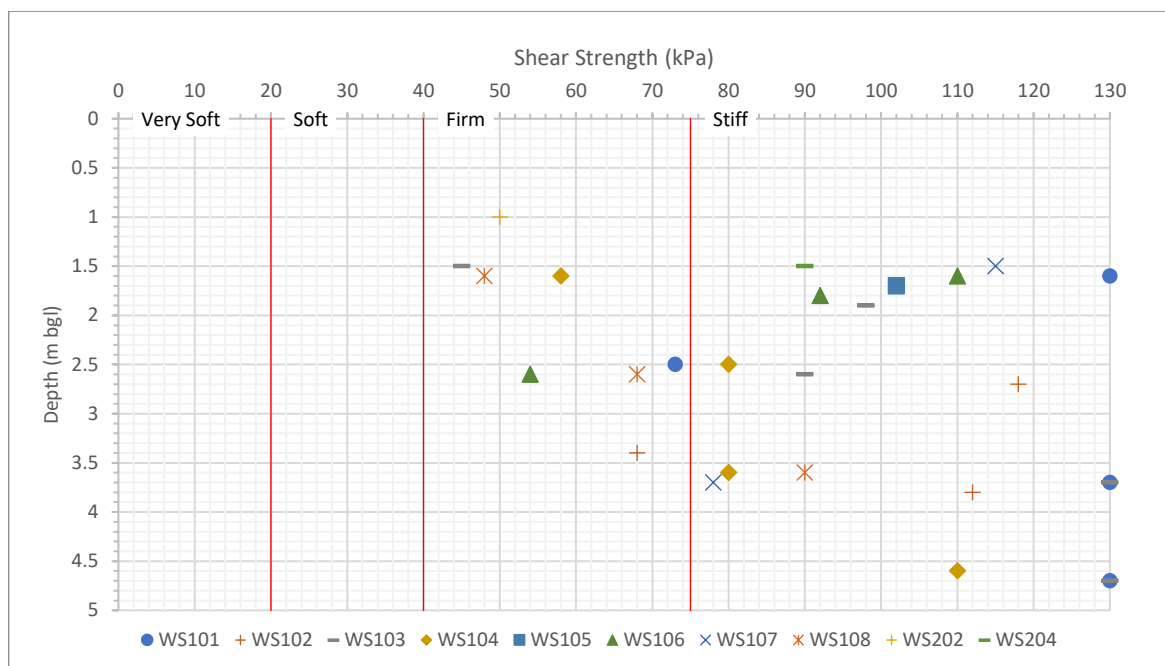


Figure 6: Shear Strength Test Results

The results of this testing indicate that the shear strength of the clay classifies as firm to stiff.

5.4 Plate Load Testing

Plate load testing was undertaken in five (5No.) location across the site, with the results presented in Table 5.5 below:

Table 5.6: Plate Load Results

Ref. No.	Depth (mm bgl)	Stratum Description	Maximum Applied Stress (kPa)	Maximum Settlement (mm)	Equivalent CBR Value (%)	Modulus of subgrade Reaction, k_{762} (MN/m ² /m)
CBR101	200	sandy CLAY	119	1.80	4	30
CBR102	0.5	sandy CLAY with crushed brick	70	2.13	1	17
CBR103	0.0	sandy CLAY	132	2.25	3	29
CBR104	0.5	gravelly SAND	97	2.14	2	24

It is recommended that a CBR value of 1% should be adopted.

Copies of the testing certificates are included within Appendix F.

5.5 Stability

No evidence of instability was noted in the exploratory holes that were undertaken on site; however, due to the amount of made ground noted on-site, shoring would likely be required if any groundworks are to be left open during site works.

5.6 Soluble Sulphate and pH

It is envisaged foundations will extend through the Made Ground and into the natural strata and samples taken from the Made Ground have been submitted for pH and water-soluble sulphate (2:1 soil/water extract) analysis.

The highest water-soluble sulphate concentration and the lowest pH value for the Made Ground is shown in *Table 5.7*.

Table 5.7: Soluble sulphate and pH classification

Soil Type	Lowest pH Values	Highest Soluble Sulphate Concentration (mg/l)
Made Ground	5.1	60

Therefore, in accordance with Table C2 of BRE: Special Digest 1 2005, sub-surface concrete that is in contact with Made Ground should be Design Sulphate Class **DS-1**, with the ACEC classification of **AC-1s**.

A complete set of geotechnical laboratory certificates are presented in *Appendix F*.

5.7 Foundation Recommendations

General

It is understood that consideration is being given to the development of 30No. residential units / houses with gardens and associated car parking facilities.

Due to the ground conditions encountered, it would be Sutcliffe's recommendation that concrete strip footings (bearing on stiff clay at 1.50-2.00m bgl) can be adopted on site, with potential mass fill being required in areas of deeper competent ground. We would anticipate an allowable bearing pressure in the region of 125kN/m². Foundations should be designed in accordance with NHBC Section 4.2.

Groundwater was observed to be standing at depths between 0.31-1.64m bgl during the monitoring phase.

Sub-surface concrete that is only in contact with Made Ground can be Design Sulphate Class DS-1, with an ACEC Classification of AC-1s.

Ground Floor Construction

Based upon the amount of Made Ground noted on site it is not recommended that a ground-bearing slab is utilised on site. Sutcliffe Investigations therefore propose a suspended P.C Unit ground floor be adopted.

Designated Concrete Mixes

The following designated mix in accordance with BRE Special Digest SD1 and BS 8500: Part1: 2015 will be suitable for use on this site.

Table 5.9: Designated Concrete Mixes

Application	DS-1 Conditions (Made Ground and Natural) ACEC Class AC-1s
Unreinforced strip / trench fill footings	GEN1
Reinforced strip / trench fill footing (mesh reinforcement)	RC30
Reinforced strip / trench fill footings (rebar etc)	RC30
Unreinforced concrete floor slabs	GEN2
In situ reinforced concrete floor slabs	RC30

**Note: Although RC30 is in line with BS8500, Sutcliffe recommend the use of RC35 for concrete used in structurally sensitive works, to provide greater certainty of compliance with strength verification tests. Tolerable mixes dispatched by a batching plant are +/- 10%, and delays on site can also result in deterioration of the concrete.*

5.8 Geotechnical Uncertainty

The site has been subject to previous development and therefore, the potential for relic foundations and obstructions cannot be discounted.

6 Long Term Human Health Risk Assessment

6.1 Methodology

Based on the Preliminary Risk Assessment and Ground Model for this site, a Generic Quantitative Risk Assessment for human health has been undertaken in accordance with LCRM and SR (SC050021 series) (DEFRA) guidance as well as CL:AIRE Professional Guidance: Comparing Soil Contamination Data with a Critical Concentration (2020) and comprises the following:

-  Selection of appropriate generic screening values for human health assessment.
-  Creation of relevant datasets from which to undertake the assessment.
-  Assessment of contamination distribution and comparison of site data to screening values using relevant statistical tests (in accordance with CIEH guidance).
-  Assessment of risks to receptors.
-  Determination of requirements for further investigation or remediation.

6.2 Selection of Soil Screening Values

Soil screening values appropriate for a *Residential with Plant Uptake* were selected.

6.3 Creation of Relevant Datasets

As part of the desk study assessment and Preliminary Conceptual Model, made ground was identified as the principal potential source identified for contamination in the risk evaluation (*Section 2.0*). Consequently, the sampling strategy targeted made ground encountered on site.

6.4 Identification of Contaminants of Concern

The results of the soil analysis from the investigation are shown in *Appendix D*. These results were then compared against the relevant GACs for 2.5% soil organic matter (S.O.M.). The average percentage S.O.M. was 4.74% for 18 samples.

Elevated levels of contamination were recorded in all samples taken from site when assessed against the 2.5% S.O.M. *Residential with Plant Uptake* values.

Table 6.1: Chemical Analysis Results for Made Ground Stratum (0.00-1.00m bgl)

Contaminant	Threshold Value (mg/kg)	Location	Depth (m bgl)	Recorded Concentration (mg/kg)
Arsenic	37	WS203	0.20-0.80	53
Lead	200	WS203	0.20-0.80	234
Benzo(b)fluoranthene	3.3	WS105	0.20-0.60	4.09
		TP106	0.40-0.60	3.49
Benzo(a)pyrene	2.7	WS105	0.20-0.60	3.78
		TP106	0.40-0.60	3.01
		TP107	0.20-0.50	2.82

Contaminant	Threshold Value (mg/kg)	Location	Depth (m bgl)	Recorded Concentration (mg/kg)
Dibenzo(ah)anthracene	0.28	WS105	0.20-0.60	0.44
		WS203	0.20-0.80	0.39
		TP106	0.40-0.60	0.38
		TP107	0.20-0.50	0.36

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6.5 Assessment

The soil analytical data has been assessed following CL:AIRE guidance, LCRM and NHBC R&D Publication 66 2008 “*Guidance for the Safe Development of Housing on Land Affected by Contamination*”.

The purpose of human health risk assessment for planning is to decide whether the land is suitable for the proposed end use and does not pose a risk to human health.

Statistical analysis in accordance with CL:AIRE publication *Professional Guidance: Comparing Soil Contamination Data with a Critical Concentration (2020)* was used to assist in answering the key question raised above.

Utilising the 2-way confidence interval method, the likelihood of whether the true mean is less than the critical concentration can be calculated and aid with decision making in terms of further investigation or remediation.

This assessment will be using an 85% confidence interval to state that:

There is an 85% chance that the true mean concentration level of the contaminant in this sampling zone lies between x and y mg/kg.

A 99% confidence interval will be used to state that:

There is a 99% chance that the true mean concentration level of the contaminant in this sampling zone will not lie outside x and y mg/kg.

Results of the Statistical analysis is presented in *Appendix D*.

6.6 Statistical Analysis

Arsenic

There was 1No. exceedance of the Arsenic screening value from samples analysed at WS203. The critical concentration of this contaminant is **37mg/kg**.

Statistical Analysis of samples screened for the contaminant indicate that:

-  There is an **85%** chance that the true mean concentration level of the contaminant in this sampling zone lies between **8.57-17.32mg/kg**.
-  There is a **99%** chance that the true mean concentration level of the contaminant in this sampling zone will not lie outside **4.54-21.35mg/kg**.

Based on the results of the statistical analysis, Sutcliffe are confident that the true mean concentration lies below the critical concentration and hence site-wide risk to human health is not indicated.

Lead

There was 1No. exceedance of the Lead screening value from samples analysed at WS203. The critical concentration of this contaminant is **200mg/kg.**

Statistical Analysis of samples screened for the contaminant indicate that:

-  There is an **85%** chance that the true mean concentration level of the contaminant in this sampling zone lies between **48.83-90.83mg/kg.**
-  There is a **99%** chance that the true mean concentration level of the contaminant in this sampling zone will not lie outside **29.47-110.20mg/kg.**

Based on the results of the statistical analysis, Sutcliffe are confident that the true mean concentration lies below the critical concentration and hence site-wide risk to human health is not indicated.

Benzo(b)fluoranthene

There were 2No. exceedances of the Benzo(b)fluoranthene screening value from samples analysed at WS105 & TP106. The critical concentration of this contaminant is **3.3mg/kg.**

Statistical Analysis of samples screened for the contaminant indicate that:

-  There is an **85%** chance that the true mean concentration level of the contaminant in this sampling zone lies between **0.43-1.41mg/kg.**
-  There is a **99%** chance that the true mean concentration level of the contaminant in this sampling zone will not lie outside **0.00-1.86mg/kg.**

Based on the results of the statistical analysis, Sutcliffe are confident that the true mean concentration lies below the critical concentration and hence site-wide risk to human health is not indicated.

Benzo(a)pyrene

There are 3No. exceedances of the Benzo(a)pyrene screening value from samples analysed at WS105, TP106 & TP107. The critical concentration of this contaminant is **2.7mg/kg.**

Statistical Analysis of samples screened for the contaminant indicate that:

-  There is an **85%** chance that the true mean concentration level of the contaminant in this sampling zone lies between **0.37-1.25mg/kg.**
-  There is a **99%** chance that the true mean concentration level of the contaminant in this sampling zone will not lie outside **0.00-1.65mg/kg.**

Based on the results of the statistical analysis, Sutcliffe are confident that the true mean concentration lies below the critical concentration and hence site-wide risk to human health is not indicated.

Dibenzo(ah)anthracene

There are 4No. exceedances of the Dibenzo(ah)anthracene screening value from samples analysed at WS105, WS203, TP106 & TP107. The critical concentration of this contaminant is **0.28mg/kg.**

Statistical Analysis of samples screened for the contaminant indicate that:

-  There is an **85%** chance that the true mean concentration level of the contaminant in this sampling zone lies between **0.06-0.17mg/kg.**
-  There is a **99%** chance that the true mean concentration level of the contaminant in this sampling zone will not lie outside **0.01-0.22mg/kg.**

Based on the results of the statistical analysis, Sutcliffe are confident that the true mean concentration lies below the critical concentration and hence site-wide risk to long term human health is not indicated.

6.7 Discussion

The statistical analysis for all exceeded contaminants indicates that there is a very high probability that the true mean concentrations are below the critical concentrations and Sutcliffe are confident that these contaminants are unlikely to pose a site wide risk to human health.

Although Sutcliffe acknowledge that there are contaminants that exceed their critical concentrations, we believe that based on the results of the statistical analysis, the risk to long term human health is within acceptable limits.

6.8 Asbestos

Asbestos containing materials (ACM) were not observed within samples screened.

6.9 Conclusions

Based on the results of the statistical analysis, the site is considered unlikely to pose a risk to long term human health. Notwithstanding, considering the proposed development and the location of the zones of exceeded contaminants (i.e., WS105, WS203, TP106 & TP107) positioned in proposed garden / soft landscaping areas, it would be Sutcliffe's recommendation that site levels are reduced by 300mm and replaced with clean imported soils in garden / soft landscaping areas. Remediation is not required in areas of hardstanding.

7 Controlled Waters Risk Assessment

7.1 Methodology

Based on the Preliminary Risk Assessment and Ground Model for this site, a Level 1 Screening Assessment has been undertaken in general accordance with Environment Agency guidance Environment Agency Remedial Targets Methodology, Hydrogeological Risk Assessment for Land Contamination, 2006.

The methodology comprises:

 Identification of potential contaminant linkages.

- Selection of appropriate generic screening values for controlled waters.
- Screening measured concentrations of leachate against the generic screening values available for UK Drinking Water Standards (UK DWS) and Environmental Quality Standards (EQS).

 Assessment of contaminant distribution and risk to receptors.

- Identification of contaminants of concern and relevant contaminant linkages.
- Identification of potential contaminants and contaminant linkages which are no longer of concern.

7.2 Identification of Potential Contaminant Linkages

Contaminant linkages have been identified in *Section 2.0* between the made ground and the underlying aquifer via infiltration and/or migration of dissolved phase contaminants.

7.3 Selection of Generic Screening Values

Screening values for Drinking Water Standards (DWS) have been used to assess leachability. DWS are relevant to potable receptors (Principal Aquifer).

Environmental Quality Standards (EQS) screening values have been used to assess risks to surface water resources.

7.4 Leachate Screening – UK DWS & EQS

Metals, TPHCWG and Speciated PAHs were assessed. Exceedances of relevant UK DWS and EQS screening criteria were encountered, details of which are identified in *Table 7.1* & *7.2*. It should be noted that several determinands have limits of detection greater than their respective screening values. Due to the level of uncertainty associated with such results, these exceedances are not considered significant and are excluded from the table below.

Table 7.1: Leachate Exceedances Summary - DWS

Determinant	DWS Threshold (µg/l)	Range of concentrations (µg/l)	Exceedances		
			Location	Depth (m bgl)	Concentration (µg/l)
Lead	10	4-71	TP103(SA)	0.50-0.70	71
			TP107	0.20-0.50	62
benzo(a)pyrene	0.01	<0.01-0.03	TP103(SA)	0.50-0.70	0.03

Table 7.2: Leachate Exceedances Summary - EQS

Determinant	EQS Threshold (µg/l)	Range of concentrations (µg/l)	Location and depth of outliers if present		
			Location	Depth (m bgl)	Concentration (µg/l)
Copper	1	4-69	TP103(SA)	0.50-0.70	21
			TP105	0.10-0.30	4
			TP107	0.20-0.50	69
Lead	14	4-71	TP103(SA)	0.50-0.70	71
			TP107	0.20-0.50	62
Zinc	10.9	4-47	TP103(SA)	0.50-0.70	14
			TP107	0.20-0.50	47
Benzo(b)fluoranthene	0.017	<0.01-0.04	TP103(SA)	0.50-0.70	0.04
Benzo(k)fluoranthene	0.017	<0.01-0.02	TP103(SA)	0.50-0.70	0.02
Benzo(ghi)perylene	0.0082	<0.01-0.03	TP103(SA)	0.50-0.70	0.03
Indeno(123cd)pyrene	0.002	<0.01-0.03	TP103(SA)	0.50-0.70	0.03

Leachate screening tables are presented in *Appendix G*. Analytical certificates are presented in *Appendix D*.

7.5 Contaminant Distributions and Risk to Receptors

Several determinands exceeded the DWS and EQS screening values. However, the risk to controlled waters (groundwater & surface waters) is diminished as a result of the following:

-  The site is underlain by a layer of Glacial Till that will act as an aquiclude impeding the flow of water to the underlying Principal Aquifer.

7.6 Conclusion

Exceedances of DWS and EQS screening criteria are not considered significant given the likely depth to groundwater, effects of natural attenuation, lack of nearby groundwater abstractions and the absence of any surface water courses that could be in continuity with ground water beneath the site.

8 Ground Gas & Groundwater Risk Assessment

8.1 CIRIA C665 Assessment

Gas monitoring wells were installed in 5No. exploratory hole locations (WS101, WS103, WS104, WS105 & WS107) as part of the ground investigation completed by Sutcliffe.

A full copy of all gas monitoring readings and water levels can be found in *Appendix E*.

8.2 Methodology

A ground gas risk assessment has been undertaken in general accordance with the British Standard BS8485:2015+A1:2019, “*Code of Practice for the Design of Protective Measures for Methane and Carbon Dioxide Ground Gases for New Buildings*”.

The guidance is written specifically for use by designers of gas protection measures relating to the development of a site. Reference has also been made to the CIRIA document C665:2007: “*Assessing Risks Posed by Hazardous Ground Gases to Buildings*” and to the Health and Safety Executive document EH40/2005 “*Workplace Exposure Limits*”.

Our assessment comprises the following:

-  Review of results.
-  Calculation of Hazardous Gas Flow Rate for methane and carbon dioxide
-  Assessment of risks from ground gas.
-  Development options.

8.3 Review of Field Data

6No. rounds of gas and groundwater monitoring have been undertaken.

Gas monitoring was undertaken using a fully calibrated GFM gas monitor which measured concentrations of oxygen, carbon dioxide and methane as well as gas flow emission rates.

Monitoring of groundwater installations were undertaken using an electronic ATEX Dipmeter.

The findings are summarised below in *Table 8.1* and the results are presented in full in *Appendix E*.

Table 8.1: Summarised Ground Gas and Groundwater Monitoring Data

Location	MAX Flow Rate (l/hr)	MAX CH ₄ (%)	MAX CO ₂ (%)	MIN O ₂ (%)	MAX (ppm)	Atmospheric Pressure (mb)	Water Level (m bgl)
06/10/2021							
WS101	1.1*	0.0	1.9	20.4	-	1009.0	0.31
WS103	9.0*	0.0	6.6	20.4	-	1009.0	0.84
WS104	0.4*	0.0	1.4	20.4	-	1009.0	0.87
WS105	0.2	0.0	4.7	20.7	-	1009.0	1.64
WS107	-1.0*	0.0	7.2	20.4	-	1009.0	0.49

18/10/2021							
WS101	-	-	-	-	-	-	FLOODED
WS103	-0.4	0.0	9.0	20.0	-	1000.0	1.17
WS104	0.0*	0.0	0.7	20.2	-	999.0	0.89
WS105	0.0	0.0	6.2	20.4	-	999.0	2.25
WS107	0.0*	0.0	2.5	20.4	-	1000.0	0.77
27/10/2021							
WS101	-	-	-	-	-	-	FLOODED
WS103	0.0	1.1	9.2	20.2	-	1002.0	1.16
WS104	0.0*	0.0	0.6	20.2	-	1002.0	0.83
WS105	0.0	0.0	4.5	20.3	-	1000.0	1.83
WS107	0.0*	0.0	7.0	20.5	-	1001.0	0.77
10/11/2021							
WS101	-	-	-	-	-	-	FLOODED
WS103	0.7	1.1	9.8	20.2	-	1016.0	1.14
WS104	0.0*	0.0	1.6	20.2	-	1015.0	0.71
WS105	0.0	0.0	7.0	20.2	-	1013.0	1.43
WS107	3.0*	0.0	9.0	20.2	-	1014.0	0.52
23/11/2021							
WS101	-	-	-	-	-	-	FLOODED
WS103	0.0	1.1	10.0	20.2	-	1027.0	1.13
WS104	0.0*	0.0	2.0	20.1	-	1027.0	0.79
WS105	0.0	0.0	9.1	20.2	-	1026.0	1.70
WS107	0.0*	0.0	9.1	20.2	-	1026.0	0.73
13/12/2021							
WS101	-	-	-	-	-	-	FLOODED
WS103	0.0	1.0	10.1	20.2	-	1013.0	1.15
WS104	0.0*	0.0	1.5	20.2	-	1013.0	0.75
WS105	0.0	0.0	6.2	20.2	-	1013.0	1.56
WS107	0.0*	0.0	6.5	20.2	-	1013.0	0.71

* Peak flow recorded is likely to be due to a build-up of hydraulic pressure caused by rising water trapping the gas within the solid section of pipe; the initial peak flow is not representative of the rate of gas generation within the ground and can be discounted from the dataset.

8.4 Calculation of Hazardous Gas Flow Rate (HGFR)

A hazardous gas flow rate (HGFR) is derived, representative of the actual flow of gas from the borehole. This, combined with a consideration of other factors such as maximum concentration, is used to characterise the site.

HGFRs for both methane and carbon dioxide based on steady state flow and concentration have been calculated as:

HGFR = maximum gas concentration on visit x measured borehole flow rate on visit.

Results of the calculation are presented in *Appendix E*.

Methane HGFR

The highest calculated HGFR per borehole for methane is presented below:

Table 8.2: Methane HGFR

Ref. No.	Flow ¹ (l/h)	CH ₄ ² (%)	CO ₂ ² (%)	HGFR CH ₄ (l/h)	HGFR CO ₂ (l/h)	CS / Traffic Light
WS101	1.1*	0.1	1.9	0.0011	0.0209	Green
WS103	0.1	1.1	10.0	0.0011	0.0100	Amber 2
WS104	0.4*	0.1	1.4	0.0004	0.0056	Green
WS105	0.1	0.1	9.1	0.0001	0.0091	Amber 1
WS107	3.0	0.1	9.0	0.0030	0.2700	Amber 1

¹ Where maximum recorded flow is <0.1l/h, 0.1l/h has been used as recommended in CIRIA C665.

² Where maximum recorded concentration is <0.1%, 0.1% has been used as recommended in BS8485.

* Peak flow recorded is likely to be due to a build-up of hydraulic pressure caused by rising water trapping the gas within the solid section of pipe; the initial peak flow is not representative of the rate of gas generation within the ground and can be discounted from the dataset.

Carbon Dioxide HGFR

The highest calculated HGFR per borehole for carbon dioxide is presented below:

Table 8.2: Carbon Dioxide HGFR

Ref. No.	Flow ¹ (l/h)	CH ₄ ² (%)	CO ₂ ² (%)	HGFR CH ₄ (l/h)	HGFR CO ₂ (l/h)	CS / Traffic Light
WS101	1.1*	0.1	1.9	0.0011	0.0209	Green
WS103	0.1	1.0	10.1	0.0010	0.0101	Amber 2
WS104	0.4*	0.1	1.4	0.0004	0.0056	Green
WS105	0.1	0.1	9.1	0.0001	0.0091	Amber 1
WS107	3.0	0.1	9.0	0.0030	0.2700	Amber 1

¹ Where maximum recorded flow is <0.1l/h, 0.1l/h has been used as recommended in CIRIA C665.

² Where maximum recorded concentration is <0.1%, 0.1% has been used as recommended in BS8485.

* Peak flow recorded is likely to be due to a build-up of hydraulic pressure caused by rising water trapping the gas within the solid section of pipe; the initial peak flow is not representative of the rate of gas generation within the ground and can be discounted from the dataset.

8.5 Ground Gas Risk Assessment

In accordance with CIRIA C665 the ground gas monitoring results indicate that the site has a HGFR of 0.0090l/hr for methane and 0.5940l/hr for carbon dioxide.

This results in the site being classified as Amber 2 –Intermediate to High Risk and require gas protective measures to be installed.

CIRIA C665 states in Table 8.7 (NHBC) that for a typical Carbon Dioxide maximum concentration above 10% that an **Amber 2** classification be considered. As there have been a number of readings above 10% CO₂ during the monitoring period, it is Sutcliffe's recommendation that the site is classified as Amber 2 under the NHBC Traffic light system.

This classifies the site as having an intermediate gas regime identified, which requires high-level gas protection measures, comprising a membrane and ventilated sub-floor void to create a permeability contrast to prevent the ingress of gas into buildings.

Gas protection measures should be as prescribed in BRE Report 414 (Johnson, 2001). Membranes should always be fitted by a specialist contractor. Ventilation of the sub-floor voids should facilitate a minimum of one complete volume change per 24 hours. Certification that these passive protection measures have been installed correctly should be provided.

Using BS8485:2015+A1:2019, “Code of Practice for the Design of Protective Measures for Methane and Carbon Dioxide Ground Gases for New Buildings” a total of 4.5 points is required for the proposed end use, Table 8.3 details the protection measures required to achieve this point total.

Table 8.3: BS8485 (2015+A1:2019) Point Score Summary

GAS PROTECTION SCORES FOR THE STRUCTURAL BARRIER			
Floor and substructure design			SCORE
Precast suspended segmental subfloor (i.e., beam and block)			0

GAS PROTECTION SCORES FOR VENTILATION PROTECTION MEASURES			
Protection Element System		Comments	SCORE
Passive sub floor dispersal layer: Media used to provide the dispersal layer are:  Clear void.  Polystyrene void former blanket.  Geocomposite void former blanket.  No-fines gravel layer with gas drains.  No-fines gravel layer.	Very good performance	The ventilation effectiveness of different media depends on several different factors including the transmissivity of the medium, the width of the building, the side ventilation spacing and type and the thickness of the layer. The selected score should be assigned considering the recommendations in Annex B of BS8485:2015. Passive ventilation should be designed to meet at least “good performance”.	2.5

GAS PROTECTION SCORE FOR THE GAS RESISTANT MEMBRANE		
Protection Element System	Comments	SCORE
Gas resistant membrane meeting all the following criteria:  Sufficiently impervious to the gases with a methane gas transmission rate <40.0 ml/day/m²/atm (average) for sheet and joints (tested in accordance with BS ISO 15105-1 manometric method).  Sufficiently durable to remain serviceable for the anticipated life of the building and duration of gas emissions.  Sufficiently strong to withstand in-service stresses (e.g., settlement if placed below a floor slab).  Sufficiently strong to withstand the installation process and following trades until covered (e.g., penetration from steel fibres in fibre reinforced concrete, penetration of reinforcement ties, tearing due to working above it, dropping tools etc).  Capable, after installation, of providing a complete barrier to the entry of the relevant gas; and,  Verified in accordance with CIRIA C735.	The performance of membranes is heavily dependent on the quality and design of the installation, resistance to damage after installation and integrity of joints. For example, a minimum 0.40mm thickness (equivalent to 370g/m² for polyethylene) reinforced membrane (virgin polymer) meets the performance criteria opposite. If a membrane is installed that does not meet all the criteria opposite, then the score is zero.	2

8.6 Radon

The site is not within a radon affected area, as <1% of homes are above the action level. No radon protection measures are necessary in the construction of new dwellings or extensions.

8.7 Groundwater Protection Measures

Groundwater was observed to be standing at 0.31-1.64m bgl during the monitoring investigation.

In light of these observations, contractors should allow for pumping to develop and maintain dry working conditions, in foundation and service trench excavations.

9 Land Contamination Risks and Remediation Requirements

9.1 Revised Conceptual Model

Based on the findings of the human health, the preliminary conceptual model has been revised and finalised as shown in *Figure 8*. The drawing shows all contaminant linkages from the preliminary conceptual model, identifying those which remain relevant.

9.2 Discounted Contaminant Linkages

Controlled Waters – Groundwater Resources

The UK DWS Leachate screening identified concentrations of Lead and Benzo(a)pyrene that could pose a risk to the Principal aquifer. However, due to the lack of nearby groundwater abstractions, the presence of cohesive natural clay inhibiting downward migration and the effects of natural attenuation, the risk is unlikely to be significant.

Controlled Waters – Surface Water Resources

The EQS Leachate screening identified concentrations of Copper, Lead, Zinc, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(ghi)perylene and Indeno(123cd)pyrene that could pose a risk to the local surface water features. However, the nearest surface water feature is noted 206m south of the site, as such the risk is unlikely to be significant.

9.3 Remaining Potential Contaminant Linkages

Long Term Human Health

Elevated levels of Arsenic, Lead, Benzo(b)fluoranthene, Benzo(a)pyrene and Dibenzo(ah)anthracene were observed in samples screened at WS105, WS203, TP106 and TP107.

Based on the results of the statistical analysis, the site is considered unlikely to pose a risk to long term human health.

Note: Construction workers may be exposed via dermal contact, ingestion and inhalation of soil / dust during the construction period. Adjacent site users may also be exposed to contaminated soils via inhalation of dust generated during the construction phase.

Ground Gas

Based on the results of the gas monitoring and due to elevated CO₂ readings, an Amber 2 classification is recommended for the site, as such gas protection measures will be required.

Table 9.1: Summary of Remaining Contaminant Linkages

1. Hazard Identification		2. Hazard Assessment				3. Risk Estimation		4. Risk Evaluation	5. Managing the Risk
Source		Pathway		Receptor		Consequence	Probability	Classification	Action required
S1 / S2	On-site / Off-site Sources	P1	Dermal contact	R1/2	Site users	Medium	Low Likelihood	Moderate / Low Risk	Elevated levels of Arsenic, Lead, Benzo(b)fluoranthene, Benzo(a)pyrene and Dibenzo(ah)anthracene were observed in samples screened at WS105, WS203, TP106 and TP107. Based on the results of the statistical analysis, the site is considered unlikely to pose a risk to long term human health. Considering the proposed development and the location of the zones of exceeded contaminants (i.e., WS105, WS203, TP106 & TP107) positioned in proposed garden / soft landscaping areas, it would be Sutcliffe's recommendation that site levels are reduced by 300mm and replaced with clean imported soils in garden / soft landscaping areas. Remediation is not required in areas of hardstanding.
		P2	Ingestion of soil / soil dust	R1/2	Site users	Medium	Low Likelihood	Moderate / Low Risk	
		P3	Inhalation of vapours / soil gas	R1/2	Site users	Severe	Unlikely	Moderate / Low Risk	
		P4	Leaching and migration of contaminants	R3/5	Principal Aquifer	Medium	Unlikely	Low Risk	The UK DWS Leachate screening identified concentrations of Lead and Benzo(a)pyrene that could pose a risk to the Principal aquifer. However, due to the lack of nearby groundwater abstractions, the presence of cohesive natural clay inhibiting downward migration and the effects of natural attenuation, the risk is unlikely to be significant. The EQS Leachate screening identified concentrations of Copper, Lead, Zinc, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(ghi)perylene and Indeno(123cd)pyrene that could pose a risk to the local surface water features. However, the nearest surface water feature is noted 206m south of the site, as such the risk is unlikely to be significant.
		P5	Lateral migration of soil gas / vapours	R1	Site users	Severe	Low Likelihood	Moderate Risk	
				R4	Property	Severe	Low Likelihood	Moderate Risk	Based on the results of the gas monitoring and due to elevated CO2 readings, an Amber 2 classification is recommended for the site, as such gas protection measures will be required.

9.4 Remediation Requirements

Human Health – Soils

Considering the proposed development and the location of the zones of exceeded contaminants (i.e., WS105, WS203, TP106 & TP107) positioned in proposed garden / soft landscaping areas, it would be Sutcliffe's recommendation that site levels are reduced by 300mm and replaced with clean imported soils in garden / soft landscaping areas. Remediation is not required in areas of hardstanding.

Human Health – Ground Gas

Ground gas monitoring has indicated elevated levels of Carbon Dioxide on-site. It is recommended that the site is classified as Amber 2 under the NHBC Traffic light system as outlined in CIRIA C665. As such gas protection measures will be required as part of the development of the site in accordance with *Table 8.3 and BS8485 (2015+A1:2019)*.

Controlled Waters

The UK DWS Leachate screening identified concentrations of Lead and Benzo(a)pyrene that could pose a risk to the Principal aquifer. However, due to the lack of nearby groundwater abstractions, the presence of cohesive natural clay inhibiting downward migration and the effects of natural attenuation, the risk is unlikely to be significant. No action is required

The EQS Leachate screening identified concentrations of Copper, Lead, Zinc, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(ghi)perylene and Indeno(123cd)pyrene that could pose a risk to the local surface water features. However, the nearest surface water feature is noted 206m south of the site, as such the risk is unlikely to be significant. No action is required

10 Waste Classification

10.1 Preliminary Waste Classification

A preliminary waste classification was carried out to determine the classification of soil contamination data using HazWasteOnline program, which creates the standard 'Hazardous / Non-Hazardous' classification of soils.

The Waste Classification Report states that all soils analysed are classified as 'Non-Hazardous' waste.

The full Waste Classification Report is provided in Appendix H.

10.2 Asbestos

Asbestos containing materials (ACM) were not observed within samples screened.

10.3 Waste Acceptance Criteria Testing (WAC)

2No. WAC analysis were carried out to determine if the preliminary waste classification results can be downgraded. Results of the WAC analysis are presented in Appendix D and Appendix G, and summarised hereunder:

Ref. No.	Depth (m bgl)	Preliminary Classification	WAC Testing	Exceeded Contaminant	Value	Final Classification
TP101	0.60	Non-Hazardous	N	N/A	N/A	Non-Hazardous
TP103/SA101	0.50-0.70	Non-Hazardous	N	N/A	N/A	Non-Hazardous
TP104/SA102	0.30-0.50	Non-Hazardous	N	N/A	N/A	Non-Hazardous
TP105	0.10-0.30	Non-Hazardous	N	N/A	N/A	Non-Hazardous
TP106	0.40-0.60	Non-Hazardous	N	N/A	N/A	Non-Hazardous
TP107	0.20-0.50	Non-Hazardous	N	N/A	N/A	Non-Hazardous
TP108	0.10-0.30	Non-Hazardous	N	N/A	N/A	Non-Hazardous
TP202	0.20-0.80	Non-Hazardous	Y	-	-	Inert
WS101	0.20-0.60	Non-Hazardous	N	N/A	N/A	Non-Hazardous
WS102	0.20-0.60	Non-Hazardous	N	N/A	N/A	Non-Hazardous
WS103	0.20-0.60	Non-Hazardous	N	N/A	N/A	Non-Hazardous
WS104	0.20-0.60	Non-Hazardous	N	N/A	N/A	Non-Hazardous
WS105	0.20-0.60	Non-Hazardous	N	N/A	N/A	Non-Hazardous
WS106	0.20-0.60	Non-Hazardous	N	N/A	N/A	Non-Hazardous
WS107	0.20-0.60	Non-Hazardous	N	N/A	N/A	Non-Hazardous
WS202	0.20-0.60	Non-Hazardous	N	N/A	N/A	Non-Hazardous
WS203	0.20-0.80	Non-Hazardous	Y	Loss on Ignition (%)	15.4%	Non-Hazardous
				Total Organic Carbon	8.03%	
WS204	0.20-0.60	Non-Hazardous	N	N/A	N/A	Non-Hazardous

10.4 Discussion

As discussed above, the Waste Classification Report states that soils analysed are classified as 'Non-Hazardous' waste, with the exception of soils at TP202 which can be downgraded based on the WAC analysis to an 'Inert' classification.

Notwithstanding, the final decision on waste classification is determined by the accepting landfill, and consultation with landfill operators be carried out during the development of the SMMP.

11 Recommendations

11.1 Further works

The following actions are recommended:

-  Design a Phase III Remediation & Validation Proposal for submission to planning department.
-  Design SMMP – management of material on and off site.
-  Good hygiene practices should be employed during construction work, in addition, the findings of this investigation should be included within the contractors H&S file and an assessment of risks associated with short term human health completed. No consumption of food or smoking should occur without prior hand washing. If dust is encountered, dust masks should be worn, and dust suppression employed.

12 References

-  BRE Special Digest (1991) 'Sulphate and acidic resistance of concrete in the ground' 363
-  BRE Special Digest (2001) 'Aggressive Chemical Environment for Concrete (ACEC) Site Classification.
-  CIRIA (1995) Report 149. 'Protecting development from methane. Methane and associated Hazards to Construction.' London
-  CIRIA (2007) C665. 'Assessing risks posed by hazardous ground gases to buildings.' London
-  DETR/Partners in Technology (1997) Passive venting of soil gases beneath buildings research report-guide for design.
-  Department of the Environment. Transport and the Regions. *Environment Protection Act (1990) Part IIA: Contaminated Land.*
-  Environment Agency (2000) 'Secondary Model Procedure for the Development of Appropriate Soil Sampling Strategies for Land Contamination. Research and Development. Technical Report. P5-066/TR', Bristol.
-  Environment Agency (2002) 'Department for Environment, Food and Rural Affairs and The Environment Agency. Assessment Of Risks to Human Health from Land Contamination: An Overview of The Development of Soil Guideline Values and Related Research', Environment Agency, Bristol. CLR report No. 7.
-  Environment Agency (2002) 'Department for Environment, Food and Rural Affairs and The Environment Agency. 'Priority Contaminants for The Assessment of Land', Environment Agency, Bristol. CLR report No. 8
-  Environment Agency (2002) 'Department for Environment, Food and Rural Affairs and The Environment Agency. The Contaminated Land Exposure Assessment (CLEA) Model: Technical Basis and Algorithms', Environment Agency, Bristol. CLR report No. 1

Appendix A – General Notes

Generic Notes – Sutcliffe Investigations

Environmental Setting

General

Third party information obtained from the British Geological Survey (BGS), the Coal Authority, the Local Authority etc is presented in the Correspondence Appendix of the Geoenvironmental Report.

Geology, Mining & Quarrying

In order to establish the geological setting of a site, Sutcliffe Investigations refer to BGS maps for the area and the relevant geological memoir.

A coal mining report is obtained from the Coal Authority. Further information is sourced from the Local Authority and by reference to current and historical OS plans.

Landfills

Sutcliffe Investigations obtain data from the Landmark Information Group, the Environment Agency and the Local Authority with respect to known areas of landfilling within 250m of the proposed development site. Reference is also made to historical OS plans, which are inspected for evidence of backfilled quarries, railway cuttings, colliery spoil tips etc.

Radon

Radon is a colourless, odourless gas, which is radioactive. It is formed in strata that contain uranium and radium (most notably granite) and can move through fissures eventually discharging to atmosphere, or the spaces under and within buildings. Where radon occurs in high concentrations, it can pose a risk to health.

In order to assess potential risks associated with radon gas, Sutcliffe Investigations refer to BRE Report BR211, 1999: *“Radon: guidance on protective measures for new dwellings”*.

BR211 provides a preliminary indication of the measures required for a particular site, but it is also often necessary to request a Stage 2 Protective Measures Site Report from the BGS.

The level of protection needed is site-specific and is determined by reference to the radon potential map for the area followed by a geological assessment of the site. This information is contained in the Annexes of BR211.

Annex A – derived from statistical analysis of radon measurements in existing houses carried out by the NRPB and grouped on 5km grid.

Annex B – based on an assessment of the same radon measurements grouped by geological units. The maps show the 5km grid squares underlain completely or in part, by geological units which potentially exceed the action levels for radon protective measures. The grid squares are coded according to highest potential within the square. In many cases the actual geological radon potential varies considerably within a grid square.

Sutcliffe Investigations adopt the following procedure when assessing risk associated with radon.

Firstly, Annex A maps are reviewed to see whether the site requires full, basic or no measures. If the site is in a dark brown square, full radon protection measures are required. If the site is in a light brown square, reference should be made to Annex B.

Secondly, Annex B maps are reviewed to see whether a further geological assessment is required which may result in upgrading the result from Annex A. If a site lies within a shaded square, it may require radon protection and Sutcliffe Investigations request a Stage 2 Protective Measures Site Report from the BGS.

If the site is in a square that is not coloured or shaded in either set of maps then no radon protection is needed and therefore a BGS Report is not normally necessary.

The BGS geological assessment involves checking whether the site is on or close to a geological unit that has statistically been found to have elevated radon potential. The geological assessment is based on either 1:50,000 or the 1:250,000 scale data. The search area specified as part of the request is increased by 50m in areas where 1:50,000 data is available and by 500m in areas with 1:250,000 scale data to allow for potential inaccuracies in the position of boundaries. The BGS report indicates the highest level of protection required within the search area and its buffer zone.

When requesting a BGS report, Sutcliffe Projects select the search radius carefully, since too large a search radius may result in the inclusion of areas underlain by geological units of a higher radon potential, thereby giving rise to recommending too high a level of protection.

The report also includes (where available), a list of the geological units included in the assessment. Sutcliffe Investigations check that these actually underlie the site, rather than the buffer zone only.

On the basis of radon measurements in dwellings and on their geological interpretation, the BGS report stipulates the level of protective measures required for the proposed development site, and this could be:

1. no measures
2. basic measures or
3. full measures

Details of these measures are provided in the Hazardous Gas section of this Geoenvironmental Report.

Hydrogeology

Sutcliffe Investigations obtain information from the Environment Agency (EA) and the Landmark Information Group with respect to:

- groundwater quality
- recorded pollution incidents
- licensed groundwater abstractions

Reference is also made to the EA document "Policy and Practice for the Protection of Groundwater" (1998) and the relevant Groundwater Vulnerability Map.

Bedrock and any overlying granular Drift deposits are classified by the EA.

Major aquifers: *"Highly permeable formations, usually with a known or probable presence of significant fracturing. They may be highly productive and able to support large abstractions for public water supply and other purposes".*

Minor aquifers: *"Fractured or potentially fractured rocks which do not have a high primary permeability, or other formations or variable permeability. Although these aquifers will seldom produce large quantities of water for abstractions, they are important both for local supplies and in supplying base flow to rivers".*

Non-aquifers: *"Formations which are generally regarded as containing insignificant quantities of groundwater. However groundwater flow through such rocks, although imperceptible, does take place and needs to be considered in assessing the risk associated with persistent pollutants. Some non-aquifers can yield water in sufficient quantities for domestic use".*

Groundwater vulnerability is determined by 4 variables:

1. The presence and nature of overlying soil (the weathered zone affected by living organisms; soil in the UK can extend up to 2m in depth). Physical properties of the soil affect the downward passage of water and its ability to attenuate pollutants. The EA make reference to a three-fold classification of soil types:-
 - Soils of **low** leaching potential are defined as “soils in which the pollutants are unlikely to penetrate the soil layer because either water movement is largely horizontal, or they have the ability to attenuate diffuse pollutants”.
 - Soils of **intermediate** leaching potential are defined as “soils which have a moderate ability to attenuate diffuse source pollutants or in which it is possible that some non-absorbed diffuse source pollutants and liquid discharges could penetrate the soil layer”.
 - Soils of high leaching potential are defined as “soils with little ability to attenuate diffuse source pollutants and in which non-absorbed diffuse source pollutants and liquid discharges have the potential to move rapidly to underlying strata or to shallow groundwater”.

In urban areas and restored mineral workings the soil information is based on fewer observations than elsewhere. A worst-case vulnerability (H) is therefore assumed for these areas and for current mineral workings by the EA. All are given a designation of **HU** unless proved otherwise.
2. The presence and nature of Drift, which often overlies bedrock. Where Drift is of substantial thickness and low permeability, it can provide an effective barrier to surface pollutant migration. Permeability Drift is classified as a Minor Aquifer except where it is in probable hydraulic continuity with a Major Aquifer, where it is regarded as part of the Major Aquifer unless proven otherwise by site investigation.
3. The nature of the geological strata (bedrock). Rocks that contain groundwater in exploitable quantities are called aquifers.
4. The depth of the unsaturated zone; i.e. that part of the aquifer which lies above the water table.

The EA have also designated Source Protection Zones, which are based on proximity to a groundwater source (springs, wells and abstraction boreholes). The size of a Source Protection Zone may vary from tens to several thousand hectares.

Hydrology

Sutcliffe obtains information from the Environment Agency and the Landmark Information Group with respect to:

- Surface water quality
- Recorded pollution incidents
- Licensed abstractions (groundwater & surface waters)
- Licensed discharge consents
- Site susceptibility to flooding

The EA have set **water quality** targets for all rivers. These targets are known as River Quality Objectives (RQOs). The water quality scheme used to set RQO planning targets is known as the River Ecosystem scheme. The scheme comprises five classes (RE1 to RE5) which reflect the chemical quality requirements of communities of plants and animals occurring in our rivers.

General Quality Assessment (GQA) grades reflect actual water quality. They are based on the most recent analytical testing undertaken by the EA. There are six GQA grades (denoted A to F) defined by the concentrations of biochemical oxygen demand, total ammonia and dissolved oxygen.

The susceptibility of a site to **flooding** is assessed by reference to a Flood Map on the Environment Agency's website. These maps provide shows natural floodplains – areas potentially at risk of flooding if a river rises above its banks or high tides and stormy seas cause flooding in coastal areas.

There are different kinds of area shown on the Flood Map:

1. Dark blue areas could be flooded by the sea by a flood that has a 0.5% (1 in 200) or greater chance of happening each year, or by a river by a flood that has a 1% (1 in 200) or greater chance of happening each year.
2. Light blue areas show the additional extend of an extreme flood from rivers or the sea. These outlying areas are likely to be affected by a major flood, with up to a 0.1% (1 in 1000) chance or occurring each year.

These two colours show the extent of the natural floodplain if there were no flood defences or certain other manmade structures and channel improvements.

The maps also show all flood defences built in the last five years to protect against river floods with a 1% (1 in 100) chance of happening each year, or floods from the sea with a 0.5% (1 in 200) chance of happening each year, together with some, but not all, older defences and defences which protect against smaller floods.

The Agency's assessment of the likelihood of flooding from rivers and the sea at any location is based on the presence and effect of all flood defences, predicted flood levels and ground levels.

It should also be noted that as the floodplain shown is the 1 in 100 year (or 1 in 200 year as appropriate) areas outside this may be flooded by more extreme floods (e.g. the 1 in 1000 year flood). Also, parts of the areas shown at risk of flooding will be flooded by lesser floods (e.g. the 1 in 5 year flood). In some places due to the shape of the river valley the smaller floods will flood a very similar extent to larger floods but to a lesser depth.

If a site falls within a floodplain, it is recommended that a flood survey be undertaken by a specialist consultant who can advise on appropriate mitigating measures; i.e. raising slab levels, provision of storage etc.

COMAH & Explosive Sites

Sutcliffe Investigations obtain information from the Landmark Information Group with respect to COMAH or explosive sites within 1km of the proposed development site. Sutcliffe Investigations' report refers to any that are present and recommends that the Client seeks further advice from the HSE.

Areas around COMAH sites (chemical plants etc) are zoned with respect to the implementation of emergency plans. The HSE are a statutory consultee to the local planning authority for all COMAH sites. The COMAH site may have to revise its emergency action plan if development occurs. This might be quite straightforward or could entail significant expenditure. Consequently, the COMAH site may object to a proposed development (although it is the Local Authority who have final say and they are likely to place more weight on advice from the HSE).

Preliminary Conceptual Ground Model

The site's environmental setting (and proposed end use) is used by Sutcliffe Investigations to assess the significance of any contamination encountered during the subsequent ground investigation.

Generic Notes – Sutcliffe Geoenvironmental Investigations

2. Ground Investigation Fieldwork

General

Sutcliffe Ground Investigations are undertaken in accordance with current UK guidance including:

- BS5930:1999 “Code of practice for site investigation”
- BS10175:2001 “Code of practice for the identification of potentially contaminated sites”
- Contaminated Land Reports 1 to 6, most notably CLR Report No. 4 “Sampling strategies for contaminated land”
- “Guidance on the protection soil sampling strategies for land contamination” – EA R&D Technical report P5-066/TR (2001)
- AGS: 1996 “Guide to the selection of Geotechnical Soil Laboratory Testing”

Exploratory hole logs are represented in Appendices to this Geoenvironmental Report. These logs include details of the:

- Investigation technique adopted
- Samples taken
- Descriptions of the solid strata and any groundwater encountered
- Results of any insitu testing
- Any gas/groundwater monitoring well installed

Exploratory Hole Locations

Exploratory hole locations are selected by Sutcliffe Investigations, prior to commencement of fieldwork, to provide a representative view of the strata beneath the site and to target potential contaminant sources identified during the preliminary investigation (desk study). Additional exploratory locations are often determined by the site engineer in light of the ground conditions actually encountered; this enables better delineation of the depth and lateral extent of organic contamination, poor ground, relict structures etc.

Investigation Techniques

Ground conditions can be investigated by a number of techniques; the procedures used are in general accordance with BS5930: 1999 and BS1377: 1990. Techniques most commonly used by Sutcliffe Investigations include:

- Machine excavated trial pits, usually equipped with a backactor and a 0.6m wide bucket
- Cable percussive (Shell & Auger) boreholes, typically using 150mm diameter tools and casing
- Window or windowless sampling boreholes. Constraints associated with existing buildings, operations and underground service runs can render some sites partly or wholly inaccessible to a mechanical excavator. In such circumstances, window sampling is often the most appropriate technique. A window sampling drilling rig can be manoeuvred in areas of restricted access and results in minimal disturbance of the ground (a 150mm diameter tarmac/concrete core can be lifted and put to one side). However, it should be noted that window sampling allows only a limited inspection of the ground (especially made ground with a significant proportion of coarse material).
- Rotary percussive open-hole probeholes are typically drilled using a tricone rock roller bit with air as the flushing medium. Probeholes are generally lined through made ground with temporary steel casing to prevent hole collapse.

Where installed, gas/groundwater monitoring wells typically comprise a lower slotted section, surrounded by a filter pack of 10mm non-calcareous gravel and an upper plain section surrounded in part by a bentonite seal and in part by gravel or arisings. The top of the plain pipe is cut off below ground level and the monitoring well protected by a square, stopcock type manhole cover set in concrete, or the plain pipe is cut off just above ground level and the well protected by 100mm diameter steel borehole helmet set in concrete.

Monitoring well details, including the location of the response zone and bentonite seal are presented on the relevant exploratory hole logs.

Insitu Testing

Where relative densities of granular materials given on the trial pit and window sample logs are based on visual inspection only, they do not relate to any specific bearing capacities. However, wherever possible, Sutcliffe Investigations employ a mackintosh probe to assess relative density. Mackintosh probe results can be related to approximate allowable bearing capacities.

The relative densities of granular materials encountered in cable percussive boreholes are based on Standard Penetration Test (SPT) results. SPTs are carried out boreholes, in accordance with BS 1377 1990, Part 9 Section 3.3. Where full penetration (600mm) is not possible, N values are calculated by linear extrapolation and are shown on the logs as $N^* = x$.

The strength of cohesive deposits is determined using a hand shear vane.

Shear strength test results reported on trial pit logs are considered to be more reliable than those reported on window sample logs. Significant sample disturbance occurs during window sampling and consequently shear strength results on disturbed window samples are generally lower than results obtained during trial pitting, in-situ or in large excavated blocks.

Sampling

Representative soil/fill samples are taken at regular intervals from the exploratory holes to assist in description of the ground and to allow selected laboratory testing to be performed. The type of sample taken is dependent on the nature of the stratum and the purpose of the analysis.

Where the soils encountered contain a significant proportion of coarse grained material, truly representative samples are not typically obtained – only the finer fraction is placed in sample containers. However, a visual estimate of the amount of coarse material is made on site.

NB: Coarse constituents not sampled are defined as: coarse gravel, cobble and boulder (i.e. any 'particles' with an average diameter greater than 20mm).

Occasionally, unrepresentative 'spot' samples are also taken from some exploratory locations for contaminant analysis, typically where unusual, localised pockets of materials are encountered.

Samples of soil for chemical testing are placed into 1 litre plastic tubs prior to delivery to the selected laboratory. Samples of water are taken in one litre brown glass bottles and stored in cool boxes, at a temperature of approximately 4°C, until delivery to the selected laboratory. Soil/fill samples for organic analysis are also stored in cool boxes.

Groundwater

Where encountered during fieldwork, groundwater is recorded on exploratory hole logs. If monitoring wells are installed, groundwater levels are also recorded on one or more occasions after completion of the fieldwork.

It should be borne in mind that the rapid excavation rates used during a ground investigation may not allow the establishment of equilibrium water levels. Water levels are likely to fluctuate with season/rainfall and could be substantially higher at wetter times of the year than those found during this investigation.

Long term monitoring of standpipes or piezometers is always recommended if water levels are likely to have a significant effect on earthworks or foundation design.

Description of Strata

The soils encountered during an Sutcliffe's ground investigation are described (logged) in general accordance with BS 5930. The descriptions and depth of strata encountered are presented on the exploratory hole logs and summarised in the Ground Conditions section within the main body of text.

The materials encountered in the trial pits are logged, samples taken and tests performed on the in-situ materials in the excavation faces, to depths of up to 1.2m; below this depth these operations are conducted at the surface on disturbed samples recovered from the excavation.

