



Phase III Remediation & Validation Strategy Proposals

At

Former Wheatfields Day Centre, Whitefield

Client: Onward

Reference: 31990-SUT-ZZ-00-RP-G-7301

Date: April 2023

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SUTCLIFFE INVESTIGATIONS

Phase III Remediation & Validation Strategy Proposals

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P02	April 2023	Updated depth of cover system	ED	DB	WGB
Signatures:					

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1 Introduction

1.1 Terms of Reference

Sutcliffe Investigations were instructed by Onward to design an appropriate remediation strategy for the proposed development at Former Wheatfield Day Centre, Victoria Avenue, Whitefield M45 6DP.

The site is centred on National Grid Reference (NGR) 381190, 405710. The site area is approximately 0.908ha.

This report provides details on the protocols to be adopted during remedial works required to be undertaken on the site to ensure that any risks associated with long term human health are mitigated.

The soil sampling strategy and chemical analysis proposals set out in this document are produced in light of a Phase I Preliminary Risk Assessment and Phase II Ground Assessment produced by Sutcliffe Investigations for this site. This report and the outlined strategy should therefore be read in conjunction with:

 31990-SUT-ZZ-00-RP-G-701-0001 – Phase I PRA Report (September 2021)

 31990-SUT-ZZ-00-RP-G-702-0002 – Phase II Interpretative Ground Assessment Report (December 2021)

1.2 Development Proposal & Legislative Context

Development Proposal

The proposed layout is shown in Paddock Johnson Drawing (Ref: 21059-PJA-00-ZZ-DR-A-1000-O). This report has been prepared in support of a planning application to develop the site for housing with gardens and associated car parking facilities. Based on information received from the architect, it is anticipated that site levels will be raised to facilitate the proposed development option.

Pre-Development Works

Prior to development, the site had historically been noted as open fields with a small, wooded area in 1848 with no significant changes until 1932 when an unlabelled rectangular building was present along the northern boundary. A pit present along the north east of the boundary is also noted to encroach. This pit was no longer present on the 1953-1958 maps.

Two large buildings labelled as 'Knowle Hill' in the southeast of the site and Wheatfields in the centre of the site and a substation in the centre of the site are noted on the 1964-1973 maps. No major changes occurred until 1992-1996 where the Wheatfields appears to be extended. A car park is also present on the 2000 maps within the southeast of the site, as well as close by to Wheatfields.

By 2006, the building in the southeast of the site is no longer present and the Wheatfields building appears to have altered in footprint. No further significant changes are evident until the 2021 mapping.

Legislative Context

The presence of contaminants which may pose a risk to human health or the environment, is a material planning consideration and it remains the responsibility of the developer to ensure safe development.

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.

1.3 Aims & Objectives

This report provides details of the remedial options applicable for a site comprising a residential development with associated gardens and parking facilities.

It also provides procedures to be implemented, in order to verify the remedial measures. The remediation strategy report is required to provide information to regulatory authorities to satisfy planning conditions relating to contaminated land aspects on the site.

This document outlines Sutcliffe Investigations proposals for Remediation Strategies, and includes the following:

-  Validation of installed gas protection measures compliant with Amber 2.
-  Validation of imported top and sub soils required to facilitate landscape proposals.

2 Land Contamination Risks

2.1 Revised Conceptual Model

Based on the findings of the human health risk assessment as completed by Sutcliffe, the conceptual model has been revised and has been presented within the Phase II Interpretative Ground Assessment Report ref. 31990-SUT-ZZ-00-RP-G-702-0002

2.2 Discounted Contaminant Linkages

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.

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.

2.3 Remaining Potential Contaminant Linkages

Long Term Human Health

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

Statistical analysis undertaken with regard to identified contaminants has been completed by Sutcliffe, statistical analysis is presented within the Ground Assessment Report and summarised in *Table 2.1* hereunder.

Table 2.1: Statistical Analysis Results (Residential with Plant Uptake)

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

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

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.

Ground Gas

Based on the quantitative and qualitative assessment of the risk associated with ground gas, the site should be classified as an **Amber 2** indicating gas protective measures are required.

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.

Although the NHBC states to consider an Amber 2 classification if the maximum carbon dioxide readings are above 10%, the calculated HGFR values would only class the site as CS2 in accordance with BS8485:2015+A1:2019. In addition, the maximum carbon dioxide concentrations only narrowly exceed 10% with low flow rates. Therefore, it would be sufficient to achieve 3.5 points.

Table 2.2 details the protection measures required to achieve this point total.

Table 2.2: 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 a number of 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 taking into account 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 of 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/m ² 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

An example of a suitable gas protection membrane and a membrane validation pro forma is presented as *Appendix B*.