Key to Exploratory Hole Logs

Keys to logs are presented in the Appendix(ces) containing the logs. These are two keys – Symbols and Legends and Terms and Definitions.

Health and Safety

All work was carried out in accordance with the procedures detailed in the DGEL Health and Safety Manual and SUKD health and Safety Procedures.

Generic Notes – Sutcliffe Geoenvironmental Investigations

3. Geotechnical Laboratory Tests

General

Soil Samples are delivered to the laboratory for testing along with a schedule of testing drawn up by Sutcliffe Investigations. All tests are carried out in accordance with BS 1377:1990.

The test results are presented as received in an Appendix to this Geoenvironmental Report.

The following laboratory testing are routinely carried out on a selection of samples:

- Atterberg limits & moisture contents
- Soluble sulphate & pH

The additional tests are typically only scheduled where significant earthworks regrade is anticipated:

- Grading
- Compaction tests
- Particle density

Atterberg Limits & Moisture Content

The Liquid and Plastic Limits of samples of natural in-situ clay are determined using the cone penetrometer method and the rolling thread test. These tests enable determination of an average Plasticity Index (PI) for each “type” of clay, although judgement is applied where variable results are reported.

PI can be related to shrinkability (low, medium or high) and then to minimum founding depth. Sutcliffe Investigations typically only consider a soil to be shrinkable if the proportion finer than 63µm is > 35%.

PI results are compared against guidance given in the NHBC Standards, Chapter 4.2 (revised April 2003) which advocates the use of modified Plasticity Index (I'p) defined as:

$$I'p = Ip * (\% < 425\mu m / 100)$$

ie if PI is 30%, but the soil contains 80% < 425µm, then I'p = 30 * 80/100 = 24%

It should be noted that in accordance with the requirements of BS 1377, the % passing the 425µm sieve is routinely reported by testing labs.

Sutcliffe Investigations apply engineering judgement where PI results are spread over a range of classifications. Consideration is given to:

- The average values for each particular soil type (ie differentiate between residual soil and alluvium)
- The number of results in each class and
- The actual values

Unless the judgement strongly indicates otherwise, Sutcliffe Investigations typically adopt a conservative approach and recommend assumption of the higher classification.

Soluble Sulphate and pH

Sulphates in soil and groundwater are the chemical agents most likely to attack sub-surface concrete, resulting in expansion and softening of the concrete to a mush. Another common cause of concrete deterioration is groundwater acidity.

The rate of chemical attack depends on the concentration of aggressive ions and their replenishment at the reaction surface. The rate of replenishment is related to the presence and mobility of groundwater.

Sutcliffe Investigations refer to BRE Special Digest 1 (SD1) "Concrete in aggressive ground. Part 1: Assessing the aggressive chemical environment" (2001). SD 1 provides definitions of:

- The nature of the site (Greenfield, brownfield or pyretic)
- The groundwater regime (static, mobile or highly mobile)
- The Design Sulphate Class (DC Class) and
- The Aggressive Chemical Environment for Concrete (ACEC Class)

Sutcliffe reports clearly state each of the above for the site being considered.

The concentrations of sulphate in aqueous soil/fill extracts are determined in the laboratory using the gravimetric method. The results are expressed in terms of SO_4 for direct comparison with BS 5328:1997. The pH value of each sample was determined by the electrometric method.

SD1 also discusses determination of "representative" sulphate concentration from a number of tests. Essentially if <10 samples of a given soil-type have been tested, the highest measured sulphate concentration should be taken. If >10 samples have been tested, the mean of the highest 20% of the sulphate test can be taken. With respect to groundwater, the highest sulphate concentration should always be taken.

With respect to pH (soil & groundwater) the value used is the lowest value if <10 samples have been tested and the mean of the lowest 20% if >10 samples have been tested.

Generic Notes – Sutcliffe Investigations Geoenvironmental Investigations

4. Contamination Laboratory Analysis & Interpretation (including WAC)

General

An assessment of potential contaminants associated with the former usages of the site is undertaken with reference to CLR 8 “*Potential contaminants for the assessment of land*” and the relevant DETR Industry Profile(s).

Common Inorganic Contaminants

These include:

- Metals, most notably cadmium, copper, chromium, mercury, lead, nickel and zinc
- Semi-metals, most notably arsenic, selenium and (water soluble) boron
- Non-metals, most notably sulphur
- Inorganic anions, most notably cyanides (free & complex), sulphates, sulphides and nitrates

With respect to the terminology used by most analytical laboratories:

Total cyanide = Free cyanide + Complex cyanide

Total cyanide (CN) is determined by acid extraction; whereas free cyanide is the water soluble fraction.

Complex cyanide is “bound” in compounds and is hard to breakdown. Laboratory determination of complex CN involves subjecting the sample to uv digestion for determination of both free and total CN.

Thiocyanate (SCN) is a different species combined with sulphur.

Elemental sulphur (S) and free sulphur are the same. Total sulphur is all forms, including that present in sulphates (SO₄) sulphates etc.

There are 2 forms of chromium (Cr), chromium VI and chromium III. Chromium VI is the more toxic of these. In soils, total chromium is determined by a strong aqua regia acid digestion. Chromium VI is an empirical method based on a water extract test.

Common Organic Contaminants

Petroleum hydrocarbons are a mixture of hydrocarbons produced from the distillation of crude oil. They include aliphatics (alkanes, alkenes and cycloalkanes), aromatics (single or multi benzene ringed compounds) and hydrocarbon-like compounds containing minor amounts of oxygen, sulphur or nitrogen.

Petroleum hydrocarbons can be grouped based on the carbon number range:-

GRO – Gasoline Range Organics (typically C₆ to C₁₀). Also referred to as PRO – Petroleum Range Organics

DRO – Diesel Range Organics (typically C₁₀ to C₂₈)

LRO – Lubricating Oil Range Organics (typically C₂₈ to C₄₀)

MRO – Mineral Oil Range Organics (typically C₁₈ to C₄₄)

However, it should be borne in mind that the terms “GRO” and “DRO” analysis are purely descriptive terms, the exact definition of which varies.

Total Petroleum Hydrocarbons (TPH) is also a poorly defined term; some testing laboratories regard TPH as hydrocarbons ranging from C₅ – C₄₀, whereas others define TPH as C₁₀ – C₃₀.

The composition of a TPH plume migrating through the ground can vary significantly; this is primarily dictated by the nature of the source (eg petrol, diesel, engine oil etc). Furthermore, different hydrocarbons are affected differently by weathering processes and this can result in further variation in the chemical composition of the TPH.

Gasoline contains light aliphatic hydrocarbons rapidly (especially within the C4 to C5 range) that will evaporate. The aromatic hydrocarbons in gasoline are primarily benzene, toluene, ethylbenzene and xylenes, referred to as BTEX. Small amounts of polyaromatic hydrocarbons (PAHs) such as benzo(a)pyrene may also be present.

Diesel and light fuel oils have higher molecular weights than gasoline. Consequently, they are less volatile and less water soluble. About 25 to 35% is composed of aromatic hydrocarbons. BTEX concentrations are generally low.

Heavy Fuel Oils are typically dark in colour and considerably more viscous than water. They contain 15 to 40% aromatic hydrocarbons. Polar NSO compounds are also present.

Lubricating Oils are relatively viscous and insoluble in groundwater. They may contain 10 to 30% aromatics, including the heavier PAHs. NSO compounds are also common.

Polycyclic Aromatic Hydrocarbons (PAHs) have more than two fused benzene rings as a structural characteristic. PAH compounds are present in both petrol and diesel, although insignificantly lower concentrations than in coal tars. Certain PAH compounds are carcinogenic (Benzo(a)pyrene) and/or mobile in the environment (naphthalene).

Polychlorinated Biphenyls (PCBs)

Volatile Organic Compounds (VOCs) The volatile organic compound (VOC) headspace concentration of all soil samples was made with a photoionization detector (PID) fitted with a 10.2 eV lamp. This gives a semi-quantitative VOC concentration record as parts per million (ppm) (Vol/Vol). Prior to the VOC headspace reading, the background levels of VOCs were recorded. The PID was recalibrated with standard isobutylene in zero air after every 10 headspace readings.

Semi-Volatile Organic Compounds (sVOCs)

Phenols

Solvents, pesticides, herbicides

Dioxins & furans

Methods of Analysis (Organic Compounds)

Toluene Extractable Matter (TEM) results provide a screening test for organic contamination. The sample is air dried at 30°C and ground prior to addition of the solvent (toluene). The solvent extraction is aggressive and most organic compounds (fuels, oils, tars, humic material, animal fats and vegetable oil) are dissolved, as are some other inorganic contaminants such as sulphur. However, the volatiles (lighter fuel fraction etc) are lost during evaporation of the solvent.

Total Petroleum Hydrocarbon (TPH) by IR (also known as mineral oil by some testing laboratories) is undertaken on "as received" samples. Tetrachloroethylene is the solvent, and fluorosil is used to removed humic material, animal fats and vegetable oil. Consequently this analysis detects a wide range of "mineral" organics from volatiles (BTEX and gasoline) through diesel and oils to tars (including the very heavy, stable tars such as asphalt and bitumen).

TPH by GC-FID is more refined analytical technique which only detects hydrocarbons (aliphatic and aromatic) in the range C₁₀ to C₄₀ (volatiles, heavy tars, humic material and sulphur are not detected). The laboratory can provide a breakdown of the TPH results into diesel range organics (**DRO**) and heavier lubricating oil range organics (**LRO**).

GRO (PRO) by GC-FID analysis detects the more volatile C₆ – C₉ hydrocarbons (aliphatic and aromatic) including those organic compounds present in petrol.

Speciated VOC (by GC-MS) analysis quantifies the concentrations of 30 USA-EPA priority compounds. These include chlorinated alkanes and alkenes (in the molecular weight range chloroethane to tetrachloroethane); trimethylbenzenes; and the 4 BTEX compounds (benzene, ethyl-benzene, toluene & xylene).

Speciated sVOC by (GC-MS) analysis quantifies the concentration of a variety of organic compounds, including the 16 USA-EPA priority PAHs, phenols, 7 USA EPA priority PCB congeners, herbicides & pesticides.

Note: PAHs are hydrocarbons and consequently (where present) will be picked up when scheduling TPH by GC-FID. Naphthalene (the lightest PAH) is also one of the 58 US EPA VOCs.

Speciated TPH by GC-FID provides a “banded” TPH, initially split into aromatic and aliphatic fractions and then further divided into fraction specific carbon bandings based upon behavioural characteristics.

Note: Risk assessment models require physiochemical properties (solubilities, toxicities etc) of compounds in order to model their behaviour in the environment. These physiochemical properties cannot be derived from a single “TPH”, “GRO” or “DRO” value. However, the carbon banded fractions can be used in risk assessment models.

If the relative proportion of each carbon banding within the “TPH” impact at a site is known, the risks posed by each individual fraction can be assessed and a simple back calculation applied to calculate an overall “TPH” screening value based upon the percentage weight fraction of each banding present in the “TPH”. Specialised analytical techniques and data interpretation skills are required to identify each carbon banding.

Current Guidance

The UK approach to the consideration of contaminated land is based upon the principles of risk assessment. This in turn is founded upon the use of so called source⇒ pathway⇒ target principles in order to establish the presence or potential presence of a pollutant linkage.

Sutcliffe Investigations adopt a tiered approach to risk assessment, consistent with UK guidance and best practice. The initial step of such a risk assessment (or Tier 1) is the comparison of site data with appropriate guidance levels, intervention levels or remedial targets.

In March 2002 DEFRA and the Environment Agency published a series of technical research papers (R & D Publications CLR 7, 8, 9 and 10) introducing the UK approach to the assessment of risk to **human health** from land contamination. This methodology and approach represents current scientific knowledge and thinking. The overall methodology also included the Contaminated Land Exposure Model (CLEA) and some Soil Guidance Values (SGV's).

At the time of writing this report, these guidelines only address seven contaminants and the development of both the CLEA model and additional SGV's is ongoing. Where published, SGV's have been utilised as intervention values for the purpose of an initial Tier 1 assessment.

Where SGV's were not published at the time of writing this report, appropriate Tier 1 human health related assessment have been based upon information that was best available at the time of the study.

With respect to the assessment of potential **phytotoxic effects** of contaminants, Sutcliffe Investigations refer to “The Soil Code” (Maff, 1998) for copper and zinc. The CLEA SGV is adopted for nickel.

The potential risk to **building materials** is considered through reference to relevant BRE Digests, with particular emphasis on BRE Special Digest 1, ‘Sulphate and Acid Resistance of Concrete in the Ground’, 2001.

With respect to the interpretation of the calorific values, at present there are no accepted methods to assess whether a sample is combustible and under what circumstances it might smoulder. Some guidance is given in ICRCL Note 61/84 “Notes on the fire hazards of contaminated land” which states that:

“In general it seems likely that materials whose CV's exceed 10MJ/kg are almost certainly combustible, while those with values below 2MJ/kg are unlikely to burn”.

Tier 1 **groundwater** risk assessments are undertaken by comparing leachate concentrations with the appropriate water quality standard. Depending upon the specific characteristics and environmental setting of the site the appropriate standard is likely to be one of the following:

- Water Supply (Water Quality) Regulations 1989
- Environmental Quality Standards (for Freshwater)
- The Surface Waters (Abstraction for Drinking Water) Regulations

The tier 1 risk assessment of **landfill gas** is undertaken through reference to the following documents:

- Approved Document C, Building Regulations 1991
- CIRIA Report 149, “Protecting Development from Methane”, 1995

Should any Tier 1 criteria be exceeded, then three potential courses of action are available. (The first is only applicable in terms of human health, but the second and third could also be applied to groundwater or landfill gas).

- Undertake further statistical following the approach set out in Appendix A of CLR 7 in order to determine whether contaminant concentrations of inorganic contaminants within soil/fill actually present a risk (only applicable to assessing the risk to human health).
- Based on a qualitative risk assessment, advocate an appropriate level of remediation to “break” the pollutant linkage – for example the removal of the contaminated materials or the provision of a clean cover.
- Carry out a more detailed quantitative risk assessment in order to determine whether contamination risks actually exist.

However, the issue of **averaging area** requires further consideration. CLR 7 is ambiguous and could be interpreted as advocating the concept of a single garden as an appropriate averaging area.

This concept has massive implications with respect to ground investigation design and cost. To comply, investigations for residential development on brownfield sites would need to recover and analyse about 6 samples from each garden; this implies exploratory locations on a very tight grid, perhaps 5m to 10m spacings, with a huge increase in the number of samples analysed (cf test schedules currently issued by most practitioners).

In any case, Sutcliffe Investigations consider the concept of a single garden as an averaging area to be inappropriate. Statistical analysis of sample results by fill type, and/or by former use in a given sub-area of the site (i.e. with reference to the Conceptual Site Model), is considered a more appropriate methodology.

Analysis by soil/fill type is appropriate for essentially immobile contaminants associated with a particular fill type, for example arsenic in colliery spoil, metals in ash & clinker, sulphate in plaster-rich demolition rubble etc.

Analysis by former use is appropriate where more mobile contaminants have entered the ground, for example diesel associated with leakage from a former fuel tank, downward migration of leachable metals through granular materials, various soluble contaminants present in a wastewater leaking into the ground via a fractured sewer etc. In these circumstances, it may be appropriate to undertake statistical analysis of sample results from a variety of different soil/fill types. However, consideration would have to be given to factors such as porosity which might influence impregnation of a mobile contaminant into the soil mass; ie contamination would be normally be more pervasive and significant in granular soils than cohesive soils.

There is a suggestion in para 4.7 of CLR 7 that the approach outlined above was intended and the Environment Agency have confirmed that an averaging area can be larger than a single garden, if:

- Contaminant concentrations are within the same statistical population as determined using the maximum value test. The sample data being representative of the averaging area and the mean concentration of the averaging area.
- “Hot spots” are treated as separate zones or averaging areas (as defined by the maximum value test).
- The sampling strategy takes into account uncertainty (spatial heterogeneity) in contaminant concentration

Waste Classification & WAC

In the context of waste soils generated by remediation and/or groundworks activities on brownfield sites, the following definitions (from the Landfill Regulations 2002) apply:

- Inert (e.g. uncontaminated ‘natural soil, bricks, concrete, tiles & ceramics)
- Non-Hazardous (e.g. soil excavated from a contaminated site which contains dangerous substances, but at concentrations below prescribed thresholds).
- Hazardous (e.g. soil excavated from a contaminated site which contains dangerous substances at concentrations above prescribed thresholds).

Dangerous substances include compounds containing a variety of determinants commonly found in contaminated soils on brownfield sites, for example arsenic, lead, chromium, benzene etc.

From 16th July 2005, landfill operators will require Waste Acceptance Criteria (WAC) laboratory data, if soil is classified as **hazardous** and such waste must have been subjected to pre-treatment. However, subject to WAC testing it may be possible to classify it as stable, non-reactive hazardous waste, which can be placed within a dedicated cell within the non-hazardous landfill.

Sutcliffe Investigations typically only include WAC analysis in site investigation proposals and reports, if significant off-site disposal (of soil classified as hazardous waste) is anticipated for example where redevelopment proposals include basement construction etc.

If off-site disposal of soils classified as hazardous waste were undertaken during redevelopment, then WAC analysis should be scheduled at an early stage in the remediation programme.

However, organic compounds (BTEX, TPH, PAH etc) are the most common contaminants that result in soils being classed as hazardous. These contaminants can often be dealt with by alternative technologies (eg by bioremediation or stabilisation) and consequently retention on site is often possible.

It should be noted that **non-hazardous** soil waste can go to a non-hazardous landfill facility; no further testing (eg WAC) is required.

Generic Notes – Sutcliffe Investigations

5. Hazardous Gas

General

Hazardous gas is considered to be any mixture of potentially explosive, toxic or asphyxiating gases, most notably methane, carbon dioxide and oxygen (deficiency).

In addition, radon, a naturally occurring radioactive gas is also considered. Further information about radon is included in Notes 1 – Environmental Setting.

Assessment of potential risks associated with hazardous gas are based on a review of data obtained from the Landmark information Group, the Environment Agency and the Local Authority and the British Geological Survey.

Reference is also made to historical OS plans, which are inspected for evidence of backfilled quarries, railway cuttings, colliery spoil tips etc.

Where landfilling has occurred within 250m of the site boundary, the Local Planning Authority may request a landfill gas investigation in accordance with the Town and Country Planning General Development Order, 1988.

Sources

Potential sources of hazardous gas are:

- Landfill sites
- Made ground, especially where significant depths are present
- Shallow mineworks associated with coal extraction
- Geological strata, including peat, organic silts, coal-bearing strata and limestone (reaction with acidic waters), granite (radon)
- Groundwater can sometimes act as a “carrier” for hazardous gas
- Leakages from pipelines or storage tanks
- Sewers, septic tanks and cess pits

Generation

Wherever biodegradable material is deposited, landfill gas (principally a mixture of methane and carbon dioxide) is likely to be generated by microbial activity. Carbon dioxide is an asphyxiant and toxic; methane is flammable and a mixture containing between 5% and 15% methane by volume in air is explosive. Landfill gas in the ground is unlikely in itself to pose a significant risk, though it may damage vegetation. However, infiltration of landfill gas into confined spaces (e.g. cellars, services, etc) may give rise to considerable risk.

There is no typical figure for the length of time that landfill gas will be evolved, but at many sites significant gas generation continues for at least 15 years after the last deposit of waste.

Migration

Gas migration from a landfill site may occur in several ways. It may migrate through adjacent strata; the distance of migration being dependent on the pressure gradients, volume of gas and permeability of the strata. Where there are faults, cavities and fissures within the strata, gas may move considerable distances. Other migration pathways for gas include man-made features such as mine shafts, roadways and underground services.

Gas migration is influenced by a number of climatic factors, such as atmospheric pressure variations, water table level variations and the influence of a covering of snow or ice over the surface of the site and surrounding area.

Current Guidance

Guidance on landfill gas monitoring control at landfill sites is given two technical memoranda, Waste Management Paper Nos. 26 and 27 published by the Department of the Environment.

Waste Management Paper 27, 1991 recommends that no dwellings should be constructed within 50m of any landfill that has the capacity to produce large volumes of landfill gas. No garden should extend to within 10m of the landfilled waste. However, development closer to landfill has been permitted where a comprehensive gas risk assessment has been completed (typically based on a minimum of 6 to 12 month monitoring programme) and appropriate gas exclusion measures designed.

The current advice with regard to monitoring for landfill gas is that if the trigger value of 1% volume (20% LEL) for methane and 1.5% volume for carbon dioxide is exceeded then remedial/control measures will be required.

It should be noted that the guideline limit for carbon dioxide of 1.5% volume recommended in Waste Management paper No. 27 is the short term (10 minute) occupational exposure limit for carbon dioxide quoted by the Health and Safety Executive in their publication EH40. The long term (8 hour) occupational exposure limit for carbon dioxide is 0.5% volume.

Approved Document C to the Department of the Environment's Building Regulations 1992 requires what where there may be gaseous contamination of the ground but the level of methane is unlikely to exceed 1% by volume, the ground floor of any house or similar small building shall be constructed of suspended concrete and ventilated as described in BRE Digest Report "Construction of New Buildings on Gas Contaminated Land". The document also requires specific design measures to be taken if a level of 5% volume carbon dioxide exists or is exceeded within the ground.

Although the above guidance is still relevant it has been more recently updated within the following documents published by the Construction Industry Research and Information Association (CIRIA).

CIRIA Report 149	'Protecting Development from Methane' (1995)
CIRIA Report 150	'Methane Investigation Strategies' (1995)
CIRIA Report 151	'Interpreting Measurement of Gas in the Ground' (1995)
CIRIA Report 152	'Risk Assessment for Methane and other gases from the ground' (1995)

The above documents are intended to provide advice on how to investigate and deal with the gas contaminated ground with respect to development.

CIRIA Report 149 characterised sites based on the recorded methane/carbon dioxide concentration and emission rates recorded during a suitable gas investigation. Characteristic situation 1 is deemed to be the lowest risk scenario with the risk rating increasing up to 6. The characteristic situations are classified as follows:

Gassing regime in ground			
Methane (% by volume in air)	Carbon dioxide (% by volume in air)	Emission rate ¹ (m/s)	Characteristic situation ²
< 0.1	< 1.5	not detected	1
> 0.1 – 1	> 1.5 – 5	not detected	2
> 1 - 5	< 5	not detected	3
> 5 – 20	< 20	< 0.01	4
> 20	> 20	> 0.01 – 0.05	5
> 20	> 20	> 0.05	6

Notes:

1. Emission rate values measures as equivalent total gas flow velocity from a 50mm diameter borehole: for methods of measurement see Crowhurst and Manchester (1992).
2. Highest measures parameter used as determining factor.

CIRIA Report 151 (1995) identified that there is currently inadequate guidance on trigger concentrations for ground gases. The current emphasis on using gas concentrations for trigger values particularly in Waste Management Paper 27 and the Building Regulations, should be revised to consider gas pressures, borehole flow rates and estimated surface emission rates.

It was concluded that the most important aspect of relating the gas regime below or adjacent to a site, to the risk it poses to any development, is the surface emission rate i.e. how quickly the gas is coming out of the ground. The lower the surface emission rate the lower the risk. This is considered further in the DETR Partners in Technology Report 'Passive venting of soil gases beneath buildings' (September 1997).

CIRIA Report 149 (1995), reference Table 28, reviewed over 100 case studies of development affected by gas to establish current UK practices for gas control. The report classified the gassing regimes found within 6 Characteristic Situations. The highest measures parameter, either methane or carbon dioxide concentration and/or emission rate were used to define the Characteristic Situation for each case history site. The report then related the typical range of mitigation measures that has been adopted at each study site to the characteristic gas situation.

To achieve a more consistent design of protection measures Table 28 of CIRIA 149 was rewritten (Wilson and Card, 1999) in terms of borehole gas volume flow rate and gas concentrations, as reproduced in the table below. This was done to reflect the importance of recognising the gas surface emission rate.

Characteristic situations based on Gas Flux

Characteristic Situation	Limiting CH ₄ Concentration (% v/v)	Limiting CO ₂ Concentrations (% v/v)	Limiting Borehole Flow Velocity (m/s)	Limiting Borehole Gas Volume Flow (litre/hour)	
				CH ₄	CO ₂
1	< 0.1	< 0.1	< 0.005	< 0.035	< 0.035
2	< 1.0	< 1.5	< 0.005	< 0.35	< 0.5
3	< 5.0	< 5.0	< 0.005	< 1.75	< 1.75
4	< 20	< 20	< 0.01	< 14	< 14
5	> 20	> 20	< 0.05	< 70	< 70
6	> 20	> 20	< 0.05	> 70	> 70

Gas Monitoring Procedure

Sutcliffe Investigations adopt a standard gas monitoring procedure, in accordance with CIRIA guidance. This procedure involves the measurement, in the following order of:

- Atmospheric temperature, pressure and ambient oxygen concentration on site immediately prior to and on completion of monitoring.
- Gas emission rate.
- Methane, oxygen and carbon dioxide concentrations using an infra-red gas analyser.
- Standing water level using a dipmeter.

In addition, ground conditions at each sampling location are recorded together with prevailing weather conditions and any other observations such as any vandalism.

Where samples of gas are required for laboratory analysis, Gresham Tubes are used. Gas concentrations in the well are typically recorded immediately before and after retrieval of a sample.

Appendix B – CIRIA Guidance Document C552 2001

RISK ASSESSMENT METHODOLOGY

GENERAL

The purpose of this appendix is to describe in detail the concepts underlying the risk based approach to assessing potentially contaminated land, introduce the roles of key legislation and describe the qualitative methodology adopted for evaluating and characterising risk.

Current best practice in the UK promotes a risk-based approach to dealing with both soil and groundwater contamination. The principal aim of the approach is to ensure protection of human health and the environment in a thorough, transparent and cost-effective manner.

Fundamental to the risk-based approach is the concept that for 'Contaminated Land' to be designated, as a consequence of historic activities, a pathway for contamination must be shown to exist between a source of contamination and a receptor. The combined presence of a source, pathway and a receptor is described as a 'pollutant linkage'.

The concepts associated with a contaminant source, pathway and receptor are defined in DETR Circular 02/2000 'Contaminated Land Environmental Protection Act 1990: Part II A'. A **source** of contamination may be considered as a 'substance, which is in, on or under land that has the potential to cause harm or to cause pollution of controlled waters'. A **receptor** can be considered as either 'a living organism, a group of living organisms, an ecological system or a piece of property which is being, or could be harmed, by a contaminant or controlled waters which are being, or could be, polluted by a contaminant'. A **pathway** may be considered as one or more routes by, or through, which a receptor is being, or could be, exposed to or affected, by a contaminant. Typical pathways may include migration in groundwater, surface water run-off or infiltration, inhalation, dermal contact and ingestion.

The risks posed by an identified pollutant linkage can often be mitigated by removing the source of contamination, treating the source of contamination, blocking the relevant pathway(s) or by protecting the receptor.

PRINCIPLES OF RISK EVALUATION

The risk evaluation methodology presented below is qualitative in nature, and is therefore a subjective method. It is based upon guidance presented in CIRIA publication referenced C552, 'Contaminated land risk assessment - A guide to good practice', 2001 and involves the classification of the following.

The magnitude of the potential **consequence** (severity) of risks occurring (Table 1).

The magnitude of the **probability** (likelihood) of the risk occurring (Table 2).

These are then considered in conjunction to give a risk matrix (Table 3)

Table 1 - Classification of consequence

Classification	Definition	Examples
Severe	Short-term (acute) risk to human health likely to result in “significant harm” as defined by the Environmental Protection Act 1990, Part IIA. Short-term risk of pollution (note: Water Resources Act contains no scope for considering significance of pollution) of sensitive water resource. Catastrophic damage to buildings/property. A short-term risk to a particular ecosystem, or organism forming part of such ecosystem (note the definitions of ecological systems within the Draft Circular on Contaminated Land, DETR, 2000).	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	Chronic damage to Human Health (“significant harm” as defined in DETR, 2000). Pollution of sensitive water resources (note: Water Resources Act contains no scope for considering significance of pollution). A significant change in a particular ecosystem, or organism forming part of such ecosystem. (Note: the definitions of ecological systems within Draft Circular on Contaminated Land, DETR, 2000).	Concentrations of a contaminant from site exceed the generic or site-specific assessment criteria. Leaching of contaminants from a site to a major or minor aquifer. Death of a species within a designated nature reserve.
Mild	Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services (“significant harm” as defined in the <i>Draft Circular on Contaminated Land</i> , DETR, 2000). 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	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 means such as personal protective clothing etc). Easily repairable effects of damage to buildings, structures and services.	The presence of contaminants at such concentrations that protective equipment is required during site works. The loss of plants in a landscaping scheme. Discolouration of concrete.

Table 2 - Classification of probability

Classification	Definition
High likelihood	There is a pollution linkage and an event that either appears very likely in the short term and almost inevitable over the long term or there is evidence at the receptor of harm or pollution.
Likely	There is a pollution 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	There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such event would take place, and is less likely in the shorter term.
Unlikely	There is a pollution linkage but circumstances are such that it is improbable that an event would occur even in the very long term.

Table 3 - Comparison of consequence against probability

		Consequence			
		Severe	Medium	Mild	Minor
Probability	High Likelihood	Very High Risk	High Risk	Moderate Risk	Moderate/Low Risk
	Likely	High Risk	Moderate Risk	Moderate/Low Risk	Low Risk
	Low Likelihood	Moderate Risk	Moderate/Low Risk	Low Risk	Very Low Risk
	Unlikely	Moderate/Low Risk	Low Risk	Very Low Risk	Very Low Risk

Table 4 - Description of the classified risks and likely action required

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

Table 5 - Response action likely to be required in relation to estimated risk

KEY

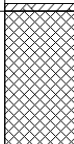
	Mitigation and remedial measures required
	Mitigation and remedial measures likely
	Remedial measures unlikely
	Remedial measures not required

Appendix C – Site Investigation Logs



Sutcliffe

Site Former Wheatfields Day Centre					Number WS101				
Excavation Method Drive-in Windowless Sampler		Dimensions		Ground Level (mOD)		Client Onward		Job Number 31990LG	
		Location 381170 E 405735 N		Dates 17/09/2021		Engineer Michael Wiggins		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.20-0.60	ES1				0.05 (0.15) 0.20	Grass over dark brown fine to medium grained SAND with root material (TOPSOIL)			
					(0.80)	MADE GROUND (dark brown fine to medium grained SAND and graded granular limestone hardcore)			
1.20-1.65	SPT N=8		1,1/1,2,2,3		1.00	MADE GROUND (grey with yellow brown bands slightly clayey fine to medium grained SAND)			
1.60	HVP 130kPa				(1.00)	Stiff grey slightly silty slightly sandy CLAY. Sand is fine.		▼1	
2.00-2.45	SPT N=11		1,1/2,2,3,4		2.00	Stiff brown slightly sandy slightly gravelly CLAY. Sand is fine Gravel is fine to medium subrounded and of mixed lithology			
					(1.40)			▼1	
3.00-3.45	SPT N=16		Water strike(1) at 3.00m, rose to 1.50m in 20 mins. 2,2/2,4,4,6		3.40 (0.30) 3.70	Stiff brown slightly sandy slightly gravelly CLAY with frequent sand bands. Sand is fine Gravel is fine to medium subrounded and of mixed lithology			
3.70	HVP 130kPa					Stiff brown slightly sandy slightly gravelly CLAY. Sand is fine Gravel is fine to medium subrounded and of mixed lithology			
4.00-4.45	SPT N=14		1,3/3,3,4,4		(1.75)				
4.70	HVP 130kPa								
5.00-5.45	SPT N=19		2,2/3,4,4,8		5.45	Complete at 5.45m			
Remarks							Scale (approx) 1:50	Logged By AT	
							Figure No. 31990LG.WS101		

 Sutcliffe						Site Former Wheatfields Day Centre		Number WS102	
Excavation Method Drive-in Windowless Sampler		Dimensions		Ground Level (mOD)		Client Onward		Job Number 31990LG	
		Location 381196 E 405739 N		Dates 17/09/2021		Engineer Michael Wiggins		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
0.20-0.60	ES1				0.05	Grass over dark brown fine to medium grained SAND with root material (TOPSOIL)			
					(0.95)	MADE GROUND (brown with orange brown slightly sandy CLAY. Sand is fine)			
1.20-1.65	SPT N=9		1,1/2,2,3,2		1.00	Loose grey brown very clayey fine to medium grained SAND			
					(0.60)				
2.00-2.45	SPT N=12		2,3/3,2,4,3		1.60	Firm grey brown slightly silty sandy slightly gravelly CLAY. Sand is fine Gravel is fine to medium subrounded and of mixed lithology			
					(0.40)				
2.70	HVP 118kPa				2.00	Stiff becoming firm brown slightly sandy slightly gravelly CLAY. Sand is fine Gravel is fine to medium subrounded and of mixed lithology			
3.00-3.45	SPT N=9		2,2/2,3,2,2						
3.40	HVP 68kPa				(3.00)				
3.80	HVP 112kPa								
4.00-4.45	SPT N=9		1,2/2,3,2,2						
5.00-5.45	SPT N=19		2,2/3,4,5,7		5.00	Very stiff brown slightly sandy slightly gravelly CLAY. Sand is fine. Gravel is fine to medium subrounded and of mixed lithology			
					(0.45)				
					5.45	Complete at 5.45m			
Remarks Borehole dry							Scale (approx) 1:50	Logged By AT	
							Figure No. 31990LG.WS102		



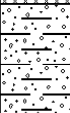
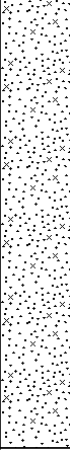
Sutcliffe

Site Former Wheatfields Day Centre					Number WS103				
Excavation Method Drive-in Windowless Sampler		Dimensions		Ground Level (mOD)		Client Onward		Job Number 31990LG	
		Location 381208 E 405691 N		Dates 17/09/2021		Engineer Michael Wiggins		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.20-0.60	ES1				0.05 (0.75) 0.80 (0.20) 1.00	Grass over dark brown fine to medium grained SAND with root material (TOPSOIL) MADE GROUND (dark brown fine to medium grained SAND with clay bands and fine to medium limestone gravel brick and glass fragments) MADE GROUND (grey slightly clayey fine to medium grained SAND)			
1.20-1.65 1.50	SPT N=8 HVP 45kPa		1,1/2,2,2,2		(0.55) 1.55	Firm grey brown slightly silty slightly sandy CLAY. Sand is fine Firm becoming stiff grey brown slightly sandy very gravelly CLAY. Sand is fine Gravel is fine to medium subangular and of mixed lithology			
1.90 2.00-2.45	HVP 98kPa SPT N=10		1,1/2,2,3,3		2.00	Stiff brown slightly sandy slightly gravelly CLAY. Sand is fine Gravel is fine to medium subrounded and of mixed lithology			
3.00-3.45	SPT N=14		3,3/3,4,4,3						
3.70 4.00-4.45	HVP 130kPa SPT N=19		4,4/4,5,5,5		(3.45)				
4.70 5.00-5.45	HVP 130kPa SPT N=22		4,4/4,5,7,6		5.45	Complete at 5.45m			
Remarks							Scale (approx) 1:50	Logged By AT	
							Figure No. 31990LG.WS103		



Sutcliffe

Site Former Wheatfields Day Centre					Number WS104				
Excavation Method Drive-in Windowless Sampler		Dimensions		Ground Level (mOD)		Client Onward		Job Number 31990LG	
		Location 381202 E 405691 N		Dates 17/09/2021		Engineer Michael Wiggins		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.20-0.60	ES1				0.05 (1.15)	Grass over dark brown fine to medium grained SAND with root material (TOPSOIL) MADE GROUND (dark brown slightly sandy CLAY with fine to coarse brick and concrete fragments. Sand is fine)			
1.20-1.65	SPT N=12		1,2/2,3,3,4		1.20	Firm to stiff grey brown silty slightly sandy CLAY. Sand is fine.			
1.60	HVP 58kPa								
2.00-2.45	SPT N=11		1,1/2,2,3,4		(2.40)				
3.00-3.45	SPT N=13		Water strike(1) at 3.00m, rose to 2.00m in 20 mins. 1,2/2,2,4,5						
3.60	HVP 80kPa				3.60	Stiff becoming very stiff brown slightly sandy slightly gravelly CLAY. Sand is fine Gravel is fine to medium subrounded and of mixed lithology.			
4.00-4.45	SPT N=16		2,2/2,4,5,5		(1.85)				
4.60	HVP 110kPa								
5.00-5.45	SPT N=17		2,3/3,4,4,6		5.45	Complete at 5.45m			
Remarks							Scale (approx) 1:50	Logged By AT	
							Figure No. 31990LG.WS104		

 Sutcliffe						Site Former Wheatfields Day Centre		Number WS105	
Excavation Method Drive-in Windowless Sampler		Dimensions		Ground Level (mOD)		Client Onward		Job Number 31990LG	
		Location 381195 E 405649 N		Dates 20/09/2021		Engineer Michael Wiggins		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.20-0.60	ES1				0.05 (1.15)	Grass over dark brown fine to medium grained SAND with root material (TOPSOIL) MADE GROUND (brown and light brown clayey fine to medium grained SAND with clay pockets)			
1.20-1.65	SPT N=12		1,2/2,3,3,4		1.20 (0.80)	Soft brown slightly sandy slightly gravelly CLAY. Sand is fine Gravel is fine to medium subrounded and of mixed lithology			
2.00-2.45	SPT N=11		1,1/2,2,3,4		2.00 (0.50)	Firm to stiff brown slightly silty sandy CLAY. Sand is fine			
					2.50	Medium dense brown clayey fine to medium grained SAND			
3.00-3.45	SPT N=13		Water strike(1) at 3.00m, no rise after 20 mins. 1,2/2,2,4,5						
4.00-4.45	SPT N=16		2,2/2,4,5,5		(2.95)				
5.00-5.45	SPT N=17		2,3/3,4,4,6						
					5.45	Complete at 5.45m			
Remarks Minimal recovery from 3.00m to 5.00m							Scale (approx) 1:50	Logged By AT	Figure No. 31990LG.WS105

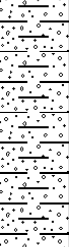
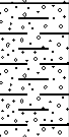
 Sutcliffe					Site Former Wheatfields Day Centre		Number WS106		
Excavation Method Drive-in Windowless Sampler		Dimensions		Ground Level (mOD)		Client Onward		Job Number 31990LG	
		Location 381184 E 405667 N		Dates 20/09/2021		Engineer Michael Wiggins		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
0.20-0.60	ES1				0.10 (1.10)	Grass over dark brown fine to medium grained SAND with root material (TOPSOIL) MADE GROUND (dark brown fine to medium grained SAND with fine to medium brick and limestone gravel fragments)			
1.20-1.65	SPT N=9		1,2/2,2,3,2		1.20 (0.50)	Stiff brown slightly sandy slightly gravelly CLAY. Sand is fine Gravel is fine to medium subrounded and of mixed lithology			
1.60 1.80	HVP 110kPa HVP 92kPa				1.70 (0.30)	Stiff grey slightly sandy CLAY. Sand is fine			
2.00-2.45	SPT N=6		1,1/1,1,2,2		2.00	Firm becoming stiff grey brown very sandy slightly gravelly CLAY. Sand is fine Gravel is fine to medium subrounded to subangular and of mixed lithology			
2.60	HVP 54kPa		Water strike(1) at 2.50m, no rise after 20 mins.					▼1	
3.00-3.45	SPT N=11		1,2/2,3,3,3						
					(3.45)				
4.00-4.45	SPT N=10		1,2/3,3,2,2						
									
5.00-5.45	SPT N=11		2,3/3,3,3,2						
					5.45	Complete at 5.45m			
Remarks Minimal recovery from 4.00m to 5.00m							Scale (approx)	Logged By	
							1:50	AT	
							Figure No. 31990LG.WS106		

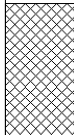
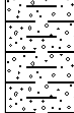
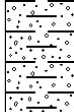
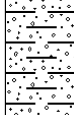
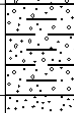
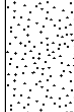
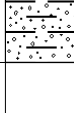


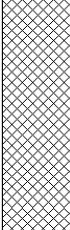
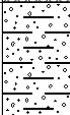
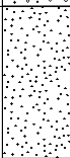
Sutcliffe

Site Former Wheatfields Day Centre					Number WS107				
Excavation Method Drive-in Windowless Sampler		Dimensions		Ground Level (mOD)		Client Onward		Job Number 31990LG	
		Location 381177 E 405695 N		Dates 20/09/2021		Engineer Michael Wiggins		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.20-0.60	ES1				0.10 (1.10)	Grass over dark brown fine to medium grained SAND with root material (TOPSOIL) MADE GROUND (dark brown fine to medium grained SAND with fine to medium brick and limestone gravel fragments)			
1.20-1.65	SPT N=11		1,2/2,3,3,3		1.20 (0.90)	Stiff grey brown slightly sandy CLAY. Sand is fine			
2.00-2.45	SPT N=14		2,2/3,3,4,4		2.10 (1.60)	Stiff becoming firm grey brown very sandy CLAY. Sand is fine			
3.00-3.45	SPT N=8		1,1/1,2,2,3		3.70 (0.30)	Firm to stiff brown slightly silty very sandy CLAY with fine to medium grained sand bands. Sand is fine			
3.70	HVP 78kPa		Water strike(1) at 3.50m, no rise after 20 mins.		4.00 (1.45)	Medium dense brown gravelly fine to coarse grained SAND. Gravel is fine to medium subangular and of mixed lithology			
4.00-4.45	SPT N=17		2,3/3,4,5,5		5.45	Complete at 5.45m			
5.00-5.45	SPT N=16		2,2/3,3,4,6						
Remarks Minimal recovery from 4.00m to 5.00m							Scale (approx) 1:50	Logged By AT	
							Figure No. 31990LG.WS107		

 Sutcliffe						Site Former Wheatfields Day Centre		Number WS108	
Excavation Method Drive-in Windowless Sampler		Dimensions		Ground Level (mOD)		Client Onward		Job Number 31990LG	
		Location 381210 E 405705 N		Dates 20/09/2021		Engineer Michael Wiggins		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
0.20-0.60	ES1				0.10	Grass over dark brown fine to medium grained SAND with root material (TOPSOIL)			
					(0.90)	MADE GROUND (grey fine to medium grained SAND and graded granular limestone hardcore)			
1.20-1.65	SPT N=5		1,1/1,1,1,2		1.00	MADE GROUND (dark brown sandy CLAY. Sand is fine)			
1.60	HVP 48kPa				(1.40)				
2.00-2.45	SPT N=4		1,1/1,1,1,1						
2.60	HVP 68kPa				2.40	Soft to firm grey slightly silty slightly sandy CLAY. Sand is fine.			
3.00-3.45	SPT N=18		2,3/4,4,4,6		3.00 (0.30) 3.30	Very stiff brown sandy slightly gravelly CLAY . Sand is fine Gravel is fine subangular and of and of mixed lithology			
3.60	HVP 90kPa					Very stiff becoming stiff brown slightly sandy slightly gravelly CLAY. Sand is fine Gravel is fine to medium subrounded and of mixed lithology			
4.00-4.45	SPT N=17		2,5/3,4,5,5		(2.15)				
5.00-5.45	SPT N=14		1,3/3,3,4,4						
					5.45	Complete at 5.45m			
Remarks Borehole dry								Scale (approx) 1:50	Logged By AT
								Figure No. 31990LG.WS108	

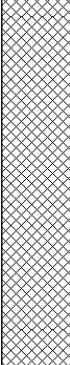
 Sutcliffe						Site Former Wheatfields Day Centre		Number WS201	
Excavation Method Drive-in Windowless Sampler		Dimensions		Ground Level (mOD)		Client Onward		Job Number 31990LG	
		Location		Dates 26/05/2022		Engineer Michael Wiggins		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
1.20-1.65	SPT N=6		1,0/0,2,2,2		(0.90)	Overgrown vegetation over dark brown grey, slightly sandy gravelly CLAY. Sand is fine. Gravel is fine to medium, subangular and of mixed lithologies. (TOPSOIL)			
					0.90	Soft light brown, slightly silty very sandy CLAY. Sand is fine.			
2.00-2.45	SPT N=12	3,3/3,3,3,3		1.60	Light brown, very clayey slightly silty, fine to medium grained SAND.				
				(0.30)					
				1.90	Stiff yellowish brown, very sandy gravelly CLAY. Sand is fine to medium. Gravel is fine, angular to subangular and of mixed lithologies.				
				(0.40)					
3.00-3.45	SPT N=15	3,5/3,4,4,4			(1.70)	Stiff brown slightly sandy gravelly CLAY with grey veining. Sand is fine. Gravel is fine to medium, angular to subangular and of mixed lithologies.			
4.00-4.45	SPT N=31	Water strike(1) at 4.00m, no rise after 20 mins. 4,4/5,8,8,10			4.00	Very stiff grey brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is fine, angular to subangular and of mixed lithologies.			
					(0.90)				
5.00-5.45	SPT N=6	1,1/1,1,2,2			4.90	Medium dense grey brown slightly clayey fine to medium grained SAND with occasional coal fragments.			
					5.00				
					(0.45)	Loose grey brown fine to medium grained SAND.			
					5.45	Complete at 5.45m			
Remarks								Scale (approx) 1:50	
								Figure No. 31990LG.WS201	

 Sutcliffe						Site Former Wheatfields Day Centre		Number WS202	
Excavation Method Drive-in Windowless Sampler		Dimensions		Ground Level (mOD)		Client Onward		Job Number 31990LG	
		Location		Dates 26/05/2022		Engineer Michael Wiggins		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
0.20-0.60	ES1				(0.90)	Grass over MADE GROUND: light brown slightly sandy slightly gravelly CLAY. Sand is fine. Gravel is fine to medium subangular and of brick.			
					0.90 (0.20) 1.10	Dark brown slightly clayey PEAT.			
1.20-1.65	SPT N=6		0,0/1,1,2,2			Stiff to very stiff brown slightly sandy gravelly CLAY. Sand is fine. Gravel is fine subangular and of mixed lithologies.			
2.00-2.45	SPT N=10		1,1/2,2,3,3		(2.30)				
3.00-3.45	SPT N=24		2,3/3,5,8,8		3.40	Stiff brown grey slightly sandy slightly gravelly CLAY. Sand is fine. Gravel is fine to medium subangular and of mixed lithologies.			
4.00-4.45	SPT N=7		2,2/1,2,2,2		4.00	Medium dense brown fine to medium grained SAND.			
					(1.00)				
5.00-5.45	SPT N=14		2,2/3,3,4,4		5.00	Very stiff brown very sandy CLAY. Sand is fine to medium.			
					(1.00)				
6.00-6.45	SPT N=21		3,3/4,5,5,7		6.00	Complete at 6.45m			
Remarks Borehole dry							Scale (approx) 1:50	Logged By AT	
							Figure No. 31990LG.WS202		

					Site Former Wheatfields Day Centre		Number WS203		
Excavation Method Drive-in Windowless Sampler		Dimensions		Ground Level (mOD)		Client Onward		Job Number 31990LG	
		Location		Dates 26/05/2022		Engineer Michael Wiggins		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
1.20-1.65	SPT N=25		1,1/2,1,7,15		(0.40)	Vegetation over brown, slightly sandy, gravelly CLAY. Sand is fine. Gravel is fine to medium, subangular and of mixed lithologies. (TOPSOIL)			
					0.40	MADE GROUND: brown clayey fine to medium grained SAND.			
2.00-2.45	SPT N=13		2,2/4,3,3,3		(1.55)				
					1.95	MADE GROUND: black decomposing WOOD.			
					(0.20)	Stiff brown grey slightly silty slightly sandy CLAY. Sand is fine			
3.00-3.45	SPT N=11		2,2/2,3,3,3		(0.75)				
					2.90	Very stiff black grey slightly sandy CLAY. Sand is fine.			
					(1.10)				
4.00-4.45	SPT N=24		Water strike(1) at 4.00m, no rise after 20 mins. 3,4/5,6,6,7		4.00	Very stiff light brown very sandy CLAY. Sand is fine to medium.			
					(1.00)				
5.00-5.45	SPT N=21		3,4/6,5,5,5		5.00	Medium dense grey brown clayey fine to medium grained SAND.			
					(1.00)				
					6.00	Complete at 6.45m			
Remarks							Scale (approx)	Logged By	
							1:50	AT	
							Figure No. 31990LG.WS203		

 Sutcliffe						Site Former Wheatfields Day Centre		Number WS204	
Excavation Method Drive-in Windowless Sampler		Dimensions		Ground Level (mOD)		Client Onward		Job Number 31990LG	
		Location		Dates 26/05/2022		Engineer Michael Wiggins		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
0.20-0.50	ES1				(0.20)	Grass over dark brown, sandy CLAY with roots (TOPSOIL).			
					0.20	MADE GROUND: brown slightly sandy CLAY. Sand is fine.			
					(0.30)	MADE GROUND: black to dark brown sandy CLAY with organic material - possibly relic topsoil layer.			
					0.50	Stiff to very stiff brown slightly sandy CLAY. Sand is fine.			
1.20-1.65	SPT N=4		1,1/1,1,1,1		(0.20)	Stiff to very stiff brown slightly sandy slightly gravelly CLAY. Sand is fine. Gravel is fine, subangular and of mixed lithologies.	                                 		
					(0.70)				
					(0.30)				
					1.00				
2.00-2.45	SPT N=13		2,2/3,3,3,4		(2.10)				
3.00-3.45	SPT N=12		2,3/3,4,3,2		3.10	Very stiff brown friable very sandy gravelly CLAY. Sand is fine			
4.00-4.45	SPT(C) N=38		10,11/13,12,6,7		(0.90)	Complete at 6.02m			
					4.00				
4.45-4.90	SPT(C) N=20		5,4/4,4,7,5						
4.90-5.35	SPT(C) N=22		7,6/6,5,5,6						
5.35-5.80	SPT(C) N=43		9,10/11,9,11,12						
5.80-6.02	SPT(C) 38/70		/13,13,12						
Remarks Driving cobble from 3.00m to 4.00m - continued with CPT to 6.02m								Scale (approx) 1:50	Logged By AT
								Figure No. 31990LG.WS204	

Client Onward	Job Number 31990LG
Engineer Michael Wiggins	Sheet 1/1

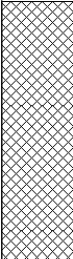
Description	Legend	Water
Dark brown, slightly clayey slightly silty fine to medium grained SAND with root material (TOPSOIL)		
MADE GROUND (stiff to very stiff, brown mottled grey, slightly silty gravelly reworked CLAY. Gravel is coarse, angular limestone)		
Brown, very clayey slightly silty fine to medium grained SAND		
Complete at 2.00m		

Remarks Redundant clay pipe @ 1.00m.		
Scale (approx) 1:20	Logged By MW	Figure No. 31990LG.TP101

Client Onward	Job Number 31990LG
Engineer Michael Wiggins	Sheet 1/1

Description	Legend	Water
Dark brown, slightly silty fine to medium grained SAND with root material (TOPSOIL)		
MADE GROUND (stiff to very stiff, brown mottled grey, slightly silty slightly sandy reworked CLAY. Sand is fine to medium)		
Orangish brown, clayey slightly gravelly fine to medium grained SAND. Gravel is fine to medium, angular to subangular sandstone		
Stiff, dark brown, very sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is fine to medium, rounded to subrounded of sandstone, coal and mudstone		
Complete at 2.10m		

Remarks Redundant clay pipe @ 1.00m		
Scale (approx) 1:20	Logged By MW	Figure No. 31990LG.TP102

 Sutcliffe						Site Former Wheatfields Day Centre		Trial Pit Number TP103 (SA)	
Excavation Method Trial Pit		Dimensions		Ground Level (mOD)		Client Onward		Job Number 31990LG	
		Location 381222 E 405700 N		Dates 20/09/2021		Engineer Michael Wiggins		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
0.50-0.70	ES1				(0.70)	MADE GROUND (dark brown, clayey slightly silty fine to medium grained SAND with concrete cobbles and root material)			
					0.70	Dark brown, clayey slightly silty fine to medium grained SAND			
					(1.00)				
					1.70	Light grey mottled brown, very clayey slightly silty fine to medium grained SAND			
					2.00	Firm to stiff, light greyish brown, sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is fine to medium, subangular of sandstone and mudstone			
					2.30	Complete at 2.30m			
Plan						Remarks			
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						Scale (approx) 1:20	Logged By MW	Figure No. 31990LG.TP103 (SA)	



Sutcliffe

Site
Former Wheatfields Day Centre

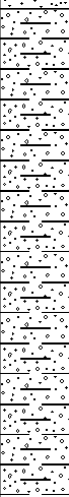
Trial Pit Number
TP104 (SA)

Excavation Method Trial Pit		Dimensions		Ground Level (mOD)		Client Onward		Job Number 31990LG	
		Location 381181 E 405724 N		Dates 20/09/2021		Engineer Michael Wiggins		Sheet 1/1	

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.30-0.50	ES1				0.10	MADE GROUND (dark brown, slightly silty gravelly fine to medium grained SAND. Gravel is fine to coarse, angular limestone) (sub-base)		
					0.70	MADE GROUND (light grey, sandy fine to coarse angular GRAVEL of limestone. Sand is fine to medium) (sub-base)		
					0.80	Stiff, grey, slightly sandy slightly gravelly CLAY. Sand is fine. Gravel is fine to medium, angular to rounded of mudstone and coal		
					1.35			
					2.15	Complete at 2.15m		

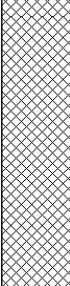
Plan </

Client Onward	Job Number 31990LG
Engineer Michael Wiggins	Sheet 1/1

Description	Legend	Water
MADE GROUND (light grey, sandy fine to coarse angular GRAVEL of limestone. Sand is fine to medium) (sub-base)		
Very stiff, grey, slightly sandy CLAY. Sand is fine		
Orangish brown, fine to medium grained SAND		
Very stiff, grey, slightly sandy slightly gravelly CLAY. Sand is fine. Gravel is fine to coarse, rounded mudstone.		
Complete at 2.20m		

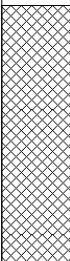
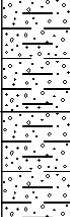
Remarks		
Scale (approx)	Logged By	Figure No.
1:20	MW	31990LG.TP105

Client Onward	Job Number 31990LG
Engineer Michael Wiggins	Sheet 1/1

Description	Legend	Water
Dark brown, slightly silty fine to medium grained SAND (TOPSOIL)		
MADE GROUND (stiff, orangish brown, sandy gravelly reworked CLAY. Sand is fine to medium. Gravel is fine to coarse, angular to subangular and of mixed lithology)		
Firm, grey, sandy gravelly CLAY. Sand is fine to medium. Gravel is fine to medium, rounded to subrounded of mudstone and sandstone		
Complete at 2.00m		

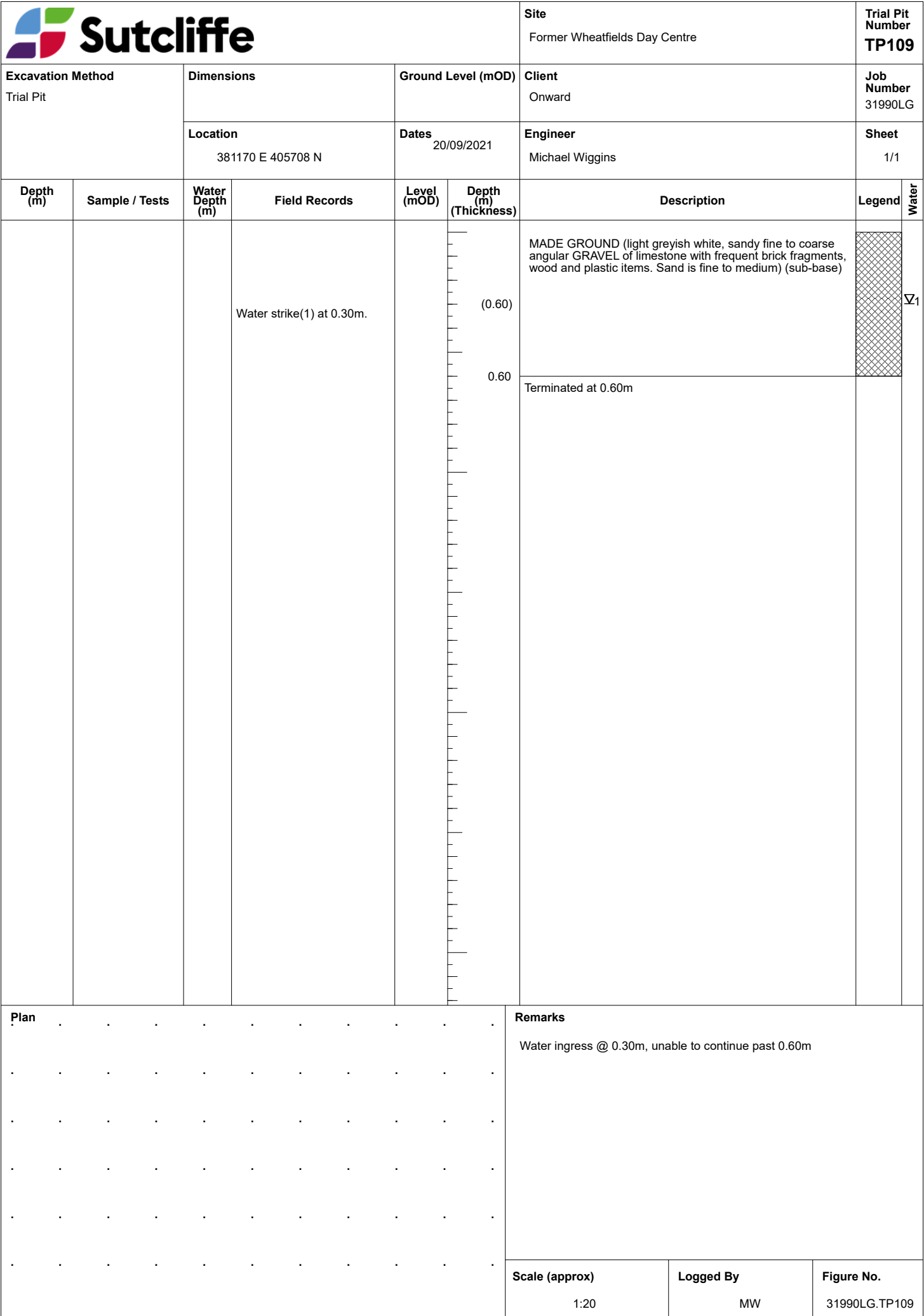
Remarks Drain exposed @ 1.80m		
Scale (approx) 1:20	Logged By MW	Figure No. 31990LG.TP106

Client Onward	Job Number 31990LG
Engineer Michael Wiggins	Sheet 1/1

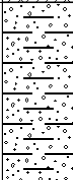
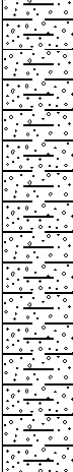
Description	Legend	Water
MADE GROUND (dark brown, slightly silty fine to medium grained SAND with brick fragments)		
Orange mottled grey, very clayey slightly gravelly fine to medium grained SAND. Gravel is fine to medium, subrounded of sandstone and mudstone		
Firm, grey, very sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is fine to coarse, rounded to subrounded of sandstone and mudstone		
Very stiff, grey, sandy gravelly CLAY. Sand is fine to medium. Gravel is fine to coarse, rounded to subrounded of sandstone and mudstone		
Complete at 2.30m		

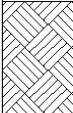
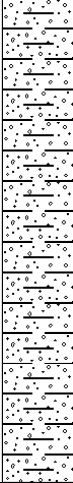
Remarks		
Scale (approx)	Logged By	Figure No.
1:20	MW	31990LG.TP107

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 Sutcliffe						Site Former Wheatfields Day Centre		Trial Pit Number TP201			
Excavation Method Trial Pit		Dimensions		Ground Level (mOD)		Client Onward		Job Number 31990LG			
		Location		Dates 26/05/2022		Engineer Michael Wiggins		Sheet 1/1			
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water			
0.20-0.60	ES1				(0.20)	Vegetation over dark brown, sandy CLAY with roots (TOPSOIL).					
					0.20	Brown to light brown sandy CLAY. Sand is fine to medium.					
					(0.70)						
											
											
					0.90	Orange brown slightly sandy CLAY. Sand is fine.					
					(0.20)						
					1.10	Grey slightly silty sandy CLAY. Sand is fine.					
											