3 Remediation Strategy

3.1 Overview

The recommendations provided below are considered appropriate for the site based on the site investigation and the combined risk assessments completed by Sutcliffe (controlled waters, ground gas and long-term human health) and details recommended remediation and validation works.

3.2 Additional Works Required to Assess Outstanding Contaminant Linkages

No additional works are required to assess outstanding contaminant linkage.

3.3 Remedial Works

Development Area

Considering the proposed development and the location of the zones of exceeded contaminants, a clean cover system will be required to a depth of 600mm in all garden and soft landscaped areas.

Elsewhere on site (areas of hardstanding) reduced site levels will be as per foundation design given the extent of contamination and the identified long term human health risks, remedial works will be required to ensure that the site is “fit for purpose”, assuming a residential (with garden) end use.

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 an 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.

Gas protection measures should include a ventilated sub-floor void and a suitable gas membrane in accordance with the requirements of BS8485:2015+A1:2019 as set out in Table 4.1 of this report.

3.4 Proposed Capping Thickness – Soft Landscaping Area

Raising of the site to achieve finished site levels will be required and will include the importation of clean validated top and sub soils, comprising 450mm of subsoil and 150mm of topsoil to be placed in all proposed garden and landscaped areas.

3.5 Soil Validation Sampling & Testing

Soil Sampling

In accordance with the current requirements of the regulatory authorities, validation samples will be collected from all materials that are to be subject to movement and reuse under the protocols outlined within this Remediation Strategy, or for materials to be imported onto site to facilitate the proposed residential development.

Soil samples destined for chemical analysis will be collected at regular intervals in appropriate sampling containers. All samples will subsequently be stored in cooled boxes prior to submission to a UKAS / MCERTS accredited laboratory.

All samples will be collected using appropriate PPE and sampling equipment that will be cleaned at each sampling location.

Where material is found to contain concentrations of potential contaminants at levels in excess of the site-specific screening criteria the excavation will be extended, and further sampling undertaken.

The sampling frequency for materials to be managed under the Remediation Strategy is presented within *Table 4.1* and *Table 4.2*.

Table 4.1: Testing Frequency for Material Use on Site (Imported)

Material Use	Testing Frequency
Subsoil Greenfield Source (450mm garden cover)	1 Sample per 200m ³
Subsoil Brownfield Source (450mm garden cover)	1 Sample per 50m ³
Topsoil Greenfield Source (150mm garden cover)	1 Sample per 200m ³
Topsoil Brownfield Source (150mm garden cover)	1 Sample per 50m ³

Table 4.2: Testing Frequency for Material Use on Site (Site Generated)

Material Use	Testing Frequency
Site Generated 6F2	1 Sample Per 1000m ³
Site Won Made Ground General Backfill	1 Sample Per 250m ³
Site Won Natural Backfill	1 Sample Per 2000m ³
Site generated Sub-Soil (450mm garden cover)	1 Sample Per 250m ³
Site Generated Topsoil Cover (150mm garden cover)	1 Sample per 50m ³

Imported Soil Validation Testing

Imported material needs to be compliant with BS3882: 2015 Specification for Topsoil and BS8601: 2013 Specification for Subsoil and requirements for use.

The typical testing suite will comprise:

Arsenic, boron, cadmium, chromium (total and hexavalent), copper, lead, mercury, nickel, selenium, vanadium, zinc, water soluble sulphate, pH, USEPA PAH 16, asbestos (presence or absence) and organic matter.

Where the source is 'brownfield' or to site source unknown, the soil will additionally be tested for the following:

Speciated banded petroleum hydrocarbons (TPHCWG), benzene, toluene, ethylbenzene and xylene (BTEX), MTBE, cyanide suite, boron and phenol.

Site Generated Soil Validation Testing

The typical testing suite will comprise:

Arsenic, boron, cadmium, chromium (total and hexavalent), copper, lead, mercury, nickel, selenium, vanadium, zinc, water soluble sulphate, pH, USEPA PAH 16, asbestos (presence or absence) and organic matter, speciated banded petroleum hydrocarbons (TPHCWG), benzene, toluene, ethylbenzene and xylene (BTEX), MTBE, cyanide suite, boron and phenol.

Dependant on this additional sampling and assessment consideration will be given to its emplacement within garden areas.

3.6 Soil Validation Criteria

Generic Soil Assessment Criteria – Imported Top & Sub soils

The results of the topsoil and subsoil samples may be contrasted to contemporary UK soil assessment criteria.

With regards to the soil risk assessment for imported top and sub soils Sutcliffe will use the following hierarchy:

-  LQM Suitable 4 Use Levels (S4ULs).
-  ATRISK Soil Screening Values (SSVs) and DEFRA Generic Assessment Criteria (GACs).
-  DEFRA Category 4 Screening Levels (C4SLs) for Lead.