											
		(0.90)									
		2.00	Brown slightly sandy slightly gravelly CLAY with grey bands of organic material. Sand is fine. Gravel is fine angular to subrounded and of mixed lithologies.								
		(0.40)									
		2.40	Complete at 2.40m								
						Remarks Trial pit dry					
						Scale (approx) 1:25		Logged By AT		Figure No. 31990LG.TP201	

 Sutcliffe						Site Former Wheatfields Day Centre		Trial Pit Number TP202	
Excavation Method Trial Pit		Dimensions		Ground Level (mOD)		Client Onward		Job Number 31990LG	
		Location		Dates 26/05/2022		Engineer Michael Wiggins		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
					0.30 0.60 0.90 1.00 1.60 2.60	Vegetation over black, sandy CLAY. Sand is fine (TOPSOIL). Brown sandy gravelly CLAY. Sand is fine to medium. Gravel is fine, subangular and of mixed lithologies. Black clayey sandy PEAT. Sand is fine. Grey brown slightly silty slightly sandy CLAY. Sand is fine. Complete at 2.60m	   		
						Remarks Trial pit dry			
						Scale (approx) 1:25		Logged By AT	

 Sutcliffe						Site Former Wheatfields Day Centre		Trial Pit Number TP203	
Excavation Method Trial Pit		Dimensions		Ground Level (mOD)		Client Onward		Job Number 31990LG	
		Location		Dates 26/05/2022		Engineer Michael Wiggins		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
					0.40 0.40 (1.60) 2.00	Vegetation over brown, sandy CLAY with roots (TOPSOIL). Light brown slightly sandy slightly gravelly CLAY with grey bands. Sand is fine. Gravel is fine to medium, subangular and of mixed lithologies.	 		
						Complete at 2.00m			
						Remarks Trial pit dry			
						Scale (approx) 1:25		Logged By AT	



Sutcliffe Soakaway Test Field Record Sheet

Site: Former Wheatfields Day Centre, Whitefield

Client: Onward

Job No.: 31990LG

Infiltration Pit: TP103(SA)

Test No: 1

Start Time: 10:00

Date: 20/9/2021

Pit Dimensions (m)

Length: 1.7 Width: 0.6

Depth: 2.3

Time (mins)	Depth (m)
0	0.85
30	0.85
60	0.85
230	0.85

Time (mins)	Depth (m)

Start Depth	0.85
Effective 75% depth	1.2125
Effective 50% depth	1.575
Effective 25% depth	1.9375

Elapsed Time N/A

Elapsed Time N/A

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Sketch Pit Dimensions

Comments:



Sutcliffe Soakaway Test Field Record Sheet

Site: Former Wheatfields Day Centre, Whitefield

Client: Onward

Job No.: 31990LG

Infiltration Pit: TP104 (SA)

Test No: 1

Start Time: 10:50

Date: 20/09/2021

Pit Dimensions (m)

Length: 1.8 Width: 0.6

Depth: 2.15

Time (mins)	Depth (m)
0	1.1
30	1.1
60	1.1
230	1.1

Time (mins)	Depth (m)

Start Depth	1.1
Effective 75% depth	1.3625
Effective 50% depth	1.625
Effective 25% depth	1.8875

Elapsed Time N/A

Elapsed Time N/A

Please Print Me Double Sided to Save Paper!

Sketch Pit Dimensions

Comments:

Appendix D – Analytical Certificates

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 21/10154
Issue Number: 1

Date: 29 September, 2021

Client: Sutcliffe
18-20 Harrington Street
Liverpool
L2 9QA

Project Manager: (Use) D Evans; D Bowen; A Tosh; W Baldwin/(Use) Jo
Project Name: Oxford Avenue, Whitefield
Project Ref: 31990LG
Order No: 8756
Date Samples Received: 20/09/21
Date Instructions Received: 20/09/21
Date Analysis Completed: 29/09/21

Prepared by:


Melanie Marshall
Laboratory Coordinator

Approved by:


Richard Wong
Client Manager

Envirolab Job Number: 21/10154

Client Project Name: Oxford Avenue, Whitefield

Client Project Ref: 31990LG

Lab Sample ID	21/10154/1	21/10154/2	21/10154/3					Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS101	WS102	TP101							
Depth to Top	0.20	0.20	0.60							
Depth To Bottom	0.60	0.60								
Date Sampled	17-Sep-21	17-Sep-21	17-Sep-21							
Sample Type	Soil	Soil	Soil							
Sample Matrix Code	4A	6A	6AB							
% Moisture at <40C _A	10.7	17.0	16.0					% w/w	0.1	A-T-044
% Stones >10mm _A	5.4	<0.1	<0.1					% w/w	0.1	A-T-044
pH _D ^{M#}	8.31	5.06	6.74					pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	0.02	<0.01	<0.01					g/l	0.01	A-T-026s
Sulphate (acid soluble) _D ^{M#}	300	<200	<200					mg/kg	200	A-T-028s
Cyanide (total) _A ^{M#}	<1	<1	<1					mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC _A	<0.2	<0.2	<0.2					mg/kg	0.2	A-T-050s
Sulphide _A	66	76	49					mg/kg	5	A-T-S2-s
Sulphur (elemental) _D ^{M#}	<5	<5	<5					mg/kg	5	A-T-029s
Organic matter _D ^{M#}	1.7	1.5	1.6					% w/w	0.1	A-T-032 OM
Arsenic _D ^{M#}	6	6	4					mg/kg	1	A-T-024s
Boron (water soluble) _D	<1.0	<1.0	<1.0					mg/kg	1	A-T-027s
Cadmium _D ^{M#}	<0.5	0.8	0.8					mg/kg	0.5	A-T-024s
Copper _D ^{M#}	13	26	25					mg/kg	1	A-T-024s
Chromium _D ^{M#}	9	26	29					mg/kg	1	A-T-024s
Chromium (hexavalent) _D	<1	<1	<1					mg/kg	1	A-T-040s
Chromium (trivalent)	9	26	29					mg/kg	1	Calc
Lead _D ^{M#}	10	12	13					mg/kg	1	A-T-024s
Mercury _D	<0.17	<0.17	<0.17					mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	14	40	39					mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1	<1	<1					mg/kg	1	A-T-024s
Zinc _D ^{M#}	36	66	66					mg/kg	5	A-T-024s

Envirolab Job Number: 21/10154

Client Project Name: Oxford Avenue, Whitefield

Client Project Ref: 31990LG

Lab Sample ID	21/10154/1	21/10154/2	21/10154/3					Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS101	WS102	TP101							
Depth to Top	0.20	0.20	0.60							
Depth To Bottom	0.60	0.60								
Date Sampled	17-Sep-21	17-Sep-21	17-Sep-21							
Sample Type	Soil	Soil	Soil							
Sample Matrix Code	4A	6A	6AB							
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	NAD	NAD	NAD							A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	N/A	N/A	N/A							A-T-045

Envirolab Job Number: 21/10154

Client Project Name: Oxford Avenue, Whitefield

Client Project Ref: 31990LG

Lab Sample ID	21/10154/1	21/10154/2	21/10154/3					Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS101	WS102	TP101							
Depth to Top	0.20	0.20	0.60							
Depth To Bottom	0.60	0.60								
Date Sampled	17-Sep-21	17-Sep-21	17-Sep-21							
Sample Type	Soil	Soil	Soil							
Sample Matrix Code	4A	6A	6AB							
PAH-16MS										
Acenaphthene _A ^{M#}	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	<0.02	<0.02	<0.02					mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.04	<0.04	<0.04					mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.04	<0.04	<0.04					mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.05	<0.05	<0.05					mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05	<0.05	<0.05					mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	<0.07	<0.07					mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	<0.06	<0.06	<0.06					mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	<0.04	<0.04					mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	<0.08	<0.08	<0.08					mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	<0.03	<0.03	<0.03					mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	<0.03					mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	<0.03	<0.03	0.04					mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	<0.07	<0.07	<0.07					mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	<0.08	<0.08	<0.08					mg/kg	0.01	A-T-019s

Envirolab Job Number: 21/10154

Client Project Name: Oxford Avenue, Whitefield

Client Project Ref: 31990LG

Lab Sample ID	21/10154/1	21/10154/2	21/10154/3					Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS101	WS102	TP101							
Depth to Top	0.20	0.20	0.60							
Depth To Bottom	0.60	0.60								
Date Sampled	17-Sep-21	17-Sep-21	17-Sep-21							
Sample Type	Soil	Soil	Soil							
Sample Matrix Code	4A	6A	6AB							
TPH UKCWG										
Ali >C5-C6 _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	<1	<1	<1					mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	<1	<1	<1					mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	<1	<1	<1					mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	<1	<1	<1					mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	4	2	1					mg/kg	1	A-T-055s
Ali >C35-C44 _A	<1	<1	<1					mg/kg	1	A-T-055s
Total Aliphatics _A	4	2	1					mg/kg	1	A-T-055s
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	<1	<1	<1					mg/kg	1	A-T-055s
Aro >C10-C12 _A	<1	<1	<1					mg/kg	1	A-T-055s
Aro >C12-C16 _A	<1	<1	<1					mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	<1	<1	<1					mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	2	4	2					mg/kg	1	A-T-055s
Aro >C35-C44 _A	<1	<1	<1					mg/kg	1	A-T-055s
Total Aromatics _A	2	4	2					mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C44) _A	6	6	4					mg/kg	1	A-T-055s
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01					mg/kg	0.01	A-T-022s

REPORT NOTES

General

This report shall not be reproduced, except in full, without written approval from Envirolab.

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

The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample, 9 = INCINERATOR ASH.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Sutcliffe, 18-20 Harrington Street, Liverpool, L2 9QA

Project No: 21/10154

Project: Oxford Avenue, Whitefield

Date Received: 20/09/2021 (am)

Clients Project No: 31990LG

Cool Box Temperatures (°C): 21.4

NO DEVIATIONS IDENTIFIED with respect to sampling dates or containers received.

Note: If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3 (for water samples $5 \pm 3^{\circ}\text{C}$), ISO 18400-105:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	21/10154/1	21/10154/2	21/10154/3
Client Sample No			
Client Sample ID/Depth	WS101 0.20-0.60m	WS102 0.20-0.60m	TP101 0.60m
Date Sampled	17/09/21	17/09/21	17/09/21
A-T-019s	22/09/2021	22/09/2021	22/09/2021
A-T-022s	29/09/2021	29/09/2021	29/09/2021
A-T-024s	29/09/2021	29/09/2021	29/09/2021
A-T-026s	27/09/2021	27/09/2021	27/09/2021
A-T-027s	25/09/2021	25/09/2021	25/09/2021
A-T-028s	25/09/2021	25/09/2021	25/09/2021
A-T-029s	27/09/2021	27/09/2021	27/09/2021
A-T-031s	28/09/2021	28/09/2021	28/09/2021
A-T-032 OM	27/09/2021	27/09/2021	27/09/2021
A-T-040s	27/09/2021	27/09/2021	27/09/2021
A-T-042sTCN	22/09/2021	22/09/2021	22/09/2021
A-T-044	24/09/2021	24/09/2021	24/09/2021
A-T-045	22/09/2021	22/09/2021	22/09/2021
A-T-050s	22/09/2021	22/09/2021	22/09/2021
A-T-055s	29/09/2021	29/09/2021	29/09/2021
A-T-S2-s	22/09/2021	22/09/2021	22/09/2021
Calc	29/09/2021	29/09/2021	29/09/2021

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 21/10180
Issue Number: 1

Date: 01 October, 2021

Client: Sutcliffe
18-20 Harrington Street
Liverpool
L2 9QA

Project Manager: (Use) D Evans; D Bowen; A Tosh; W Baldwin/(Use) Jo
Project Name: Oxford Avenue, Whitefield
Project Ref: 31990LG
Order No: 8741
Date Samples Received: 20/09/21
Date Instructions Received: 21/09/21
Date Analysis Completed: 01/10/21

Prepared by:



Sophie France
Client Service Manager

Approved by:



Richard Wong
Client Manager

Envirolab Job Number: 21/10180

Client Project Name: Oxford Avenue, Whitefield

Client Project Ref: 31990LG

Lab Sample ID	21/10180/1	21/10180/2	21/10180/3	21/10180/4	21/10180/5	21/10180/6	21/10180/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP103 (SA)	TP104 (SA)	TP105	TP106	TP107	TP108	WS107			
Depth to Top	0.50	0.30	0.10	0.40	0.20	0.10	0.20			
Depth To Bottom	0.70	0.50	0.30	0.60	0.50	0.30	0.60			
Date Sampled	20-Sep-21	20-Sep-21	20-Sep-21	20-Sep-21	20-Sep-21	20-Sep-21	20-Sep-21			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Sample Matrix Code	6AE	5A	4AE	6AE	6AE	6AE	6AE			
% Moisture at <40C _A	26.8	7.2	6.4	15.8	17.1	5.6	15.6	% w/w	0.1	A-T-044
% Stones >10mm _A	<0.1	16.3	19.4	2.4	1.4	18.6	2.9	% w/w	0.1	A-T-044
pH _D ^{M#}	7.40	9.42	8.66	7.24	7.08	9.43	7.67	pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	<0.01	0.05	<0.01	<0.01	<0.01	0.06	<0.01	g/l	0.01	A-T-026s
Sulphate (acid soluble) _D ^{M#}	420	590	<200	390	480	1600	420	mg/kg	200	A-T-028s
Cyanide (total) _A ^{M#}	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC _A	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	mg/kg	0.2	A-T-050s
Sulphide _A	16	8	11	17	<5	<5	8	mg/kg	5	A-T-043-s
Sulphur (elemental) _D ^{M#}	5	<5	<5	<5	<5	<5	<5	mg/kg	5	A-T-029s
Organic matter _D ^{M#}	8.8	1.2	1.1	6.9	8.5	1.7	6.0	% w/w	0.1	A-T-032 OM
Arsenic _D ^{M#}	24	13	<1	<1	21	6	13	mg/kg	1	A-T-024s
Boron (water soluble) _D	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	mg/kg	1	A-T-027s
Cadmium _D ^{M#}	1.2	<0.5	<0.5	<0.5	1.0	4.0	0.8	mg/kg	0.5	A-T-024s
Copper _D ^{M#}	276	28	12	8	49	24	39	mg/kg	1	A-T-024s
Chromium _D ^{M#}	27	19	15	14	33	13	27	mg/kg	1	A-T-024s
Chromium (hexavalent) _D	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-040s
Chromium (trivalent)	27	19	15	14	33	13	27	mg/kg	1	Calc
Lead _D ^{M#}	135	55	13	9	126	81	86	mg/kg	1	A-T-024s
Mercury _D	<0.17	<0.17	2.59	<0.17	<0.17	0.44	<0.17	mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	27	16	12	13	32	15	23	mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-024s
Zinc _D ^{M#}	199	62	39	35	202	65	102	mg/kg	5	A-T-024s
Leachate Prep NRA (10:1) _A	*	-	*	-	*	-	-			A-T-001
pH (leachable) _A [#]	7.16	-	7.97	-	7.02	-	-	pH	0.01	A-T-031w
Sulphate (leachable) _A [#]	<1.00	-	4.75	-	<1.00	-	-	mg/l	1	A-T-026w
Cyanide (total) (leachable) _A [#]	<0.005	-	<0.005	-	<0.005	-	-	mg/l	0.005	A-T-042wTCN
Phenols (total by HPLC) (leachable) _A	<0.01	-	<0.01	-	<0.01	-	-	mg/l	0.01	A-T-050w
Sulphide (leachable) _A	<0.1	-	<0.1	-	<0.1	-	-	mg/l	0.1	A-T-043-w
DOC (leachable) _A [#]	23.2	-	2.7	-	3.0	-	-	mg/l	0.2	A-T-032w
Arsenic (leachable) _A [#]	5	-	<1	-	3	-	-	µg/l	1	A-T-025w
Boron (leachable) _A [#]	<10	-	<10	-	11	-	-	µg/l	10	A-T-025w
Cadmium (leachable) _A [#]	<1	-	<1	-	<1	-	-	µg/l	1	A-T-025w
Copper (leachable) _A [#]	21	-	4	-	69	-	-	µg/l	1	A-T-025w

Envirolab Job Number: 21/10180

Client Project Name: Oxford Avenue, Whitefield

Client Project Ref: 31990LG

Lab Sample ID	21/10180/1	21/10180/2	21/10180/3	21/10180/4	21/10180/5	21/10180/6	21/10180/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP103 (SA)	TP104 (SA)	TP105	TP106	TP107	TP108	WS107			
Depth to Top	0.50	0.30	0.10	0.40	0.20	0.10	0.20			
Depth To Bottom	0.70	0.50	0.30	0.60	0.50	0.30	0.60			
Date Sampled	20-Sep-21	20-Sep-21	20-Sep-21	20-Sep-21	20-Sep-21	20-Sep-21	20-Sep-21			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Sample Matrix Code	6AE	5A	4AE	6AE	6AE	6AE	6AE			
Chromium (leachable) _A [#]	2	-	<1	-	<1	-	-	µg/l	1	A-T-025w
Chromium (hexavalent) (leachable) _A	<0.05	-	<0.05	-	<0.05	-	-	mg/l	0.05	A-T-040w
Chromium (trivalent) (10:1 leachable)	<0.05	-	<0.05	-	<0.05	-	-	mg/l	0.05	Calc
Lead (leachable) _A [#]	71	-	4	-	62	-	-	µg/l	1	A-T-025w
Mercury (leachable) _A [#]	<0.1	-	<0.1	-	<0.1	-	-	µg/l	0.1	A-T-025w
Nickel (leachable) _A [#]	4	-	1	-	2	-	-	µg/l	1	A-T-025w
Selenium (leachable) _A [#]	<1	-	<1	-	<1	-	-	µg/l	1	A-T-025w
Sulphur (elemental/free) (leachable) _A	<0.1	-	<0.1	-	<0.1	-	-	mg/l	0.1	A-T-029w
Zinc (leachable) _A [#]	14	-	4	-	47	-	-	µg/l	1	A-T-025w
TPH total (>C6-C40) (leachable) _A	232	-	<80	-	<80	-	-	µg/l	80	A-T-007w

Envirolab Job Number: 21/10180

Client Project Name: Oxford Avenue, Whitefield

Client Project Ref: 31990LG

Lab Sample ID	21/10180/1	21/10180/2	21/10180/3	21/10180/4	21/10180/5	21/10180/6	21/10180/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP103 (SA)	TP104 (SA)	TP105	TP106	TP107	TP108	WS107			
Depth to Top	0.50	0.30	0.10	0.40	0.20	0.10	0.20			
Depth To Bottom	0.70	0.50	0.30	0.60	0.50	0.30	0.60			
Date Sampled	20-Sep-21	20-Sep-21	20-Sep-21	20-Sep-21	20-Sep-21	20-Sep-21	20-Sep-21			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Sample Matrix Code	6AE	5A	4AE	6AE	6AE	6AE	6AE			
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	NAD	NAD	NAD	NAD	NAD	NAD	NAD			A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	N/A	N/A	N/A	N/A	N/A	N/A	N/A			A-T-045

Envirolab Job Number: 21/10180

Client Project Name: Oxford Avenue, Whitefield

Client Project Ref: 31990LG

Lab Sample ID	21/10180/1	21/10180/2	21/10180/3	21/10180/4	21/10180/5	21/10180/6	21/10180/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP103 (SA)	TP104 (SA)	TP105	TP106	TP107	TP108	WS107			
Depth to Top	0.50	0.30	0.10	0.40	0.20	0.10	0.20			
Depth To Bottom	0.70	0.50	0.30	0.60	0.50	0.30	0.60			
Date Sampled	20-Sep-21	20-Sep-21	20-Sep-21	20-Sep-21	20-Sep-21	20-Sep-21	20-Sep-21			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Sample Matrix Code	6AE	5A	4AE	6AE	6AE	6AE	6AE			
PAH-16MS										
Acenaphthene _A ^{M#}	0.18	<0.01	<0.01	0.43	0.13	0.02	0.09	mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01	<0.01	0.02	0.07	<0.01	<0.01	mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	0.26	<0.02	<0.02	0.59	0.40	0.03	0.15	mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	0.89	<0.04	<0.04	3.11	2.65	0.19	1.00	mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	0.75	<0.04	<0.04	3.01	2.82	0.20	0.74	mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	0.90	<0.05	<0.05	3.49	2.83	0.21	0.83	mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	0.38	<0.05	<0.05	1.54	1.40	0.13	0.36	mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	0.38	<0.07	<0.07	1.37	1.06	0.09	0.33	mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	0.98	<0.06	<0.06	3.42	2.56	0.21	1.02	mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	0.10	<0.04	<0.04	0.38	0.36	<0.04	0.09	mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	1.94	<0.08	<0.08	6.50	4.47	0.34	2.19	mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	0.10	<0.01	<0.01	0.20	0.07	<0.01	0.05	mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	0.44	<0.03	<0.03	1.73	1.70	0.13	0.39	mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	<0.03	0.03	<0.03	<0.03	<0.03	mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	1.08	<0.03	<0.03	2.65	1.33	0.13	0.64	mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	1.76	<0.07	<0.07	6.09	4.01	0.33	2.08	mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	10.1	<0.08	<0.08	34.6	25.9	2.01	9.96	mg/kg	0.01	A-T-019s

Envirolab Job Number: 21/10180

Client Project Name: Oxford Avenue, Whitefield

Client Project Ref: 31990LG

Lab Sample ID	21/10180/1	21/10180/2	21/10180/3	21/10180/4	21/10180/5	21/10180/6	21/10180/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP103 (SA)	TP104 (SA)	TP105	TP106	TP107	TP108	WS107			
Depth to Top	0.50	0.30	0.10	0.40	0.20	0.10	0.20			
Depth To Bottom	0.70	0.50	0.30	0.60	0.50	0.30	0.60			
Date Sampled	20-Sep-21	20-Sep-21	20-Sep-21	20-Sep-21	20-Sep-21	20-Sep-21	20-Sep-21			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Sample Matrix Code	6AE	5A	4AE	6AE	6AE	6AE	6AE			
PAH-16MS (leachable)										
Acenaphthene (leachable) _A	0.05	-	0.02	-	0.03	-	-	µg/l	0.01	A-T-019w
Acenaphthylene (leachable) _A	0.03	-	<0.01	-	<0.01	-	-	µg/l	0.01	A-T-019w
Anthracene (leachable) _A	0.03	-	<0.01	-	<0.01	-	-	µg/l	0.01	A-T-019w
Benzo(a)anthracene (leachable) _A	0.04	-	<0.01	-	<0.01	-	-	µg/l	0.01	A-T-019w
Benzo(a)pyrene (leachable) _A	0.03	-	<0.01	-	<0.01	-	-	µg/l	0.01	A-T-019w
Benzo(b)fluoranthene (leachable) _A	0.04	-	<0.01	-	<0.01	-	-	µg/l	0.01	A-T-019w
Benzo(ghi)perylene (leachable) _A	0.03	-	<0.01	-	<0.01	-	-	µg/l	0.01	A-T-019w
Benzo(k)fluoranthene (leachable) _A	0.02	-	<0.01	-	<0.01	-	-	µg/l	0.01	A-T-019w
Chrysene (leachable) _A	0.04	-	<0.01	-	<0.01	-	-	µg/l	0.01	A-T-019w
Dibenzo(ah)anthracene (leachable) _A	0.03	-	<0.01	-	<0.01	-	-	µg/l	0.01	A-T-019w
Fluoranthene (leachable) _A	0.06	-	<0.01	-	0.04	-	-	µg/l	0.01	A-T-019w
Fluorene (leachable) _A	0.04	-	<0.01	-	<0.01	-	-	µg/l	0.01	A-T-019w
Indeno(123-cd)pyrene (leachable) _A	0.03	-	<0.01	-	<0.01	-	-	µg/l	0.01	A-T-019w
Naphthalene (leachable) _A	0.10	-	0.08	-	0.07	-	-	µg/l	0.01	A-T-019w
Phenanthrene (leachable) _A	0.06	-	0.03	-	0.05	-	-	µg/l	0.01	A-T-019w
Pyrene (leachable) _A	0.06	-	<0.01	-	0.04	-	-	µg/l	0.01	A-T-019w
Total PAH-16MS (leachable) _A	0.69	-	0.13	-	0.23	-	-	µg/l	0.01	A-T-019w

Envirolab Job Number: 21/10180

Client Project Name: Oxford Avenue, Whitefield

Client Project Ref: 31990LG

Lab Sample ID	21/10180/1	21/10180/2	21/10180/3	21/10180/4	21/10180/5	21/10180/6	21/10180/7	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP103 (SA)	TP104 (SA)	TP105	TP106	TP107	TP108	WS107			
Depth to Top	0.50	0.30	0.10	0.40	0.20	0.10	0.20			
Depth To Bottom	0.70	0.50	0.30	0.60	0.50	0.30	0.60			
Date Sampled	20-Sep-21	20-Sep-21	20-Sep-21	20-Sep-21	20-Sep-21	20-Sep-21	20-Sep-21			
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil			
Sample Matrix Code	6AE	5A	4AE	6AE	6AE	6AE	6AE			
TPH UKCWG										
Ali >C5-C6 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	4	<1	<1	1	1	<1	<1	mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	25	2	2	8	12	11	13	mg/kg	1	A-T-055s
Ali >C35-C44 _A	3	<1	<1	5	5	3	5	mg/kg	1	A-T-055s
Total Aliphatics _A	31	2	2	14	18	15	17	mg/kg	1	A-T-055s
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	<1	<2	<2	<2	<2	<2	<2	mg/kg	1	A-T-055s
Aro >C10-C12 _A	<1	<1	<1	<1	<1	<1	<1	mg/kg	1	A-T-055s
Aro >C12-C16 _A	3	<1	<1	8	5	<1	2	mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	12	<1	<1	48	24	4	9	mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	67	3	3	174	98	21	46	mg/kg	1	A-T-055s
Aro >C35-C44 _A	29	<1	<1	15	14	4	13	mg/kg	1	A-T-055s
Total Aromatics _A	111	4	4	247	142	30	71	mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C44) _A	142	5	6	261	159	45	89	mg/kg	1	A-T-055s
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	mg/kg	0.01	A-T-022s

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Client Project Name: Oxford Avenue, Whitefield

Client Project Ref: 31990LG

Lab Sample ID	21/10180/8	21/10180/9	21/10180/10	21/10180/11				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS106	WS103	WS104	WS105						
Depth to Top	0.20	0.20	0.20	0.20						
Depth To Bottom	0.60	0.60	0.60	0.60						
Date Sampled	20-Sep-21	17-Sep-21	17-Sep-21	20-Sep-21						
Sample Type	Soil	Soil	Soil	Soil						
Sample Matrix Code	6AE	6AE	5AE	4AE						
% Moisture at <40C _A	20.2	32.4	12.8	15.4				% w/w	0.1	A-T-044
% Stones >10mm _A	<0.1	<0.1	4.0	6.4				% w/w	0.1	A-T-044
pH _D ^{M#}	6.96	6.89	9.18	6.67				pH	0.01	A-T-031s
Sulphate (water sol 2:1) _D ^{M#}	<0.01	0.02	0.04	<0.01				g/l	0.01	A-T-026s
Sulphate (acid soluble) _D ^{M#}	340	590	1700	500				mg/kg	200	A-T-028s
Cyanide (total) _A ^{M#}	<1	<1	<1	<1				mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC _A	<0.2	<0.2	<0.2	<0.2				mg/kg	0.2	A-T-050s
Sulphide _A	6	15	<5	<5				mg/kg	5	A-T-043-s
Sulphur (elemental) _D ^{M#}	<5	120	6	7				mg/kg	5	A-T-029s
Organic matter _D ^{M#}	4.8	8.4	1.9	8.3				% w/w	0.1	A-T-032 OM
Arsenic _D ^{M#}	16	7	12	25				mg/kg	1	A-T-024s
Boron (water soluble) _D	<1.0	1.1	<1.0	<1.0				mg/kg	1	A-T-027s
Cadmium _D ^{M#}	1.6	<0.5	0.7	1.3				mg/kg	0.5	A-T-024s
Copper _D ^{M#}	50	33	33	73				mg/kg	1	A-T-024s
Chromium _D ^{M#}	29	28	27	32				mg/kg	1	A-T-024s
Chromium (hexavalent) _D	<1	<1	<1	<1				mg/kg	1	A-T-040s
Chromium (trivalent)	29	28	27	32				mg/kg	1	Calc
Lead _D ^{M#}	78	63	53	144				mg/kg	1	A-T-024s
Mercury _D	<0.17	<0.17	0.61	<0.17				mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	23	24	33	26				mg/kg	1	A-T-024s
Selenium _D ^{M#}	<1	<1	<1	<1				mg/kg	1	A-T-024s
Zinc _D ^{M#}	180	61	87	191				mg/kg	5	A-T-024s

Envirolab Job Number: 21/10180

Client Project Name: Oxford Avenue, Whitefield

Client Project Ref: 31990LG

Lab Sample ID	21/10180/8	21/10180/9	21/10180/10	21/10180/11				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS106	WS103	WS104	WS105						
Depth to Top	0.20	0.20	0.20	0.20						
Depth To Bottom	0.60	0.60	0.60	0.60						
Date Sampled	20-Sep-21	17-Sep-21	17-Sep-21	20-Sep-21						
Sample Type	Soil	Soil	Soil	Soil						
Sample Matrix Code	6AE	6AE	5AE	4AE						
Asbestos in Soil (inc. matrix)										
Asbestos in soil [#]	NAD	NAD	NAD	NAD						A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	N/A	N/A	N/A	N/A						A-T-045

Envirolab Job Number: 21/10180

Client Project Name: Oxford Avenue, Whitefield

Client Project Ref: 31990LG

Lab Sample ID	21/10180/8	21/10180/9	21/10180/10	21/10180/11				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS106	WS103	WS104	WS105						
Depth to Top	0.20	0.20	0.20	0.20						
Depth To Bottom	0.60	0.60	0.60	0.60						
Date Sampled	20-Sep-21	17-Sep-21	17-Sep-21	20-Sep-21						
Sample Type	Soil	Soil	Soil	Soil						
Sample Matrix Code	6AE	6AE	5AE	4AE						
PAH-16MS										
Acenaphthene _A ^{M#}	0.20	0.04	<0.01	0.45				mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	<0.01	<0.01	0.11				mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	0.25	0.04	<0.02	1.10				mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	0.78	0.12	<0.04	4.26				mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	0.71	0.10	<0.04	3.78				mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	0.81	0.13	<0.05	4.09				mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	0.38	<0.05	<0.05	1.76				mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	0.35	<0.07	<0.07	1.53				mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	0.89	0.15	<0.06	4.06				mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	0.09	<0.04	<0.04	0.44				mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	1.74	0.30	<0.08	8.62				mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	0.13	0.03	<0.01	0.34				mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	0.41	0.06	<0.03	2.16				mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	<0.03	<0.03	<0.03	0.06				mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	1.12	0.21	<0.03	4.51				mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	1.58	0.28	<0.07	7.46				mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	9.44	1.46	<0.08	44.7				mg/kg	0.01	A-T-019s

Envirolab Job Number: 21/10180

Client Project Name: Oxford Avenue, Whitefield

Client Project Ref: 31990LG

Lab Sample ID	21/10180/8	21/10180/9	21/10180/10	21/10180/11				Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	WS106	WS103	WS104	WS105						
Depth to Top	0.20	0.20	0.20	0.20						
Depth To Bottom	0.60	0.60	0.60	0.60						
Date Sampled	20-Sep-21	17-Sep-21	17-Sep-21	20-Sep-21						
Sample Type	Soil	Soil	Soil	Soil						
Sample Matrix Code	6AE	6AE	5AE	4AE						
TPH UKCWG										
Ali >C5-C6 _A [#]	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	<1	<1	<1	<1				mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	<1	<1	<1	<1				mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	<1	<1	<1	2				mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	<1	3	<1	6				mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	6	50	1	20				mg/kg	1	A-T-055s
Ali >C35-C44 _A	3	7	<1	10				mg/kg	1	A-T-055s
Total Aliphatics _A	9	61	1	38				mg/kg	1	A-T-055s
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	<2	<2	<2	<2				mg/kg	1	A-T-055s
Aro >C10-C12 _A	<1	<1	<1	1				mg/kg	1	A-T-055s
Aro >C12-C16 _A	4	3	<1	21				mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	15	7	<1	141				mg/kg	1	A-T-055s
Aro >C21-C35 _A ^{M#}	56	158	2	406				mg/kg	1	A-T-055s
Aro >C35-C44 _A	9	104	<1	20				mg/kg	1	A-T-055s
Total Aromatics _A	85	274	2	590				mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C44) _A	94	334	3	627				mg/kg	1	A-T-055s
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s

REPORT NOTES

General

This report shall not be reproduced, except in full, without written approval from Envirolab.

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

The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts.

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample, 9 = INCINERATOR ASH.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Sutcliffe, 18-20 Harrington Street, Liverpool, L2 9QA

Project No: 21/10180

Project: Oxford Avenue, Whitefield

Date Received: 21/09/2021 (am)

Clients Project No: 31990LG

Cool Box Temperatures (°C): 20.6

NO DEVIATIONS IDENTIFIED with respect to sampling dates or containers received.

Note: If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3 (for water samples $5 \pm 3^{\circ}\text{C}$), ISO 18400-105:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	21/10180/1	21/10180/2	21/10180/3	21/10180/4	21/10180/5	21/10180/6	21/10180/7	21/10180/8	21/10180/9	21/10180/10	21/10180/11
Client Sample No											
Client Sample ID/Depth	TP103 (SA) 0.50-0.70m	TP104 (SA) 0.30-0.50m	TP105 0.10- 0.30m	TP106 0.40- 0.60m	TP107 0.20- 0.50m	TP108 0.10- 0.30m	WS107 0.20- 0.60m	WS106 0.20- 0.60m	WS103 0.20- 0.60m	WS104 0.20- 0.60m	WS105 0.20- 0.60m
Date Sampled	20/09/21	20/09/21	20/09/21	20/09/21	20/09/21	20/09/21	20/09/21	20/09/21	17/09/21	17/09/21	20/09/21
A-T-007w	29/09/2021		29/09/2021		29/09/2021						
A-T-019s	23/09/2021	23/09/2021	23/09/2021	23/09/2021	23/09/2021	23/09/2021	23/09/2021	23/09/2021	23/09/2021	23/09/2021	23/09/2021
A-T-019w	28/09/2021		28/09/2021		28/09/2021						
A-T-022s	27/09/2021	27/09/2021	27/09/2021	27/09/2021	27/09/2021	27/09/2021	27/09/2021	27/09/2021	27/09/2021	27/09/2021	27/09/2021
A-T-024s	01/10/2021	01/10/2021	01/10/2021	01/10/2021	01/10/2021	01/10/2021	01/10/2021	01/10/2021	01/10/2021	01/10/2021	01/10/2021
A-T-025w	29/09/2021		29/09/2021		29/09/2021						
A-T-026s	30/09/2021	30/09/2021	30/09/2021	30/09/2021	30/09/2021	30/09/2021	30/09/2021	30/09/2021	30/09/2021	30/09/2021	30/09/2021
A-T-026w	30/09/2021		30/09/2021		30/09/2021						
A-T-027s	01/10/2021	01/10/2021	01/10/2021	01/10/2021	01/10/2021	01/10/2021	01/10/2021	01/10/2021	01/10/2021	01/10/2021	01/10/2021
A-T-028s	30/09/2021	30/09/2021	30/09/2021	30/09/2021	30/09/2021	30/09/2021	30/09/2021	30/09/2021	30/09/2021	30/09/2021	30/09/2021
A-T-029s	29/09/2021	29/09/2021	29/09/2021	29/09/2021	29/09/2021	29/09/2021	29/09/2021	29/09/2021	29/09/2021	29/09/2021	29/09/2021
A-T-029w	29/09/2021		29/09/2021		29/09/2021						
A-T-031s	29/09/2021	29/09/2021	29/09/2021	29/09/2021	29/09/2021	29/09/2021	29/09/2021	29/09/2021	29/09/2021	29/09/2021	29/09/2021
A-T-031w	29/09/2021		29/09/2021		29/09/2021						
A-T-032 OM	29/09/2021	29/09/2021	29/09/2021	29/09/2021	29/09/2021	29/09/2021	29/09/2021	29/09/2021	29/09/2021	29/09/2021	29/09/2021
A-T-032w	29/09/2021		29/09/2021		29/09/2021						
A-T-040s	30/09/2021	30/09/2021	30/09/2021	30/09/2021	30/09/2021	30/09/2021	30/09/2021	30/09/2021	30/09/2021	30/09/2021	30/09/2021
A-T-040w	30/09/2021		30/09/2021		30/09/2021						
A-T-042sTCN	23/09/2021	23/09/2021	23/09/2021	23/09/2021	23/09/2021	23/09/2021	23/09/2021	23/09/2021	23/09/2021	23/09/2021	23/09/2021
A-T-042wTCN	28/09/2021		28/09/2021		28/09/2021						
A-T-043-s	23/09/2021	23/09/2021	23/09/2021	23/09/2021	23/09/2021	23/09/2021	23/09/2021	23/09/2021	23/09/2021	23/09/2021	23/09/2021
A-T-043-w	28/09/2021		28/09/2021		28/09/2021						
A-T-044	28/09/2021	28/09/2021	28/09/2021	28/09/2021	28/09/2021	28/09/2021	28/09/2021	28/09/2021	28/09/2021	28/09/2021	28/09/2021
A-T-045	24/09/2021	24/09/2021	24/09/2021	24/09/2021	24/09/2021	24/09/2021	24/09/2021	24/09/2021	24/09/2021	24/09/2021	24/09/2021
A-T-050s	23/09/2021	23/09/2021	23/09/2021	23/09/2021	23/09/2021	23/09/2021	23/09/2021	23/09/2021	23/09/2021	23/09/2021	23/09/2021
A-T-050w	23/09/2021		23/09/2021		23/09/2021						
A-T-055s	27/09/2021	27/09/2021	27/09/2021	27/09/2021	27/09/2021	27/09/2021	27/09/2021	27/09/2021	27/09/2021	27/09/2021	27/09/2021
Calc	01/10/2021	01/10/2021	01/10/2021	01/10/2021	01/10/2021	01/10/2021	01/10/2021	01/10/2021	01/10/2021	01/10/2021	01/10/2021

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

FINAL ANALYTICAL TEST REPORT

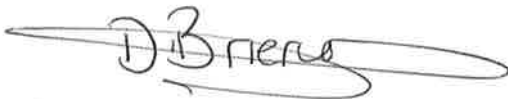
Envirolab Job Number: 22/05362
Issue Number: 1

Date: 15 June, 2022

Client: Sutcliffe
18-20 Harrington Street
Liverpool
L2 9QA

Project Manager: (Use) D Evans; D Bowen; A Tosh; W Baldwin/(Use) Sa
Project Name: Wheatfield, Rochdale
Project Ref: 31990LG
Order No: 9212
Date Samples Received: 31/05/22
Date Instructions Received: 31/05/22
Date Analysis Completed: 15/06/22

Approved by:



Danielle Brierley
Deputy Client Services Supervisor

Envirolab Job Number: 22/05362

Client Project Name: Wheatfield, Rochdale

Client Project Ref: 31990LG

Lab Sample ID	22/05362/1	22/05362/2	22/05362/3	22/05362/5				Units	Limit of Detection	Method ref
Client Sample No	1	1	1	1						
Client Sample ID	WS202	WS203	WS204	TP202						
Depth to Top	0.20	0.20	0.20	0.20						
Depth To Bottom	0.60	0.80	0.60	0.80						
Date Sampled	26-May-22	26-May-22	26-May-22	26-May-22						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	6AE	6E	6AE	6AE						
% Moisture at <40C _A	24.1	35.1	19.6	17.7				% w/w	0.1	A-T-044
% Stones >10mm _A	<0.1	<0.1	<0.1	<0.1				% w/w	0.1	A-T-044
pH _D ^{M#}	6.60	6.17	6.69	5.46				pH	0.01	A-T-031s
Electrical conductivity @ 20degC _D	18	-	21	-				µs/cm	10	A-T-037s
Sulphate (water sol 2:1) _D ^{M#}	<0.01	0.06	<0.01	0.01				g/l	0.01	A-T-026s
Sulphate (acid soluble) _D ^{M#}	<200	950	<200	200				mg/kg	200	A-T-028s
Cyanide (total) _A ^{M#}	<1	2	<1	<1				mg/kg	1	A-T-042sTCN
Phenols - Total by HPLC _A	<0.2	<0.2	<0.2	<0.2				mg/kg	0.2	A-T-050s
Sulphide _A	540	620	520	490				mg/kg	5	A-T-043-s
Sulphur (elemental) _D ^{M#}	<5	200	<5	<5				mg/kg	5	A-T-029s
Organic Matter _D ^{M#}	3.1	13.8	3.2	2.8				% w/w	0.1	A-T-032 OM
Arsenic _D ^{M#}	8	53	10	8				mg/kg	1	A-T-024s
Boron (water soluble) _D	<1.0	1.2	<1.0	<1.0				mg/kg	1	A-T-027s
Cadmium _D ^{M#}	2.0	2.7	2.8	2.9				mg/kg	0.5	A-T-024s
Copper _D ^{M#}	27	97	43	43				mg/kg	1	A-T-024s
Chromium _D ^{M#}	42	42	37	53				mg/kg	1	A-T-024s
Chromium (hexavalent) _D	<1	<1	<1	<1				mg/kg	1	A-T-040s
Chromium (trivalent)	42	42	37	53				mg/kg	1	Calc
Lead _D ^{M#}	45	234	53	47				mg/kg	1	A-T-024s
Mercury _D	<0.17	0.38	<0.17	<0.17				mg/kg	0.17	A-T-024s
Nickel _D ^{M#}	25	34	47	51				mg/kg	1	A-T-024s
Selenium _D ^{M#}	2	2	<1	2				mg/kg	1	A-T-024s
Zinc _D ^{M#}	62	224	102	102				mg/kg	5	A-T-024s
Redox Potential (water soluble) _D	238	-	238	-				mV		Probe

Envirolab Job Number: 22/05362

Client Project Name: Wheatfield, Rochdale

Client Project Ref: 31990LG

Lab Sample ID	22/05362/1	22/05362/2	22/05362/3	22/05362/5				Units	Limit of Detection	Method ref
Client Sample No	1	1	1	1						
Client Sample ID	WS202	WS203	WS204	TP202						
Depth to Top	0.20	0.20	0.20	0.20						
Depth To Bottom	0.60	0.80	0.60	0.80						
Date Sampled	26-May-22	26-May-22	26-May-22	26-May-22						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	6AE	6E	6AE	6AE						
Asbestos in Soil (inc. matrix)										
Asbestos in soil _D [#]	NAD	NAD	NAD	NAD						A-T-045
Asbestos Matrix (visual) _D	-	-	-	-						A-T-045
Asbestos Matrix (microscope) _D	-	-	-	-						A-T-045
Asbestos ACM - Suitable for Water Absorption Test? _D	N/A	N/A	N/A	N/A						A-T-045

Envirolab Job Number: 22/05362

Client Project Name: Wheatfield, Rochdale

Client Project Ref: 31990LG

Lab Sample ID	22/05362/1	22/05362/2	22/05362/3	22/05362/5				Units	Limit of Detection	Method ref
Client Sample No	1	1	1	1						
Client Sample ID	WS202	WS203	WS204	TP202						
Depth to Top	0.20	0.20	0.20	0.20						
Depth To Bottom	0.60	0.80	0.60	0.80						
Date Sampled	26-May-22	26-May-22	26-May-22	26-May-22						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	6AE	6E	6AE	6AE						
PAH-16MS										
Acenaphthene _A ^{M#}	0.01	0.54	0.02	<0.01				mg/kg	0.01	A-T-019s
Acenaphthylene _A ^{M#}	<0.01	0.02	<0.01	<0.01				mg/kg	0.01	A-T-019s
Anthracene _A ^{M#}	<0.02	0.72	0.04	<0.02				mg/kg	0.02	A-T-019s
Benzo(a)anthracene _A ^{M#}	<0.04	2.37	0.14	<0.04				mg/kg	0.04	A-T-019s
Benzo(a)pyrene _A ^{M#}	<0.04	2.14	0.17	<0.04				mg/kg	0.04	A-T-019s
Benzo(b)fluoranthene _A ^{M#}	<0.05	2.84	0.20	<0.05				mg/kg	0.05	A-T-019s
Benzo(ghi)perylene _A ^{M#}	<0.05	1.49	0.12	<0.05				mg/kg	0.05	A-T-019s
Benzo(k)fluoranthene _A ^{M#}	<0.07	1.08	<0.07	<0.07				mg/kg	0.07	A-T-019s
Chrysene _A ^{M#}	<0.06	2.99	0.21	<0.06				mg/kg	0.06	A-T-019s
Dibenzo(ah)anthracene _A ^{M#}	<0.04	0.39	<0.04	<0.04				mg/kg	0.04	A-T-019s
Fluoranthene _A ^{M#}	0.13	6.04	0.32	<0.08				mg/kg	0.08	A-T-019s
Fluorene _A ^{M#}	<0.01	0.31	<0.01	<0.01				mg/kg	0.01	A-T-019s
Indeno(123-cd)pyrene _A ^{M#}	0.07	1.86	0.15	<0.03				mg/kg	0.03	A-T-019s
Naphthalene _A ^{M#}	<0.03	0.08	<0.03	<0.03				mg/kg	0.03	A-T-019s
Phenanthrene _A ^{M#}	0.08	3.11	0.15	0.04				mg/kg	0.03	A-T-019s
Pyrene _A ^{M#}	0.12	5.55	0.30	<0.07				mg/kg	0.07	A-T-019s
Total PAH-16MS _A ^{M#}	0.41	31.5	1.82	<0.08				mg/kg	0.01	A-T-019s

Envirolab Job Number: 22/05362

Client Project Name: Wheatfield, Rochdale

Client Project Ref: 31990LG

Lab Sample ID	22/05362/1	22/05362/2	22/05362/3	22/05362/5				Units	Limit of Detection	Method ref
Client Sample No	1	1	1	1						
Client Sample ID	WS202	WS203	WS204	TP202						
Depth to Top	0.20	0.20	0.20	0.20						
Depth To Bottom	0.60	0.80	0.60	0.80						
Date Sampled	26-May-22	26-May-22	26-May-22	26-May-22						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	6AE	6E	6AE	6AE						
SVOC										
4-Bromophenyl phenyl ether _A	<100	-	<100	-				µg/kg	100	A-T-052s
Hexachlorobenzene _A	<100	-	<100	-				µg/kg	100	A-T-052s
Diethyl phthalate _A	<100	-	<100	-				µg/kg	100	A-T-052s
Dimethyl phthalate _A	<100	-	<100	-				µg/kg	100	A-T-052s
Dibenzofuran _A	<100	-	<100	-				µg/kg	100	A-T-052s
Carbazole _A	<100	-	<100	-				µg/kg	100	A-T-052s
Butylbenzyl phthalate _A	<100	-	<100	-				µg/kg	100	A-T-052s
Bis(2-ethylhexyl)phthalate _A	<1000	-	<500	-				µg/kg	500	A-T-052s
Bis(2-chloroethoxy)methane _A	<100	-	<100	-				µg/kg	100	A-T-052s
Bis(2-chloroethyl)ether _A	<100	-	<100	-				µg/kg	100	A-T-052s
4-Nitrophenol _A	<100	-	<100	-				µg/kg	100	A-T-052s
3+4-Methylphenol _A	<100	-	<100	-				µg/kg	100	A-T-052s
4-Chloro-3-methylphenol _A	<100	-	<100	-				µg/kg	100	A-T-052s
2-Nitrophenol _A	<100	-	<100	-				µg/kg	100	A-T-052s
2-Methylphenol _A	<100	-	<100	-				µg/kg	100	A-T-052s
1,2,4-Trichlorobenzene _A	<100	-	<100	-				µg/kg	100	A-T-052s
2-Chlorophenol _A	<100	-	<100	-				µg/kg	100	A-T-052s
2,6-Dinitrotoluene _A	<100	-	<100	-				µg/kg	100	A-T-052s
2,4-Dinitrotoluene _A	<100	-	<100	-				µg/kg	100	A-T-052s
2,4-Dimethylphenol _A	<100	-	<100	-				µg/kg	100	A-T-052s
2,4-Dichlorophenol _A	<100	-	<100	-				µg/kg	100	A-T-052s
2,4,6-Trichlorophenol _A	<100	-	<100	-				µg/kg	100	A-T-052s
2,4,5-Trichlorophenol _A	<100	-	<100	-				µg/kg	100	A-T-052s
1,4-Dichlorobenzene _A	<100	-	<100	-				µg/kg	100	A-T-052s
1,3-Dichlorobenzene _A	<100	-	<100	-				µg/kg	100	A-T-052s
1,2-Dichlorobenzene _A	<100	-	<100	-				µg/kg	100	A-T-052s
2-Chloronaphthalene _A	<100	-	<100	-				µg/kg	100	A-T-052s
2-Methylnaphthalene _A	<100	-	<100	-				µg/kg	100	A-T-052s
Acenaphthylene _A	<100	-	<100	-				µg/kg	100	A-T-052s
Acenaphthene _A	<100	-	<100	-				µg/kg	100	A-T-052s
Anthracene _A	<100	-	<100	-				µg/kg	100	A-T-052s
Benzo(a)anthracene _A	145	-	182	-				µg/kg	100	A-T-052s

Envirolab Job Number: 22/05362

Client Project Name: Wheatfield, Rochdale

Client Project Ref: 31990LG

Lab Sample ID	22/05362/1	22/05362/2	22/05362/3	22/05362/5				Units	Limit of Detection	Method ref
Client Sample No	1	1	1	1						
Client Sample ID	WS202	WS203	WS204	TP202						
Depth to Top	0.20	0.20	0.20	0.20						
Depth To Bottom	0.60	0.80	0.60	0.80						
Date Sampled	26-May-22	26-May-22	26-May-22	26-May-22						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	6AE	6E	6AE	6AE						
Benzo(b)fluoranthene _A	237	-	303	-				µg/kg	100	A-T-052s
Benzo(k)fluoranthene _A	<100	-	<100	-				µg/kg	100	A-T-052s
Benzo(a)pyrene _A	171	-	211	-				µg/kg	100	A-T-052s
Benzo(ghi)perylene _A	<100	-	132	-				µg/kg	100	A-T-052s
Chrysene _A	171	-	221	-				µg/kg	100	A-T-052s
Fluoranthene _A	329	-	475	-				µg/kg	100	A-T-052s
Fluorene _A	<100	-	<100	-				µg/kg	100	A-T-052s
Indeno(1,2,3-cd)pyrene _A	<100	-	137	-				µg/kg	100	A-T-052s
Phenanthrene _A	148	-	274	-				µg/kg	100	A-T-052s
Pyrene _A	314	-	420	-				µg/kg	100	A-T-052s
Naphthalene _A	<100	-	<100	-				µg/kg	100	A-T-052s
Dibenzo(ah)anthracene _A	<100	-	<100	-				µg/kg	100	A-T-052s
Bis(2-chloroisopropyl)ether _A	<100	-	<100	-				µg/kg	100	A-T-052s
Phenol _A	<100	-	<100	-				µg/kg	100	A-T-052s
Pentachlorophenol _A	<100	-	<100	-				µg/kg	100	A-T-052s
n-Nitroso-n-dipropylamine _A	<100	-	<100	-				µg/kg	100	A-T-052s
n-Dioctylphthalate _A	<500	-	<500	-				µg/kg	500	A-T-052s
n-Dibutylphthalate _A	<100	-	<100	-				µg/kg	100	A-T-052s
Nitrobenzene _A	<100	-	<100	-				µg/kg	100	A-T-052s
Isophorone _A	<100	-	<100	-				µg/kg	100	A-T-052s
Hexachloroethane _A	<100	-	<100	-				µg/kg	100	A-T-052s
Hexachlorocyclopentadiene _A	<100	-	<100	-				µg/kg	100	A-T-052s
Hexachlorobutadiene _A	<100	-	<100	-				µg/kg	100	A-T-052s
SVOC Total (excl. PAH/Phenols/Cresols) _A	688	-	<100	-				µg/kg	100	A-T-052s
Phenol Total _A	<100	-	<100	-				µg/kg	100	A-T-052s
Cresol & Chlorinated Phenol Total _A	<100	-	<100	-				µg/kg	100	A-T-052s
TPH Total with ID + GC Trace										
TPH total (>C6-C40) _A ^{M#}	-	120	-	<10				mg/kg	10	A-T-007s
TPH FID Chromatogram _A	-	Appended	-	Appended						A-T-007s
TPH ID (for FID characterisations) _A	-	C10-C40 hydrocarbons with some PAHs, humic substances and other unknown hydrocarbon	-	C16-C32 with some PAHs and humic substances						A-T-007s

Envirolab Job Number: 22/05362

Client Project Name: Wheatfield, Rochdale

Client Project Ref: 31990LG

Lab Sample ID	22/05362/1	22/05362/2	22/05362/3	22/05362/5				Units	Limit of Detection	Method ref
Client Sample No	1	1	1	1						
Client Sample ID	WS202	WS203	WS204	TP202						
Depth to Top	0.20	0.20	0.20	0.20						
Depth To Bottom	0.60	0.80	0.60	0.80						
Date Sampled	26-May-22	26-May-22	26-May-22	26-May-22						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	6AE	6E	6AE	6AE						
		S								

Envirolab Job Number: 22/05362

Client Project Name: Wheatfield, Rochdale

Client Project Ref: 31990LG

Lab Sample ID	22/05362/1	22/05362/2	22/05362/3	22/05362/5				Units	Limit of Detection	Method ref
Client Sample No	1	1	1	1						
Client Sample ID	WS202	WS203	WS204	TP202						
Depth to Top	0.20	0.20	0.20	0.20						
Depth To Bottom	0.60	0.80	0.60	0.80						
Date Sampled	26-May-22	26-May-22	26-May-22	26-May-22						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	6AE	6E	6AE	6AE						
VOCs										
Dichlorodifluoromethane _A	<5	-	<5	-				µg/kg	1	A-T-006s
Chloromethane _A	<50	-	<50	-				µg/kg	10	A-T-006s
Vinyl Chloride (Chloroethene) _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
Bromomethane _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
Chloroethane _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
Trichlorofluoromethane _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
1,1-Dichloroethene _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
Carbon Disulphide _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
Dichloromethane _A	<25	-	<25	-				µg/kg	5	A-T-006s
trans 1,2-Dichloroethene _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
1,1-Dichloroethane _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
cis 1,2-Dichloroethene _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
2,2-Dichloropropane _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
Bromochloromethane _A [#]	<25	-	<25	-				µg/kg	5	A-T-006s
Chloroform _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
1,1,1-Trichloroethane _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
1,1-Dichloropropene _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
Carbon Tetrachloride _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
1,2-Dichloroethane _A [#]	<10	-	<10	-				µg/kg	2	A-T-006s
Benzene _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
Trichloroethene _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
1,2-Dichloropropane _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
Dibromomethane _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
Bromodichloromethane _A [#]	<50	-	<50	-				µg/kg	10	A-T-006s
cis 1,3-Dichloropropene _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
Toluene _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
trans 1,3-Dichloropropene _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
1,1,2-Trichloroethane _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
1,3-Dichloropropane _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
Tetrachloroethene _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
Dibromochloromethane _A [#]	<15	-	<15	-				µg/kg	3	A-T-006s
1,2-Dibromoethane _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s

Envirolab Job Number: 22/05362

Client Project Name: Wheatfield, Rochdale

Client Project Ref: 31990LG

Lab Sample ID	22/05362/1	22/05362/2	22/05362/3	22/05362/5				Units	Limit of Detection	Method ref
Client Sample No	1	1	1	1						
Client Sample ID	WS202	WS203	WS204	TP202						
Depth to Top	0.20	0.20	0.20	0.20						
Depth To Bottom	0.60	0.80	0.60	0.80						
Date Sampled	26-May-22	26-May-22	26-May-22	26-May-22						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	6AE	6E	6AE	6AE						
Chlorobenzene _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
1,1,1,2-Tetrachloroethane _A	<5	-	<5	-				µg/kg	1	A-T-006s
Ethylbenzene _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
m & p Xylene _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
o-Xylene _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
Styrene _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
Bromoform _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
Isopropylbenzene _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
1,1,2,2-Tetrachloroethane _A	<5	-	<5	-				µg/kg	1	A-T-006s
1,2,3-Trichloropropane _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
Bromobenzene _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
n-Propylbenzene _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
2-Chlorotoluene _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
1,3,5-Trimethylbenzene _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
4-Chlorotoluene _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
tert-Butylbenzene _A [#]	<10	-	<10	-				µg/kg	2	A-T-006s
1,2,4-Trimethylbenzene _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
sec-Butylbenzene _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
4-Isopropyltoluene _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
1,3-Dichlorobenzene _A	<5	-	<5	-				µg/kg	1	A-T-006s
1,4-Dichlorobenzene _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
n-Butylbenzene _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
1,2-Dichlorobenzene _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
1,2-Dibromo-3-chloropropane (DCBP) _A	<10	-	<10	-				µg/kg	2	A-T-006s
1,2,4-Trichlorobenzene _A	<15	-	<15	-				µg/kg	3	A-T-006s
Hexachlorobutadiene _A [#]	<5	-	<5	-				µg/kg	1	A-T-006s
1,2,3-Trichlorobenzene _A	<15	-	<15	-				µg/kg	3	A-T-006s
VOC Total _A	<50	-	<50	-				µg/kg	10	A-T-006s

Envirolab Job Number: 22/05362

Client Project Name: Wheatfield, Rochdale

Client Project Ref: 31990LG

Lab Sample ID	22/05362/1	22/05362/2	22/05362/3	22/05362/5				Units	Limit of Detection	Method ref
Client Sample No	1	1	1	1						
Client Sample ID	WS202	WS203	WS204	TP202						
Depth to Top	0.20	0.20	0.20	0.20						
Depth To Bottom	0.60	0.80	0.60	0.80						
Date Sampled	26-May-22	26-May-22	26-May-22	26-May-22						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	6AE	6E	6AE	6AE						
TPH CWG with Clean Up *C1										
Total Aliphatics _A	9	-	1	-				mg/kg	1	A-T-055s
EPH Total Ali & Aro (>C10-C16) _A [#]	<1	-	<1	-				mg/kg	1	A-T-055s
EPH Total Ali & Aro (>C16-C35) _A [#]	17	-	11	-				mg/kg	1	A-T-055s
Total Aromatics _A	8	-	10	-				mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C35) _A	17	-	11	-				mg/kg	1	A-T-055s
BTEX and MTBE Total _A	<0.01	-	<0.01	-				mg/kg	0.01	A-T-022s
VPH total (>C5-C10) _A [#]	<0.01	-	<0.01	-				mg/kg	0.01	A-T-022s

Envirolab Job Number: 22/05362

Client Project Name: Wheatfield, Rochdale

Client Project Ref: 31990LG

Lab Sample ID	22/05362/1	22/05362/2	22/05362/3	22/05362/5				Units	Limit of Detection	Method ref
Client Sample No	1	1	1	1						
Client Sample ID	WS202	WS203	WS204	TP202						
Depth to Top	0.20	0.20	0.20	0.20						
Depth To Bottom	0.60	0.80	0.60	0.80						
Date Sampled	26-May-22	26-May-22	26-May-22	26-May-22						
Sample Type	Soil - ES	Soil - ES	Soil - ES	Soil - ES						
Sample Matrix Code	6AE	6E	6AE	6AE						
TPH UKCWG with Clean Up *C1										
Ali >C5-C6 _A [#]	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
Ali >C6-C8 _A [#]	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
Ali >C8-C10 _A	<1	<1	<1	<1				mg/kg	1	A-T-055s
Ali >C10-C12 _A ^{M#}	<1	<1	<1	<1				mg/kg	1	A-T-055s
Ali >C12-C16 _A ^{M#}	<1	<1	<1	<1				mg/kg	1	A-T-055s
Ali >C16-C21 _A ^{M#}	<1	3	<1	<1				mg/kg	1	A-T-055s
Ali >C21-C35 _A ^{M#}	9	29	1	<1				mg/kg	1	A-T-055s
Ali >C35-C44 _A	3	6	<1	<1				mg/kg	1	A-T-055s
Total Aliphatics _A	12	39	1	<1				mg/kg	1	A-T-055s
Aro >C5-C7 _A [#]	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
Aro >C7-C8 _A [#]	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
Aro >C8-C10 _A	<1	<1	<1	<1				mg/kg	1	A-T-055s
Aro >C10-C12 _A	<1	<1	<1	<1				mg/kg	1	A-T-055s
Aro >C12-C16 _A	<1	6	<1	<1				mg/kg	1	A-T-055s
Aro >C16-C21 _A ^{M#}	1	28	2	<1				mg/kg	1	A-T-055s
Aro >C21-C35 _A	7	111	7	<1				mg/kg	1	A-T-055s
Aro >C35-C44 _A	<1	3	<1	<1				mg/kg	1	A-T-055s
Total Aromatics _A	8	148	10	<1				mg/kg	1	A-T-055s
TPH (Ali & Aro >C5-C44) _A	20	186	11	<1				mg/kg	1	A-T-055s
BTEX - Benzene _A [#]	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
BTEX - Toluene _A [#]	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
BTEX - Ethyl Benzene _A [#]	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
BTEX - m & p Xylene _A [#]	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
BTEX - o Xylene _A [#]	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s
MTBE _A [#]	<0.01	<0.01	<0.01	<0.01				mg/kg	0.01	A-T-022s

REPORT NOTES

General

This report shall not be reproduced, except in full, without written approval from Envirolab.

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

The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.

Analytical results reflect the quality of the sample at the time of analysis only.

Opinions and interpretations expressed are outside the scope of our accreditation.

If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.

The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any "A" subscripts

All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:

Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:

Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:

Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.

Stones etc. are not removed from the sample prior to analysis.

Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:

1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample, 9 = INCINERATOR ASH.

Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.

Secondary Matrix Codes:

A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal,

E = contains roots/twigs.

Key:

IS indicates Insufficient Sample for analysis.

US indicates Unsuitable Sample for analysis.

NDP indicates No Determination Possible.

NAD indicates No Asbestos Detected.

N/A indicates Not Applicable.

Superscript # indicates method accredited to ISO 17025.

Superscript "M" indicates method accredited to MCERTS.

Subscript "A" indicates analysis performed on the sample as received.

Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

EPH CWG results have humics mathematically subtracted through instrument calculation

TPH results "with Cleanup" indicates results cleaned up with Silica during extraction

EPH CWG GCxGC ID from TPH CWG

Where we have identified humic substances in any ID's from TPH CWG with Clean Up please note that the concentration of these humic substances is not included in the quantified results and are included in the ID for information.

Please contact us if you need any further information.

Envirolab Deviating Samples Report

Units 7&8 Sandpits Business Park, Mottram Road, Hyde, SK14 3AR
Tel. 0161 368 4921 email. ask@envlab.co.uk

Client: Sutcliffe, 18-20 Harrington Street, Liverpool, L2 9QA

Project No: 22/05362

Project: Wheatfield, Rochdale

Date Received: 31/05/2022 (am)

Clients Project No: 31990LG

Cool Box Temperatures (°C): 12.4

Lab Sample ID	22/05362/1	22/05362/2	22/05362/3
Client Sample No	1	1	1
Client Sample ID/Depth	WS202 0.20-0.60m	WS203 0.20-0.80m	WS204 0.20-0.60m
Date Sampled	26/05/22	26/05/22	26/05/22
Deviation Code			
F	✓	✓	✓

Key

F Maximum holding time exceeded between sampling date and analysis for analytes listed below

HOLDING TIME EXCEEDANCES

Lab Sample ID	22/05362/1	22/05362/2	22/05362/3
Client Sample No	1	1	1
Client Sample ID/Depth	WS202 0.20-0.60m	WS203 0.20-0.80m	WS204 0.20-0.60m
Date Sampled	26/05/22	26/05/22	26/05/22
VOCs	✓		✓
SVOC	✓		✓
TPH Total with ID + GC Trace		✓	

If, at any point before reaching the laboratory, the temperature of the samples has breached those set in published standards, e.g. BS-EN 5667-3, ISO 18400-102:2017, then the concentration of any affected analytes may differ from that at the time of sampling.

Envirolab Analysis Dates

Lab Sample ID	22/05362/1	22/05362/2	22/05362/3	22/05362/5
Client Sample No	1	1	1	1
Client Sample ID/Depth	WS202 0.20-0.60m	WS203 0.20-0.80m	WS204 0.20-0.60m	TP202 0.20-0.80m
Date Sampled	26/05/22	26/05/22	26/05/22	26/05/22
A-T-004s		14/06/2022		14/06/2022
A-T-006s	14/06/2022		14/06/2022	
A-T-007s		13/06/2022		13/06/2022
A-T-019s	08/06/2022	08/06/2022	08/06/2022	08/06/2022
A-T-022s	07/06/2022	07/06/2022	07/06/2022	07/06/2022
A-T-024s	08/06/2022	08/06/2022	08/06/2022	08/06/2022
A-T-025w		15/06/2022		15/06/2022
A-T-026s	09/06/2022	09/06/2022	09/06/2022	09/06/2022
A-T-026w		15/06/2022		15/06/2022
A-T-027s	07/06/2022	07/06/2022	07/06/2022	07/06/2022
A-T-028s	08/06/2022	08/06/2022	08/06/2022	08/06/2022
A-T-029s	07/06/2022	07/06/2022	07/06/2022	07/06/2022
A-T-030s		11/06/2022		11/06/2022
A-T-031s	07/06/2022	07/06/2022	07/06/2022	07/06/2022
A-T-031w		15/06/2022		15/06/2022
A-T-032 OM	07/06/2022	07/06/2022	07/06/2022	07/06/2022
A-T-032s		07/06/2022		07/06/2022
A-T-032w		15/06/2022		15/06/2022
A-T-037s	13/06/2022		13/06/2022	
A-T-037w		15/06/2022		15/06/2022
A-T-040s	09/06/2022	09/06/2022	09/06/2022	09/06/2022
A-T-042sTCN	08/06/2022	08/06/2022	08/06/2022	08/06/2022
A-T-043-s	08/06/2022	08/06/2022	08/06/2022	08/06/2022
A-T-044	06/06/2022	06/06/2022	06/06/2022	06/06/2022
A-T-045	01/06/2022	01/06/2022	01/06/2022	01/06/2022
A-T-050s	06/06/2022	06/06/2022	06/06/2022	07/06/2022
A-T-050w		15/06/2022		15/06/2022
A-T-052s	14/06/2022		14/06/2022	
A-T-055s	07/06/2022	07/06/2022	07/06/2022	07/06/2022
A-T-ANCs		13/06/2022		13/06/2022
Calc	09/06/2022	09/06/2022	09/06/2022	09/06/2022
Calc-no stones		15/06/2022		15/06/2022

Lab Sample ID	22/05362/1	22/05362/2	22/05362/3	22/05362/5
Client Sample No	1	1	1	1
Client Sample ID/Depth	WS202 0.20-0.60m	WS203 0.20-0.80m	WS204 0.20-0.60m	TP202 0.20-0.80m
Date Sampled	26/05/22	26/05/22	26/05/22	26/05/22
Probe	13/06/2022		13/06/2022	
Probe (w)		15/06/2022		15/06/2022

The above dates are the analysis completion dates, please note that these are not necessarily the date that the analysis was weighed/extracted.

End of Report

Final Test Report

Envirolab Job Number: 22/05362
Issue Number: 1

Date: 15-Jun-22

Client: Sutcliffe
18-20 Harrington Street
Liverpool
L2 9QA

Project Manager: (Use) D Evans; D Bowen; A Tosh; W Baldwin/(Use) Sa
Project Name: Wheatfield, Rochdale
Project Ref: 31990LG
Order No: 9212

Date Samples Received: 31-May-22
Date Instructions Received: 31-May-22
Date Analysis Completed: 15-Jun-22

Notes - Soil analysis

All results are reported as dry weight (<40°C).

For samples with Matrix Codes 1 - 6 natural stones >10mm are removed or excluded from the sample prior to analysis and reported results corrected to a whole sample basis.

For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis.

Notes - General

This report shall not be reproduced, except in full, without written approval from Envirolab.

Subscript "A" indicates analysis performed on the sample as received. "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve, unless asbestos is found to be present in which case all analysis is performed on the sample as received.

All analysis is performed on the dried and crushed sample for samples with Matrix Code 7 and this supercedes any "A" subscripts.

All analysis is performed on the sample as received for soil samples from outside the European Union and this supercedes any "D" subscripts

For complex, multi-compound analysis, quality control results do not always fall within chart limits for every compound and we have criteria for reporting in these situations.

If results are in italic font they are associated with such quality control failures and may be unreliable.

A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid

Predominant Matrix Codes: 1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample

Secondary Matrix Codes: A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

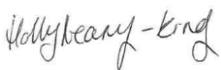
IS indicates Insufficient sample for analysis, NDP indicates No Determination Possible and NAD indicates No Asbestos Detected.

Analytical results reflect the quality of the sample at the time of analysis only. Opinions and interpretations expressed are outside the scope of our accreditation.

Please contact us if you need any further information.

HWOL TPH Code: EH_CU_1D_AL: Extractable hydrocarbons - i.e. everything extracted by the solvent(s), Clean-up - e.g. by florisil, silica gel, GC - Single coil gas chromatography, Aliphatics only

Approved by:



Holly Neary-King
Client Services Supervisor

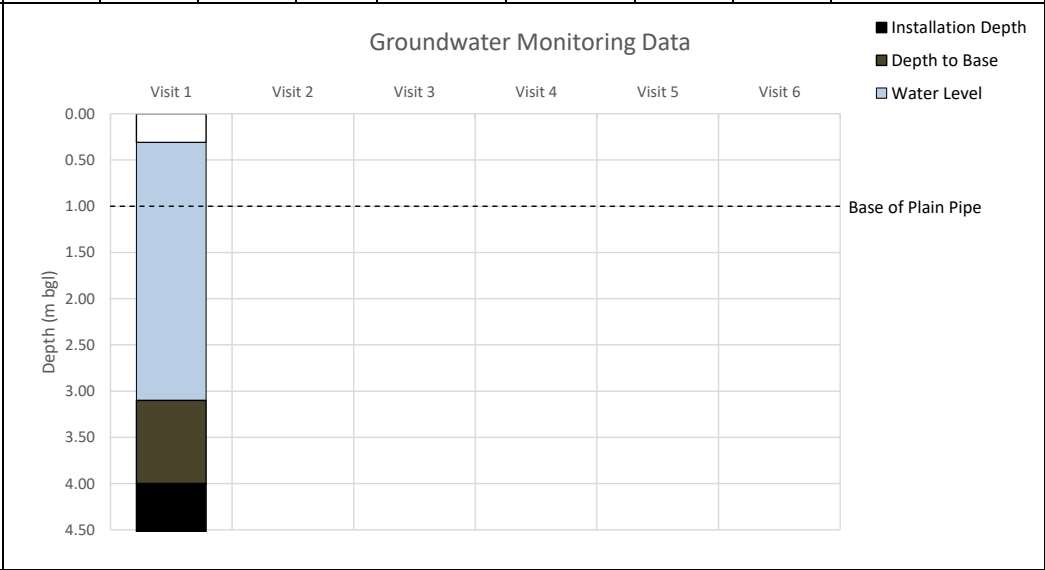
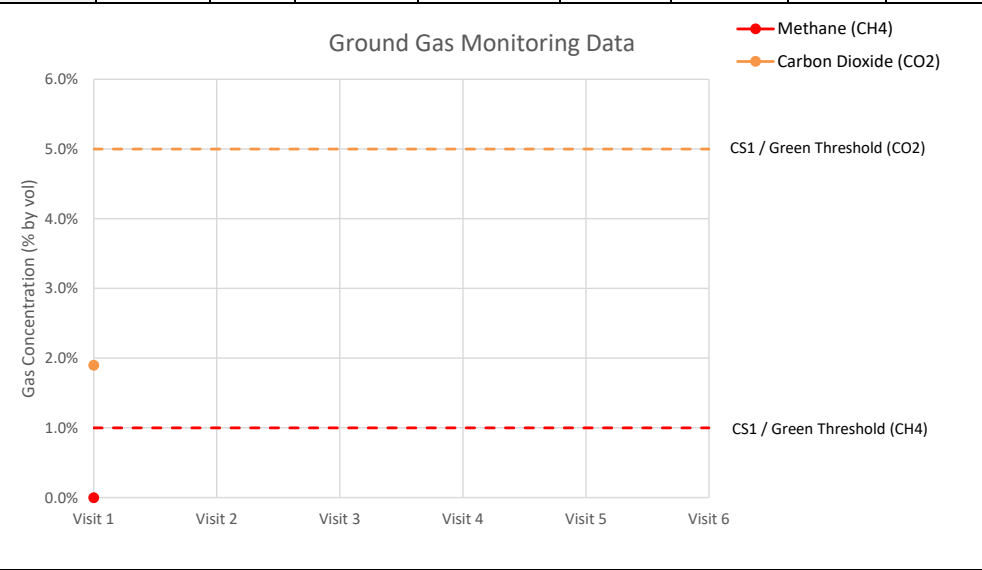
Sample Details							Landfill Waste Acceptance Criteria Limits			
Lab Sample ID	Method	ISO17025	MCERTS	22/05362/2						
Client Sample Number				1			Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill	
Client Sample ID				WS203						
Depth to Top				0.2						
Depth to Bottom				0.80						
Date Sampled				26/05/2022						
Sample Type				Soil - ES						
Sample Matrix Code				6E						
Solid Waste Analysis										
pH (pH Units) _D	A-T-031	N	N	6.17				-	>6	-
ANC to pH 4 (mol/kg) _D	A-T-ANC	N	N	0.11				-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg) _D	A-T-ANC	N	N	<0.01				-	to be evaluated	to be evaluated
Loss on Ignition (%) _D	A-T-030	N	N	15.4				-	-	10
Total Organic Carbon (%) _D	A-T-032	N	N	8.03				3	5	6
PAH Sum of 17 (mg/kg) _A	A-T-019	N	N	31.9				100	-	-
Mineral Oil (mg/kg) _{A EH_CU_1D_AL}	A-T-007	N	N	<10				500	-	-
Sum of 7 PCBs (mg/kg) _A	A-T-004	N	N	<0.007				1	-	-
Sum of BTEX (mg/kg) _A	A-T-022	N	N	<0.01				6	-	-
Eluate Analysis				2:1	8:1	2:1	Cumulative 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
				mg/l		mg/kg				
Arsenic	A-T-025	N	N	0.004	0.007	0.009	0.070	0.5	2	25
Barium	A-T-025	N	N	0.077	0.069	0.174	0.720	20	100	300
Cadmium	A-T-025	N	N	<0.001	<0.001	<0.002	<0.01	0.04	1	5
Chromium	A-T-025	N	N	0.001	0.001	0.002	0.010	0.5	10	70
Copper	A-T-025	N	N	0.013	0.019	0.029	0.190	2	50	100
Mercury	A-T-025	N	N	<0.0005	<0.0005	<0.001	<0.005	0.01	0.2	2
Molybdenum	A-T-025	N	N	0.001	0.003	0.002	0.030	0.5	10	30
Nickel	A-T-025	N	N	0.003	0.003	0.007	0.030	0.4	10	40
Lead	A-T-025	N	N	0.018	0.053	0.041	0.500	0.5	10	50
Antimony	A-T-025	N	N	0.005	0.004	0.011	0.040	0.06	0.7	5
Selenium	A-T-025	N	N	<0.001	<0.001	<0.002	<0.01	0.1	0.5	7
Zinc	A-T-025	N	N	0.043	0.023	0.097	0.260	4	50	200
Chloride	A-T-026	N	N	30	10	68	127	800	15000	25000
Fluoride	A-T-026	N	N	0.1	0.4	0.2	3.0	10	150	500
Sulphate as SO ₄	A-T-026	N	N	18	5	41	69	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	93	27	210	352	4000	60000	100000
Phenol Index	A-T-050	N	N	0.02	0.03	0.05	0.30	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<20.0	<20.0	<40	<200	500	800	1000
Leach Test Information										
pH (pH Units)	A-T-031	N	N	5.8	5.8					
Conductivity (µS/cm)	A-T-037	N	N	186	53					
Mass Sample (kg)				0.220						
Dry Matter (%)	A-T-044	N	N	79.6						
Stage 1										
Volume Leachant, L ₂ (l)	A-T-046			0.350						
Filtered Eluate Volume, VE ₁ (l)	A-T-046			0.200						
Stage 2										
Volume Leachant, L ₈ (l)	A-T-046			1.400						
Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation										

Landfill WAC analysis must not be used for hazardous waste classification purposes.
This analysis is only applicable for landfill acceptance and does not give any indication
as to whether a waste may be hazardous or non-hazardous.

Sample Details							Landfill Waste Acceptance Criteria Limits			
Lab Sample ID	Method	ISO17025	MCERTS	22/05362/5						
Client Sample Number				1			Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill	
Client Sample ID				TP202						
Depth to Top				0.2						
Depth to Bottom				0.80						
Date Sampled				26/05/2022						
Sample Type				Soil - ES						
Sample Matrix Code				6AE						
Solid Waste Analysis										
pH (pH Units) _D	A-T-031	N	N	5.46				-	>6	-
ANC to pH 4 (mol/kg) _D	A-T-ANC	N	N	0.03				-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg) _D	A-T-ANC	N	N	0.03				-	to be evaluated	to be evaluated
Loss on Ignition (%) _D	A-T-030	N	N	6.4				-	-	10
Total Organic Carbon (%) _D	A-T-032	N	N	1.65				3	5	6
PAH Sum of 17 (mg/kg) _A	A-T-019	N	N	<0.08				100	-	-
Mineral Oil (mg/kg) _{A EH_CU_1D_AL}	A-T-007	N	N	<10				500	-	-
Sum of 7 PCBs (mg/kg) _A	A-T-004	N	N	<0.007				1	-	-
Sum of BTEX (mg/kg) _A	A-T-022	N	N	<0.01				6	-	-
Eluate Analysis				2:1	8:1	2:1	Cumulative 10:1	Limit values for compliance leaching test using		
				mg/l		mg/kg		BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
Arsenic	A-T-025	N	N	<0.001	<0.001	<0.002	<0.01	0.5	2	25
Barium	A-T-025	N	N	0.209	0.168	0.427	1.730	20	100	300
Cadmium	A-T-025	N	N	<0.001	<0.001	<0.002	<0.01	0.04	1	5
Chromium	A-T-025	N	N	<0.001	0.001	<0.002	<0.01	0.5	10	70
Copper	A-T-025	N	N	0.018	0.018	0.037	0.180	2	50	100
Mercury	A-T-025	N	N	<0.0005	<0.0005	<0.001	<0.005	0.01	0.2	2
Molybdenum	A-T-025	N	N	<0.001	<0.001	<0.002	<0.01	0.5	10	30
Nickel	A-T-025	N	N	0.011	0.008	0.022	0.080	0.4	10	40
Lead	A-T-025	N	N	0.028	0.021	0.057	0.220	0.5	10	50
Antimony	A-T-025	N	N	<0.001	<0.001	<0.002	<0.01	0.06	0.7	5
Selenium	A-T-025	N	N	<0.001	<0.001	<0.002	<0.01	0.1	0.5	7
Zinc	A-T-025	N	N	0.020	0.014	0.041	0.150	4	50	200
Chloride	A-T-026	N	N	40	10	82	135	800	15000	25000
Fluoride	A-T-026	N	N	0.2	0.2	0.4	2.0	10	150	500
Sulphate as SO ₄	A-T-026	N	N	24	12	48	137	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	63	<20	129	<200	4000	60000	100000
Phenol Index	A-T-050	N	N	0.02	0.03	0.04	0.30	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<20.0	<20.0	<40	<200	500	800	1000
Leach Test Information										
pH (pH Units)	A-T-031	N	N	5.6	5.8					
Conductivity (µS/cm)	A-T-037	N	N	127	32					
Mass Sample (kg)				0.183						
Dry Matter (%)	A-T-044	N	N	95.9						
Stage 1										
Volume Leachant, L ₂ (l)	A-T-046			0.350						
Filtered Eluate Volume, VE ₁ (l)	A-T-046			0.200						
Stage 2										
Volume Leachant, L ₈ (l)	A-T-046			1.400						
Stated acceptance limits are for guidance only and Envirolab cannot be held responsible for any discrepancies with current legislation										

Appendix E – Ground Gas & Groundwater Monitoring Data

	SUTCLIFFE INVESTIGATIONS						Site Details						Installation Details				Position Ref.:
							Job No.:		31990LG				Installation Date:		17/09/2021		WS101
	TEL: 0151 227 3155						Site Name:		Wheatfield Day Centre, Whitefield				Installation Depth (m bgl):		4.00		
	FAX: 0151 227 3156						Client:		Onward				Base of Plain Pipe (m bgl):		1.00		
Site Monitoring Visit Details							Gas and Groundwater Monitoring Data								Ground Gas Risk Assessment		
Visit No.	Visit Date	Logged By	Weather	Atmospheric Pressure	Pressure Trend	Relative Pressure	Flow Rate	Max CH ₄	Max CH ₄	Max CO ₂	Min O ₂	Max PID	Water Level	Depth to Base	HGFR ¹ CH ₄ ^{2,3}	HGFR ¹ CO ₂ ^{2,3}	NHBC Traffic Light
						(mb)	(l/h)	(% LEL)	(% by vol)	(% by vol)	(% by vol)	(ppm)	(m bgl)	(m bgl)	(l/h)	(l/h)	
Visit 1	06/10/2021	MW	Overcast	1009mb	Rising	1009.00	1.1*	0.0%	0.0%	1.9%	20.4%	-	0.31	3.10	0.0011	0.0209	Green
Visit 2	18/10/2021	MW	Rain	1000mB	Steady	-	-	#N/A	#N/A	#N/A	#N/A	-	FLOODED	-	-	-	-
Visit 3	27/10/2021	MW	Cloudy	1001mB	Falling	-	-	#N/A	#N/A	#N/A	#N/A	-	FLOODED	-	-	-	-
Visit 4	10/11/2021	MW	Cloudy	1014mB	Falling	-	-	#N/A	#N/A	#N/A	#N/A	-	FLOODED	-	-	-	-
Visit 5	23/11/2021	MW	Cloudy	1027mB	Steady	-	-	#N/A	#N/A	#N/A	#N/A	-	FLOODED	-	-	-	-
Visit 6	13/12/2021	MW	Raining	1013mB	Steady	-	-	#N/A	#N/A	#N/A	#N/A	-	FLOODED	-	-	-	-



Comments:

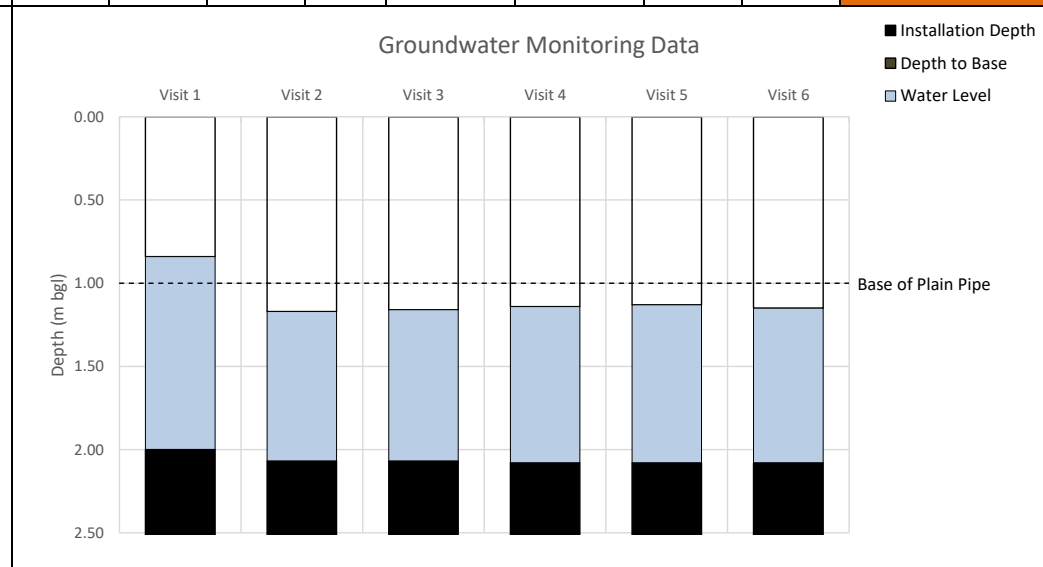
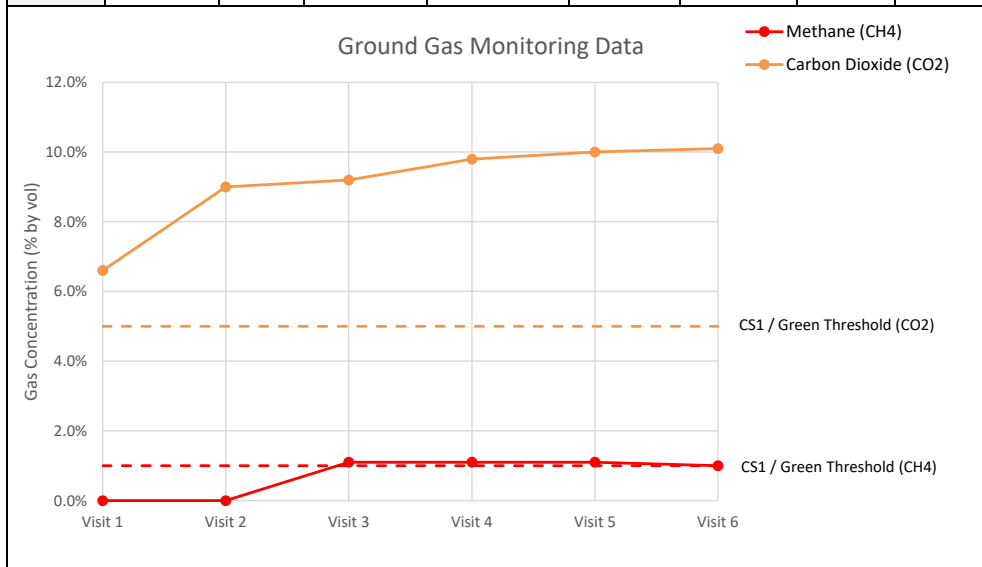
¹ Hazardous Gas Flow Rate Assessment Methodology (HGFR).

² Where maximum recorded flow is <0.1l/h, 0.1l/h has been used to calculate HGFR as recommended in CIRIA C665.

³ Where maximum recorded concentration is <0.1%, 0.1% has been used as recommended in BS8485.

* Peak flow recorded is likely to be due to a build-up of hydrolic pressure caused by rising water trapping the gas within the solid section of pipe; the initial peak flow is not representative of the rate of gas generation within the ground and can be discounted from the dataset.

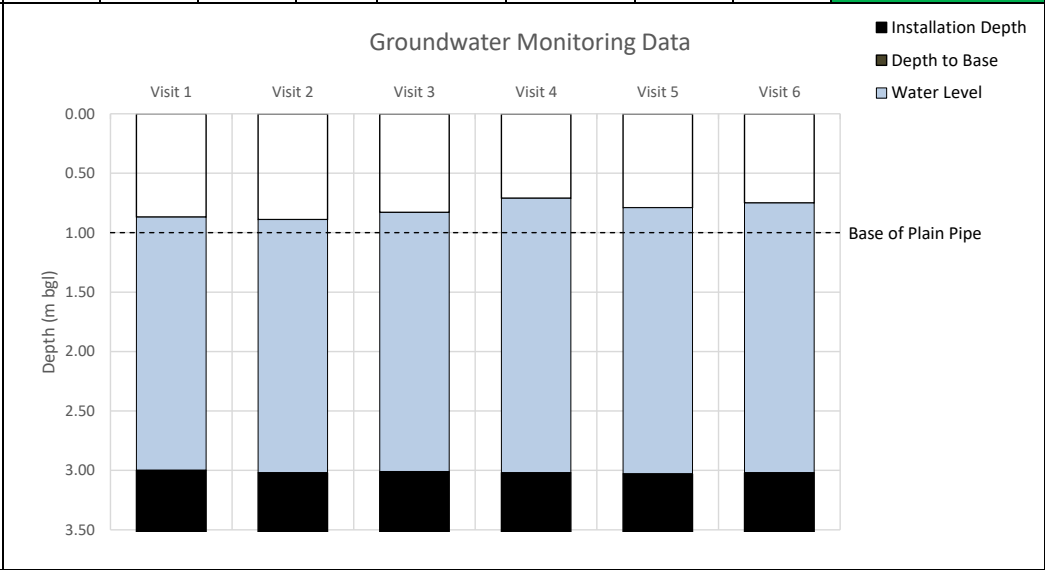
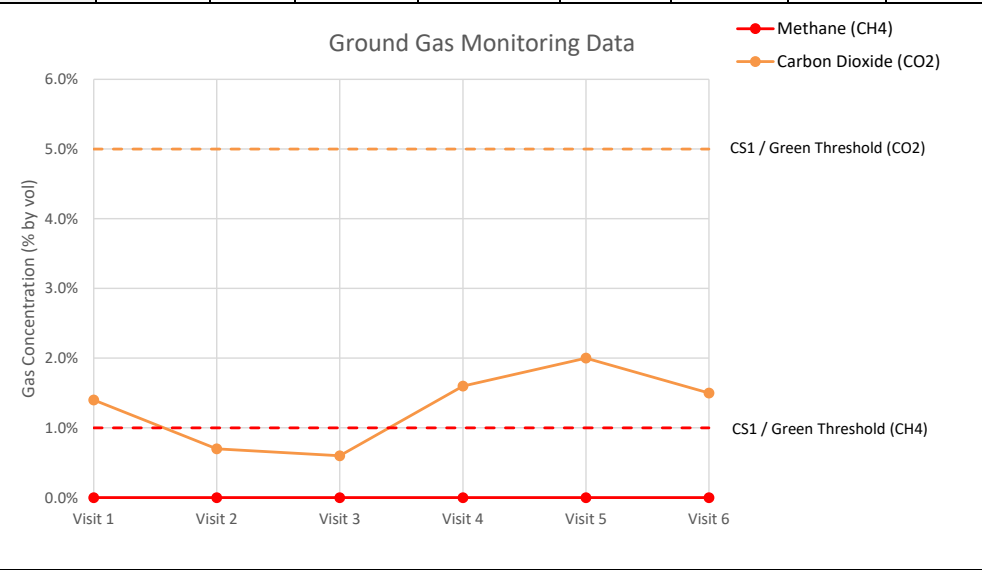
	SUTCLIFFE INVESTIGATIONS						Site Details						Installation Details				Position Ref.:	
							Job No.:		31990LG				Installation Date:		17/09/2021		WS103	
	TEL: 0151 227 3155						Site Name:		Wheatfield Day Centre, Whitefield				Installation Depth (m bgl):		2.00			
	FAX: 0151 227 3156						Client:		Onward				Base of Plain Pipe (m bgl):		1.00			
Site Monitoring Visit Details							Gas and Groundwater Monitoring Data								Ground Gas Risk Assessment			
Visit No.	Visit Date	Logged By	Weather	Atmospheric Pressure	Pressure Trend	Relative Pressure (mb)	Flow Rate (l/h)	Max CH ₄ (% LEL)	Max CH ₄ (% by vol)	Max CO ₂ (% by vol)	Min O ₂ (% by vol)	Max PID (ppm)	Water Level (m bgl)	Depth to Base (m bgl)	HGFR ¹ CH ₄ ^{2,3} (l/h)	HGFR ¹ CO ₂ ^{2,3} (l/h)	NHBC Traffic Light	
Visit 1	06/10/2021	MW	Overcast	1009mb	Rising	1009.00	9.0*	0.0%	0.0%	6.6%	20.4%	-	0.84	2.00	0.0090	0.5940	Amber 1	
Visit 2	18/10/2021	MW	Rain	1000mB	Steady	1000.00	-0.4	0.0%	0.0%	9.0%	20.0%	-	1.17	2.07	0.0004	0.0360	Amber 1	
Visit 3	27/10/2021	MW	Cloudy	1001mB	Falling	1002.00	0.0	0.0%	1.1%	9.2%	20.2%	-	1.16	2.07	0.0011	0.0092	Amber 1	
Visit 4	10/11/2021	MW	Cloudy	1014mB	Falling	1016.00	0.7	0.0%	1.1%	9.8%	20.2%	-	1.14	2.08	0.0077	0.0686	Amber 1	
Visit 5	23/11/2021	MW	Cloudy	1027mB	Steady	1027.00	0.0	0.0%	1.1%	10.0%	20.2%	-	1.13	2.08	0.0011	0.0100	Amber 2	
Visit 6	13/12/2021	MW	Raining	1013mB	Steady	1013.00	0.0	0.0%	1.0%	10.1%	20.2%	-	1.15	2.08	0.0010	0.0101	Amber 2	



Comments:

¹ Hazardous Gas Flow Rate Assessment Methodology (HGFR).
² Where maximum recorded flow is <0.1l/h, 0.1l/h has been used to calculate HGFR as recommended in CIRIA C665.
³ Where maximum recorded concentration is <0.1%, 0.1% has been used as recommended in BS8485.
* Peak flow recorded is likely to be due to a build-up of hydrolic pressure caused by rising water trapping the gas within the solid section of pipe; the initial peak flow is not representative of the rate of gas generation within the ground and can be discounted from the dataset.

	SUTCLIFFE INVESTIGATIONS						Site Details						Installation Details				Position Ref.:	
							Job No.:		31990LG				Installation Date:		17/09/2021		WS104	
	TEL: 0151 227 3155						Site Name:		Wheatfield Day Centre, Whitefield				Installation Depth (m bgl):		3.00			
	FAX: 0151 227 3156						Client:		Onward				Base of Plain Pipe (m bgl):		1.00			
Site Monitoring Visit Details							Gas and Groundwater Monitoring Data								Ground Gas Risk Assessment			
Visit No.	Visit Date	Logged By	Weather	Atmospheric Pressure	Pressure Trend	Relative Pressure	Flow Rate	Max CH ₄	Max CH ₄	Max CO ₂	Min O ₂	Max PID	Water Level	Depth to Base	HGFR ¹ CH ₄ ^{2,3}	HGFR ¹ CO ₂ ^{2,3}	NHBC Traffic Light	
						(mb)	(l/h)	(% LEL)	(% by vol)	(% by vol)	(% by vol)	(ppm)	(m bgl)	(m bgl)	(l/h)	(l/h)		
Visit 1	06/10/2021	MW	Overcast	1009mb	Rising	1009.00	0.4*	0.0%	0.0%	1.4%	20.4%	-	0.87	3.00	0.0004	0.0056		
Visit 2	18/10/2021	MW	Rain	1000mB	Steady	999.00	0.0*	0.0%	0.0%	0.7%	20.2%	-	0.89	3.02	0.0001	0.0007		
Visit 3	27/10/2021	MW	Cloudy	1001mB	Falling	1002.00	0.0*	0.0%	0.0%	0.6%	20.2%	-	0.83	3.01	0.0001	0.0006		
Visit 4	10/11/2021	MW	Cloudy	1014mB	Falling	1015.00	0.0*	0.0%	0.0%	1.6%	20.2%	-	0.71	3.02	0.0001	0.0016		
Visit 5	23/11/2021	MW	Cloudy	1027mB	Steady	1027.00	0.0*	0.0%	0.0%	2.0%	20.1%	-	0.79	3.03	0.0001	0.0020		
Visit 6	13/12/2021	MW	Raining	1013mB	Steady	1013.00	0.0*	0.0%	0.0%	1.5%	20.2%	-	0.75	3.02	0.0001	0.0015		



Comments:

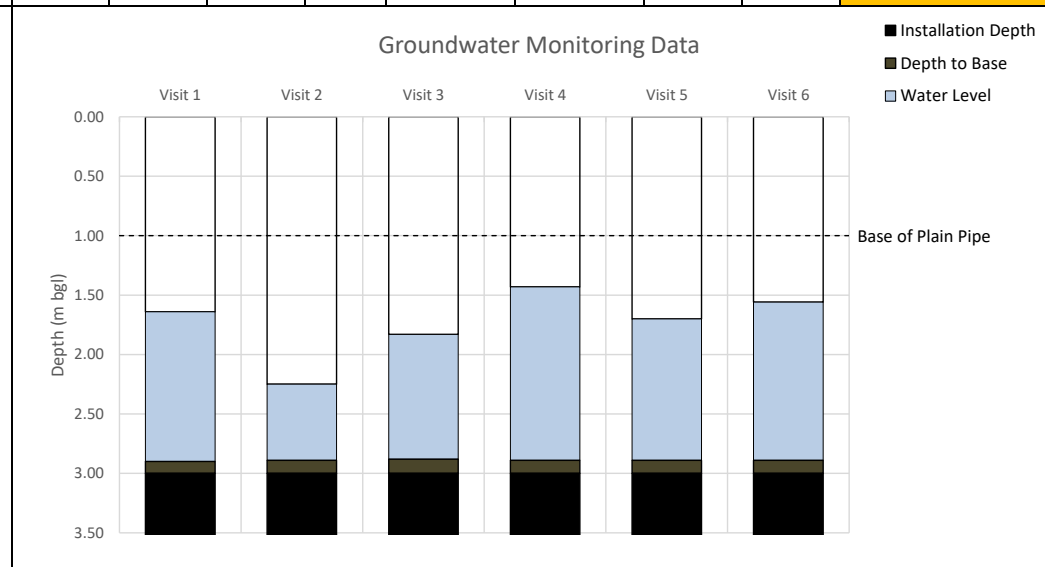
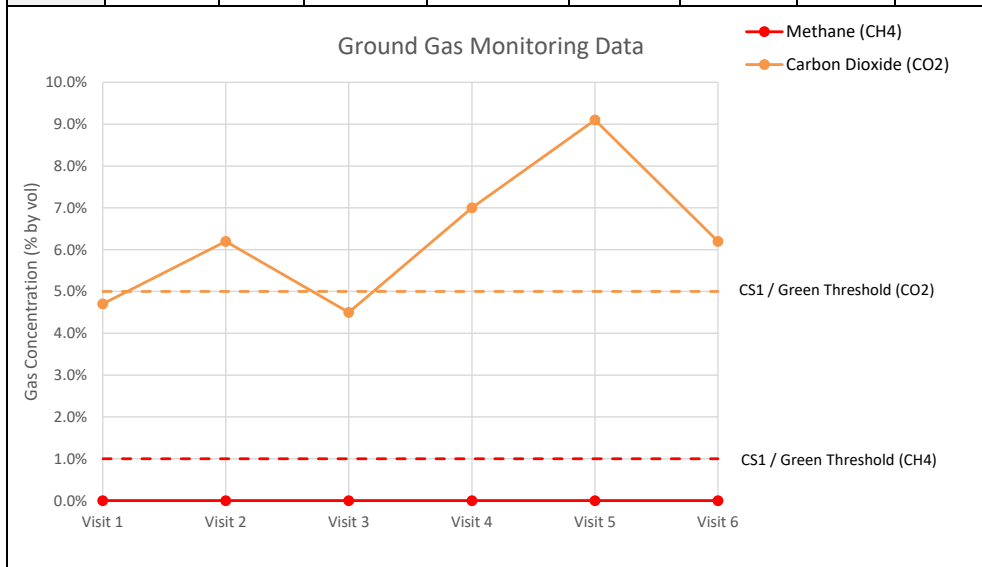
¹ Hazardous Gas Flow Rate Assessment Methodology (HGFR).

² Where maximum recorded flow is <0.1l/h, 0.1l/h has been used to calculate HGFR as recommended in CIRIA C665.

³ Where maximum recorded concentration is <0.1%, 0.1% has been used as recommended in BS8485.

* Peak flow recorded is likely to be due to a build-up of hydrolic pressure caused by rising water trapping the gas within the solid section of pipe; the initial peak flow is not representative of the rate of gas generation within the ground and can be discounted from the dataset.

	SUTCLIFFE INVESTIGATIONS						Site Details						Installation Details				Position Ref.:
							Job No.:		31990LG				Installation Date:		20/09/2021		WS105
	TEL: 0151 227 3155						Site Name:		Wheatfield Day Centre, Whitefield		Installation Depth (m bgl):		3.00				
	FAX: 0151 227 3156						Client:		Onward		Base of Plain Pipe (m bgl):		1.00				
Site Monitoring Visit Details							Gas and Groundwater Monitoring Data								Ground Gas Risk Assessment		
Visit No.	Visit Date	Logged By	Weather	Atmospheric Pressure	Pressure Trend	Relative Pressure (mb)	Flow Rate (l/h)	Max CH ₄ (% LEL)	Max CH ₄ (% by vol)	Max CO ₂ (% by vol)	Min O ₂ (% by vol)	Max PID (ppm)	Water Level (m bgl)	Depth to Base (m bgl)	HGFR ¹ CH ₄ ^{2,3} (l/h)	HGFR ¹ CO ₂ ^{2,3} (l/h)	NHBC Traffic Light
Visit 1	06/10/2021	MW	Overcast	1009mb	Rising	1009.00	0.2	0.0%	0.0%	4.7%	20.7%	-	1.64	2.90	0.0002	0.0094	Green
Visit 2	18/10/2021	MW	Rain	1000mB	Steady	999.00	0.0	0.0%	0.0%	6.2%	20.4%	-	2.25	2.89	0.0001	0.0062	Amber 1
Visit 3	27/10/2021	MW	Cloudy	1001mB	Falling	1000.00	0.0	0.0%	0.0%	4.5%	20.3%	-	1.83	2.88	0.0001	0.0045	Green
Visit 4	10/11/2021	MW	Cloudy	1014mB	Falling	1013.00	0.0	0.0%	0.0%	7.0%	20.2%	-	1.43	2.89	0.0001	0.0070	Amber 1
Visit 5	23/11/2021	MW	Cloudy	1027mB	Steady	1026.00	0.0	0.0%	0.0%	9.1%	20.2%	-	1.70	2.89	0.0001	0.0091	Amber 1
Visit 6	13/12/2021	MW	Raining	1013mB	Steady	1013.00	0.0	0.0%	0.0%	6.2%	20.2%	-	1.56	2.89	0.0001	0.0062	Amber 1



Comments:	
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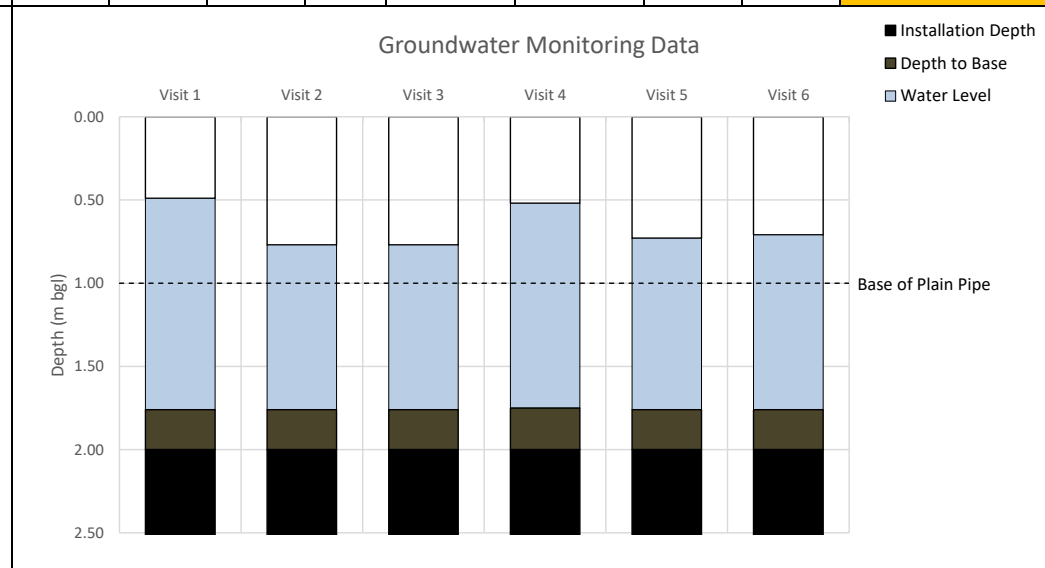
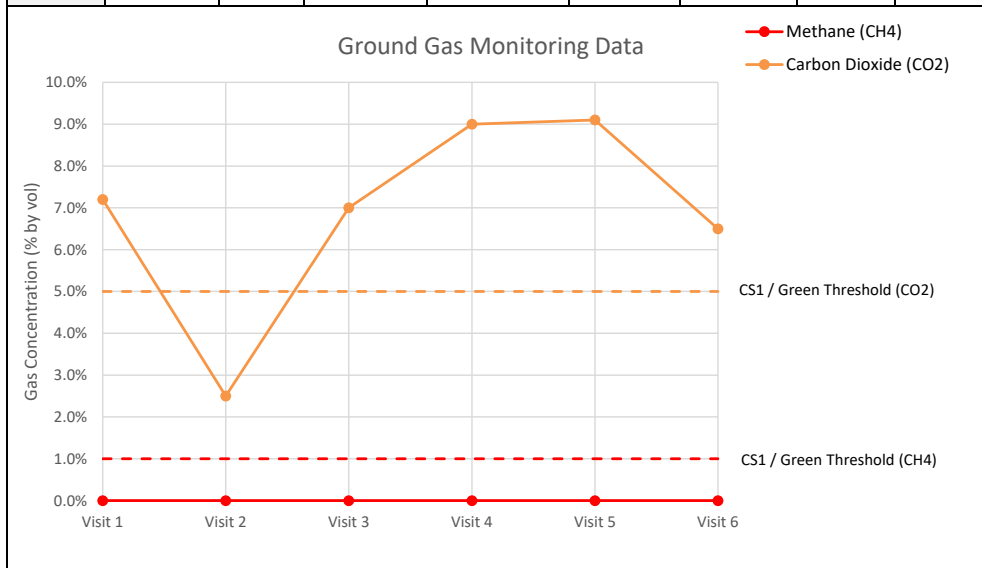
¹ Hazardous Gas Flow Rate Assessment Methodology (HGFR).

² Where maximum recorded flow is <0.1l/h, 0.1l/h has been used to calculate HGFR as recommended in CIRIA C665.

³ Where maximum recorded concentration is <0.1%, 0.1% has been used as recommended in BS8485.

* Peak flow recorded is likely to be due to a build-up of hydrolic pressure caused by rising water trapping the gas within the solid section of pipe; the initial peak flow is not representative of the rate of gas generation within the ground and can be discounted from the dataset.

	SUTCLIFFE INVESTIGATIONS						Site Details						Installation Details				Position Ref.:
							Job No.:		31990LG				Installation Date:		20/09/2021		WS107
	TEL: 0151 227 3155						Site Name:		Wheatfield Day Centre, Whitefield		Installation Depth (m bgl):		2.00				
	FAX: 0151 227 3156						Client:		Onward		Base of Plain Pipe (m bgl):		1.00				
Site Monitoring Visit Details							Gas and Groundwater Monitoring Data								Ground Gas Risk Assessment		
Visit No.	Visit Date	Logged By	Weather	Atmospheric Pressure	Pressure Trend	Relative Pressure (mb)	Flow Rate (l/h)	Max CH ₄ (% LEL)	Max CH ₄ (% by vol)	Max CO ₂ (% by vol)	Min O ₂ (% by vol)	Max PID (ppm)	Water Level (m bgl)	Depth to Base (m bgl)	HGFR ¹ CH ₄ ^{2,3} (l/h)	HGFR ¹ CO ₂ ^{2,3} (l/h)	NHBC Traffic Light
Visit 1	06/10/2021	MW	Overcast	1009mb	Rising	1009.00	-1.0*	0.0%	0.0%	7.2%	20.4%	-	0.49	1.76	0.0010	0.0720	Amber 1
Visit 2	18/10/2021	MW	Rain	1000mB	Steady	1000.00	0.0*	0.0%	0.0%	2.5%	20.4%	-	0.77	1.76	0.0001	0.0025	Green
Visit 3	27/10/2021	MW	Cloudy	1001mB	Falling	1001.00	0.0*	0.0%	0.0%	7.0%	20.5%	-	0.77	1.76	0.0001	0.0070	Amber 1
Visit 4	10/11/2021	MW	Cloudy	1014mB	Falling	1014.00	3.0*	0.0%	0.0%	9.0%	20.2%	-	0.52	1.75	0.0030	0.2700	Amber 1
Visit 5	23/11/2021	MW	Cloudy	1027mB	Steady	1026.00	0.0*	0.0%	0.0%	9.1%	20.2%	-	0.73	1.76	0.0001	0.0091	Amber 1
Visit 6	13/12/2021	MW	Raining	1013mB	Steady	1013.00	0.0*	0.0%	0.0%	6.5%	20.2%	-	0.71	1.76	0.0001	0.0065	Amber 1



Comments:	
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¹ Hazardous Gas Flow Rate Assessment Methodology (HGFR).
² Where maximum recorded flow is <0.1l/h, 0.1l/h has been used to calculate HGFR as recommended in CIRIA C665.
³ Where maximum recorded concentration is <0.1%, 0.1% has been used as recommended in BS8485.
 * Peak flow recorded is likely to be due to a build-up of hydrolic pressure caused by rising water trapping the gas within the solid section of pipe; the initial peak flow is not representative of the rate of gas generation within the ground and can be discounted from the dataset.

Appendix F – Geotechnical Laboratory Certificates

Units 1 & 2
Deltic Place
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LABORATORY REPORT

CONTRACT NUMBER: CCG-C-21-12633

CONTRACT TITLE: OXFORD AVENUE, WHITEFIELD

CLIENT: SUTCLIFFE

DATE RECEIVED: 22/09/21
DATE COMMENCED: 28/09/21
DATE COMPLETED: 04/10/21
REPORT DATE: 04/10/21

Test Description	Qty
Determination of Moisture Content BS 1377-2:1990 (a)	2
Determination of Liquid & Plastic Limits BS 1377-2:1990 (a)	5
Unconsolidated Undrained Triaxial Compression BS1377-7:1990 (a)	3

Notes: Observations and interpretations are not accredited by UKAS
All testing undertaken at laboratory permanent facilities
denotes non-accredited test
a denotes UKAS accredited test
s denotes test undertaken by approved subcontractor
Test results only relate to the samples tested
Sample and sample information supplied by client

This report is issued in accordance with the requirements of the United Kingdom Accreditation Services and EN ISO/IEC 17025:2017. The results reported herein relate only to the material supplied to the laboratory. This report shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved Signatories: Chris Bolan (Managing Director) – Daniel Kerfoot (Laboratory Manager)

SUMMARY OF LABORATORY SOIL TEST RESULTS

BH / TP / WS Number	Sample Type	Depth From (m)	Depth To (m)	Moisture Content (%)	Bulk Density (Mg/m ³)	Dry Density (Mg/m ³)	Shear Strength (kN/m ²)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 0.425mm (%)	Soil Classification	UKAS accredited test (Y/N)	Description / Test Method Samples described in accordance with BS EN ISO 14688-2 2004
WS101	U	2.50	2.70	12	2.19	1.95	73	26	14	12	91	CL	Y	Brown slightly sandy slightly gravelly silty CLAY of medium undrained shear strength. Gravel is fine to medium subangular to subrounded sandstone and coal. (BS1377Pt2:3.2,4.4,5,Pt7:8)
WS103	U	2.60	2.60	15	-	-	90*	25	13	12	90	CL	Y	Brown slightly sandy slightly gravelly silty CLAY. Gravel is fine to medium subangular to subrounded sandstone and coal. (BS1377Pt2:3.2,4.4,5)
WS104	U	2.50	2.50	14	-	-	80*	25	14	11	92	CL	Y	Brown slightly sandy slightly gravelly silty CLAY. Gravel is fine to medium subangular to subrounded sandstone and coal. (BS1377Pt2:3.2,4.4,5)
WS105	U	1.70	1.90	22	2.18	1.79	102	40	18	22	93	CI	Y	Brown slightly sandy slightly gravelly silty CLAY of high undrained shear strength. Gravel is fine to medium subangular to subrounded sandstone and coal. (BS1377Pt2:3.2,4.4,5,Pt7:8)
WS107	U	1.50	1.70	16	2.23	1.93	115	36	17	19	92	CI	Y	Brown slightly sandy slightly gravelly silty CLAY of high undrained shear strength. Gravel is fine to medium subangular to subrounded sandstone and coal. (BS1377Pt2:3.2,4.4,5,Pt7:8)

SITE: OXFORD AVENUE, WHITEFIELD (CCG-C-21-12633)
CLIENT: SUTCLIFFE

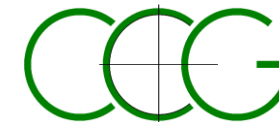
DATE: 04.10.21

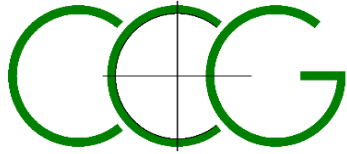
Key:- BD = Bulk Disturbed; SD = Small Disturbed; U100 = Undisturbed 100mm; WS = Window Sample

CL = Low Plasticity; CI = Intermediate; CH = High; CV = Very high; CE = Extremely high; NP = Non-plastic

(* Denotes Hand Shear Vane test result)

Sample description not accredited by UKAS

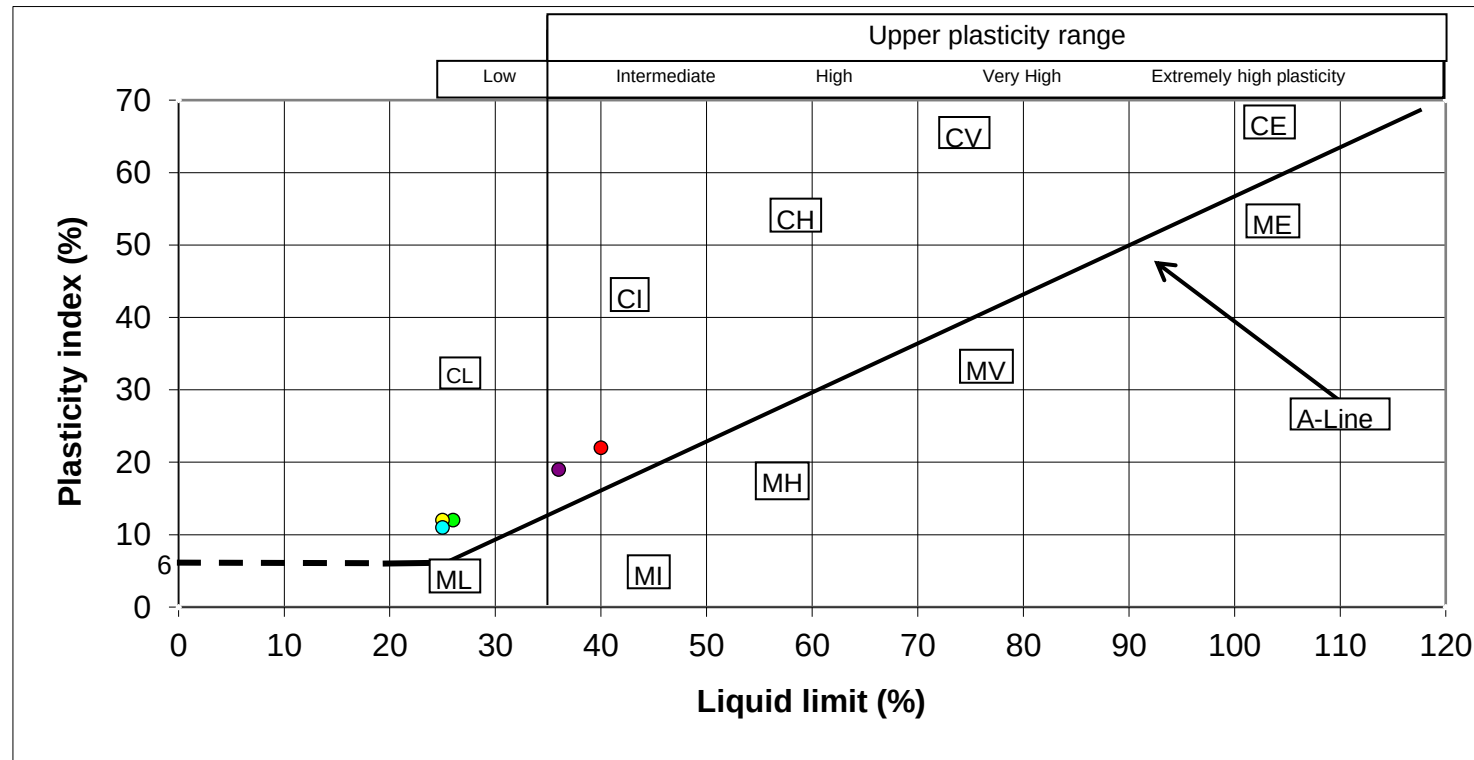




ATTERBERG TEST RESULT SHEET

BS 1377:Part 2:1990:cl 4.4,5

SILT (M-SOIL), M plots below A-Line , CLAY,C, plots above A-Line, M and C may be combined as FINE SOIL, F.



WS	Sample Depth	Liquid limit	Plasticity index
101	2.50	26.0	12.0
103	2.60	25.0	12.0
104	2.50	25.0	11.0
105	1.70	40.0	22.0
107	1.50	36.0	19.0



4514

APPROVED BY DK

CLIENT: SUTCLIFFE SITE: OXFORD AVENUE, WHITEFIELD (CCG-C-21-12633)



CC Geotechnical Ltd
Tel: 0151 545 2750
e: lab@ccgeotechnical.com

Unconsolidated Undrained Triaxial Compression Test without measurement of pore pressure - single specimen

Job Ref

CCG-C-21-12633

Borehole/Pit No.

WS101

Site Name

OXFORD AVENUE, WHITEFIELD

Sample No.

1

Soil Description

Depth

2.50

Specimen Reference

Specimen
Depth

m

Sample Type

U

Specimen Description

Brown slightly sandy slightly gravelly silty CLAY

Date of test

28/09/2021

Test Method

BS1377 : Part 7 : 1990, clause 8, single specimen



Test Number

1

Length

203.4

mm

Diameter

75.9

mm

Bulk Density

2.19

Mg/m³

Moisture Content

12.2

%

Dry Density

1.95

Mg/m³

Rate of Strain

2.0

%/min

Cell Pressure

50

kPa

At failure

11.8

%

Axial Strain

147

kPa

Deviator Stress, ($\sigma_1 - \sigma_3$)_f

73

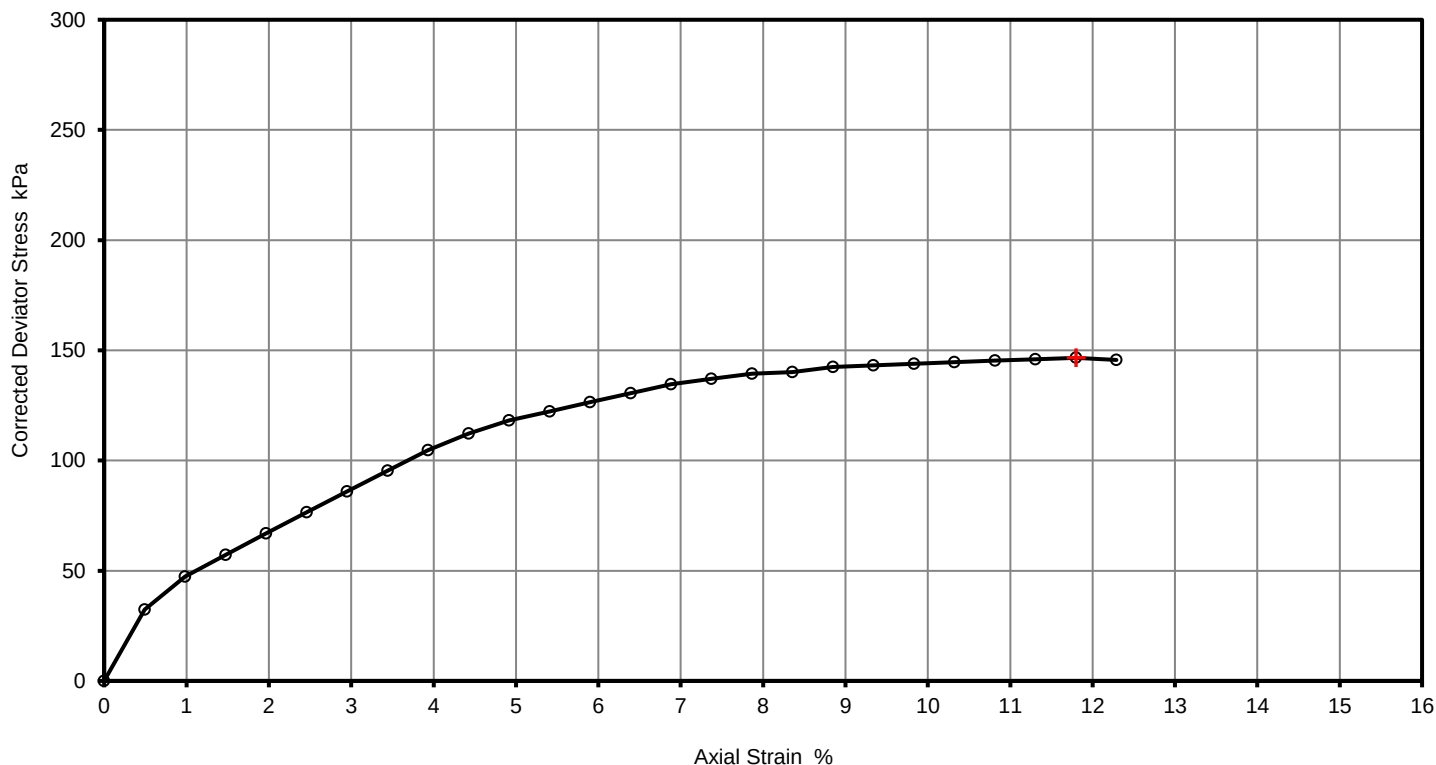
kPa $\frac{1}{2}(\sigma_1 - \sigma_3)$ _f

Undrained Shear Strength, cu

Plastic

Mode of Failure

Deviator Stress v Axial Strain



Remarks

Approved

Printed

DanielKerfoot

30/09/2021 15:22

Fig. No.

1

Sheet

3



CC Geotechnical Ltd
Tel: 0151 545 2750
e: lab@ccgeotechnical.com

Unconsolidated Undrained Triaxial Compression Test without measurement of pore pressure - single specimen

Job Ref

CCG-C-21-12633

Borehole/Pit No.

WS105

Site Name

OXFORD AVENUE, WHITEFIELD

Sample No.

1

Soil Description

Depth

1.70

Specimen Reference

Specimen
Depth

m

Sample Type

U

Specimen Description

Brown slightly sandy slightly gravelly silty CLAY

Date of test

28/09/2021

Test Method

BS1377 : Part 7 : 1990, clause 8, single specimen



Test Number

1

Length

203.0

mm

Diameter

81.0

mm

Bulk Density

2.18

Mg/m³

Moisture Content

22.0

%

Dry Density

1.79

Mg/m³

Rate of Strain

2.0

%/min

Cell Pressure

40

kPa

At failure

Axial Strain

16.3

%

Deviator Stress, ($\sigma_1 - \sigma_3$) f

205

kPa

Undrained Shear Strength, cu

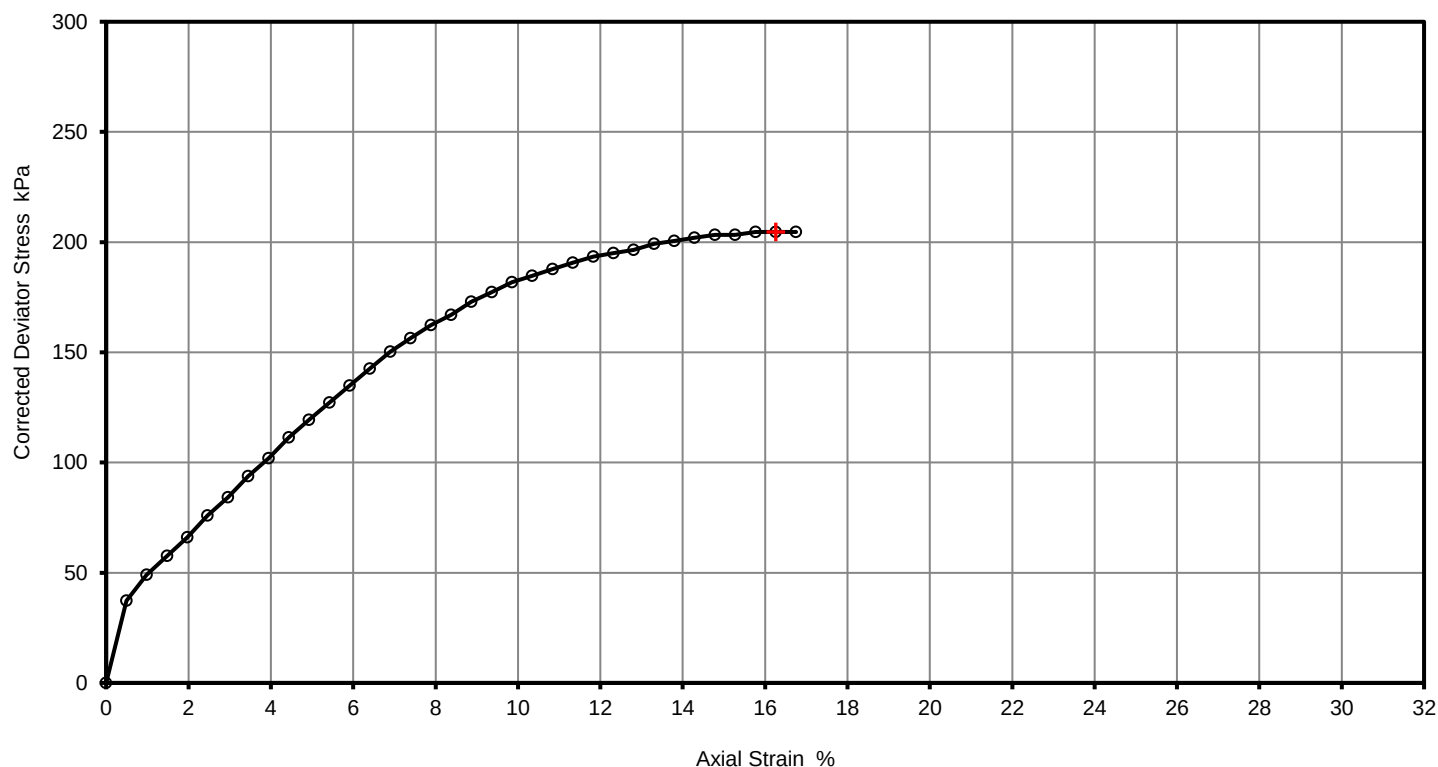
102

kPa $\frac{1}{2}(\sigma_1 - \sigma_3)$ f

Mode of Failure

Plastic

Deviator Stress v Axial Strain



Remarks

Approved

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30/09/2021 15:22

Fig. No.

1

Sheet

2



CC Geotechnical Ltd
Tel: 0151 545 2750
e: lab@ccgeotechnical.com

Unconsolidated Undrained Triaxial Compression Test without measurement of pore pressure - single specimen

Job Ref

CCG-C-21-12633

Borehole/Pit No.

WS107

Site Name

OXFORD AVENUE, WHITEFIELD

Sample No.

1

Soil Description

Depth

1.50

Specimen Reference

Specimen
Depth

m

Sample Type

U

Specimen Description

Brown slightly sandy slightly gravelly silty CLAY

Date of test

28/09/2021

Test Method

BS1377 : Part 7 : 1990, clause 8, single specimen



Test Number

1

Length

201.2

mm

Diameter

81.0

mm

Bulk Density

2.23

Mg/m³

Moisture Content

15.9

%

Dry Density

1.93

Mg/m³

Rate of Strain

2.0

%/min

Cell Pressure

30

kPa

At failure

Axial Strain

16.9

%

Deviator Stress, ($\sigma_1 - \sigma_3$)_f

229

kPa

Undrained Shear Strength, cu

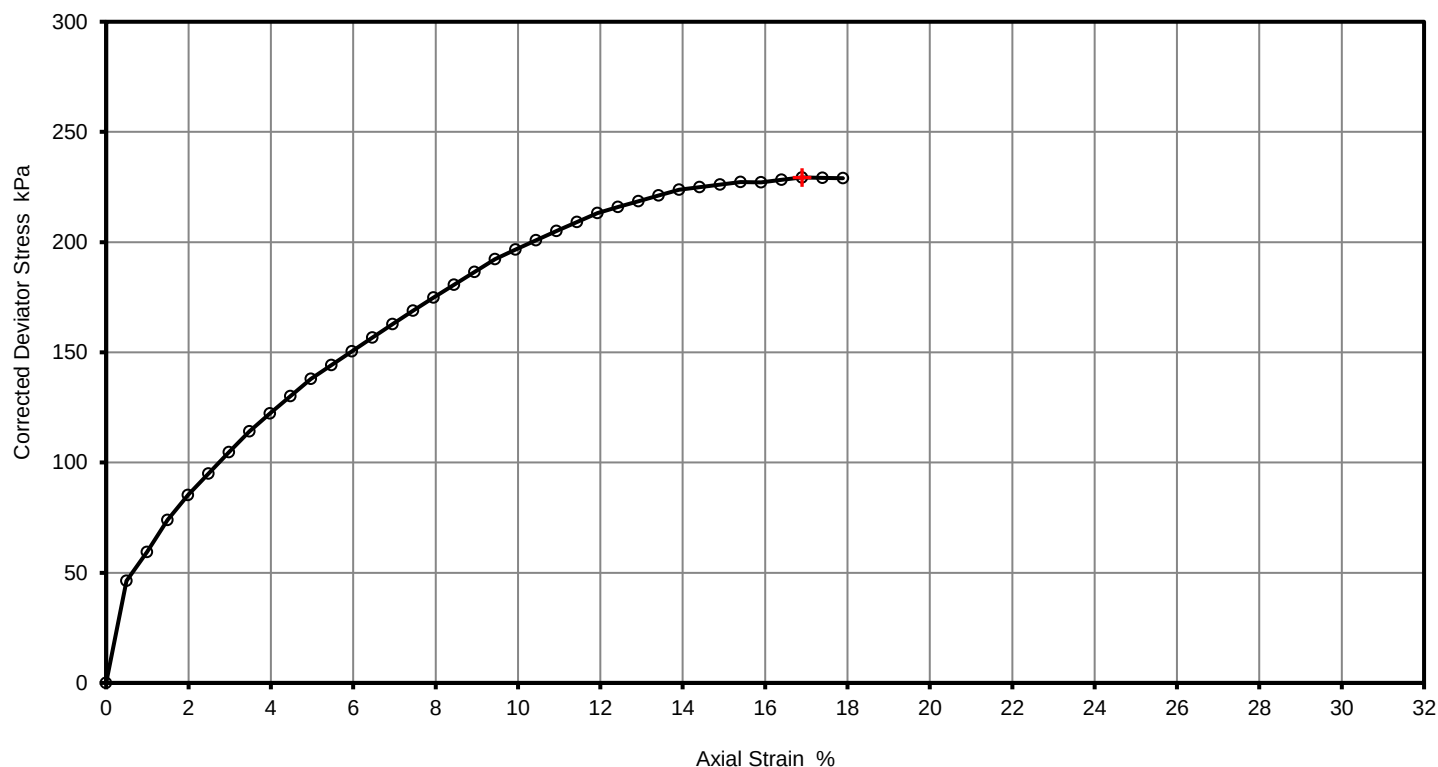
115

kPa $\frac{1}{2}(\sigma_1 - \sigma_3)$ _f

Mode of Failure

Plastic

Deviator Stress v Axial Strain



Remarks

Approved

Printed

DanielKerfoot

30/09/2021 15:22

Fig. No.

1

Sheet

1

Units 1 & 2
Deltic Place
Deltic Way
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L33 7BU

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LABORATORY REPORT

CONTRACT NUMBER: CCG-C-22-13212

CONTRACT TITLE: WHEATFIELDS

CLIENT: SUTCLIFFE

DATE RECEIVED: 31/05/22
DATE COMMENCED: 31/05/22
DATE COMPLETED: 10/06/22
REPORT DATE: 14/06/22

Test Description	Qty
Determination of Liquid & Plastic Limits BS 1377-2:1990 (a)	2
Unconsolidated Undrained Triaxial Compression BS1377-7:1990 (a)	1
Determination of Moisture Content BS 1377-2:1990 (a)	1

Notes: Observations and interpretations are not accredited by UKAS

All testing undertaken at laboratory permanent facilities

denotes non-accredited test

a denotes UKAS accredited test

s denotes test undertaken by approved subcontractor

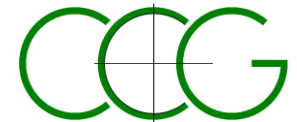
Test results only relate to the samples tested

Sample and sample information supplied by client

This report is issued in accordance with the requirements of the United Kingdom Accreditation Services and EN ISO/IEC 17025:2017. The results reported herein relate only to the material supplied to the laboratory. This report shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved Signatories: Chris Bolan (Managing Director) – Daniel Kerfoot (Laboratory Manager)

SITE: WHEATFIELDS (CCG-C-22-13212)
CLIENT: SUTCLIFFE



Sample description not accredited by UKAS

13212 RES.xls



CC Geotechnical Ltd
Tel: 0151 545 2750
e: lab@ccgeotechnical.com

Unconsolidated Undrained Triaxial Compression Test without measurement of pore pressure - single specimen

Job Ref

CCG-C-22-13212

Borehole/Pit No.

WS204

Site Name

WHEATFIELDS

Sample No.

1

Soil Description

Depth

1.50

Specimen Reference

Specimen
Depth

m

Sample Type

U

Specimen Description

Brown/grey mottled slightly sandy silty CLAY

Date of test

31/05/2022

Test Method

BS1377 : Part 7 : 1990, clause 8, single specimen



Test Number

1

Length

203.5

mm

Diameter

84.7

mm

Bulk Density

2.05

Mg/m³

Moisture Content

28.3

%

Dry Density

1.60

Mg/m³

Rate of Strain

2.0

%/min

Cell Pressure

30

kPa

At failure

8.8

%

Axial Strain

179

kPa

Deviator Stress, ($\sigma_1 - \sigma_3$)_f

90

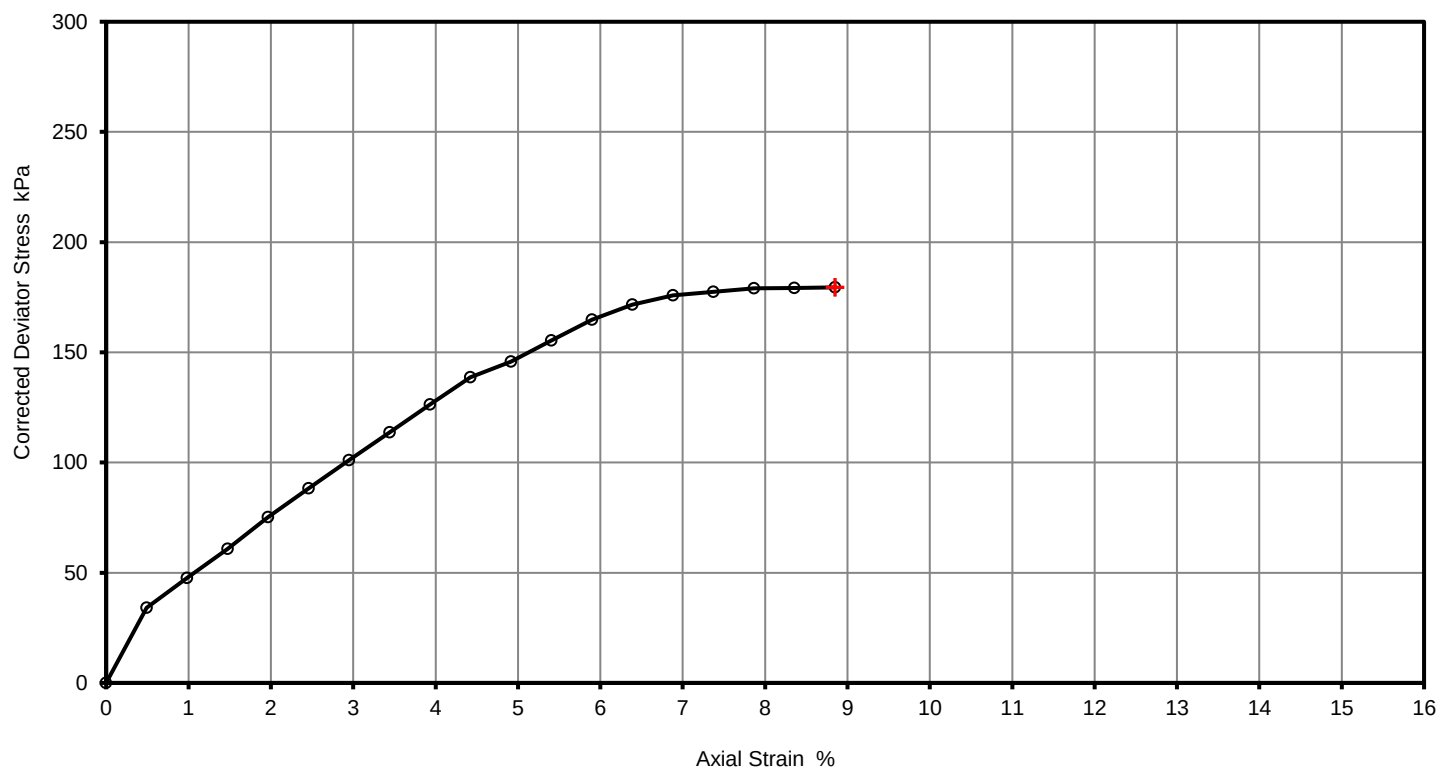
kPa $\frac{1}{2}(\sigma_1 - \sigma_3)$ _f

Undrained Shear Strength, cu

Plastic

Mode of Failure

Deviator Stress v Axial Strain



Remarks

Approved

Printed

DanielKerfoot

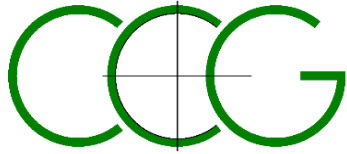
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Fig. No.

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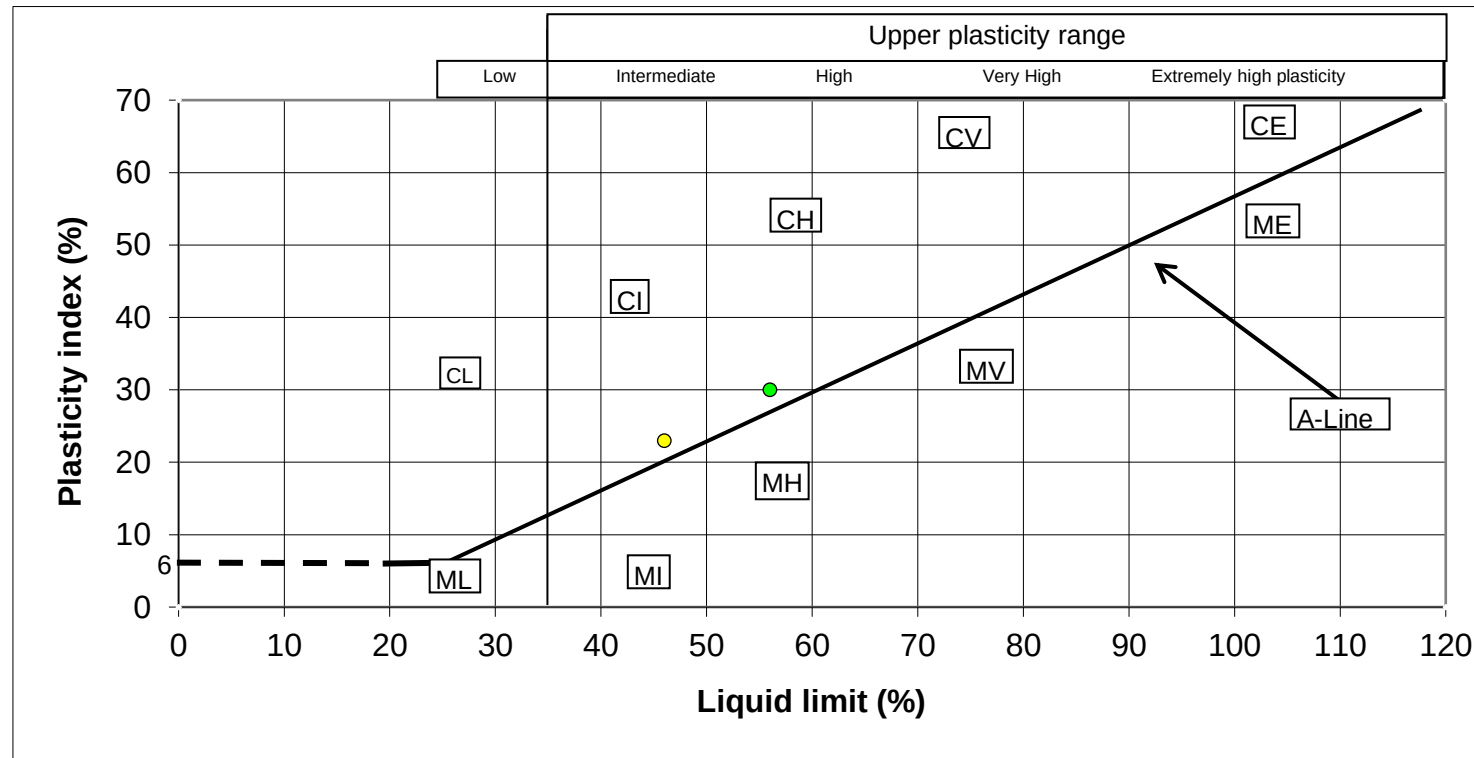
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ATTERBERG TEST RESULT SHEET

BS 1377:Part 2:1990:cl 4.4,5

SILT (M-SOIL), M plots below A-Line , CLAY,C, plots above A-Line, M and C may be combined as FINE SOIL, F.



WS	Sample Depth	Liquid limit	Plasticity index
202	1.0-2.0	56.0	30.0
204	1.5-2.0	46.0	23.0



4514

APPROVED BY	DK
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CLIENT: SUTCLIFFE	SITE: WHEATFIELDS (CCG-C-22-13212)
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Certificate for the Determination of the Vertical Deformation and Strength Characteristics of Soil by the Incremental Plate Loading Test to BS 1377 Part 9: 1990

Report No: HS6252-1
Client: Sutcliffe
Address: 18-20 Harrington Street
Liverpool
L2 9QA

Report Date: 17/09/2021

Site: Oxford Avenue, Whitefield, Manchester, M45 6DQ

Test Details

Test Location: 1
Description: Brown Sandy CLAY
Material Class: Formation
Layer: -200mm
Condition: The results apply only to the location tested and the material was tested in an 'as found' condition

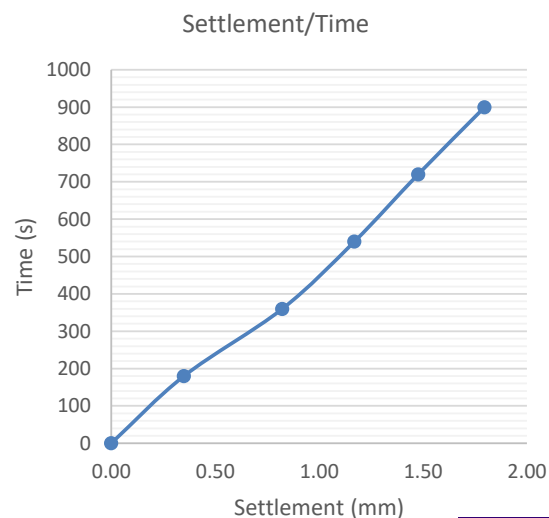
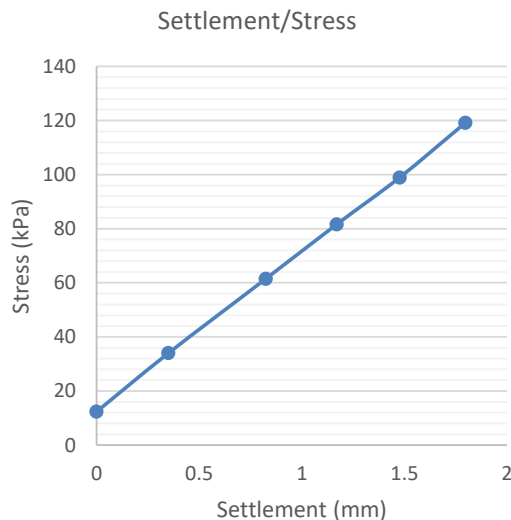
Date of Test: 17/09/2021
Reaction Load: 8 Tonne JCB
Weather: Dry
Plate Diameter (mm): 297

Test Results

Time (s)	Settlement (mm)	Plate Stress (kPa)
0	0.00	12
180	0.35	34
360	0.82	61
540	1.17	82
720	1.48	99
900	1.80	119

Maximum Applied Stress (kPa):	119
Maximum Settlement (mm):	1.80
Equivalent CBR Value (%):	4
Modulus of Subgrade Reaction, k_{762} (MN/m ² /m):	30

Note: Supplemental test method, calculation of Equivalent CBR Value and Modulus of Subgrade Reaction: IAN 73/06 revision 1 (2009), HD 25/94 (withdrawn)



For and on behalf of Hixtra Ltd

Kevin Shorthouse
Authorised signatory



8996

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HU-SOI-01B Issue 5



Certificate for the Determination of the Vertical Deformation and Strength Characteristics of Soil by the Incremental Plate Loading Test to BS 1377 Part 9: 1990

Report No: HS6252-2
Client: Sutcliffe
Address: 18-20 Harrington Street
Liverpool
L2 9QA

Report Date: 17/09/2021

Site: Oxford Avenue, Whitefield, Manchester, M45 6DQ

Test Details

Test Location: 2
Description: Sandy CLAY with Crushed Brick
Material Class: Formation
Layer: -0.50mm
Condition: The results apply only to the location tested and the material was tested in an 'as found' condition

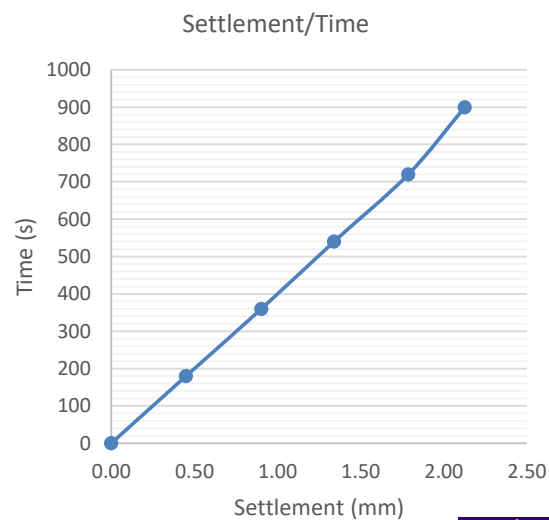
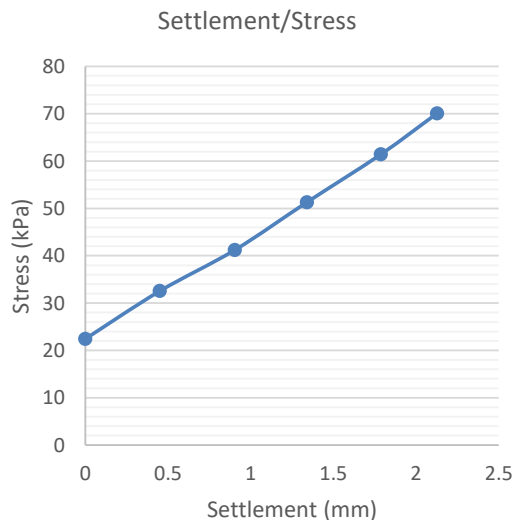
Date of Test: 17/09/2021
Reaction Load: 8 Tonne JCB
Weather: Dry
Plate Diameter (mm): 297

Test Results

Time (s)	Settlement (mm)	Plate Stress (kPa)
0	0.00	22
180	0.45	33
360	0.90	41
540	1.34	51
720	1.79	61
900	2.13	70

Maximum Applied Stress (kPa):	70
Maximum Settlement (mm):	2.13
Equivalent CBR Value (%):	1
Modulus of Subgrade Reaction, k_{762} (MN/m ² /m):	17

Note: Supplemental test method, calculation of Equivalent CBR Value and Modulus of Subgrade Reaction: IAN 73/06 revision 1 (2009), HD 25/94 (withdrawn)



For and on behalf of Hixtra Ltd

Kevin Shorthouse
Authorised signatory



8996

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HU-SOI-01B Issue 5



Certificate for the Determination of the Vertical Deformation and Strength Characteristics of Soil by the Incremental Plate Loading Test to BS 1377 Part 9: 1990

Report No: HS6252-3
Client: Sutcliffe
Address: 18-20 Harrington Street
Liverpool
L2 9QA

Report Date: 17/09/2021

Site: Oxford Avenue, Whitefield, Manchester, M45 6DQ

Test Details

Test Location: 3
Description: Brown Sandy CLAY
Material Class: Formation
Layer: Ground Level
Condition: The results apply only to the location tested and the material was tested in an 'as found' condition

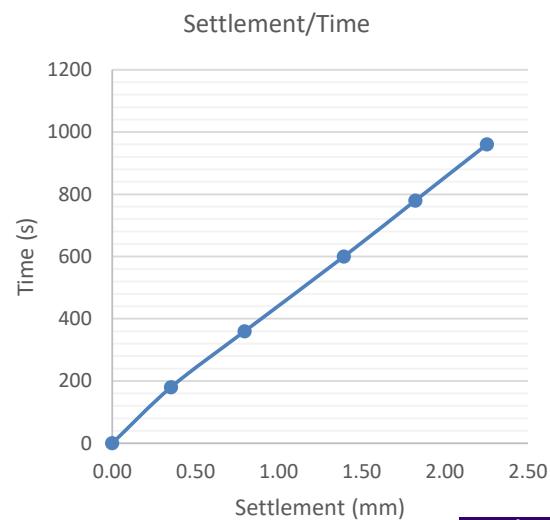
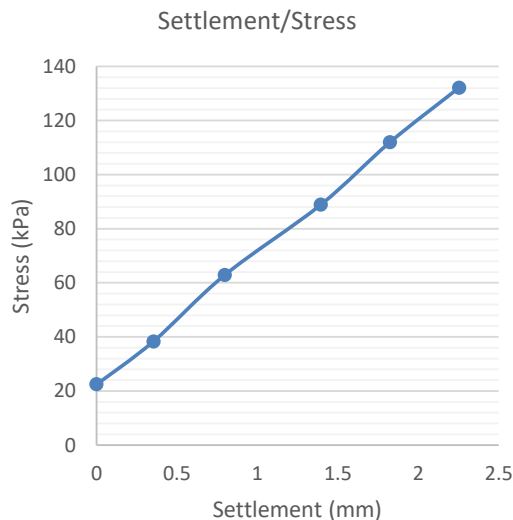
Date of Test: 17/09/2021
Reaction Load: 8 Tonne JCB
Weather: Dry
Plate Diameter (mm): 297

Test Results

Time (s)	Settlement (mm)	Plate Stress (kPa)
0	0.00	22
180	0.35	38
360	0.80	63
600	1.39	89
780	1.82	112
960	2.25	132

Maximum Applied Stress (kPa):	132
Maximum Settlement (mm):	2.25
Equivalent CBR Value (%):	3
Modulus of Subgrade Reaction, k_{762} (MN/m ² /m):	29

Note: Supplemental test method, calculation of Equivalent CBR Value and Modulus of Subgrade Reaction: IAN 73/06 revision 1 (2009), HD 25/94 (withdrawn)



For and on behalf of Hixtra Ltd

Kevin Shorthouse
Authorised signatory





Certificate for the Determination of the Vertical Deformation and Strength Characteristics of Soil by the Incremental Plate Loading Test to BS 1377 Part 9: 1990

Report No: HS6252-4
Client: Sutcliffe
Address: 18-20 Harrington Street
Liverpool
L2 9QA

Report Date: 17/09/2021

Site: Oxford Avenue, Whitefield, Manchester, M45 6DQ

Test Details

Test Location: 4
Description: Brown Gravelly SAND
Material Class: Formation
Layer: -0.50mm
Condition: The results apply only to the location tested and the material was tested in an 'as found' condition

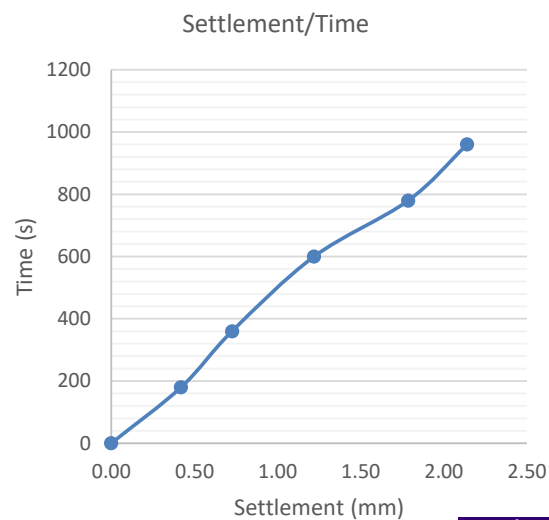
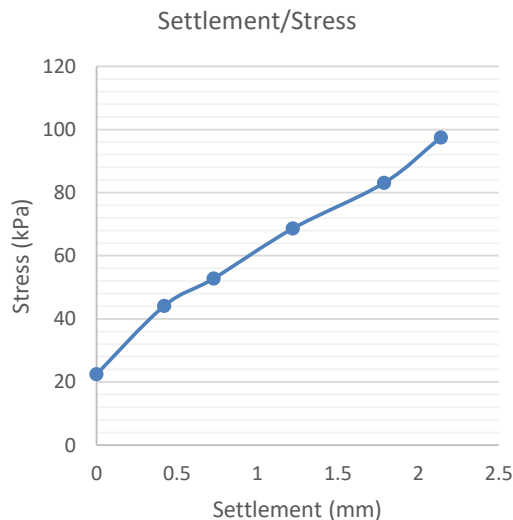
Date of Test: 17/09/2021
Reaction Load: 8 Tonne JCB
Weather: Dry
Plate Diameter (mm): 297

Test Results

Time (s)	Settlement (mm)	Plate Stress (kPa)
0	0.00	22
180	0.42	44
360	0.73	53
600	1.22	69
780	1.79	83
960	2.14	97

Maximum Applied Stress (kPa):	97
Maximum Settlement (mm):	2.14
Equivalent CBR Value (%):	2
Modulus of Subgrade Reaction, k_{762} (MN/m ² /m):	24

Note: Supplemental test method, calculation of Equivalent CBR Value and Modulus of Subgrade Reaction: IAN 73/06 revision 1 (2009), HD 25/94 (withdrawn)



For and on behalf of Hixtra Ltd

Kevin Shorthouse
Authorised signatory



Appendix G – Soil Screening Tables

		SUTCLIFFE INVESTIGATIONS		Human Health Assessment						
		TEL: 0151 227 3155								
		FAX: 0151 227 3156								
Job Name:		Wheatfields Day Centre, Whitefield		Job No.:	31990LG					
Proposed Land Use:		Residential With Plant Uptake		S.O.M.:	2.5					
Above Threshold:				Sample ID:		WS101	WS102	TP101	TP103/SA101	TP104/SA102
Below Limit of Detection:		<0.01		Depth Top (m bgl):		0.20	0.20	0.60	0.50	0.30
Not Tested:		n/t		Depth Base (m bgl):		0.60	0.60		0.70	0.50
No Asbestos Detected:		NAD		Date Sampled:		17-Sep-21	17-Sep-21	17-Sep-21	20-Sep-21	20-Sep-21
Contaminant		Units	Threshold Source	Threshold Value	WS101	WS102	TP101	TP103/SA101	TP104/SA102	
Metals / Non-Metals / Other Suite	Arsenic (Total)		mg/kg	LQM S4UL	37	6	6	4	24	13
	Boron (Soluble)		mg/kg	LQM S4UL	290	<1.0	<1.0	<1.0	<1.0	<1.0
	Cadmium (Total)		mg/kg	LQM S4UL	11	<0.5	0.8	0.8	1.2	<0.5
	Chromium III		mg/kg	LQM S4UL	910	9	26	29	27	19
	Chromium VI		mg/kg	LQM S4UL	6	<1	<1	<1	<1	<1
	Copper (Total)		mg/kg	LQM S4UL	2400	13	26	25	276	28
	Lead (Total)		mg/kg	C4SL	200	10	12	13	135	55
	Mercury (Total)		mg/kg	LQM S4UL	40	<0.17	<0.17	<0.17	<0.17	<0.17
	Nickel (Total)		mg/kg	LQM S4UL	180	14	40	39	27	16
	Selenium (Total)		mg/kg	LQM S4UL	250	<1	<1	<1	<1	<1
	Zinc (Total)		mg/kg	LQM S4UL	3700	36	66	66	199	62
	Cyanide (Total)		mg/kg	ATKINS	34	<1	<1	<1	<1	<1
	Phenols (Total)		mg/kg	LQM S4UL	550	<0.2	<0.2	<0.2	<0.2	<0.2
	Organic matter		%	LQM S4UL	N/a	1.7	1.5	1.6	8.8	1.2
	Sulphate (Acid Soluble)		mg/kg	LQM S4UL	N/a	300	<200	<200	420	590
	Sulphate as Water Soluble		g/l	LQM S4UL	N/a	0.02	<0.01	<0.01	<0.01	0.05
	Sulphide		mg/kg	LQM S4UL	N/a	66	76	49	16	8
	pH		pH units	LQM S4UL	N/a	8.31	5.06	6.74	7.4	9.42
	Sulphur (Elemental)		mg/kg	LQM S4UL	N/a	<5	<5	<5	5	<5
Asbestos Suite	Asbestos in soil		N/a		N/a	NAD	NAD	NAD	NAD	NAD
	Asbestos Matrix (microscope)		N/a		N/a	n/t	n/t	n/t	n/t	n/t
	ACM - Suitable for Water Absorption Test?		N/a		N/a	N/A	N/A	N/A	N/A	N/A
	Asbestos in soil % composition		% w/w		0.001	n/t	n/t	n/t	n/t	n/t
TPH Suite	TPH (Total)		mg/kg		N/a	6	6	4	142	5
	Total Aliphatic		mg/kg		N/a	4	2	1	31	2
	C5 to C6 aliphatic		mg/kg	LQM S4UL	78	<0.01	<0.01	<0.01	<0.01	<0.01
	C6 to C8 aliphatic		mg/kg	LQM S4UL	230	<0.01	<0.01	<0.01	<0.01	<0.01
	C8 to C10 aliphatic		mg/kg	LQM S4UL	65	<1	<1	<1	<1	<1
	C10 to C12 aliphatic		mg/kg	LQM S4UL	330	<1	<1	<1	<1	<1
	C12 to C16 aliphatic		mg/kg	LQM S4UL	2400	<1	<1	<1	<1	<1
	C16 to C35 aliphatic		mg/kg	LQM S4UL	92000	4	2	1	29	2
	C35 to C44 aliphatic		mg/kg	LQM S4UL	92000	<1	<1	<1	3	<1
	Total Aromatic		mg/kg		N/a	2	4	2	111	4
	C5 to C7 aromatic (Benzene)		mg/kg	LQM S4UL	140	<0.01	<0.01	<0.01	<0.01	<0.01
	C7 to C8 aromatic (Toluene)		mg/kg	LQM S4UL	290	<0.01	<0.01	<0.01	<0.01	<0.01
	C8 to C10 aromatic		mg/kg	LQM S4UL	83	<1	<1	<1	<1	<2
	C10 to C12 aromatic		mg/kg	LQM S4UL	180	<1	<1	<1	<1	<1
	C12 to C16 aromatic		mg/kg	LQM S4UL	330	<1	<1	<1	3	<1
	C16 to C21 aromatic		mg/kg	LQM S4UL	540	<1	<1	<1	12	<1
	C21 to C35 aromatic		mg/kg	LQM S4UL	1500	2	4	2	67	3
C35 to C44 aromatic		mg/kg	LQM S4UL	1500	<1	<1	<1	29	<1	
Aliphatic + Aromatic EC >44-70		mg/kg	LQM S4UL	N/a	n/t	n/t	n/t	n/t	n/t	
BTEX Suite	benzene		mg/kg	LQM S4UL	0.17	<0.01	<0.01	<0.01	<0.01	<0.01
	toluene		mg/kg	LQM S4UL	290	<0.01	<0.01	<0.01	<0.01	<0.01
	ethylbenzene		mg/kg	LQM S4UL	110	<0.01	<0.01	<0.01	<0.01	<0.01
	M&P Xylene		mg/kg	LQM S4UL	130	<0.01	<0.01	<0.01	<0.01	<0.01
	O-Xylene		mg/kg	LQM S4UL	140	<0.01	<0.01	<0.01	<0.01	<0.01
PAH Suite	naphthalene		mg/kg	LQM S4UL	5.6	<0.03	<0.03	<0.03	<0.03	<0.03
	acenaphthylene		mg/kg	LQM S4UL	420	<0.01	<0.01	<0.01	<0.01	<0.01
	acenaphthene		mg/kg	LQM S4UL	510	<0.01	<0.01	<0.01	0.18	<0.01
	fluorene		mg/kg	LQM S4UL	400	<0.01	<0.01	<0.01	0.1	<0.01
	phenanthrene		mg/kg	LQM S4UL	220	<0.03	<0.03	0.04	1.08	<0.03
	anthracene		mg/kg	LQM S4UL	5400	<0.02	<0.02	<0.02	0.26	<0.02
	fluoranthene		mg/kg	LQM S4UL	560	<0.08	<0.08	<0.08	1.94	<0.08
	pyrene		mg/kg	LQM S4UL	1200	<0.07	<0.07	<0.07	1.76	<0.07
	benzo(a)anthracene		mg/kg	LQM S4UL	11	<0.04	<0.04	<0.04	0.89	<0.04
	chrysene		mg/kg	LQM S4UL	22	<0.06	<0.06	<0.06	0.98	<0.06
	benzo(b)fluoranthene		mg/kg	LQM S4UL	3.3	<0.05	<0.05	<0.05	0.9	<0.05
	benzo(k)fluoranthene		mg/kg	LQM S4UL	93	<0.07	<0.07	<0.07	0.38	<0.07
	benzo(a)pyrene		mg/kg	LQM S4UL	2.7	<0.04	<0.04	<0.04	0.75	<0.04
	dibenzo(ah)anthracene		mg/kg	LQM S4UL	0.28	<0.04	<0.04	<0.04	0.1	<0.04
	benzo(ghi)perylene		mg/kg	LQM S4UL	340	<0.05	<0.05	<0.05	0.38	<0.05
indeno(123cd)pyrene		mg/kg	LQM S4UL	36	<0.03	<0.03	<0.03	0.44	<0.03	

		SUTCLIFFE INVESTIGATIONS		Human Health Assessment						
		TEL: 0151 227 3155								
		FAX: 0151 227 3156								
Job Name:		Wheatfields Day Centre, Whitefield		Job No.:	31990LG					
Proposed Land Use:		Residential With Plant Uptake		S.O.M.:	2.5					
Above Threshold:				Sample ID:		TP105	TP106	TP107	TP108	WS107
Below Limit of Detection:		<0.01		Depth Top (m bgl):		0.10	0.40	0.20	0.10	0.20
Not Tested:		n/t		Depth Base (m bgl):		0.30	0.60	0.50	0.30	0.60
No Asbestos Detected:		NAD		Date Sampled:		20-Sep-21	20-Sep-21	20-Sep-21	20-Sep-21	20-Sep-21
Contaminant		Units	Threshold Source	Threshold Value	TP105	TP106	TP107	TP108	WS107	
Metals / Non-Metals / Other Suite	Arsenic (Total)	mg/kg	LQM S4UL	37	<1	<1	21	6	13	
	Boron (Soluble)	mg/kg	LQM S4UL	290	<1.0	<1.0	<1.0	<1.0	<1.0	
	Cadmium (Total)	mg/kg	LQM S4UL	11	<0.5	<0.5	1	4	0.8	
	Chromium III	mg/kg	LQM S4UL	910	15	14	33	13	27	
	Chromium VI	mg/kg	LQM S4UL	6	<1	<1	<1	<1	<1	
	Copper (Total)	mg/kg	LQM S4UL	2400	12	8	49	24	39	
	Lead (Total)	mg/kg	C4SL	200	13	9	126	81	86	
	Mercury (Total)	mg/kg	LQM S4UL	40	2.59	<0.17	<0.17	0.44	<0.17	
	Nickel (Total)	mg/kg	LQM S4UL	180	12	13	32	15	23	
	Selenium (Total)	mg/kg	LQM S4UL	250	<1	<1	<1	<1	<1	
	Zinc (Total)	mg/kg	LQM S4UL	3700	39	35	202	65	102	
	Cyanide (Total)	mg/kg	ATKINS	34	<1	<1	<1	<1	<1	
	Phenols (Total)	mg/kg	LQM S4UL	550	<0.2	<0.2	<0.2	<0.2	<0.2	
	Organic matter	%	LQM S4UL	N/a	1.1	6.9	8.5	1.7	6	
	Sulphate (Acid Soluble)	mg/kg	LQM S4UL	N/a	<200	390	480	1600	420	
	Sulphate as Water Soluble	g/l	LQM S4UL	N/a	<0.01	<0.01	<0.01	0.06	<0.01	
	Sulphide	mg/kg	LQM S4UL	N/a	11	17	<5	<5	8	
	pH	pH units	LQM S4UL	N/a	8.66	7.24	7.08	9.43	7.67	
	Sulphur (Elemental)	mg/kg	LQM S4UL	N/a	<5	<5	<5	<5	<5	
Asbestos Suite	Asbestos in soil	N/a		N/a	NAD	NAD	NAD	NAD	NAD	
	Asbestos Matrix (microscope)	N/a		N/a	n/t	n/t	n/t	n/t	n/t	
	ACM - Suitable for Water Absorption Test?	N/a		N/a	N/A	N/A	N/A	N/A	N/A	
	Asbestos in soil % composition	% w/w		0.001	n/t	n/t	n/t	n/t	n/t	
TPH Suite	TPH (Total)	mg/kg		N/a	6	261	159	45	89	
	Total Aliphatic	mg/kg		N/a	2	14	18	15	17	
	C5 to C6 aliphatic	mg/kg	LQM S4UL	78	<0.01	<0.01	<0.01	<0.01	<0.01	
	C6 to C8 aliphatic	mg/kg	LQM S4UL	230	<0.01	<0.01	<0.01	<0.01	<0.01	
	C8 to C10 aliphatic	mg/kg	LQM S4UL	65	<1	<1	<1	<1	<1	
	C10 to C12 aliphatic	mg/kg	LQM S4UL	330	<1	<1	<1	<1	<1	
	C12 to C16 aliphatic	mg/kg	LQM S4UL	2400	<1	<1	<1	<1	<1	
	C16 to C35 aliphatic	mg/kg	LQM S4UL	92000	2	9	13	11	13	
	C35 to C44 aliphatic	mg/kg	LQM S4UL	92000	<1	5	5	3	5	
	Total Aromatic	mg/kg		N/a	4	247	142	30	71	
	C5 to C7 aromatic (Benzene)	mg/kg	LQM S4UL	140	<0.01	<0.01	<0.01	<0.01	<0.01	
	C7 to C8 aromatic (Toluene)	mg/kg	LQM S4UL	290	<0.01	<0.01	<0.01	<0.01	<0.01	
	C8 to C10 aromatic	mg/kg	LQM S4UL	83	<2	<2	<2	<2	<2	
	C10 to C12 aromatic	mg/kg	LQM S4UL	180	<1	<1	<1	<1	<1	
	C12 to C16 aromatic	mg/kg	LQM S4UL	330	<1	8	5	<1	2	
	C16 to C21 aromatic	mg/kg	LQM S4UL	540	<1	48	24	4	9	
	C21 to C35 aromatic	mg/kg	LQM S4UL	1500	3	174	98	21	46	
	C35 to C44 aromatic	mg/kg	LQM S4UL	1500	<1	15	14	4	13	
Aliphatic + Aromatic EC >44-70	mg/kg	LQM S4UL	N/a	n/t	n/t	n/t	n/t	n/t		
BTEX Suite	benzene	mg/kg	LQM S4UL	0.17	<0.01	<0.01	<0.01	<0.01	<0.01	
	toluene	mg/kg	LQM S4UL	290	<0.01	<0.01	<0.01	<0.01	<0.01	
	ethylbenzene	mg/kg	LQM S4UL	110	<0.01	<0.01	<0.01	<0.01	<0.01	
	M&P Xylene	mg/kg	LQM S4UL	130	<0.01	<0.01	<0.01	<0.01	<0.01	
	O-Xylene	mg/kg	LQM S4UL	140	<0.01	<0.01	<0.01	<0.01	<0.01	
PAH Suite	naphthalene	mg/kg	LQM S4UL	5.6	<0.03	0.03	<0.03	<0.03	<0.03	
	acenaphthylene	mg/kg	LQM S4UL	420	<0.01	0.02	0.07	<0.01	<0.01	
	acenaphthene	mg/kg	LQM S4UL	510	<0.01	0.43	0.13	0.02	0.09	
	fluorene	mg/kg	LQM S4UL	400	<0.01	0.2	0.07	<0.01	0.05	
	phenanthrene	mg/kg	LQM S4UL	220	<0.03	2.65	1.33	0.13	0.64	
	anthracene	mg/kg	LQM S4UL	5400	<0.02	0.59	0.4	0.03	0.15	
	fluoranthene	mg/kg	LQM S4UL	560	<0.08	6.5	4.47	0.34	2.19	
	pyrene	mg/kg	LQM S4UL	1200	<0.07	6.09	4.01	0.33	2.08	
	benzo(a)anthracene	mg/kg	LQM S4UL	11	<0.04	3.11	2.65	0.19	1	
	chrysene	mg/kg	LQM S4UL	22	<0.06	3.42	2.56	0.21	1.02	
	benzo(b)fluoranthene	mg/kg	LQM S4UL	3.3	<0.05	3.49	2.83	0.21	0.83	
	benzo(k)fluoranthene	mg/kg	LQM S4UL	93	<0.07	1.37	1.06	0.09	0.33	
	benzo(a)pyrene	mg/kg	LQM S4UL	2.7	<0.04	3.01	2.82	0.2	0.74	
	dibenzo(ah)anthracene	mg/kg	LQM S4UL	0.28	<0.04	0.38	0.36	<0.04	0.09	
	benzo(ghi)perylene	mg/kg	LQM S4UL	340	<0.05	1.54	1.4	0.13	0.36	
indeno(123cd)pyrene	mg/kg	LQM S4UL	36	<0.03	1.73	1.7	0.13	0.39		

		SUTCLIFFE INVESTIGATIONS		Human Health Assessment						
		TEL: 0151 227 3155								
		FAX: 0151 227 3156								
Job Name:		Wheatfields Day Centre, Whitefield		Job No.:	31990LG					
Proposed Land Use:		Residential With Plant Uptake		S.O.M.:	2.5					
Above Threshold:			Sample ID:		WS106	WS103	WS104	WS105	WS202	
Below Limit of Detection:		<0.01	Depth Top (m bgl):		0.20	0.20	0.20	0.20	0.20	
Not Tested:		n/t	Depth Base (m bgl):		0.60	0.60	0.60	0.60	0.60	
No Asbestos Detected:		NAD	Date Sampled:		20-Sep-21	17-Sep-21	17-Sep-21	20-Sep-21	26-May-22	
Contaminant		Units	Threshold Source	Threshold Value	WS106	WS103	WS104	WS105	WS202	
Metals / Non-Metals / Other Suite	Arsenic (Total)	mg/kg	LQM S4UL	37	16	7	12	25	8	
	Boron (Soluble)	mg/kg	LQM S4UL	290	<1.0	1.1	<1.0	<1.0	<1.0	
	Cadmium (Total)	mg/kg	LQM S4UL	11	1.6	<0.5	0.7	1.3	2	
	Chromium III	mg/kg	LQM S4UL	910	29	28	27	32	42	
	Chromium VI	mg/kg	LQM S4UL	6	<1	<1	<1	<1	<1	
	Copper (Total)	mg/kg	LQM S4UL	2400	50	33	33	73	27	
	Lead (Total)	mg/kg	C4SL	200	78	63	53	144	45	
	Mercury (Total)	mg/kg	LQM S4UL	40	<0.17	<0.17	0.61	<0.17	<0.17	
	Nickel (Total)	mg/kg	LQM S4UL	180	23	24	33	26	25	
	Selenium (Total)	mg/kg	LQM S4UL	250	<1	<1	<1	<1	2	
	Zinc (Total)	mg/kg	LQM S4UL	3700	180	61	87	191	62	
	Cyanide (Total)	mg/kg	ATKINS	34	<1	<1	<1	<1	<1	
	Phenols (Total)	mg/kg	LQM S4UL	550	<0.2	<0.2	<0.2	<0.2	<0.2	
	Organic matter	%	LQM S4UL	N/a	4.8	8.4	1.9	8.3	3.1	
	Sulphate (Acid Soluble)	mg/kg	LQM S4UL	N/a	340	590	1700	500	<200	
	Sulphate as Water Soluble	g/l	LQM S4UL	N/a	<0.01	0.02	0.04	<0.01	<0.01	
	Sulphide	mg/kg	LQM S4UL	N/a	6	15	<5	<5	540	
	pH	pH units	LQM S4UL	N/a	6.96	6.89	9.18	6.67	6.6	
	Sulphur (Elemental)	mg/kg	LQM S4UL	N/a	<5	120	6	7	<5	
Asbestos Suite	Asbestos in soil	N/a		N/a	NAD	NAD	NAD	NAD	NAD	
	Asbestos Matrix (microscope)	N/a		N/a	n/t	n/t	n/t	n/t	n/t	
	ACM - Suitable for Water Absorption Test?	N/a		N/a	N/A	N/A	N/A	N/A	N/A	
	Asbestos in soil % composition	% w/w		0.001	n/t	n/t	n/t	n/t	n/t	
TPH Suite	TPH (Total)	mg/kg		N/a	94	334	3	627	20	
	Total Aliphatic	mg/kg		N/a	9	61	1	38	12	
	C5 to C6 aliphatic	mg/kg	LQM S4UL	78	<0.01	<0.01	<0.01	<0.01	<0.01	
	C6 to C8 aliphatic	mg/kg	LQM S4UL	230	<0.01	<0.01	<0.01	<0.01	<0.01	
	C8 to C10 aliphatic	mg/kg	LQM S4UL	65	<1	<1	<1	<1	<1	
	C10 to C12 aliphatic	mg/kg	LQM S4UL	330	<1	<1	<1	<1	<1	
	C12 to C16 aliphatic	mg/kg	LQM S4UL	2400	<1	<1	<1	2	<1	
	C16 to C35 aliphatic	mg/kg	LQM S4UL	92000	6	53	1	26	9	
	C35 to C44 aliphatic	mg/kg	LQM S4UL	92000	3	7	<1	10	3	
	Total Aromatic	mg/kg		N/a	85	274	2	590	8	
	C5 to C7 aromatic (Benzene)	mg/kg	LQM S4UL	140	<0.01	<0.01	<0.01	<0.01	<0.01	
	C7 to C8 aromatic (Toluene)	mg/kg	LQM S4UL	290	<0.01	<0.01	<0.01	<0.01	<0.01	
	C8 to C10 aromatic	mg/kg	LQM S4UL	83	<2	<2	<2	<2	<1	
	C10 to C12 aromatic	mg/kg	LQM S4UL	180	<1	<1	<1	1	<1	
	C12 to C16 aromatic	mg/kg	LQM S4UL	330	4	3	<1	21	<1	
	C16 to C21 aromatic	mg/kg	LQM S4UL	540	15	7	<1	141	1	
	C21 to C35 aromatic	mg/kg	LQM S4UL	1500	56	158	2	406	7	
C35 to C44 aromatic	mg/kg	LQM S4UL	1500	9	104	<1	20	<1		
Aliphatic + Aromatic EC >44-70	mg/kg	LQM S4UL	N/a	n/t	n/t	n/t	n/t	n/t		
BTEX Suite	benzene	mg/kg	LQM S4UL	0.17	<0.01	<0.01	<0.01	<0.01	<0.01	
	toluene	mg/kg	LQM S4UL	290	<0.01	<0.01	<0.01	<0.01	<0.01	
	ethylbenzene	mg/kg	LQM S4UL	110	<0.01	<0.01	<0.01	<0.01	<0.01	
	M&P Xylene	mg/kg	LQM S4UL	130	<0.01	<0.01	<0.01	<0.01	<0.01	
	O-Xylene	mg/kg	LQM S4UL	140	<0.01	<0.01	<0.01	<0.01	<0.01	
PAH Suite	naphthalene	mg/kg	LQM S4UL	5.6	<0.03	<0.03	<0.03	0.06	<0.03	
	acenaphthylene	mg/kg	LQM S4UL	420	<0.01	<0.01	<0.01	0.11	<0.01	
	acenaphthene	mg/kg	LQM S4UL	510	0.2	0.04	<0.01	0.45	0.01	
	fluorene	mg/kg	LQM S4UL	400	0.13	0.03	<0.01	0.34	<0.01	
	phenanthrene	mg/kg	LQM S4UL	220	1.12	0.21	<0.03	4.51	0.08	
	anthracene	mg/kg	LQM S4UL	5400	0.25	0.04	<0.02	1.1	<0.02	
	fluoranthene	mg/kg	LQM S4UL	560	1.74	0.3	<0.08	8.62	0.13	
	pyrene	mg/kg	LQM S4UL	1200	1.58	0.28	<0.07	7.46	0.12	
	benzo(a)anthracene	mg/kg	LQM S4UL	11	0.78	0.12	<0.04	4.26	<0.04	
	chrysene	mg/kg	LQM S4UL	22	0.89	0.15	<0.06	4.06	<0.06	
	benzo(b)fluoranthene	mg/kg	LQM S4UL	3.3	0.81	0.13	<0.05	4.09	<0.05	
	benzo(k)fluoranthene	mg/kg	LQM S4UL	93	0.35	<0.07	<0.07	1.53	<0.07	
	benzo(a)pyrene	mg/kg	LQM S4UL	2.7	0.71	0.1	<0.04	3.78	<0.04	
	dibenzo(ah)anthracene	mg/kg	LQM S4UL	0.28	0.09	<0.04	<0.04	0.44	<0.04	
	benzo(ghi)perylene	mg/kg	LQM S4UL	340	0.38	<0.05	<0.05	1.76	<0.05	
	indeno(123cd)pyrene	mg/kg	LQM S4UL	36	0.41	0.06	<0.03	2.16	0.07	

		SUTCLIFFE INVESTIGATIONS		Human Health Assessment										
		TEL: 0151 227 3155												
		FAX: 0151 227 3156												
Job Name:		Wheatfields Day Centre, Whitefield		Job No.:		31990LG								
Proposed Land Use:		Residential With Plant Uptake		S.O.M.:		2.5								
Above Threshold:				Sample ID:		WS203		WS204		TP202				
Below Limit of Detection:		<0.01		Depth Top (m bgl):		0.20		0.20		0.20				
Not Tested:		n/t		Depth Base (m bgl):		0.80		0.60		0.80				
No Asbestos Detected:		NAD		Date Sampled:		26-May-22		26-May-22		26-May-22				
Contaminant		Units		Threshold Source		Threshold Value		WS203		WS204		TP202		
Metals / Non-Metals / Other Suite	Arsenic (Total)		mg/kg		LQM S4UL		37		53		10		8	
	Boron (Soluble)		mg/kg		LQM S4UL		290		1.2		<1.0		<1.0	
	Cadmium (Total)		mg/kg		LQM S4UL		11		2.7		2.8		2.9	
	Chromium III		mg/kg		LQM S4UL		910		42		37		53	
	Chromium VI		mg/kg		LQM S4UL		6		<1		<1		<1	
	Copper (Total)		mg/kg		LQM S4UL		2400		97		43		43	
	Lead (Total)		mg/kg		C4SL		200		234		53		47	
	Mercury (Total)		mg/kg		LQM S4UL		40		0.38		<0.17		<0.17	
	Nickel (Total)		mg/kg		LQM S4UL		180		34		47		51	
	Selenium (Total)		mg/kg		LQM S4UL		250		2		<1		2	
	Zinc (Total)		mg/kg		LQM S4UL		3700		224		102		102	
	Cyanide (Total)		mg/kg		ATKINS		34		2		<1		<1	
	Phenols (Total)		mg/kg		LQM S4UL		550		<0.2		<0.2		<0.2	
	Organic matter		%		LQM S4UL		N/a		13.8		3.2		2.8	
	Sulphate (Acid Soluble)		mg/kg		LQM S4UL		N/a		950		<200		200	
	Sulphate as Water Soluble		g/l		LQM S4UL		N/a		0.06		<0.01		0.01	
	Sulphide		mg/kg		LQM S4UL		N/a		620		520		490	
pH		pH units		LQM S4UL		N/a		6.17		6.69		5.46		
Sulphur (Elemental)		mg/kg		LQM S4UL		N/a		200		<5		<5		
Asbestos Suite	Asbestos in soil		N/a				N/a		NAD		NAD		NAD	
	Asbestos Matrix (microscope)		N/a				N/a		n/t		n/t		n/t	
	ACM - Suitable for Water Absorption Test?		N/a				N/a		N/A		N/A		N/A	
	Asbestos in soil % composition		% w/w				0.001		n/t		n/t		n/t	
TPH Suite	TPH (Total)		mg/kg				N/a		120		11		<10	
	Total Aliphatic		mg/kg				N/a		39		1		<1	
	C5 to C6 aliphatic		mg/kg		LQM S4UL		78		<0.01		<0.01		<0.01	
	C6 to C8 aliphatic		mg/kg		LQM S4UL		230		<0.01		<0.01		<0.01	
	C8 to C10 aliphatic		mg/kg		LQM S4UL		65		<1		<1		<1	
	C10 to C12 aliphatic		mg/kg		LQM S4UL		330		<1		<1		<1	
	C12 to C16 aliphatic		mg/kg		LQM S4UL		2400		<1		<1		<1	
	C16 to C35 aliphatic		mg/kg		LQM S4UL		92000		32		1		<1	
	C35 to C44 aliphatic		mg/kg		LQM S4UL		92000		6		<1		<1	
	Total Aromatic		mg/kg				N/a		148		10		<1	
	C5 to C7 aromatic (Benzene)		mg/kg		LQM S4UL		140		<0.01		<0.01		<0.01	
	C7 to C8 aromatic (Toluene)		mg/kg		LQM S4UL		290		<0.01		<0.01		<0.01	
	C8 to C10 aromatic		mg/kg		LQM S4UL		83		<1		<1		<1	
	C10 to C12 aromatic		mg/kg		LQM S4UL		180		<1		<1		<1	
	C12 to C16 aromatic		mg/kg		LQM S4UL		330		6		<1		<1	
	C16 to C21 aromatic		mg/kg		LQM S4UL		540		28		2		<1	
	C21 to C35 aromatic		mg/kg		LQM S4UL		1500		111		7		<1	
C35 to C44 aromatic		mg/kg		LQM S4UL		1500		3		<1		<1		
Aliphatic + Aromatic EC >44-70		mg/kg		LQM S4UL		N/a		n/t		n/t		n/t		
BTEX Suite	benzene		mg/kg		LQM S4UL		0.17		<0.01		<0.01		<0.01	
	toluene		mg/kg		LQM S4UL		290		<0.01		<0.01		<0.01	
	ethylbenzene		mg/kg		LQM S4UL		110		<0.01		<0.01		<0.01	
	M&P Xylene		mg/kg		LQM S4UL		130		<0.01		<0.01		<0.01	
	O-Xylene		mg/kg		LQM S4UL		140		<0.01		<0.01		<0.01	
PAH Suite	naphthalene		mg/kg		LQM S4UL		5.6		0.08		<0.03		<0.03	
	acenaphthylene		mg/kg		LQM S4UL		420		0.02		<0.01		<0.01	
	acenaphthene		mg/kg		LQM S4UL		510		0.54		0.02		<0.01	
	fluorene		mg/kg		LQM S4UL		400		0.31		<0.01		<0.01	
	phenanthrene		mg/kg		LQM S4UL		220		3.11		0.15		0.04	
	anthracene		mg/kg		LQM S4UL		5400		0.72		0.04		<0.02	
	fluoranthene		mg/kg		LQM S4UL		560		6.04		0.32		<0.08	
	pyrene		mg/kg		LQM S4UL		1200		5.55		0.3		<0.07	
	benzo(a)anthracene		mg/kg		LQM S4UL		11		2.37		0.14		<0.04	
	chrysene		mg/kg		LQM S4UL		22		2.99		0.21		<0.06	
	benzo(b)fluoranthene		mg/kg		LQM S4UL		3.3		2.84		0.2		<0.05	
	benzo(k)fluoranthene		mg/kg		LQM S4UL		93		1.08		<0.07		<0.07	
	benzo(a)pyrene		mg/kg		LQM S4UL		2.7		2.14		0.17		<0.04	
	dibenzo(ah)anthracene		mg/kg		LQM S4UL		0.28		0.39		<0.04		<0.04	
	benzo(ghi)perylene		mg/kg		LQM S4UL		340		1.49		0.12		<0.05	
	indeno(123cd)pyrene		mg/kg		LQM S4UL		36		1.86		0.15		<0.03	



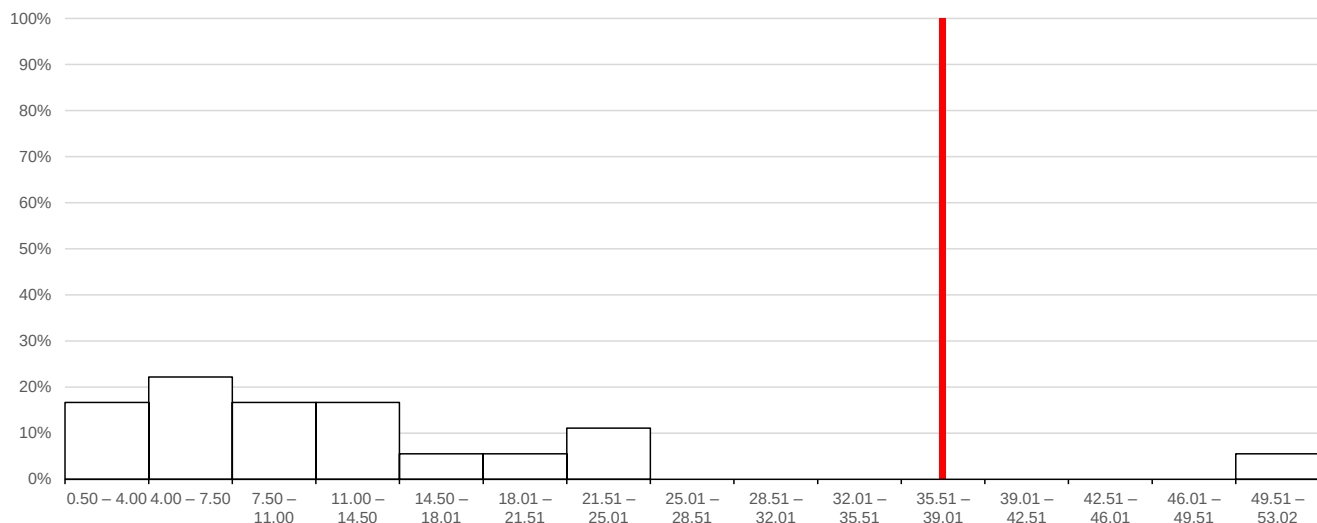
SUTCLIFFE INVESTIGATIONS

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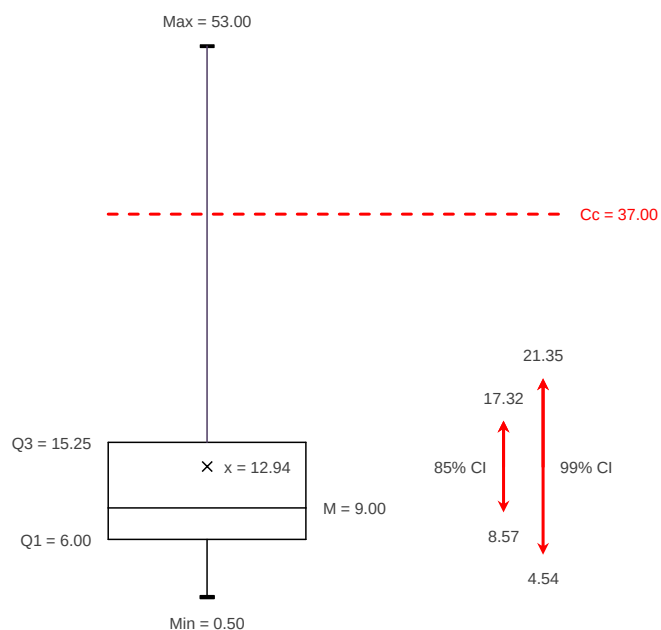
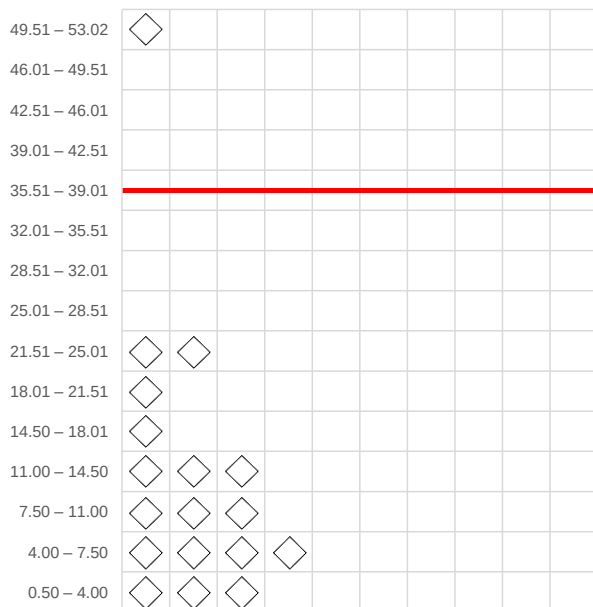
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Statistical Analysis (2-Way Confidence Intervals)

Job Name:	Wheatfields Day Centre, Whitefield	Job No.:	31990LG
Proposed Land Use:	Residential With Plant Uptake	No. of Samples:	18
Contaminant:	Arsenic (Total)	No. of Bin:	15
Data Type:	Symmetric	% Confidence Interval:	85% CI
Non-detect Rule:	Detection Limit		99% CI



Maximum (Max):	53.00	Critical Concentration (Cc):	37.00
Upper Quartile (Q3):	15.25	Mean (x):	12.94
Median (M):	9.00	Range (R):	52.50
Lower Quartile (Q1):	6.00	Standard Deviation (s):	12.31
Minimum (Min):	0.50	Interquartile Range (IQR):	9.25
85% CI	8.57	99% CI	4.54
	17.32		21.35



Summary

Sutcliffe are 85% confident that the true mean concentration (μ) for Arsenic (Total) lies between 8.57mg/kg and 17.32mg/kg.
 Sutcliffe are 99% confident that the true mean concentration (μ) for Arsenic (Total) does not lie outside of 4.54mg/kg and 21.35mg/kg.
 The Critical Concentration (Cc) for Arsenic (Total) under a 2.5% S.O.M. Residential With Plant Uptake end use is 37.00mg/kg.



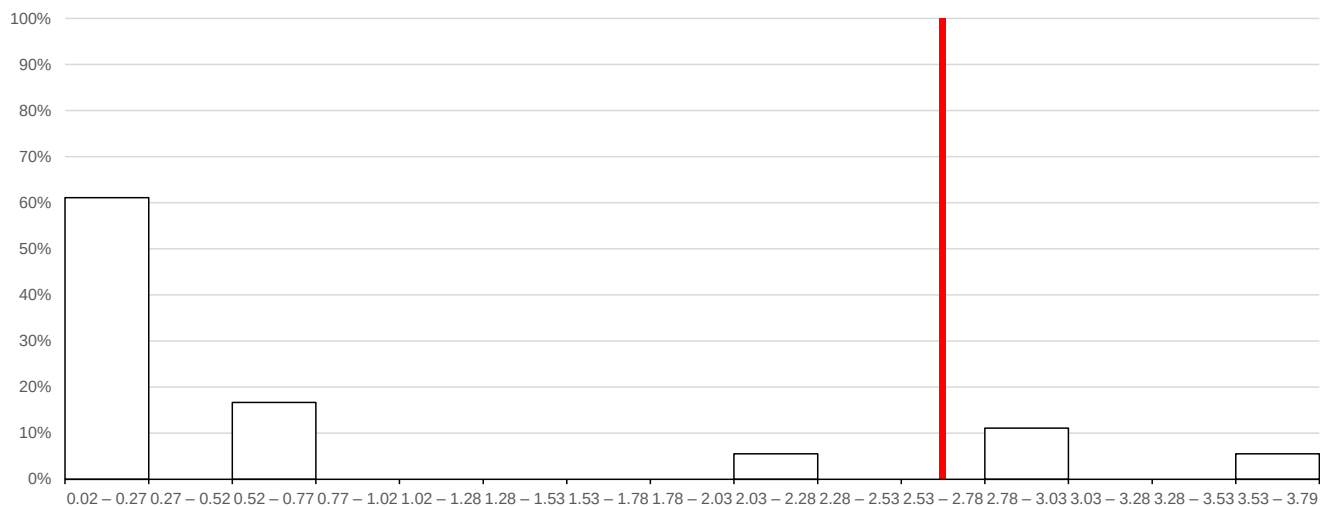
SUTCLIFFE INVESTIGATIONS

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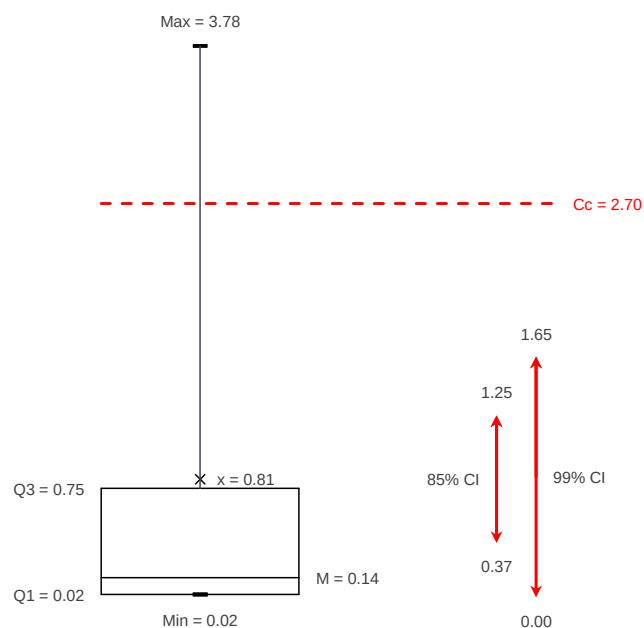
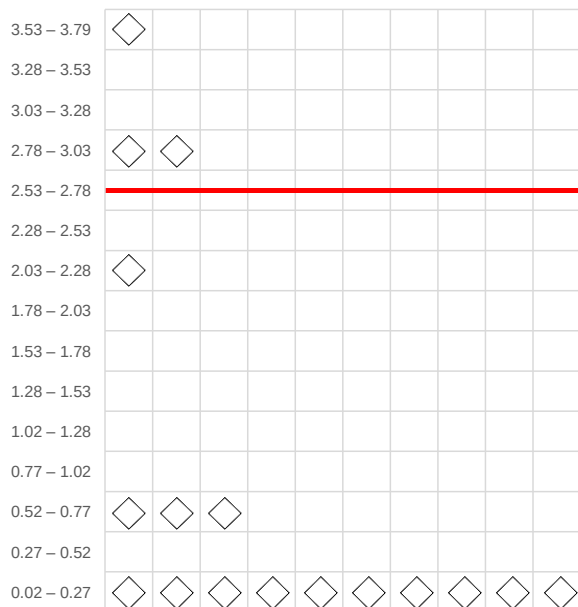
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Statistical Analysis (2-Way Confidence Intervals)

Job Name:	Wheatfields Day Centre, Whitefield	Job No.:	31990LG
Proposed Land Use:	Residential With Plant Uptake	No. of Samples:	18
Contaminant:	benzo(a)pyrene	No. of Bin:	15
Data Type:	Symmetric	% Confidence Interval:	85% CI
Non-detect Rule:	Detection Limit		99% CI



Maximum (Max):	3.78		Critical Concentration (Cc):	2.70	
Upper Quartile (Q3):	0.75		Mean (x):	0.81	
Median (M):	0.14		Range (R):	3.76	
Lower Quartile (Q1):	0.02		Standard Deviation (s):	1.23	
Minimum (Min):	0.02		Interquartile Range (IQR):	0.73	
85% CI	0.37	1.25	99% CI	0.00	1.65



Summary

Sutcliffe are 85% confident that the true mean concentration (μ) for benzo(a)pyrene lies between 0.37mg/kg and 1.25mg/kg.
 Sutcliffe are 99% confident that the true mean concentration (μ) for benzo(a)pyrene does not lie outside of 0.00mg/kg and 1.65mg/kg.
 The Critical Concentration (Cc) for benzo(a)pyrene under a 2.5% S.O.M. Residential With Plant Uptake end use is 2.70mg/kg.



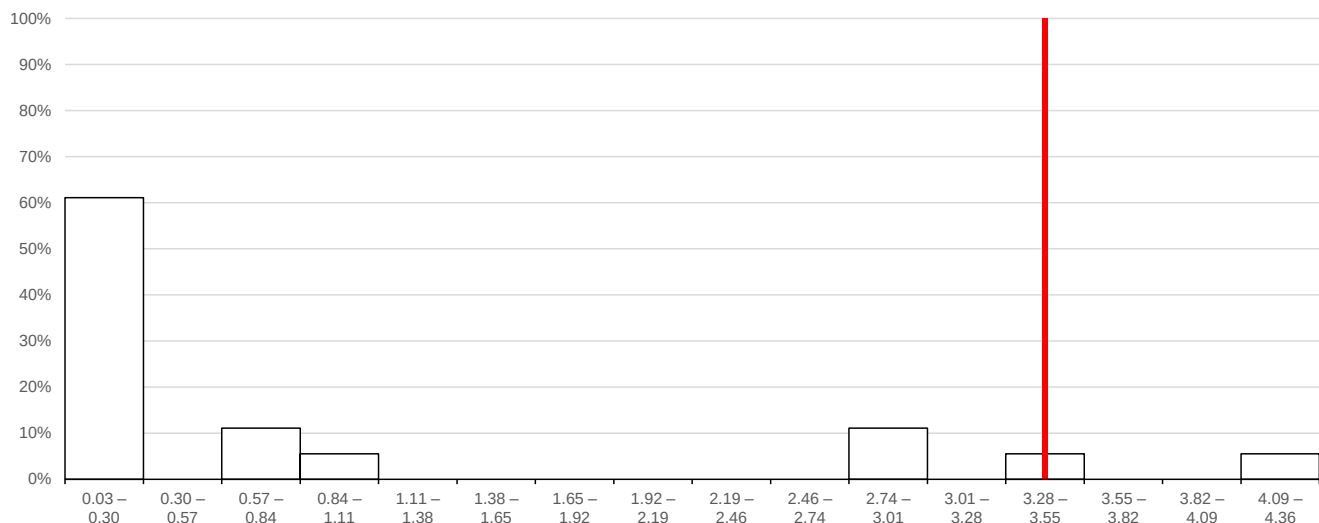
SUTCLIFFE INVESTIGATIONS

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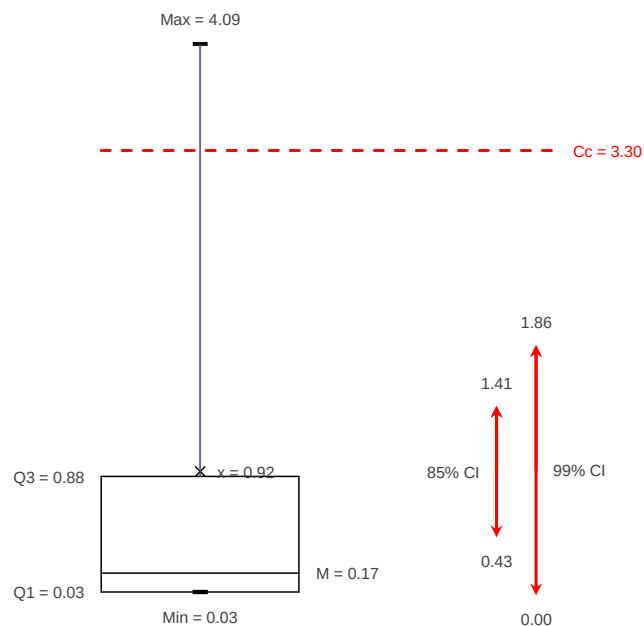
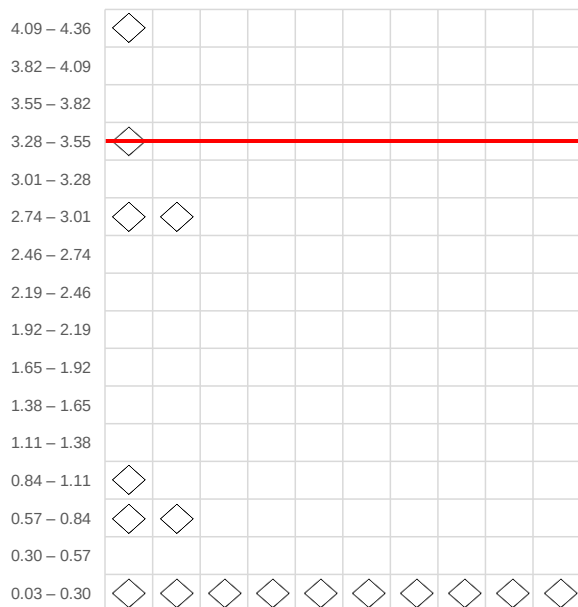
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Statistical Analysis (2-Way Confidence Intervals)

Job Name:	Wheatfields Day Centre, Whitefield	Job No.:	31990LG
Proposed Land Use:	Residential With Plant Uptake	No. of Samples:	18
Contaminant:	benzo(b)fluoranthene	No. of Bin:	15
Data Type:	Symmetric	% Confidence Interval:	85% CI
Non-detect Rule:	Detection Limit		99% CI



Maximum (Max):	4.09	Critical Concentration (Cc):	3.30
Upper Quartile (Q3):	0.88	Mean (x̄):	0.92
Median (M):	0.17	Range (R):	4.07
Lower Quartile (Q1):	0.03	Standard Deviation (s):	1.37
Minimum (Min):	0.03	Interquartile Range (IQR):	0.86
85% CI	0.43	99% CI	0.00
	1.41		1.86



Summary

Sutcliffe are 85% confident that the true mean concentration (μ) for benzo(b)fluoranthene lies between 0.43mg/kg and 1.41mg/kg.

Sutcliffe are 99% confident that the true mean concentration (μ) for benzo(b)fluoranthene does not lie outside of 0.00mg/kg and 1.86mg/kg.

The Critical Concentration (Cc) for benzo(b)fluoranthene under a 2.5% S.O.M. Residential With Plant Uptake end use is 3.30mg/kg.



SUTCLIFFE INVESTIGATIONS

TEL: 0151 227 3155

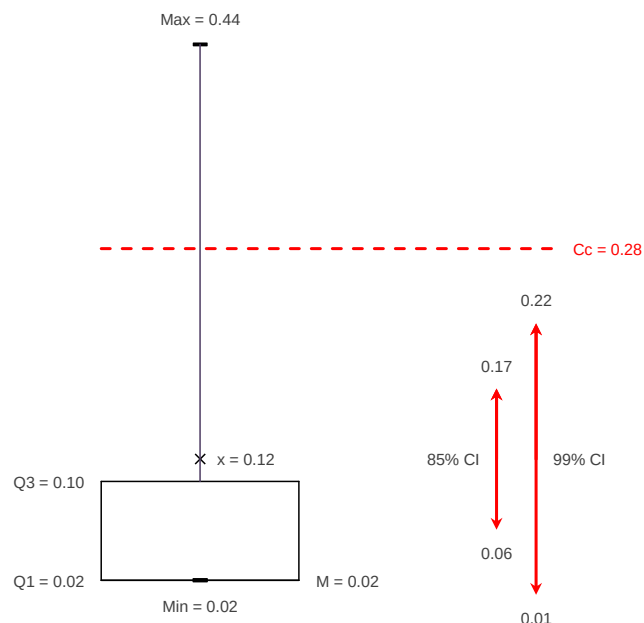
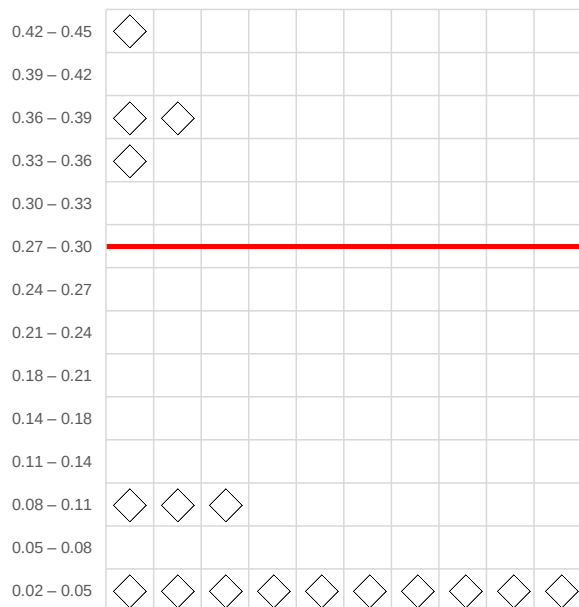
FAX: 0151 227 3156

Statistical Analysis (2-Way Confidence Intervals)

Job Name:	Wheatfields Day Centre, Whitefield	Job No.:	31990LG
Proposed Land Use:	Residential With Plant Uptake	No. of Samples:	18
Contaminant:	dibenzo(ah)anthracene	No. of Bin:	15
Data Type:	Symmetric	% Confidence Interval:	85% CI
Non-detect Rule:	Detection Limit		99% CI



Maximum (Max):	0.44		Critical Concentration (Cc):	0.28	
Upper Quartile (Q3):	0.10		Mean (x):	0.12	
Median (M):	0.02		Range (R):	0.42	
Lower Quartile (Q1):	0.02		Standard Deviation (s):	0.16	
Minimum (Min):	0.02		Interquartile Range (IQR):	0.08	
85% CI	0.06	0.17	99% CI	0.01	0.22



Summary

Sutcliffe are 85% confident that the true mean concentration (μ) for dibenzo(ah)anthracene lies between 0.06mg/kg and 0.17mg/kg.

Sutcliffe are 99% confident that the true mean concentration (μ) for dibenzo(ah)anthracene does not lie outside of 0.01mg/kg and 0.22mg/kg.

The Critical Concentration (Cc) for dibenzo(ah)anthracene under a 2.5% S.O.M. Residential With Plant Uptake end use is 0.28mg/kg.



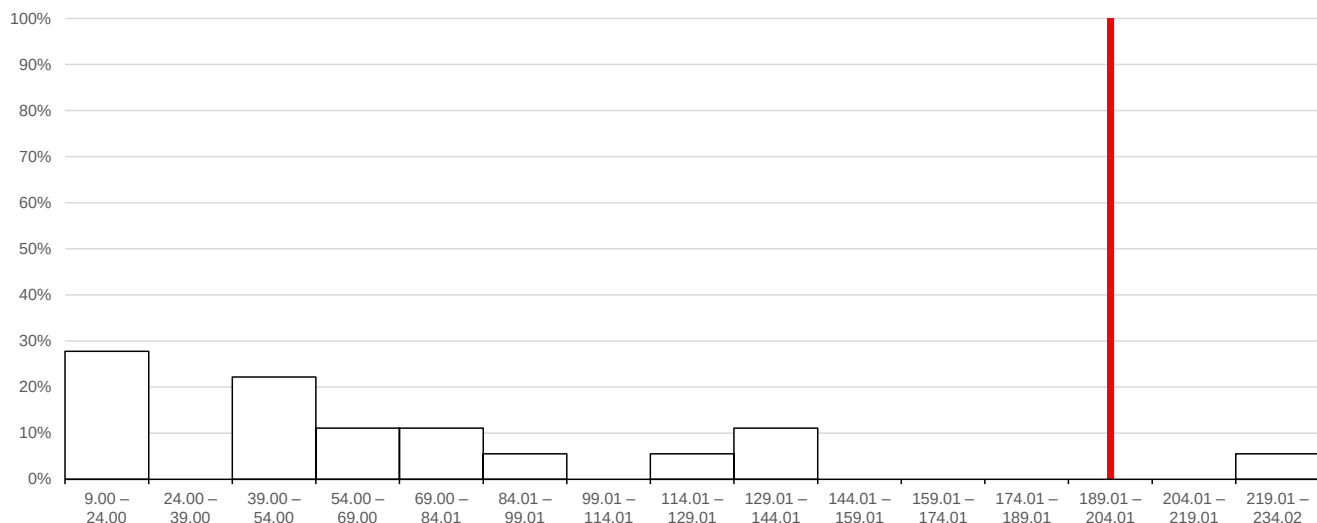
SUTCLIFFE INVESTIGATIONS

TEL: 0151 227 3155

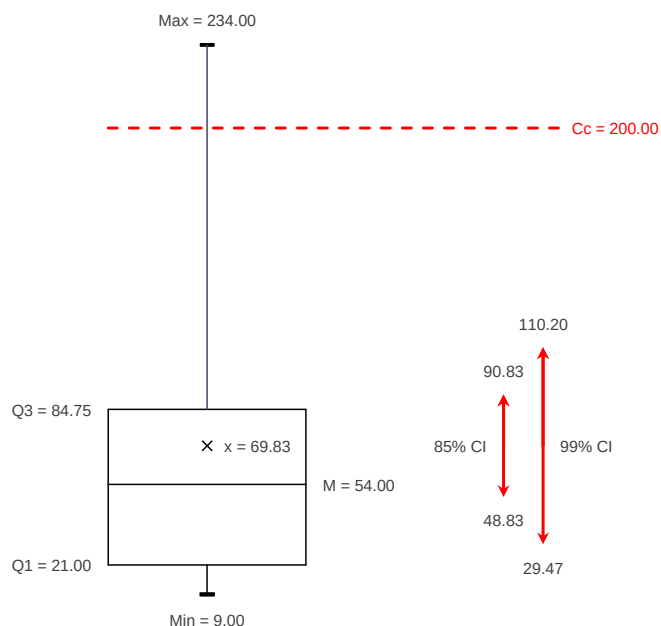
FAX: 0151 227 3156

Statistical Analysis (2-Way Confidence Intervals)

Job Name:	Wheatfields Day Centre, Whitefield	Job No.:	31990LG
Proposed Land Use:	Residential With Plant Uptake	No. of Samples:	18
Contaminant:	Lead (Total)	No. of Bin:	15
Data Type:	Symmetric	% Confidence Interval:	85% CI
Non-detect Rule:	No Non-detects		99% CI



Maximum (Max):	234.00	Critical Concentration (Cc):	200.00
Upper Quartile (Q3):	84.75	Mean (x):	69.83
Median (M):	54.00	Range (R):	225.00
Lower Quartile (Q1):	21.00	Standard Deviation (s):	59.09
Minimum (Min):	9.00	Interquartile Range (IQR):	63.75
85% CI	48.83	99% CI	29.47
			110.20



Summary

Sutcliffe are 85% confident that the true mean concentration (μ) for Lead (Total) lies between 48.83mg/kg and 90.83mg/kg.
 Sutcliffe are 99% confident that the true mean concentration (μ) for Lead (Total) does not lie outside of 29.47mg/kg and 110.20mg/kg.
 The Critical Concentration (Cc) for Lead (Total) under a 2.5% S.O.M. Residential With Plant Uptake end use is 200.00mg/kg.

		SUTCLIFFE INVESTIGATIONS		Controlled Waters Assessment			
		TEL: 0151 227 3155					
		FAX: 0151 227 3156					
Job Name:		Wheatfields Day Centre, Whitefield		Job No.:	31990LG		
Above EQS Threshold:			Sample ID:		TP103/SA101	TP105	TP107
Above UK DWS Threshold:							
Above all Thresholds:							
Below Limit of Detection:		<0.01	Depth Top:		0.50	0.10	0.20
Not tested:		n/t	Depth Base:		0.70	0.30	0.50
			Date Sampled:		20-Sep-21	20-Sep-21	20-Sep-21
Contaminant Leachate Prep (10:1 Std NRA)*		Units	EQS Threshold	UK DWS Threshold	TP103/SA101	TP105	TP107
Metals / Non-Metals / Other Suite	Arsenic (Soluble)*	µg/l	50	10	5	<1	3
	Boron (Soluble)	µg/l	1000	1000	<10	<10	11
	Cadmium (Soluble)	µg/l	0.45 - 1.5	5	<1	<1	<1
	Chromium Trivalent (Soluble)	µg/l	4.7	50	<0.05	<0.05	<0.05
	Chromium Hexavalent (Soluble)	µg/l	3.4	50	<0.05	<0.05	<0.05
	Copper (Soluble)	µg/l	1	2000	21	4	69
	Lead (Soluble)	µg/l	14	10	71	4	62
	Mercury (Soluble)	µg/l	0.07	1	<0.1	<0.1	<0.1
	Nickel (Soluble)	µg/l	34	20	4	1	2
	Selenium (Soluble)*	µg/l	-	10	<1	<1	<1
	Sulphur (Free)	mg/l	-	-	<0.1	<0.1	<0.1
	Zinc (Soluble)	µg/l	10.9	5000	14	4	47
	Cyanide (Total)*	mg/l	1	50	<0.005	<0.005	<0.005
	Phenols (Total)	µg/l	7.7	-	<0.01	<0.01	<0.01
	Sulphate as SO ₃	mg/l	400	250	<1.00	4.75	<1.00
Sulphide as S	µg/l	0.25	-	<0.1	<0.1	<0.1	
pH	pH units	-	-	7.16	7.97	7.02	
TPH Total C6-C40 (leachable)			-	-	232	<80	<80
PAH Suite	naphthalene*	µg/l	130	-	0.1	0.08	0.07
	acenaphthylene*	µg/l	-	-	0.03	<0.01	<0.01
	acenaphthene*	µg/l	-	-	0.05	0.02	0.03
	fluorene*	µg/l	-	-	0.04	<0.01	<0.01
	phenanthrene*	µg/l	-	-	0.06	0.03	0.05
	anthracene*	µg/l	0.1	-	0.03	<0.01	<0.01
	fluoranthene*	µg/l	0.12	-	0.06	<0.01	0.04
	pyrene*	µg/l	-	-	0.06	<0.01	0.04
	benzo(a)anthracene*	µg/l	-	-	0.04	<0.01	<0.01
	chrysene*	µg/l	-	-	0.04	<0.01	<0.01
	benzo(b)fluoranthene*	µg/l	0.017	-	0.04	<0.01	<0.01
	benzo(k)fluoranthene*	µg/l	0.017	-	0.02	<0.01	<0.01
	benzo(a)pyrene*	µg/l	0.27	0.01	0.03	<0.01	<0.01
	dibenzo(ah)anthracene*	µg/l	-	-	0.03	<0.01	<0.01
	benzo(ghi)perylene*	µg/l	0.0082	-	0.03	<0.01	<0.01
indeno(123cd)pyrene*	µg/l	0.002	-	0.03	<0.01	<0.01	

	SUTCLIFFE INVESTIGATIONS			Concrete Classification Assessment	
Job Name:		Wheatfields Day Centre, Whitefield		Job No.:	31990LG
Max. Water Soluble Sulphate (mg/l):		60		Min. pH:	5.1
Site Class:		Water Table:		Intended Working Life:	
Brownfield		Static		50 Years	
Design Sulphate Class:		ACEC Class:		Design Chemical Class:	
DS-1		AC-1s		DC-1	
Sample ID	Depth Top (m bgl)	Depth Bottom (m bgl)	Date Sampled	Water Soluble Sulphate (mg/l)	pH
WS101	0.20	0.60	17-Sep-21	20	8.3
WS102	0.20	0.60	17-Sep-21	<10	5.1
TP101	0.60	0	17-Sep-21	<10	6.7
TP103/SA101	0.50	0.70	20-Sep-21	<10	7.4
TP104/SA102	0.30	0.50	20-Sep-21	50	9.4
TP105	0.10	0.30	20-Sep-21	<10	8.7
TP106	0.40	0.60	20-Sep-21	<10	7.2
TP107	0.20	0.50	20-Sep-21	<10	7.1
TP108	0.10	0.30	20-Sep-21	60	9.4
WS107	0.20	0.60	20-Sep-21	<10	7.7
WS106	0.20	0.60	20-Sep-21	<10	7.0
WS103	0.20	0.60	17-Sep-21	20	6.9
WS104	0.20	0.60	17-Sep-21	40	9.2
WS105	0.20	0.60	20-Sep-21	<10	6.7
WS202	0.20	0.60	26-May-22	<10	6.6
WS203	0.20	0.80	26-May-22	60	6.2
WS204	0.20	0.60	26-May-22	<10	6.7
TP202	0.20	0.80	26-May-22	10	5.5



Waste Acceptance Criteria Data Sheet

Sample Details								Landfill Waste Acceptance Criteria Limits		
Lab Sample ID	Method	ISO17025	MCERTS	22/05362/5						
Client Sample Number				1				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
Client Sample ID				TP202						
Depth to Top				0.2						
Depth to Bottom				0.80						
Date Sampled				26/05/2022						
Sample Type				Soil - ES						
Sample Matrix Code				6AE						
Solid Waste Analysis										
pH (pH Units) _D	A-T-031	N	N	5.46				-	>6	-
ANC to pH 4 (mol/kg) _D	A-T-ANC	N	N	0.03				-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg) _D	A-T-ANC	N	N	0.03				-	to be evaluated	to be evaluated
Loss on Ignition (%) _D	A-T-030	N	N	6.4				-	-	10
Total Organic Carbon (%) _D	A-T-032	N	N	1.65				3	5	6
PAH Sum of 17 (mg/kg) _A	A-T-019	N	N	<0.08				100	-	-
Mineral Oil (mg/kg) _A	A-T-007	N	N	<10				500	-	-
Sum of 7 PCBs (mg/kg) _A	A-T-004	N	N	<0.007				1	-	-
Sum of BTEX (mg/kg) _A	A-T-022	N	N	<0.01				6	-	-
Eluate Analysis				2:1	8:1	2:1	Cumulative 10:1	Limit values for compliance leaching test using		
				mg/l		mg/kg		BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
Arsenic	A-T-025	N	N	<0.001	<0.001	<0.002	<0.01	0.5	2	25
Barium	A-T-025	N	N	0.209	0.168	0.427	1.730	20	100	300
Cadmium	A-T-025	N	N	<0.001	<0.001	<0.002	<0.01	0.04	1	5
Chromium	A-T-025	N	N	<0.001	0.001	<0.002	<0.01	0.5	10	70
Copper	A-T-025	N	N	0.018	0.018	0.037	0.180	2	50	100
Mercury	A-T-025	N	N	<0.0005	<0.0005	<0.001	<0.005	0.01	0.2	2
Molybdenum	A-T-025	N	N	<0.001	<0.001	<0.002	<0.01	0.5	10	30
Nickel	A-T-025	N	N	0.011	0.008	0.022	0.080	0.4	10	40
Lead	A-T-025	N	N	0.028	0.021	0.057	0.220	0.5	10	50
Antimony	A-T-025	N	N	<0.001	<0.001	<0.002	<0.01	0.06	0.7	5
Selenium	A-T-025	N	N	<0.001	<0.001	<0.002	<0.01	0.1	0.5	7
Zinc	A-T-025	N	N	0.020	0.014	0.041	0.150	4	50	200
Chloride	A-T-026	N	N	40	10	82	135	800	15000	25000
Fluoride	A-T-026	N	N	0.2	0.2	0.4	2	10	150	500
Sulphate as SO ₄	A-T-026	N	N	24	12	48	137.000	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	63	<20	129	<200	4000	60000	100000
Phenol Index	A-T-050	N	N	0.02	0.03	0.04	0.300	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<20.0	<20.0	<40	<200	500	800	1000
Leach Test Information										
pH (pH Units)	A-T-031	N	N	5.6	5.8					
Conductivity (µS/cm)	A-T-037	N	N	127	32					
Mass Sample (kg)				0.183						
Dry Matter (%)	A-T-044	N	N	95.9						
Stage 1										
Volume Leachant, L ₂ (l)	A-T-046			0.350						
Filtered Eluate Volume, VE ₁ (l)	A-T-046			0.200						
Stage 2										
Volume Leachant, L ₈ (l)	A-T-046			1.400						
Note: The final decision on waste classification is determined by the accepting landfill, and consultation with landfill operators be carried out during the development of the SMMP.										

Asbestos Detection

No Asbestos Detected

Preliminary Waste Classification

Non-Hazardous

Waste Classification

Inert Waste



Waste Acceptance Criteria Data Sheet

Sample Details										
Lab Sample ID	Method	ISO17025	MCERTS	22/05362/2						
Client Sample Number				1						
Client Sample ID				WS203						
Depth to Top				0.2						
Depth to Bottom				0.80						
Date Sampled				26/05/2022						
Sample Type				Soil - ES						
Sample Matrix Code				6E						
Landfill Waste Acceptance Criteria Limits										
				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill		Hazardous Waste Landfill			
Solid Waste Analysis										
pH (pH Units) _D	A-T-031	N	N	6.17				-	>6	-
ANC to pH 4 (mol/kg) _D	A-T-ANC	N	N	0.11				-	to be evaluated	to be evaluated
ANC to pH 6 (mol/kg) _D	A-T-ANC	N	N	<0.01				-	to be evaluated	to be evaluated
Loss on Ignition (%) _D	A-T-030	N	N	15.4				-	-	10
Total Organic Carbon (%) _D	A-T-032	N	N	8.03				3	5	6
PAH Sum of 17 (mg/kg) _A	A-T-019	N	N	31.9				100	-	-
Mineral Oil (mg/kg) _A	A-T-007	N	N	<10				500	-	-
Sum of 7 PCBs (mg/kg) _A	A-T-004	N	N	<0.007				1	-	-
Sum of BTEX (mg/kg) _A	A-T-022	N	N	<0.01				6	-	-
Eluate Analysis				2:1	8:1	2:1	Cumulative 10:1	Limit values for compliance leaching test using		
				mg/l		mg/kg		BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
Arsenic	A-T-025	N	N	0.004	0.007	0.009	0.070	0.5	2	25
Barium	A-T-025	N	N	0.077	0.069	0.174	0.720	20	100	300
Cadmium	A-T-025	N	N	<0.001	<0.001	<0.002	<0.01	0.04	1	5
Chromium	A-T-025	N	N	0.001	0.001	0.002	0.010	0.5	10	70
Copper	A-T-025	N	N	0.013	0.019	0.029	0.190	2	50	100
Mercury	A-T-025	N	N	<0.0005	<0.0005	<0.001	<0.005	0.01	0.2	2
Molybdenum	A-T-025	N	N	0.001	0.003	0.002	0.030	0.5	10	30
Nickel	A-T-025	N	N	0.003	0.003	0.007	0.030	0.4	10	40
Lead	A-T-025	N	N	0.018	0.053	0.041	0.500	0.5	10	50
Antimony	A-T-025	N	N	0.005	0.004	0.011	0.040	0.06	0.7	5
Selenium	A-T-025	N	N	<0.001	<0.001	<0.002	<0.01	0.1	0.5	7
Zinc	A-T-025	N	N	0.043	0.023	0.097	0.260	4	50	200
Chloride	A-T-026	N	N	30	10	68	127	800	15000	25000
Fluoride	A-T-026	N	N	0.1	0.4	0.2	3	10	150	500
Sulphate as SO ₄	A-T-026	N	N	18	5	41	69.000	1000	20000	50000
Total Dissolved Solids	A-T-035	N	N	93	27	210	352	4000	60000	100000
Phenol Index	A-T-050	N	N	0.02	0.03	0.05	0.300	1	-	-
Dissolved Organic Carbon	A-T-032	N	N	<20.0	<20.0	<40	<200	500	800	1000
Leach Test Information										
pH (pH Units)	A-T-031	N	N	5.8	5.8					
Conductivity (µS/cm)	A-T-037	N	N	186	53					
Mass Sample (kg)				0.220						
Dry Matter (%)	A-T-044	N	N	79.6						
Stage 1										
Volume Leachant, L ₂ (l)	A-T-046			0.350						
Filtered Eluate Volume, VE ₁ (l)	A-T-046			0.200						
Stage 2										
Volume Leachant, L ₈ (l)	A-T-046			1.400						
Note: The final decision on waste classification is determined by the accepting landfill, and consultation with landfill operators be carried out during the development of the SMMP.										

Asbestos Detection

No Asbestos Detected

Preliminary Waste Classification

Non-Hazardous

Waste Classification

Non-Hazardous Waste

Appendix H – Waste Classification Report

Waste Classification Report

HazWasteOnline™ classifies waste as either **hazardous** or **non-hazardous** based on its chemical composition, related legislation and the rules and data defined in the current UK or EU technical guidance (Appendix C) (note that HP 9 Infectious is not assessed). It is the responsibility of the classifier named below to:

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



JJQ03-60GGL-LZKM4

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

Job name

31990LG - Former Wheatfield Day Centre, Whitefield

Description/Comments

Project

31990LG

Site

Former Wheatfield Day Centre, Whitefield

Classified by

Name: **Daniel Evans**
 Date: **20 Jun 2022 16:26 GMT**
 Telephone: **0151 227 3155**
 Company: **Sutcliffe Projects Ltd**
18-20 Harrington St
Liverpool
L2 9QA

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

HazWasteOnline™ Certification:

Course: **Hazardous Waste Classification**

Date

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	WS101	0.20-0.60	Non Hazardous		3
2	WS102	0.20-0.60	Non Hazardous		6
3	TP101	0.60	Non Hazardous		9
4	TP103/SA101	0.50-0.70	Non Hazardous		12
5	TP104/SA102	0.30-0.50	Non Hazardous		15
6	TP105	0.10-0.30	Non Hazardous		18
7	TP106	0.40-0.60	Non Hazardous		21
8	TP107	0.20-0.50	Non Hazardous		24
9	TP108	0.10-0.30	Non Hazardous		27
10	WS107	0.20-0.60	Non Hazardous		30
11	WS106	0.20-0.60	Non Hazardous		33
12	WS103	0.20-0.60	Non Hazardous		36
13	WS104	0.20-0.60	Non Hazardous		39
14	WS105	0.20-0.60	Non Hazardous		42
15	WS202	0.20-0.60	Non Hazardous		45
16	WS203	0.20-0.80	Non Hazardous		48
17	WS204	0.20-0.60	Non Hazardous		51
18	TP202	0.20-0.80	Non Hazardous		54

Related documents

#	Name	Description
1	Sutcliffe Suite 2 2022	waste stream template used to create this Job

Report

Created by: Daniel Evans

Created date: 20 Jun 2022 16:26 GMT

Appendices	Page
Appendix A: Classifier defined and non GB MCL determinands	56
Appendix B: Rationale for selection of metal species	57

Appendices	Page
Appendix C: Version	58

Classification of sample: WS101

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

Sample details

Sample name:	LoW Code:
WS101	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.20-0.60 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
10.7%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 10.7% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				6 mg/kg	1.32	7.922 mg/kg	0.000792 %		
	033-003-00-0	215-481-4	1327-53-3							
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
	006-007-00-5									
3	cadmium { cadmium oxide }				<0.5 mg/kg	1.142	<0.571 mg/kg	<0.0000571 %		<LOD
	048-002-00-0	215-146-2	1306-19-0							
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				9 mg/kg	1.462	13.154 mg/kg	0.00132 %		
		215-160-9	1308-38-9							
5	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %		<LOD
	024-017-00-8									
6	copper { dicopper oxide; copper (I) oxide }				13 mg/kg	1.126	14.637 mg/kg	0.00146 %		
	029-002-00-X	215-270-7	1317-39-1							
7	lead { lead chromate }			1	10 mg/kg	1.56	15.598 mg/kg	0.001 %		
	082-004-00-2	231-846-0	7758-97-6							
8	mercury { mercury dichloride }				<0.17 mg/kg	1.353	<0.23 mg/kg	<0.000023 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
9	nickel { nickel chromate }				14 mg/kg	2.976	41.668 mg/kg	0.00417 %		
	028-035-00-7	238-766-5	14721-18-7							
10	selenium { nickel selenate }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
	028-031-00-5	239-125-2	15060-62-5							
11	zinc { zinc chromate }				36 mg/kg	2.774	99.869 mg/kg	0.00999 %		
	024-007-00-3	236-878-9	13530-65-9							
12	TPH (C6 to C40) petroleum group				6 mg/kg		6 mg/kg	0.0006 %		
			TPH							
13	pH				8.31 pH		8.31 pH	8.31 pH		
			PH							
14	naphthalene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
15	acenaphthylene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
		205-917-1	208-96-8							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
16	acenaphthene	201-469-6	83-32-9		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
17	fluorene	201-695-5	86-73-7		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
18	phenanthrene	201-581-5	85-01-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
19	anthracene	204-371-1	120-12-7		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
20	fluoranthene	205-912-4	206-44-0		<0.08 mg/kg		<0.08 mg/kg	<0.000008 %		<LOD
21	pyrene	204-927-3	129-00-0		<0.07 mg/kg		<0.07 mg/kg	<0.000007 %		<LOD
22	benzo[a]anthracene	601-033-00-9	200-280-6		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
23	chrysene	601-048-00-0	205-923-4		<0.06 mg/kg		<0.06 mg/kg	<0.000006 %		<LOD
24	benzo[b]fluoranthene	601-034-00-4	205-911-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
25	benzo[k]fluoranthene	601-036-00-5	205-916-6		<0.07 mg/kg		<0.07 mg/kg	<0.000007 %		<LOD
26	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
27	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
28	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
29	benzo[ghi]perylene	205-883-8	191-24-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
30	benzene	601-020-00-8	200-753-7		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
31	toluene	601-021-00-3	203-625-9		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
32	ethylbenzene	601-023-00-4	202-849-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
33	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
34	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
Total:								0.0201 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Concentrations are too low to be considered a flammable risk.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0006%)

Classification of sample: WS102

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

Sample details

Sample name:	LoW Code:
WS102	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)
0.20-0.60 m	
Moisture content:	
17%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 17% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				6 mg/kg	1.32	7.922 mg/kg	0.000792 %		
	033-003-00-0	215-481-4	1327-53-3							
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
	006-007-00-5									
3	cadmium { cadmium oxide }				0.8 mg/kg	1.142	0.914 mg/kg	0.0000914 %		
	048-002-00-0	215-146-2	1306-19-0							
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				26 mg/kg	1.462	38 mg/kg	0.0038 %		
		215-160-9	1308-38-9							
5	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %		<LOD
	024-017-00-8									
6	copper { dicopper oxide; copper (I) oxide }				26 mg/kg	1.126	29.273 mg/kg	0.00293 %		
	029-002-00-X	215-270-7	1317-39-1							
7	lead { lead chromate }			1	12 mg/kg	1.56	18.718 mg/kg	0.0012 %		
	082-004-00-2	231-846-0	7758-97-6							
8	mercury { mercury dichloride }				<0.17 mg/kg	1.353	<0.23 mg/kg	<0.000023 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
9	nickel { nickel chromate }				40 mg/kg	2.976	119.051 mg/kg	0.0119 %		
	028-035-00-7	238-766-5	14721-18-7							
10	selenium { nickel selenate }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
	028-031-00-5	239-125-2	15060-62-5							
11	zinc { zinc chromate }				66 mg/kg	2.774	183.094 mg/kg	0.0183 %		
	024-007-00-3	236-878-9	13530-65-9							
12	TPH (C6 to C40) petroleum group				6 mg/kg		6 mg/kg	0.0006 %		
			TPH							
13	pH				5.06 pH		5.06 pH	5.06 pH		
			PH							
14	naphthalene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
15	acenaphthylene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
		205-917-1	208-96-8							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
16	acenaphthene	201-469-6	83-32-9		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
17	fluorene	201-695-5	86-73-7		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
18	phenanthrene	201-581-5	85-01-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
19	anthracene	204-371-1	120-12-7		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
20	fluoranthene	205-912-4	206-44-0		<0.08 mg/kg		<0.08 mg/kg	<0.000008 %		<LOD
21	pyrene	204-927-3	129-00-0		<0.07 mg/kg		<0.07 mg/kg	<0.000007 %		<LOD
22	benzo[a]anthracene	601-033-00-9	200-280-6		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
23	chrysene	601-048-00-0	205-923-4		<0.06 mg/kg		<0.06 mg/kg	<0.000006 %		<LOD
24	benzo[b]fluoranthene	601-034-00-4	205-911-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
25	benzo[k]fluoranthene	601-036-00-5	205-916-6		<0.07 mg/kg		<0.07 mg/kg	<0.000007 %		<LOD
26	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
27	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
28	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
29	benzo[ghi]perylene	205-883-8	191-24-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
30	benzene	601-020-00-8	200-753-7		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
31	toluene	601-021-00-3	203-625-9		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
32	ethylbenzene	601-023-00-4	202-849-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
33	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
34	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
Total:								0.0404 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Concentrations are too low to be considered a flammable risk.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0006%)

Classification of sample: TP101

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

Sample details

Sample name:	LoW Code:
TP101	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.60 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
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
	EU CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				4 mg/kg	1.32	5.281 mg/kg	0.000528 %		
	033-003-00-0	215-481-4	1327-53-3							
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
	006-007-00-5									
3	cadmium { cadmium oxide }				0.8 mg/kg	1.142	0.914 mg/kg	0.0000914 %		
	048-002-00-0	215-146-2	1306-19-0							
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				29 mg/kg	1.462	42.385 mg/kg	0.00424 %		
		215-160-9	1308-38-9							
5	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %		<LOD
	024-017-00-8									
6	copper { dicopper oxide; copper (I) oxide }				25 mg/kg	1.126	28.147 mg/kg	0.00281 %		
	029-002-00-X	215-270-7	1317-39-1							
7	lead { lead chromate }			1	13 mg/kg	1.56	20.278 mg/kg	0.0013 %		
	082-004-00-2	231-846-0	7758-97-6							
8	mercury { mercury dichloride }				<0.17 mg/kg	1.353	<0.23 mg/kg	<0.000023 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
9	nickel { nickel chromate }				39 mg/kg	2.976	116.074 mg/kg	0.0116 %		
	028-035-00-7	238-766-5	14721-18-7							
10	selenium { nickel selenate }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
	028-031-00-5	239-125-2	15060-62-5							
11	zinc { zinc chromate }				66 mg/kg	2.774	183.094 mg/kg	0.0183 %		
	024-007-00-3	236-878-9	13530-65-9							
12	TPH (C6 to C40) petroleum group				4 mg/kg		4 mg/kg	0.0004 %		
			TPH							
13	pH				6.74 pH		6.74 pH	6.74 pH		
			PH							
14	naphthalene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
15	acenaphthylene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
		205-917-1	208-96-8							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
16	acenaphthene	201-469-6	83-32-9		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
17	fluorene	201-695-5	86-73-7		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
18	phenanthrene	201-581-5	85-01-8		0.04 mg/kg		0.04 mg/kg	0.000004 %			
19	anthracene	204-371-1	120-12-7		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
20	fluoranthene	205-912-4	206-44-0		<0.08 mg/kg		<0.08 mg/kg	<0.000008 %			<LOD
21	pyrene	204-927-3	129-00-0		<0.07 mg/kg		<0.07 mg/kg	<0.000007 %			<LOD
22	benzo[a]anthracene	601-033-00-9	200-280-6		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
23	chrysene	601-048-00-0	205-923-4		<0.06 mg/kg		<0.06 mg/kg	<0.000006 %			<LOD
24	benzo[b]fluoranthene	601-034-00-4	205-911-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
25	benzo[k]fluoranthene	601-036-00-5	205-916-6		<0.07 mg/kg		<0.07 mg/kg	<0.000007 %			<LOD
26	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
27	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
28	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
29	benzo[ghi]perylene	205-883-8	191-24-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
30	benzene	601-020-00-8	200-753-7		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
31	toluene	601-021-00-3	203-625-9		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
32	ethylbenzene	601-023-00-4	202-849-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
33	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
34	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
Total:									0.0401 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Concentrations are too low to be considered a flammable risk.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0004%)

Classification of sample: TP103/SA101

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

Sample details

Sample name:	LoW Code:
TP103/SA101	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.50-0.70 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
26.8%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 26.8% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				24 mg/kg	1.32	31.688 mg/kg	0.00317 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
	006-007-00-5										
3	cadmium { cadmium oxide }				1.2 mg/kg	1.142	1.371 mg/kg	0.000137 %			
	048-002-00-0	215-146-2	1306-19-0								
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				27 mg/kg	1.462	39.462 mg/kg	0.00395 %			
		215-160-9	1308-38-9								
5	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %			<LOD
	024-017-00-8										
6	copper { dicopper oxide; copper (I) oxide }				276 mg/kg	1.126	310.745 mg/kg	0.0311 %			
	029-002-00-X	215-270-7	1317-39-1								
7	lead { lead chromate }			1	135 mg/kg	1.56	210.575 mg/kg	0.0135 %			
	082-004-00-2	231-846-0	7758-97-6								
8	mercury { mercury dichloride }				<0.17 mg/kg	1.353	<0.23 mg/kg	<0.000023 %			<LOD
	080-010-00-X	231-299-8	7487-94-7								
9	nickel { nickel chromate }				27 mg/kg	2.976	80.359 mg/kg	0.00804 %			
	028-035-00-7	238-766-5	14721-18-7								
10	selenium { nickel selenate }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %			<LOD
	028-031-00-5	239-125-2	15060-62-5								
11	zinc { zinc chromate }				199 mg/kg	2.774	552.055 mg/kg	0.0552 %			
	024-007-00-3	236-878-9	13530-65-9								
12	TPH (C6 to C40) petroleum group				142 mg/kg		142 mg/kg	0.0142 %			
			TPH								
13	pH				7.4 pH		7.4 pH	7.4 pH			
			PH								
14	naphthalene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
15	acenaphthylene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
		205-917-1	208-96-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
16	acenaphthene	201-469-6	83-32-9		0.18 mg/kg		0.18 mg/kg	0.000018 %		
17	fluorene	201-695-5	86-73-7		0.1 mg/kg		0.1 mg/kg	0.00001 %		
18	phenanthrene	201-581-5	85-01-8		1.08 mg/kg		1.08 mg/kg	0.000108 %		
19	anthracene	204-371-1	120-12-7		0.26 mg/kg		0.26 mg/kg	0.000026 %		
20	fluoranthene	205-912-4	206-44-0		1.94 mg/kg		1.94 mg/kg	0.000194 %		
21	pyrene	204-927-3	129-00-0		1.76 mg/kg		1.76 mg/kg	0.000176 %		
22	benzo[a]anthracene	601-033-00-9	200-280-6		0.89 mg/kg		0.89 mg/kg	0.000089 %		
23	chrysene	601-048-00-0	205-923-4		0.98 mg/kg		0.98 mg/kg	0.000098 %		
24	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.9 mg/kg		0.9 mg/kg	0.00009 %		
25	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.38 mg/kg		0.38 mg/kg	0.000038 %		
26	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.75 mg/kg		0.75 mg/kg	0.000075 %		
27	indeno[123-cd]pyrene	205-893-2	193-39-5		0.44 mg/kg		0.44 mg/kg	0.000044 %		
28	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.1 mg/kg		0.1 mg/kg	0.00001 %		
29	benzo[ghi]perylene	205-883-8	191-24-2		0.38 mg/kg		0.38 mg/kg	0.000038 %		
30	benzene	601-020-00-8	200-753-7		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
31	toluene	601-021-00-3	203-625-9		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
32	ethylbenzene	601-023-00-4	202-849-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
33	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
34	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
Total:								0.131 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Concentrations are too low to be considered a flammable risk.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0142%)

Classification of sample: TP104/SA102

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

Sample details

Sample name:	LoW Code:
TP104/SA102	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.30-0.50 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
7.2%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 7.2% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				13 mg/kg	1.32	17.164 mg/kg	0.00172 %		
	033-003-00-0	215-481-4	1327-53-3							
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
	006-007-00-5									
3	cadmium { cadmium oxide }				<0.5 mg/kg	1.142	<0.571 mg/kg	<0.0000571 %		<LOD
	048-002-00-0	215-146-2	1306-19-0							
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				19 mg/kg	1.462	27.77 mg/kg	0.00278 %		
		215-160-9	1308-38-9							
5	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %		<LOD
	024-017-00-8									
6	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							
7	lead { lead chromate }			1	55 mg/kg	1.56	85.79 mg/kg	0.0055 %		
	082-004-00-2	231-846-0	7758-97-6							
8	mercury { mercury dichloride }				<0.17 mg/kg	1.353	<0.23 mg/kg	<0.000023 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
9	nickel { nickel chromate }				16 mg/kg	2.976	47.62 mg/kg	0.00476 %		
	028-035-00-7	238-766-5	14721-18-7							
10	selenium { nickel selenate }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
	028-031-00-5	239-125-2	15060-62-5							
11	zinc { zinc chromate }				62 mg/kg	2.774	171.997 mg/kg	0.0172 %		
	024-007-00-3	236-878-9	13530-65-9							
12	TPH (C6 to C40) petroleum group				5 mg/kg		5 mg/kg	0.0005 %		
			TPH							
13	pH				9.42 pH		9.42 pH	9.42 pH		
			PH							
14	naphthalene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
15	acenaphthylene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
		205-917-1	208-96-8							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
16	acenaphthene	201-469-6	83-32-9		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
17	fluorene	201-695-5	86-73-7		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
18	phenanthrene	201-581-5	85-01-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
19	anthracene	204-371-1	120-12-7		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
20	fluoranthene	205-912-4	206-44-0		<0.08 mg/kg		<0.08 mg/kg	<0.000008 %		<LOD
21	pyrene	204-927-3	129-00-0		<0.07 mg/kg		<0.07 mg/kg	<0.000007 %		<LOD
22	benzo[a]anthracene	601-033-00-9	200-280-6		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
23	chrysene	601-048-00-0	205-923-4		<0.06 mg/kg		<0.06 mg/kg	<0.000006 %		<LOD
24	benzo[b]fluoranthene	601-034-00-4	205-911-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
25	benzo[k]fluoranthene	601-036-00-5	205-916-6		<0.07 mg/kg		<0.07 mg/kg	<0.000007 %		<LOD
26	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
27	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
28	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
29	benzo[ghi]perylene	205-883-8	191-24-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
30	benzene	601-020-00-8	200-753-7		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
31	toluene	601-021-00-3	203-625-9		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
32	ethylbenzene	601-023-00-4	202-849-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
33	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
34	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
Total:								0.0364 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Concentrations are too low to be considered a flammable risk.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0005%)

Classification of sample: TP105

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

Sample details

Sample name:	LoW Code:
TP105	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)
0.10-0.30 m	
Moisture content:	
6.4%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 6.4% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				<1 mg/kg	1.32	<1.32 mg/kg	<0.000132 %			<LOD
	033-003-00-0	215-481-4	1327-53-3								
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
	006-007-00-5										
3	cadmium { cadmium oxide }				<0.5 mg/kg	1.142	<0.571 mg/kg	<0.0000571 %			<LOD
	048-002-00-0	215-146-2	1306-19-0								
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				15 mg/kg	1.462	21.923 mg/kg	0.00219 %			
		215-160-9	1308-38-9								
5	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %			<LOD
	024-017-00-8										
6	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								
7	lead { lead chromate }			1	13 mg/kg	1.56	20.278 mg/kg	0.0013 %			
	082-004-00-2	231-846-0	7758-97-6								
8	mercury { mercury dichloride }				2.59 mg/kg	1.353	3.506 mg/kg	0.000351 %			
	080-010-00-X	231-299-8	7487-94-7								
9	nickel { nickel chromate }				12 mg/kg	2.976	35.715 mg/kg	0.00357 %			
	028-035-00-7	238-766-5	14721-18-7								
10	selenium { nickel selenate }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %			<LOD
	028-031-00-5	239-125-2	15060-62-5								
11	zinc { zinc chromate }				39 mg/kg	2.774	108.192 mg/kg	0.0108 %			
	024-007-00-3	236-878-9	13530-65-9								
12	TPH (C6 to C40) petroleum group				6 mg/kg		6 mg/kg	0.0006 %			
			TPH								
13	pH				8.66 pH		8.66 pH	8.66 pH			
			PH								
14	naphthalene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
15	acenaphthylene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
		205-917-1	208-96-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
16	acenaphthene	201-469-6	83-32-9		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
17	fluorene	201-695-5	86-73-7		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
18	phenanthrene	201-581-5	85-01-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
19	anthracene	204-371-1	120-12-7		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
20	fluoranthene	205-912-4	206-44-0		<0.08 mg/kg		<0.08 mg/kg	<0.000008 %		<LOD
21	pyrene	204-927-3	129-00-0		<0.07 mg/kg		<0.07 mg/kg	<0.000007 %		<LOD
22	benzo[a]anthracene	601-033-00-9	200-280-6		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
23	chrysene	601-048-00-0	205-923-4		<0.06 mg/kg		<0.06 mg/kg	<0.000006 %		<LOD
24	benzo[b]fluoranthene	601-034-00-4	205-911-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
25	benzo[k]fluoranthene	601-036-00-5	205-916-6		<0.07 mg/kg		<0.07 mg/kg	<0.000007 %		<LOD
26	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
27	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
28	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
29	benzo[ghi]perylene	205-883-8	191-24-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
30	benzene	601-020-00-8	200-753-7		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
31	toluene	601-021-00-3	203-625-9		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
32	ethylbenzene	601-023-00-4	202-849-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
33	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
34	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
Total:								0.0211 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Concentrations are too low to be considered a flammable risk.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0006%)

Classification of sample: TP106

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

Sample details

Sample name:	LoW Code:
TP106	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.40-0.60 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
15.8%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 15.8% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				<1 mg/kg	1.32	<1.32 mg/kg	<0.000132 %		<LOD
	033-003-00-0	215-481-4	1327-53-3							
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
	006-007-00-5									
3	cadmium { cadmium oxide }				<0.5 mg/kg	1.142	<0.571 mg/kg	<0.0000571 %		<LOD
	048-002-00-0	215-146-2	1306-19-0							
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				14 mg/kg	1.462	20.462 mg/kg	0.00205 %		
		215-160-9	1308-38-9							
5	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %		<LOD
	024-017-00-8									
6	copper { dicopper oxide; copper (I) oxide }				8 mg/kg	1.126	9.007 mg/kg	0.000901 %		
	029-002-00-X	215-270-7	1317-39-1							
7	lead { lead chromate }			1	9 mg/kg	1.56	14.038 mg/kg	0.0009 %		
	082-004-00-2	231-846-0	7758-97-6							
8	mercury { mercury dichloride }				<0.17 mg/kg	1.353	<0.23 mg/kg	<0.000023 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
9	nickel { nickel chromate }				13 mg/kg	2.976	38.691 mg/kg	0.00387 %		
	028-035-00-7	238-766-5	14721-18-7							
10	selenium { nickel selenate }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
	028-031-00-5	239-125-2	15060-62-5							
11	zinc { zinc chromate }				35 mg/kg	2.774	97.095 mg/kg	0.00971 %		
	024-007-00-3	236-878-9	13530-65-9							
12	TPH (C6 to C40) petroleum group				261 mg/kg		261 mg/kg	0.0261 %		
			TPH							
13	pH				7.24 pH		7.24 pH	7.24 pH		
			PH							
14	naphthalene				0.03 mg/kg		0.03 mg/kg	0.000003 %		
	601-052-00-2	202-049-5	91-20-3							
15	acenaphthylene				0.02 mg/kg		0.02 mg/kg	0.000002 %		
		205-917-1	208-96-8							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
16	acenaphthene	201-469-6	83-32-9		0.43 mg/kg		0.43 mg/kg	0.000043 %			
17	fluorene	201-695-5	86-73-7		0.2 mg/kg		0.2 mg/kg	0.00002 %			
18	phenanthrene	201-581-5	85-01-8		2.65 mg/kg		2.65 mg/kg	0.000265 %			
19	anthracene	204-371-1	120-12-7		0.59 mg/kg		0.59 mg/kg	0.000059 %			
20	fluoranthene	205-912-4	206-44-0		6.5 mg/kg		6.5 mg/kg	0.00065 %			
21	pyrene	204-927-3	129-00-0		6.09 mg/kg		6.09 mg/kg	0.000609 %			
22	benzo[a]anthracene	601-033-00-9	200-280-6		3.11 mg/kg		3.11 mg/kg	0.000311 %			
23	chrysene	601-048-00-0	205-923-4		3.42 mg/kg		3.42 mg/kg	0.000342 %			
24	benzo[b]fluoranthene	601-034-00-4	205-911-9		3.49 mg/kg		3.49 mg/kg	0.000349 %			
25	benzo[k]fluoranthene	601-036-00-5	205-916-6		1.37 mg/kg		1.37 mg/kg	0.000137 %			
26	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		3.01 mg/kg		3.01 mg/kg	0.000301 %			
27	indeno[123-cd]pyrene	205-893-2	193-39-5		1.73 mg/kg		1.73 mg/kg	0.000173 %			
28	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.38 mg/kg		0.38 mg/kg	0.000038 %			
29	benzo[ghi]perylene	205-883-8	191-24-2		1.54 mg/kg		1.54 mg/kg	0.000154 %			
30	benzene	601-020-00-8	200-753-7		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
31	toluene	601-021-00-3	203-625-9		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
32	ethylbenzene	601-023-00-4	202-849-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
33	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
34	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
Total:									0.0479 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Concentrations are too low to be considered a flammable risk.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0261%)

Classification of sample: TP107

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

Sample details

Sample name:	LoW Code:
TP107	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)
0.20-0.50 m	
Moisture content:	
17.1%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: **17.1% No Moisture Correction applied (MC)**

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				21 mg/kg	1.32	27.727 mg/kg	0.00277 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
	006-007-00-5										
3	cadmium { cadmium oxide }				1 mg/kg	1.142	1.142 mg/kg	0.000114 %			
	048-002-00-0	215-146-2	1306-19-0								
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				33 mg/kg	1.462	48.231 mg/kg	0.00482 %			
		215-160-9	1308-38-9								
5	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %			<LOD
	024-017-00-8										
6	copper { dicopper oxide; copper (I) oxide }				49 mg/kg	1.126	55.169 mg/kg	0.00552 %			
	029-002-00-X	215-270-7	1317-39-1								
7	lead { lead chromate }			1	126 mg/kg	1.56	196.537 mg/kg	0.0126 %			
	082-004-00-2	231-846-0	7758-97-6								
8	mercury { mercury dichloride }				<0.17 mg/kg	1.353	<0.23 mg/kg	<0.000023 %			<LOD
	080-010-00-X	231-299-8	7487-94-7								
9	nickel { nickel chromate }				32 mg/kg	2.976	95.24 mg/kg	0.00952 %			
	028-035-00-7	238-766-5	14721-18-7								
10	selenium { nickel selenate }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %			<LOD
	028-031-00-5	239-125-2	15060-62-5								
11	zinc { zinc chromate }				202 mg/kg	2.774	560.378 mg/kg	0.056 %			
	024-007-00-3	236-878-9	13530-65-9								
12	TPH (C6 to C40) petroleum group				159 mg/kg		159 mg/kg	0.0159 %			
			TPH								
13	pH				7.08 pH		7.08 pH	7.08 pH			
			PH								
14	naphthalene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
15	acenaphthylene				0.07 mg/kg		0.07 mg/kg	0.000007 %			
		205-917-1	208-96-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
16	acenaphthene	201-469-6	83-32-9		0.13 mg/kg		0.13 mg/kg	0.000013 %		
17	fluorene	201-695-5	86-73-7		0.07 mg/kg		0.07 mg/kg	0.000007 %		
18	phenanthrene	201-581-5	85-01-8		1.33 mg/kg		1.33 mg/kg	0.000133 %		
19	anthracene	204-371-1	120-12-7		0.4 mg/kg		0.4 mg/kg	0.00004 %		
20	fluoranthene	205-912-4	206-44-0		4.47 mg/kg		4.47 mg/kg	0.000447 %		
21	pyrene	204-927-3	129-00-0		4.01 mg/kg		4.01 mg/kg	0.000401 %		
22	benzo[a]anthracene	601-033-00-9	200-280-6		2.65 mg/kg		2.65 mg/kg	0.000265 %		
23	chrysene	601-048-00-0	205-923-4		2.56 mg/kg		2.56 mg/kg	0.000256 %		
24	benzo[b]fluoranthene	601-034-00-4	205-911-9		2.83 mg/kg		2.83 mg/kg	0.000283 %		
25	benzo[k]fluoranthene	601-036-00-5	205-916-6		1.06 mg/kg		1.06 mg/kg	0.000106 %		
26	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		2.82 mg/kg		2.82 mg/kg	0.000282 %		
27	indeno[123-cd]pyrene	205-893-2	193-39-5		1.7 mg/kg		1.7 mg/kg	0.00017 %		
28	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.36 mg/kg		0.36 mg/kg	0.000036 %		
29	benzo[ghi]perylene	205-883-8	191-24-2		1.4 mg/kg		1.4 mg/kg	0.00014 %		
30	benzene	601-020-00-8	200-753-7		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
31	toluene	601-021-00-3	203-625-9		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
32	ethylbenzene	601-023-00-4	202-849-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
33	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
34	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
Total:								0.111 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Concentrations are too low to be considered a flammable risk.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0159%)

Classification of sample: TP108

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

Sample details

Sample name:	LoW Code:
TP108	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.10-0.30 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
5.6%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 5.6% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				6 mg/kg	1.32	7.922 mg/kg	0.000792 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
	006-007-00-5										
3	cadmium { cadmium oxide }				4 mg/kg	1.142	4.569 mg/kg	0.000457 %			
	048-002-00-0	215-146-2	1306-19-0								
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				13 mg/kg	1.462	19 mg/kg	0.0019 %			
		215-160-9	1308-38-9								
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %			<LOD
	024-017-00-8										
6	copper { dicopper oxide; copper (I) oxide }				24 mg/kg	1.126	27.021 mg/kg	0.0027 %			
	029-002-00-X	215-270-7	1317-39-1								
7	lead { lead chromate }			1	81 mg/kg	1.56	126.345 mg/kg	0.0081 %			
	082-004-00-2	231-846-0	7758-97-6								
8	mercury { mercury dichloride }				0.44 mg/kg	1.353	0.596 mg/kg	0.0000596 %			
	080-010-00-X	231-299-8	7487-94-7								
9	nickel { nickel chromate }				15 mg/kg	2.976	44.644 mg/kg	0.00446 %			
	028-035-00-7	238-766-5	14721-18-7								
10	selenium { nickel selenate }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %			<LOD
	028-031-00-5	239-125-2	15060-62-5								
11	zinc { zinc chromate }				65 mg/kg	2.774	180.32 mg/kg	0.018 %			
	024-007-00-3	236-878-9	13530-65-9								
12	TPH (C6 to C40) petroleum group				45 mg/kg		45 mg/kg	0.0045 %			
			TPH								
13	pH				9.43 pH		9.43 pH	9.43 pH			
			PH								
14	naphthalene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
15	acenaphthylene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
		205-917-1	208-96-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
16	acenaphthene	201-469-6	83-32-9		0.02 mg/kg		0.02 mg/kg	0.000002 %			
17	fluorene	201-695-5	86-73-7		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
18	phenanthrene	201-581-5	85-01-8		0.13 mg/kg		0.13 mg/kg	0.000013 %			
19	anthracene	204-371-1	120-12-7		0.03 mg/kg		0.03 mg/kg	0.000003 %			
20	fluoranthene	205-912-4	206-44-0		0.34 mg/kg		0.34 mg/kg	0.000034 %			
21	pyrene	204-927-3	129-00-0		0.33 mg/kg		0.33 mg/kg	0.000033 %			
22	benzo[a]anthracene	601-033-00-9	200-280-6		0.19 mg/kg		0.19 mg/kg	0.000019 %			
23	chrysene	601-048-00-0	205-923-4		0.21 mg/kg		0.21 mg/kg	0.000021 %			
24	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.21 mg/kg		0.21 mg/kg	0.000021 %			
25	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.09 mg/kg		0.09 mg/kg	0.000009 %			
26	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.2 mg/kg		0.2 mg/kg	0.00002 %			
27	indeno[123-cd]pyrene	205-893-2	193-39-5		0.13 mg/kg		0.13 mg/kg	0.000013 %			
28	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
29	benzo[ghi]perylene	205-883-8	191-24-2		0.13 mg/kg		0.13 mg/kg	0.000013 %			
30	benzene	601-020-00-8	200-753-7		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
31	toluene	601-021-00-3	203-625-9		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
32	ethylbenzene	601-023-00-4	202-849-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
33	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
34	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
Total:									0.0419 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Concentrations are too low to be considered a flammable risk.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0045%)

Classification of sample: WS107

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

Sample details

Sample name:	LoW Code:
WS107	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)
0.20-0.60 m	
Moisture content:	
15.6%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: **15.6%** No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				13 mg/kg	1.32	17.164 mg/kg	0.00172 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
	006-007-00-5										
3	cadmium { cadmium oxide }				0.8 mg/kg	1.142	0.914 mg/kg	0.0000914 %			
	048-002-00-0	215-146-2	1306-19-0								
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				27 mg/kg	1.462	39.462 mg/kg	0.00395 %			
		215-160-9	1308-38-9								
5	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %			<LOD
	024-017-00-8										
6	copper { dicopper oxide; copper (I) oxide }				39 mg/kg	1.126	43.91 mg/kg	0.00439 %			
	029-002-00-X	215-270-7	1317-39-1								
7	lead { lead chromate }			1	86 mg/kg	1.56	134.144 mg/kg	0.0086 %			
	082-004-00-2	231-846-0	7758-97-6								
8	mercury { mercury dichloride }				<0.17 mg/kg	1.353	<0.23 mg/kg	<0.000023 %			<LOD
	080-010-00-X	231-299-8	7487-94-7								
9	nickel { nickel chromate }				23 mg/kg	2.976	68.454 mg/kg	0.00685 %			
	028-035-00-7	238-766-5	14721-18-7								
10	selenium { nickel selenate }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %			<LOD
	028-031-00-5	239-125-2	15060-62-5								
11	zinc { zinc chromate }				102 mg/kg	2.774	282.963 mg/kg	0.0283 %			
	024-007-00-3	236-878-9	13530-65-9								
12	TPH (C6 to C40) petroleum group				89 mg/kg		89 mg/kg	0.0089 %			
			TPH								
13	pH				7.67 pH		7.67 pH	7.67 pH			
			PH								
14	naphthalene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
15	acenaphthylene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
		205-917-1	208-96-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
16	acenaphthene	201-469-6	83-32-9		0.09 mg/kg		0.09 mg/kg	0.000009 %			
17	fluorene	201-695-5	86-73-7		0.05 mg/kg		0.05 mg/kg	0.000005 %			
18	phenanthrene	201-581-5	85-01-8		0.64 mg/kg		0.64 mg/kg	0.000064 %			
19	anthracene	204-371-1	120-12-7		0.15 mg/kg		0.15 mg/kg	0.000015 %			
20	fluoranthene	205-912-4	206-44-0		2.19 mg/kg		2.19 mg/kg	0.000219 %			
21	pyrene	204-927-3	129-00-0		2.08 mg/kg		2.08 mg/kg	0.000208 %			
22	benzo[a]anthracene	601-033-00-9	200-280-6		1 mg/kg		1 mg/kg	0.0001 %			
23	chrysene	601-048-00-0	205-923-4		1.02 mg/kg		1.02 mg/kg	0.000102 %			
24	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.83 mg/kg		0.83 mg/kg	0.000083 %			
25	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.33 mg/kg		0.33 mg/kg	0.000033 %			
26	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.74 mg/kg		0.74 mg/kg	0.000074 %			
27	indeno[123-cd]pyrene	205-893-2	193-39-5		0.39 mg/kg		0.39 mg/kg	0.000039 %			
28	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.09 mg/kg		0.09 mg/kg	0.000009 %			
29	benzo[ghi]perylene	205-883-8	191-24-2		0.36 mg/kg		0.36 mg/kg	0.000036 %			
30	benzene	601-020-00-8	200-753-7		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
31	toluene	601-021-00-3	203-625-9		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
32	ethylbenzene	601-023-00-4	202-849-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
33	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
34	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
Total:									0.0645 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Concentrations are too low to be considered a flammable risk.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0089%)

Classification of sample: WS106

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

Sample details

Sample name:	LoW Code:
WS106	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.20-0.60 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
20.2%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 20.2% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				16 mg/kg	1.32	21.125 mg/kg	0.00211 %		
	033-003-00-0	215-481-4	1327-53-3							
2	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									
3	cadmium { cadmium oxide }				1.6 mg/kg	1.142	1.828 mg/kg	0.000183 %		
	048-002-00-0	215-146-2	1306-19-0							
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				29 mg/kg	1.462	42.385 mg/kg	0.00424 %		
		215-160-9	1308-38-9							
5	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %		<LOD
	024-017-00-8									
6	copper { dicopper oxide; copper (I) oxide }				50 mg/kg	1.126	56.294 mg/kg	0.00563 %		
	029-002-00-X	215-270-7	1317-39-1							
7	lead { lead chromate }			1	78 mg/kg	1.56	121.666 mg/kg	0.0078 %		
	082-004-00-2	231-846-0	7758-97-6							
8	mercury { mercury dichloride }				<0.17 mg/kg	1.353	<0.23 mg/kg	<0.000023 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
9	nickel { nickel chromate }				23 mg/kg	2.976	68.454 mg/kg	0.00685 %		
	028-035-00-7	238-766-5	14721-18-7							
10	selenium { nickel selenate }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
	028-031-00-5	239-125-2	15060-62-5							
11	zinc { zinc chromate }				180 mg/kg	2.774	499.346 mg/kg	0.0499 %		
	024-007-00-3	236-878-9	13530-65-9							
12	TPH (C6 to C40) petroleum group				94 mg/kg		94 mg/kg	0.0094 %		
			TPH							
13	pH				6.96 pH		6.96 pH	6.96 pH		
			PH							
14	naphthalene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
15	acenaphthylene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
		205-917-1	208-96-8							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
16	acenaphthene	201-469-6	83-32-9		0.2 mg/kg		0.2 mg/kg	0.00002 %			
17	fluorene	201-695-5	86-73-7		0.13 mg/kg		0.13 mg/kg	0.000013 %			
18	phenanthrene	201-581-5	85-01-8		1.12 mg/kg		1.12 mg/kg	0.000112 %			
19	anthracene	204-371-1	120-12-7		0.25 mg/kg		0.25 mg/kg	0.000025 %			
20	fluoranthene	205-912-4	206-44-0		1.74 mg/kg		1.74 mg/kg	0.000174 %			
21	pyrene	204-927-3	129-00-0		1.58 mg/kg		1.58 mg/kg	0.000158 %			
22	benzo[a]anthracene	601-033-00-9	200-280-6		0.78 mg/kg		0.78 mg/kg	0.000078 %			
23	chrysene	601-048-00-0	205-923-4		0.89 mg/kg		0.89 mg/kg	0.000089 %			
24	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.81 mg/kg		0.81 mg/kg	0.000081 %			
25	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.35 mg/kg		0.35 mg/kg	0.000035 %			
26	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.71 mg/kg		0.71 mg/kg	0.000071 %			
27	indeno[123-cd]pyrene	205-893-2	193-39-5		0.41 mg/kg		0.41 mg/kg	0.000041 %			
28	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.09 mg/kg		0.09 mg/kg	0.000009 %			
29	benzo[ghi]perylene	205-883-8	191-24-2		0.38 mg/kg		0.38 mg/kg	0.000038 %			
30	benzene	601-020-00-8	200-753-7		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
31	toluene	601-021-00-3	203-625-9		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
32	ethylbenzene	601-023-00-4	202-849-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
33	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
34	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
Total:									0.0878 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Concentrations are too low to be considered a flammable risk.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0094%)

Classification of sample: WS103

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

Sample details

Sample name:	LoW Code:
WS103	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)
0.20-0.60 m	
Moisture content:	
32.4%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 32.4% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				7 mg/kg	1.32	9.242 mg/kg	0.000924 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
	006-007-00-5										
3	cadmium { cadmium oxide }				<0.5 mg/kg	1.142	<0.571 mg/kg	<0.0000571 %			<LOD
	048-002-00-0	215-146-2	1306-19-0								
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				28 mg/kg	1.462	40.924 mg/kg	0.00409 %			
		215-160-9	1308-38-9								
5	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %			<LOD
	024-017-00-8										
6	copper { dicopper oxide; copper (I) oxide }				33 mg/kg	1.126	37.154 mg/kg	0.00372 %			
	029-002-00-X	215-270-7	1317-39-1								
7	lead { lead chromate }			1	63 mg/kg	1.56	98.268 mg/kg	0.0063 %			
	082-004-00-2	231-846-0	7758-97-6								
8	mercury { mercury dichloride }				<0.17 mg/kg	1.353	<0.23 mg/kg	<0.000023 %			<LOD
	080-010-00-X	231-299-8	7487-94-7								
9	nickel { nickel chromate }				24 mg/kg	2.976	71.43 mg/kg	0.00714 %			
	028-035-00-7	238-766-5	14721-18-7								
10	selenium { nickel selenate }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %			<LOD
	028-031-00-5	239-125-2	15060-62-5								
11	zinc { zinc chromate }				61 mg/kg	2.774	169.223 mg/kg	0.0169 %			
	024-007-00-3	236-878-9	13530-65-9								
12	TPH (C6 to C40) petroleum group				334 mg/kg		334 mg/kg	0.0334 %			
			TPH								
13	pH				6.89 pH		6.89 pH	6.89 pH			
			PH								
14	naphthalene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
15	acenaphthylene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
		205-917-1	208-96-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
16	acenaphthene	201-469-6	83-32-9		0.04 mg/kg		0.04	mg/kg	0.000004 %		
17	fluorene	201-695-5	86-73-7		0.03 mg/kg		0.03	mg/kg	0.000003 %		
18	phenanthrene	201-581-5	85-01-8		0.21 mg/kg		0.21	mg/kg	0.000021 %		
19	anthracene	204-371-1	120-12-7		0.04 mg/kg		0.04	mg/kg	0.000004 %		
20	fluoranthene	205-912-4	206-44-0		0.3 mg/kg		0.3	mg/kg	0.00003 %		
21	pyrene	204-927-3	129-00-0		0.28 mg/kg		0.28	mg/kg	0.000028 %		
22	benzo[a]anthracene	601-033-00-9	200-280-6		0.12 mg/kg		0.12	mg/kg	0.000012 %		
23	chrysene	601-048-00-0	205-923-4		0.15 mg/kg		0.15	mg/kg	0.000015 %		
24	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.13 mg/kg		0.13	mg/kg	0.000013 %		
25	benzo[k]fluoranthene	601-036-00-5	205-916-6		<0.07 mg/kg		<0.07	mg/kg	<0.000007 %		<LOD
26	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.1 mg/kg		0.1	mg/kg	0.00001 %		
27	indeno[123-cd]pyrene	205-893-2	193-39-5		0.06 mg/kg		0.06	mg/kg	0.000006 %		
28	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.04 mg/kg		<0.04	mg/kg	<0.000004 %		<LOD
29	benzo[ghi]perylene	205-883-8	191-24-2		<0.05 mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
30	benzene	601-020-00-8	200-753-7		<0.01 mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
31	toluene	601-021-00-3	203-625-9		<0.01 mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
32	ethylbenzene	601-023-00-4	202-849-4		<0.01 mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
33	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]		<0.01 mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
34	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1		<0.01 mg/kg		<0.01	mg/kg	<0.000001 %		<LOD
Total:									0.0734 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Concentrations are too low to be considered a flammable risk.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0334%)

Classification of sample: WS104

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

Sample details

Sample name:	LoW Code:
WS104	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.20-0.60 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
12.8%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 12.8% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				12 mg/kg	1.32	15.844 mg/kg	0.00158 %		
	033-003-00-0	215-481-4	1327-53-3							
2	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									
3	cadmium { cadmium oxide }				0.7 mg/kg	1.142	0.8 mg/kg	0.00008 %		
	048-002-00-0	215-146-2	1306-19-0							
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				27 mg/kg	1.462	39.462 mg/kg	0.00395 %		
		215-160-9	1308-38-9							
5	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %		<LOD
	024-017-00-8									
6	copper { dicopper oxide; copper (I) oxide }				33 mg/kg	1.126	37.154 mg/kg	0.00372 %		
	029-002-00-X	215-270-7	1317-39-1							
7	lead { lead chromate }			1	53 mg/kg	1.56	82.67 mg/kg	0.0053 %		
	082-004-00-2	231-846-0	7758-97-6							
8	mercury { mercury dichloride }				0.61 mg/kg	1.353	0.826 mg/kg	0.0000826 %		
	080-010-00-X	231-299-8	7487-94-7							
9	nickel { nickel chromate }				33 mg/kg	2.976	98.217 mg/kg	0.00982 %		
	028-035-00-7	238-766-5	14721-18-7							
10	selenium { nickel selenate }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %		<LOD
	028-031-00-5	239-125-2	15060-62-5							
11	zinc { zinc chromate }				87 mg/kg	2.774	241.351 mg/kg	0.0241 %		
	024-007-00-3	236-878-9	13530-65-9							
12	TPH (C6 to C40) petroleum group				3 mg/kg		3 mg/kg	0.0003 %		
			TPH							
13	pH				9.18 pH		9.18 pH	9.18 pH		
			PH							
14	naphthalene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
15	acenaphthylene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
		205-917-1	208-96-8							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
16	acenaphthene	201-469-6	83-32-9		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
17	fluorene	201-695-5	86-73-7		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
18	phenanthrene	201-581-5	85-01-8		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
19	anthracene	204-371-1	120-12-7		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
20	fluoranthene	205-912-4	206-44-0		<0.08 mg/kg		<0.08 mg/kg	<0.000008 %		<LOD
21	pyrene	204-927-3	129-00-0		<0.07 mg/kg		<0.07 mg/kg	<0.000007 %		<LOD
22	benzo[a]anthracene	601-033-00-9	200-280-6		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
23	chrysene	601-048-00-0	205-923-4		<0.06 mg/kg		<0.06 mg/kg	<0.000006 %		<LOD
24	benzo[b]fluoranthene	601-034-00-4	205-911-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
25	benzo[k]fluoranthene	601-036-00-5	205-916-6		<0.07 mg/kg		<0.07 mg/kg	<0.000007 %		<LOD
26	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
27	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
28	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
29	benzo[ghi]perylene	205-883-8	191-24-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
30	benzene	601-020-00-8	200-753-7		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
31	toluene	601-021-00-3	203-625-9		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
32	ethylbenzene	601-023-00-4	202-849-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
33	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
34	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
Total:								0.0497 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Concentrations are too low to be considered a flammable risk.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0003%)

Classification of sample: WS105

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

Sample details

Sample name:	LoW Code:
WS105	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)
0.20-0.60 m	
Moisture content:	
15.4%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 15.4% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				25 mg/kg	1.32	33.008 mg/kg	0.0033 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
	006-007-00-5										
3	cadmium { cadmium oxide }				1.3 mg/kg	1.142	1.485 mg/kg	0.000149 %			
	048-002-00-0	215-146-2	1306-19-0								
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				32 mg/kg	1.462	46.77 mg/kg	0.00468 %			
		215-160-9	1308-38-9								
5	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %			<LOD
	024-017-00-8										
6	copper { dicopper oxide; copper (I) oxide }				73 mg/kg	1.126	82.19 mg/kg	0.00822 %			
	029-002-00-X	215-270-7	1317-39-1								
7	lead { lead chromate }			1	144 mg/kg	1.56	224.613 mg/kg	0.0144 %			
	082-004-00-2	231-846-0	7758-97-6								
8	mercury { mercury dichloride }				<0.17 mg/kg	1.353	<0.23 mg/kg	<0.000023 %			<LOD
	080-010-00-X	231-299-8	7487-94-7								
9	nickel { nickel chromate }				26 mg/kg	2.976	77.383 mg/kg	0.00774 %			
	028-035-00-7	238-766-5	14721-18-7								
10	selenium { nickel selenate }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %			<LOD
	028-031-00-5	239-125-2	15060-62-5								
11	zinc { zinc chromate }				191 mg/kg	2.774	529.862 mg/kg	0.053 %			
	024-007-00-3	236-878-9	13530-65-9								
12	TPH (C6 to C40) petroleum group				627 mg/kg		627 mg/kg	0.0627 %			
			TPH								
13	pH				6.67 pH		6.67 pH	6.67 pH			
			PH								
14	naphthalene				0.06 mg/kg		0.06 mg/kg	0.000006 %			
	601-052-00-2	202-049-5	91-20-3								
15	acenaphthylene				0.11 mg/kg		0.11 mg/kg	0.000011 %			
		205-917-1	208-96-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
16	acenaphthene	201-469-6	83-32-9		0.45 mg/kg		0.45 mg/kg	0.000045 %		
17	fluorene	201-695-5	86-73-7		0.34 mg/kg		0.34 mg/kg	0.000034 %		
18	phenanthrene	201-581-5	85-01-8		4.51 mg/kg		4.51 mg/kg	0.000451 %		
19	anthracene	204-371-1	120-12-7		1.1 mg/kg		1.1 mg/kg	0.00011 %		
20	fluoranthene	205-912-4	206-44-0		8.62 mg/kg		8.62 mg/kg	0.000862 %		
21	pyrene	204-927-3	129-00-0		7.46 mg/kg		7.46 mg/kg	0.000746 %		
22	benzo[a]anthracene	601-033-00-9	200-280-6		4.26 mg/kg		4.26 mg/kg	0.000426 %		
23	chrysene	601-048-00-0	205-923-4		4.06 mg/kg		4.06 mg/kg	0.000406 %		
24	benzo[b]fluoranthene	601-034-00-4	205-911-9		4.09 mg/kg		4.09 mg/kg	0.000409 %		
25	benzo[k]fluoranthene	601-036-00-5	205-916-6		1.53 mg/kg		1.53 mg/kg	0.000153 %		
26	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		3.78 mg/kg		3.78 mg/kg	0.000378 %		
27	indeno[123-cd]pyrene	205-893-2	193-39-5		2.16 mg/kg		2.16 mg/kg	0.000216 %		
28	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.44 mg/kg		0.44 mg/kg	0.000044 %		
29	benzo[ghi]perylene	205-883-8	191-24-2		1.76 mg/kg		1.76 mg/kg	0.000176 %		
30	benzene	601-020-00-8	200-753-7		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
31	toluene	601-021-00-3	203-625-9		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
32	ethylbenzene	601-023-00-4	202-849-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
33	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
34	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
Total:								0.159 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Concentrations are too low to be considered a flammable risk.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0627%)

Classification of sample: WS202

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

Sample details

Sample name:	LoW Code:
WS202	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.20-0.60 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
24.1%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 24.1% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				8 mg/kg	1.32	10.563 mg/kg	0.00106 %		
	033-003-00-0	215-481-4	1327-53-3							
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %		<LOD
	006-007-00-5									
3	cadmium { cadmium oxide }				2 mg/kg	1.142	2.285 mg/kg	0.000228 %		
	048-002-00-0	215-146-2	1306-19-0							
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				42 mg/kg	1.462	61.385 mg/kg	0.00614 %		
		215-160-9	1308-38-9							
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %		<LOD
	024-017-00-8									
6	copper { dicopper oxide; copper (I) oxide }				27 mg/kg	1.126	30.399 mg/kg	0.00304 %		
	029-002-00-X	215-270-7	1317-39-1							
7	lead { lead chromate }			1	45 mg/kg	1.56	70.192 mg/kg	0.0045 %		
	082-004-00-2	231-846-0	7758-97-6							
8	mercury { mercury dichloride }				<0.17 mg/kg	1.353	<0.23 mg/kg	<0.000023 %		<LOD
	080-010-00-X	231-299-8	7487-94-7							
9	nickel { nickel chromate }				25 mg/kg	2.976	74.407 mg/kg	0.00744 %		
	028-035-00-7	238-766-5	14721-18-7							
10	selenium { nickel selenate }				2 mg/kg	2.554	5.108 mg/kg	0.000511 %		
	028-031-00-5	239-125-2	15060-62-5							
11	zinc { zinc chromate }				62 mg/kg	2.774	171.997 mg/kg	0.0172 %		
	024-007-00-3	236-878-9	13530-65-9							
12	TPH (C6 to C40) petroleum group				20 mg/kg		20 mg/kg	0.002 %		
			TPH							
13	pH				6.6 pH		6.6 pH	6.6 pH		
			PH							
14	naphthalene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
	601-052-00-2	202-049-5	91-20-3							
15	acenaphthylene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
		205-917-1	208-96-8							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
16	acenaphthene	201-469-6	83-32-9		0.01 mg/kg		0.01 mg/kg	0.000001 %			
17	fluorene	201-695-5	86-73-7		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
18	phenanthrene	201-581-5	85-01-8		0.08 mg/kg		0.08 mg/kg	0.000008 %			
19	anthracene	204-371-1	120-12-7		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %			<LOD
20	fluoranthene	205-912-4	206-44-0		0.13 mg/kg		0.13 mg/kg	0.000013 %			
21	pyrene	204-927-3	129-00-0		0.12 mg/kg		0.12 mg/kg	0.000012 %			
22	benzo[a]anthracene	601-033-00-9	200-280-6		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
23	chrysene	601-048-00-0	205-923-4		<0.06 mg/kg		<0.06 mg/kg	<0.000006 %			<LOD
24	benzo[b]fluoranthene	601-034-00-4	205-911-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
25	benzo[k]fluoranthene	601-036-00-5	205-916-6		<0.07 mg/kg		<0.07 mg/kg	<0.000007 %			<LOD
26	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
27	indeno[123-cd]pyrene	205-893-2	193-39-5		0.07 mg/kg		0.07 mg/kg	0.000007 %			
28	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
29	benzo[ghi]perylene	205-883-8	191-24-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %			<LOD
30	benzene	601-020-00-8	200-753-7		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
31	toluene	601-021-00-3	203-625-9		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
32	ethylbenzene	601-023-00-4	202-849-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
33	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
34	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
Total:									0.0426 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Concentrations are too low to be considered a flammable risk.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.002%)

Classification of sample: WS203

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

Sample details

Sample name:	LoW Code:
WS203	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)
0.20-0.80 m	
Moisture content:	
35.1%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 35.1% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				53 mg/kg	1.32	69.977 mg/kg	0.007 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				2 mg/kg	1.884	3.768 mg/kg	0.000377 %			
	006-007-00-5										
3	cadmium { cadmium oxide }				2.7 mg/kg	1.142	3.084 mg/kg	0.000308 %			
	048-002-00-0	215-146-2	1306-19-0								
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				42 mg/kg	1.462	61.385 mg/kg	0.00614 %			
		215-160-9	1308-38-9								
5	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %			<LOD
	024-017-00-8										
6	copper { dicopper oxide; copper (I) oxide }				97 mg/kg	1.126	109.211 mg/kg	0.0109 %			
	029-002-00-X	215-270-7	1317-39-1								
7	lead { lead chromate }			1	234 mg/kg	1.56	364.997 mg/kg	0.0234 %			
	082-004-00-2	231-846-0	7758-97-6								
8	mercury { mercury dichloride }				0.38 mg/kg	1.353	0.514 mg/kg	0.0000514 %			
	080-010-00-X	231-299-8	7487-94-7								
9	nickel { nickel chromate }				34 mg/kg	2.976	101.193 mg/kg	0.0101 %			
	028-035-00-7	238-766-5	14721-18-7								
10	selenium { nickel selenate }				2 mg/kg	2.554	5.108 mg/kg	0.000511 %			
	028-031-00-5	239-125-2	15060-62-5								
11	zinc { zinc chromate }				224 mg/kg	2.774	621.409 mg/kg	0.0621 %			
	024-007-00-3	236-878-9	13530-65-9								
12	TPH (C6 to C40) petroleum group				120 mg/kg		120 mg/kg	0.012 %			
			TPH								
13	pH				6.17 pH		6.17 pH	6.17 pH			
			PH								
14	naphthalene				0.08 mg/kg		0.08 mg/kg	0.000008 %			
	601-052-00-2	202-049-5	91-20-3								
15	acenaphthylene				0.02 mg/kg		0.02 mg/kg	0.000002 %			
		205-917-1	208-96-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
16	acenaphthene	201-469-6	83-32-9		0.54 mg/kg		0.54 mg/kg	0.000054 %			
17	fluorene	201-695-5	86-73-7		0.31 mg/kg		0.31 mg/kg	0.000031 %			
18	phenanthrene	201-581-5	85-01-8		3.11 mg/kg		3.11 mg/kg	0.000311 %			
19	anthracene	204-371-1	120-12-7		0.72 mg/kg		0.72 mg/kg	0.000072 %			
20	fluoranthene	205-912-4	206-44-0		6.04 mg/kg		6.04 mg/kg	0.000604 %			
21	pyrene	204-927-3	129-00-0		5.55 mg/kg		5.55 mg/kg	0.000555 %			
22	benzo[a]anthracene	601-033-00-9	200-280-6		2.37 mg/kg		2.37 mg/kg	0.000237 %			
23	chrysene	601-048-00-0	205-923-4		2.99 mg/kg		2.99 mg/kg	0.000299 %			
24	benzo[b]fluoranthene	601-034-00-4	205-911-9		2.84 mg/kg		2.84 mg/kg	0.000284 %			
25	benzo[k]fluoranthene	601-036-00-5	205-916-6		1.08 mg/kg		1.08 mg/kg	0.000108 %			
26	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		2.14 mg/kg		2.14 mg/kg	0.000214 %			
27	indeno[123-cd]pyrene	205-893-2	193-39-5		1.86 mg/kg		1.86 mg/kg	0.000186 %			
28	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.39 mg/kg		0.39 mg/kg	0.000039 %			
29	benzo[ghi]perylene	205-883-8	191-24-2		1.49 mg/kg		1.49 mg/kg	0.000149 %			
30	benzene	601-020-00-8	200-753-7		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
31	toluene	601-021-00-3	203-625-9		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
32	ethylbenzene	601-023-00-4	202-849-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
33	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
34	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
Total:									0.136 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Concentrations are too low to be considered a flammable risk.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.012%)

Classification of sample: WS204

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

Sample details

Sample name:	LoW Code:
WS204	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.20-0.60 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
19.6%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 19.6% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				10 mg/kg	1.32	13.203 mg/kg	0.00132 %			
	033-003-00-0	215-481-4	1327-53-3								
2	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										
3	cadmium { cadmium oxide }				2.8 mg/kg	1.142	3.199 mg/kg	0.00032 %			
	048-002-00-0	215-146-2	1306-19-0								
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				37 mg/kg	1.462	54.078 mg/kg	0.00541 %			
		215-160-9	1308-38-9								
5	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %			<LOD
	024-017-00-8										
6	copper { dicopper oxide; copper (I) oxide }				43 mg/kg	1.126	48.413 mg/kg	0.00484 %			
	029-002-00-X	215-270-7	1317-39-1								
7	lead { lead chromate }			1	53 mg/kg	1.56	82.67 mg/kg	0.0053 %			
	082-004-00-2	231-846-0	7758-97-6								
8	mercury { mercury dichloride }				<0.17 mg/kg	1.353	<0.23 mg/kg	<0.000023 %			<LOD
	080-010-00-X	231-299-8	7487-94-7								
9	nickel { nickel chromate }				47 mg/kg	2.976	139.884 mg/kg	0.014 %			
	028-035-00-7	238-766-5	14721-18-7								
10	selenium { nickel selenate }				<1 mg/kg	2.554	<2.554 mg/kg	<0.000255 %			<LOD
	028-031-00-5	239-125-2	15060-62-5								
11	zinc { zinc chromate }				102 mg/kg	2.774	282.963 mg/kg	0.0283 %			
	024-007-00-3	236-878-9	13530-65-9								
12	TPH (C6 to C40) petroleum group				11 mg/kg		11 mg/kg	0.0011 %			
			TPH								
13	pH				6.69 pH		6.69 pH	6.69 pH			
			PH								
14	naphthalene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
15	acenaphthylene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
		205-917-1	208-96-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
16	acenaphthene	201-469-6	83-32-9		0.02 mg/kg		0.02 mg/kg	0.000002 %			
17	fluorene	201-695-5	86-73-7		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
18	phenanthrene	201-581-5	85-01-8		0.15 mg/kg		0.15 mg/kg	0.000015 %			
19	anthracene	204-371-1	120-12-7		0.04 mg/kg		0.04 mg/kg	0.000004 %			
20	fluoranthene	205-912-4	206-44-0		0.32 mg/kg		0.32 mg/kg	0.000032 %			
21	pyrene	204-927-3	129-00-0		0.3 mg/kg		0.3 mg/kg	0.00003 %			
22	benzo[a]anthracene	601-033-00-9	200-280-6		0.14 mg/kg		0.14 mg/kg	0.000014 %			
23	chrysene	601-048-00-0	205-923-4		0.21 mg/kg		0.21 mg/kg	0.000021 %			
24	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.2 mg/kg		0.2 mg/kg	0.00002 %			
25	benzo[k]fluoranthene	601-036-00-5	205-916-6		<0.07 mg/kg		<0.07 mg/kg	<0.000007 %			<LOD
26	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.17 mg/kg		0.17 mg/kg	0.000017 %			
27	indeno[123-cd]pyrene	205-893-2	193-39-5		0.15 mg/kg		0.15 mg/kg	0.000015 %			
28	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %			<LOD
29	benzo[ghi]perylene	205-883-8	191-24-2		0.12 mg/kg		0.12 mg/kg	0.000012 %			
30	benzene	601-020-00-8	200-753-7		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
31	toluene	601-021-00-3	203-625-9		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
32	ethylbenzene	601-023-00-4	202-849-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
33	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
34	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
Total:									0.0615 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Concentrations are too low to be considered a flammable risk.

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0011%)

Classification of sample: TP202

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

Sample details

Sample name:	LoW Code:
TP202	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)
0.20-0.80 m	
Moisture content:	
17.7%	
(no correction)	

Hazard properties

None identified

Determinands

Moisture content: 17.7% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				8 mg/kg	1.32	10.563 mg/kg	0.00106 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<1 mg/kg	1.884	<1.884 mg/kg	<0.000188 %			<LOD
	006-007-00-5										
3	cadmium { cadmium oxide }				2.9 mg/kg	1.142	3.313 mg/kg	0.000331 %			
	048-002-00-0	215-146-2	1306-19-0								
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				53 mg/kg	1.462	77.462 mg/kg	0.00775 %			
		215-160-9	1308-38-9								
5	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<1 mg/kg	2.27	<2.27 mg/kg	<0.000227 %			<LOD
	024-017-00-8										
6	copper { dicopper oxide; copper (I) oxide }				43 mg/kg	1.126	48.413 mg/kg	0.00484 %			
	029-002-00-X	215-270-7	1317-39-1								
7	lead { lead chromate }			1	47 mg/kg	1.56	73.311 mg/kg	0.0047 %			
	082-004-00-2	231-846-0	7758-97-6								
8	mercury { mercury dichloride }				<0.17 mg/kg	1.353	<0.23 mg/kg	<0.000023 %			<LOD
	080-010-00-X	231-299-8	7487-94-7								
9	nickel { nickel chromate }				51 mg/kg	2.976	151.79 mg/kg	0.0152 %			
	028-035-00-7	238-766-5	14721-18-7								
10	selenium { nickel selenate }				2 mg/kg	2.554	5.108 mg/kg	0.000511 %			
	028-031-00-5	239-125-2	15060-62-5								
11	zinc { zinc chromate }				102 mg/kg	2.774	282.963 mg/kg	0.0283 %			
	024-007-00-3	236-878-9	13530-65-9								
12	TPH (C6 to C40) petroleum group				<10 mg/kg		<10 mg/kg	<0.001 %			<LOD
			TPH								
13	pH				5.46 pH		5.46 pH	5.46 pH			
			PH								
14	naphthalene				<0.03 mg/kg		<0.03 mg/kg	<0.000003 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
15	acenaphthylene				<0.01 mg/kg		<0.01 mg/kg	<0.000001 %			<LOD
		205-917-1	208-96-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	EU CLP index number	EC Number	CAS Number							
16	acenaphthene	201-469-6	83-32-9		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
17	fluorene	201-695-5	86-73-7		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
18	phenanthrene	201-581-5	85-01-8		0.04 mg/kg		0.04 mg/kg	0.000004 %		
19	anthracene	204-371-1	120-12-7		<0.02 mg/kg		<0.02 mg/kg	<0.000002 %		<LOD
20	fluoranthene	205-912-4	206-44-0		<0.08 mg/kg		<0.08 mg/kg	<0.000008 %		<LOD
21	pyrene	204-927-3	129-00-0		<0.07 mg/kg		<0.07 mg/kg	<0.000007 %		<LOD
22	benzo[a]anthracene	601-033-00-9	200-280-6		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
23	chrysene	601-048-00-0	205-923-4		<0.06 mg/kg		<0.06 mg/kg	<0.000006 %		<LOD
24	benzo[b]fluoranthene	601-034-00-4	205-911-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
25	benzo[k]fluoranthene	601-036-00-5	205-916-6		<0.07 mg/kg		<0.07 mg/kg	<0.000007 %		<LOD
26	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
27	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.03 mg/kg		<0.03 mg/kg	<0.000003 %		<LOD
28	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.04 mg/kg		<0.04 mg/kg	<0.000004 %		<LOD
29	benzo[ghi]perylene	205-883-8	191-24-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<LOD
30	benzene	601-020-00-8	200-753-7		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
31	toluene	601-021-00-3	203-625-9		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
32	ethylbenzene	601-023-00-4	202-849-4		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
33	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
34	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1		<0.01 mg/kg		<0.01 mg/kg	<0.000001 %		<LOD
Total:								0.0642 %		

Key

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

Appendix A: Classifier defined and non GB MCL determinands

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

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

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

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

Reason for additional Hazards Statement(s):

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

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

Description/Comments: Data from C&L Inventory Database

Data source: <https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806>

Data source date: 17 Jul 2015

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

• TPH (C6 to C40) petroleum group (CAS Number: TPH)

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

Hazard Statements: Flam. Liq. 3; H226, Asp. Tox. 1; H304, STOT RE 2; H373, Muta. 1B; H340, Carc. 1B; H350, Repr. 2; H361d, Aquatic Chronic 2; H411

• pH (CAS Number: PH)

Description/Comments: Appendix C4

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

Hazard Statements: None.

• acenaphthylene (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

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

• acenaphthene (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

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

• fluorene (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

Hazard Statements: Aquatic Acute 1; H400, Aquatic Chronic 1; H410

• phenanthrene (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

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

• anthracene (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17 Jul 2015

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

• fluoranthene (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 21 Aug 2015

Hazard Statements: Acute Tox. 4; H302, Aquatic Acute 1; H400, Aquatic Chronic 1; H410

▪ **pyrene** (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 21 Aug 2015

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

▪ **indeno[123-cd]pyrene** (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 06 Aug 2015

Hazard Statements: Carc. 2; H351

▪ **benzo[ghi]perylene** (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 23 Jul 2015

Hazard Statements: Aquatic Acute 1; H400, Aquatic Chronic 1; H410

▪ **ethylbenzene** (EC Number: 202-849-4, CAS Number: 100-41-4)

GB MCL index number: 601-023-00-4

Description/Comments:

Additional Hazard Statement(s): Carc. 2; H351

Reason for additional Hazards Statement(s):

20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2B (77) 2000

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

Reasonable case CLP species based on hazard statements/molecular weight and most common (stable) oxide of arsenic. Industrial sources include: smelting; main precursor to other arsenic compounds (edit as required)

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

cadmium {cadmium oxide}

Reasonable case CLP species based on hazard statements/molecular weight, very low solubility in water. Industrial sources include: electroplating baths, electrodes for storage batteries, catalysts, ceramic glazes, phosphors, pigments and nematocides. (edit as required) Worst case compounds in CLP: cadmium sulphate, chloride, fluoride & iodide not expected as either very soluble and/or compound's industrial usage not related to site history (edit as required)

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

Reasonable case species based on hazard statements/molecular weight. Industrial sources include: tanning, pigment in paint, inks and glass (edit as required)

chromium in chromium(VI) compounds {chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex}

Worst case species based on hazard statements/molecular weight (edit as required)

copper {dicopper oxide; copper (I) oxide}

Reasonable case CLP species based on hazard statements/molecular weight and insolubility in water. Industrial sources include: oxidised copper metal, brake pads, pigments, antifouling paints, fungicide. (edit as required) Worse case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected. (edit as required)

lead {lead chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

mercury {mercury dichloride}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

nickel {nickel chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

selenium {nickel selenate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

zinc {zinc chromate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

Appendix C: Version

HazWasteOnline Classification Engine: **WM3 1st Edition v1.2.GB - Oct 2021**
HazWasteOnline Classification Engine Version: 2022.168.5189.9766 (18 Jun 2022)
HazWasteOnline Database: 2022.168.5189.9766 (18 Jun 2022)

This classification utilises the following guidance and legislation:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

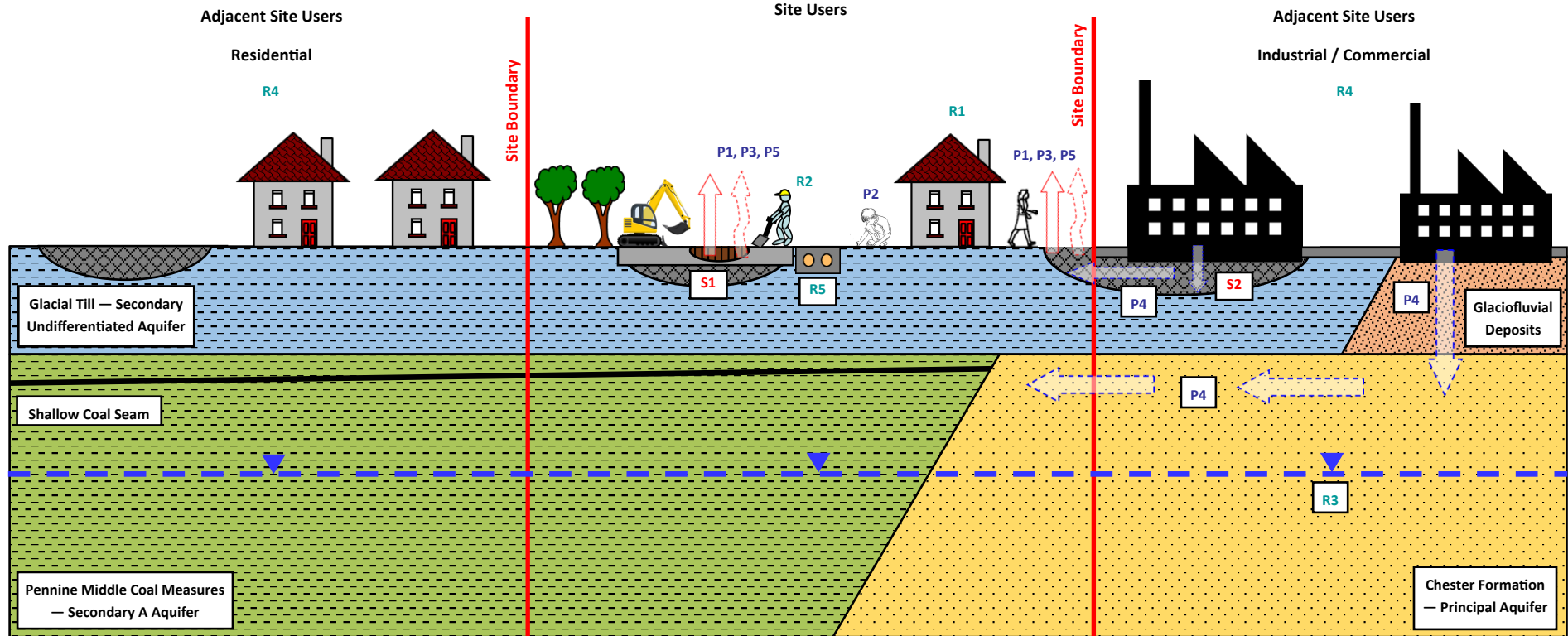
Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020

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

GB MCL List - version 1.1 of 09 June 2021

Figure 3 – Preliminary Conceptual Site Model

Preliminary Conceptual Site Model (CSM)



Legend	
	Infilled / Made Ground
	Hydrocarbon Spill
	Relic Foundation
	Hardstanding
	Cables
	Inferred Water Table

Contamination Source	
S1	Potentially Contaminated Soil and ground gas — Onsite
S2	Potentially Contaminated Soil and ground gas — Off-site

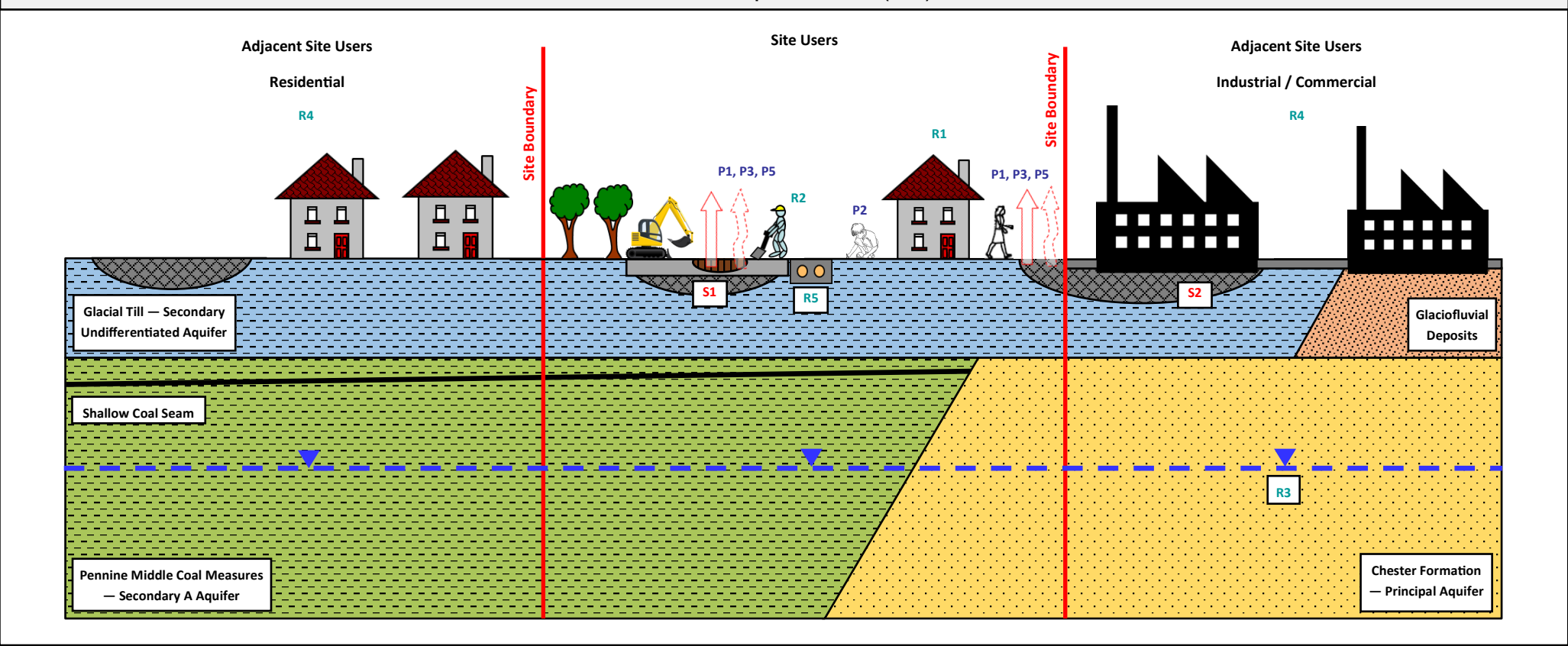
Receptor	
R1	Future Site Users
R2	Construction Workers
R3	Controlled Waters
R4	Adjacent Site Users
R5	Infrastructure & Buried Services

Pathway	
	Direct Contact / Ingestion
	Leachate Migration
	Ground Gas Migration
P1	Direct Contact
P2	Ingestion
P3	Inhalation
P4	Leaching & Migration
P5	Vertical & Lateral migration of Ground Gas

	Client: Onward		
	Project: 31990-SUT-ZZ-00-RP-G-701-0001		
	Title: Preliminary Conceptual Site Model (CSM)		
Purpose: Report	Draft	1	Scale (at A3): Not to scale
	Issue	1	
Issuing Office: Liverpool	Drawing number: 1		Version: A
Telephone: 0151 227 3155			

Figure 8 – Revised Conceptual Site Model

Revised Conceptual Site Model (CSM)



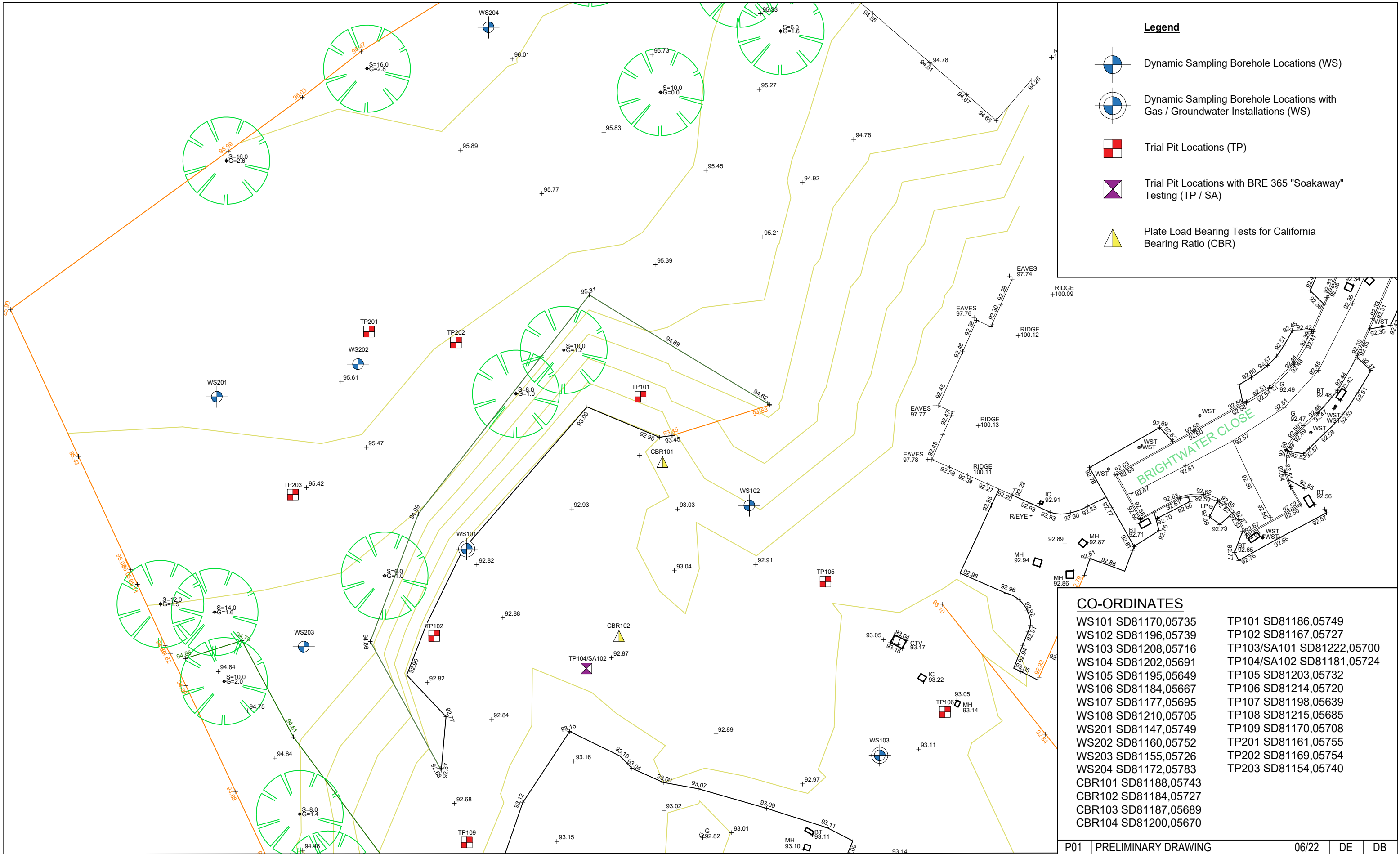
Legend	
	Infilled / Made Ground
	Hydrocarbon Spill
	Relic Foundation
	Hardstanding
	Cables
	Inferred Water Table

Contamination Source	
S1	Potentially Contaminated Soil and ground gas — Onsite
S2	Potentially Contaminated Soil and ground gas — Off-site
Receptor	
R1	Future Site Users
R2	Construction Workers
R3	Controlled Waters
R4	Adjacent Site Users
R5	Infrastructure & Buried Services

Pathway	
	Direct Contact / Ingestion
	Leachate Migration
	Ground Gas Migration
P1	Direct Contact
P2	Ingestion
P3	Inhalation
P4	Leaching & Migration
P5	Vertical & Lateral migration of Ground Gas

	Client: Onward		
	Project: 31990-SUT-ZZ-00-RP-G-701-0001		
	Title: Revised Conceptual Site Model (CSM)		
Purpose: Report	Draft	1	Scale (at A3): Not to scale
	Issue	1	
Issuing Office: Liverpool	Drawing number: 1		Version: A
Telephone: 0151 227 3155			

Drawing Ref. – 31990-SUT-ZZ-00-DR-G-720-0001 (Site Investigation on Existing Layout - Northern Section)



Legend

Dynamic Sampling Borehole Locations (WS)

Dynamic Sampling Borehole Locations with Gas / Groundwater Installations (WS)

Trial Pit Locations (TP)

Trial Pit Locations with BRE 365 "Soakaway" Testing (TP / SA)

Plate Load Bearing Tests for California Bearing Ratio (CBR)

CO-ORDINATES

WS101 SD81170,05735	TP101 SD81186,05749
WS102 SD81196,05739	TP102 SD81167,05727
WS103 SD81208,05716	TP103/SA101 SD81222,05700
WS104 SD81202,05691	TP104/SA102 SD81181,05724
WS105 SD81195,05649	TP105 SD81203,05732
WS106 SD81184,05667	TP106 SD81214,05720
WS107 SD81177,05695	TP107 SD81198,05639
WS108 SD81210,05705	TP108 SD81215,05685
WS201 SD81147,05749	TP109 SD81170,05708
WS202 SD81160,05752	TP201 SD81161,05755
WS203 SD81155,05726	TP202 SD81169,05754
WS204 SD81172,05783	TP203 SD81154,05740
CBR101 SD81188,05743	
CBR102 SD81184,05727	
CBR103 SD81187,05689	
CBR104 SD81200,05670	

Structural & Civil Engineering
Geotechnical & Environmental Investigations
Building Surveying
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Manchester Office:
0161 817 5180

North Wales Office:
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Drawing Status

FOR INFORMATION

Client

ONWARD

Project

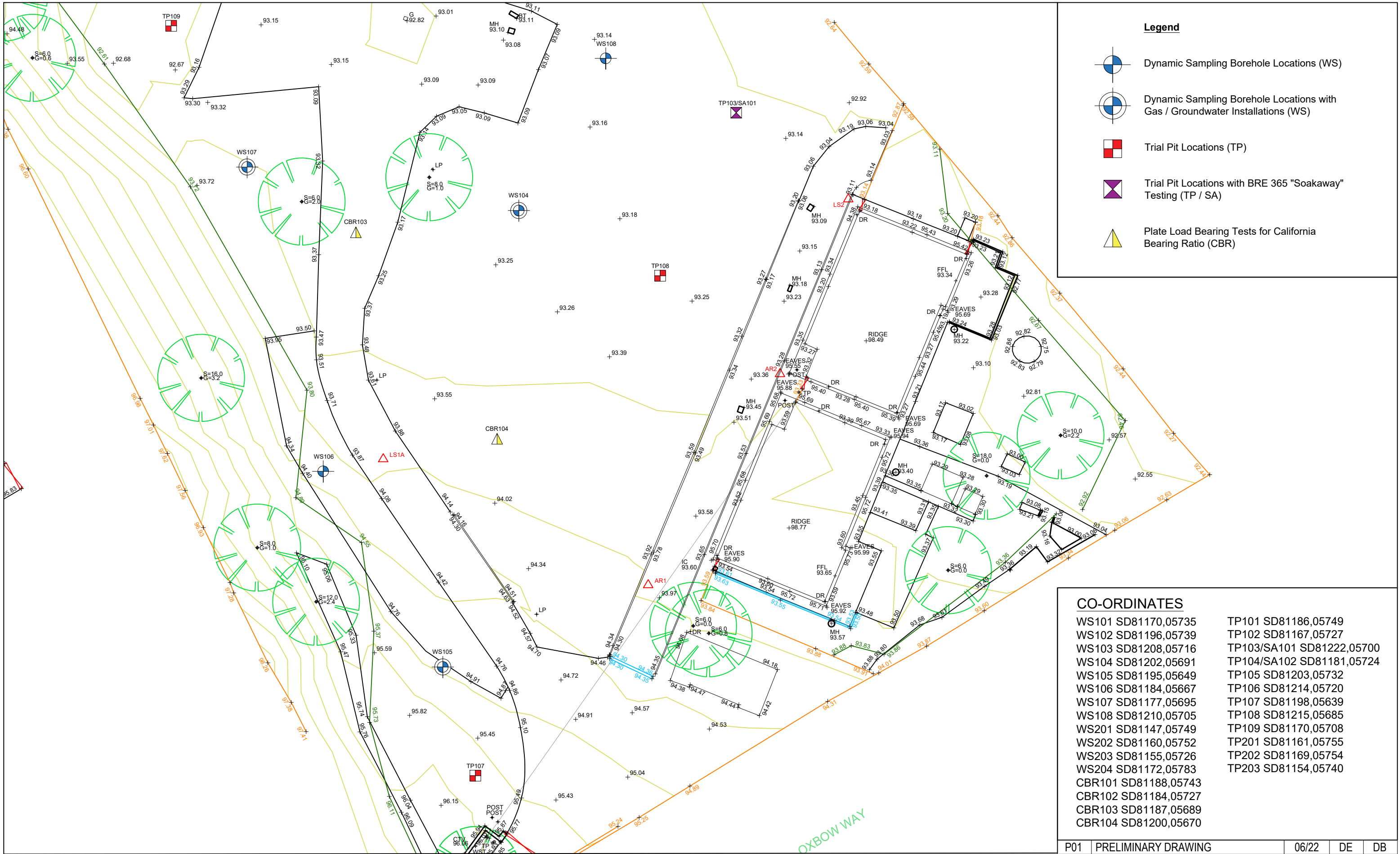
FORMER WHEATFIELD DAY CENTRE
WHITEFIELD

Drawing Title

SITE INVESTIGATION LOCATIONS
ON EXISTING PLAN (NORTHERN)

P01	PRELIMINARY DRAWING	06/22	DE	DB
Rev	Description	Date	By	Chkd
Date	Drawn By	Checked By		
JUNE 2022	D EVANS	D BOWEN		
Scale at A3 NTS		Project Number 31990LG		
Sheet Number 31990-SUT-ZZ-00-DR-G-720-0001				Revision P01

Drawing Ref. – 31990-SUT-ZZ-00-DR-G-720-0002 (Site Investigation on Existing Layout - Southern Section)



Legend

Dynamic Sampling Borehole Locations (WS)

Dynamic Sampling Borehole Locations with Gas / Groundwater Installations (WS)

Trial Pit Locations (TP)

Trial Pit Locations with BRE 365 "Soakaway" Testing (TP / SA)

Plate Load Bearing Tests for California Bearing Ratio (CBR)

CO-ORDINATES

WS101 SD81170,05735	TP101 SD81186,05749
WS102 SD81196,05739	TP102 SD81167,05727
WS103 SD81208,05716	TP103/SA101 SD81222,05700
WS104 SD81202,05691	TP104/SA102 SD81181,05724
WS105 SD81195,05649	TP105 SD81203,05732
WS106 SD81184,05667	TP106 SD81214,05720
WS107 SD81177,05695	TP107 SD81198,05639
WS108 SD81210,05705	TP108 SD81215,05685
WS201 SD81147,05749	TP109 SD81170,05708
WS202 SD81160,05752	TP201 SD81161,05755
WS203 SD81155,05726	TP202 SD81169,05754
WS204 SD81172,05783	TP203 SD81154,05740
CBR101 SD81188,05743	
CBR102 SD81184,05727	
CBR103 SD81187,05689	
CBR104 SD81200,05670	

Structural & Civil Engineering

Geotechnical & Environmental Investigations

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Manchester Office:
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North Wales Office:
01978 664 071

London Office:
020 8016 4320

Drawing Status

FOR INFORMATION

Client

ONWARD

Project

FORMER WHEATFIELD DAY CENTRE WHITEFIELD

Drawing Title

SITE INVESTIGATION LOCATIONS ON EXISTING PLAN (SOUTHERN)

P01	PRELIMINARY DRAWING	06/22	DE	DB
Rev	Description	Date	By	Chkd
Date	Drawn By	Checked By		
JUNE 2022	D EVANS	D BOWEN		
Scale at A3 NTS		Project Number 31990LG		
Sheet Number 31990-SUT-ZZ-00-DR-G-720-0002				Revision P01

Drawing Ref. – 21059-PJA-00-ZZ-DR-A-1000-B (Proposed Site Plan)