Based upon the above we will use the LQM S4ULs. These use similar assumptions and land uses to C4SLs. However, toxicological information has been based on 'minimal risk' as per previous guidelines and assumptions.

If contaminants are not present as S4ULs, then we propose to use ATRISK SSVs or CL:AIRE GACs. These follow the 'minimal' risk principle and more stringent exposure parameters and will be conservative. The only exception to this is for Lead where the C4SL is used.

3.7 Capping Layer Depth Validation

The depth of the capping layer on site will be demonstrated by excavating a hole and collecting photographic evidence. The photographs will show the location of the validation, the downhole view and the depth using a levelling staff.

3.8 Site Completion Report

The site completion report will include details of the imported soil validation and photographs of the soil depth placed across the site.

The site wide planning conditions may only be discharged once Bury Council are satisfied that, in accordance with the National Planning Policy Framework (NPPF):

-  The site is suitable for its new use
-  Adequate site investigation information, prepared by a competent person, is presented.

3.9 Additional Remedial Requirements

Site Material Management Plan (SMMP)

It is advised that an appropriate SMMP is designed for the scheme and prior to the commencement of any works and maintained throughout the development of the scheme. All waste transfer notes will need to be retained and documented to allow ease of review by the regulators.

Material Reuse

Should any material from the site be reused an assessment for suitability for use would be required. Sampling protocols to be implemented on receipt of agreement with the Bury Council EHD are detailed in *Section 3*.

Unexpected Contamination

In the event that during the development works if unexpected contamination is identified then all works should cease and the appointed environmental consultant notified.

Documentation

On completion of the remedial works detailed within *Section 3.4* of this report, a Phase IV Completion Report will be required and will need to include the following documentation:

-  Waste consignment notes for contaminated material removed from site, including details of the recipient waste facility.
-  Consignment notes for top/sub soils imported to site.
-  Photographic log pre & post site reduction.
-  Photographic log of the gas membrane installation.
-  Independent certification of guarantee from third party confirming the suitability of gas membrane installation.

Appendix A – Analytical Results

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

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						
% 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

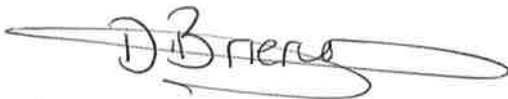
Envirolab Job Number: 22/05362
Issue Number: 1

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.

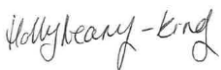
IS indicates Insufficient sample for analysis, NDP indicates No Determination Possible and NAD indicates No Asbestos Detected.

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		
				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	3.0	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 B – Gas Protection Membrane Specification & Membrane Validation Proforma

Visqueen Gas Barrier

Features and benefits

- BBA certified - third party accreditation
- Complies with BS 8485:2015 + A1:2019 - industry standard for methane and carbon dioxide protection
- Flexible - easy to detail and install on site
- Multi functional - also acts as a radon and damp proof membrane
- Dual jointing methods - lap joints can be taped or heat welded

Product description

Visqueen Gas Barrier is a multi-layer reinforced polyethylene gas barrier with a 20 micron aluminium foil. The barrier is coloured blue on the upper surface and silver on the reverse. The product is supplied in single wound rolls (not folded), 2m x 50m.

Approvals and standards

- Third party accreditation (BBA 13/5069)
- Conforms to the specification requirements of BS 8485:2015 + A1:2019
- Suitable for all Characteristic Gas Situation (CS) ground gas regimes
- Conforms to the specification requirements of NHBC Amber 1 and Amber 2 applications
- Conforms to the specification requirements of BR 211:2015
- CE Mark EN 13967:2017
- Quality Management System ISO 9001:2015
- Occupational Health and Safety System ISO 45001:2018
- Environmental Management System ISO 14001:2015

Usage

Visqueen Gas Barrier is suitable for use in all types of buildings to prevent the ingress of harmful levels of ground gases e.g. methane, carbon dioxide and radon.

The barrier can be positioned above or below a solid concrete ground floor slab or above a precast suspended segmental ground floor system, e.g. beam and block floor.

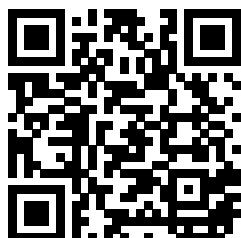
The barrier can also be used as a high performance radon membrane and/or damp proof membrane.

The product is not intended for use where there is a risk of hydrostatic pressure.

System components

- VisqueenPro Double Sided Jointing Tape, 50mm x 10m
- Visqueen Gas Resistant Foil Lap Tape, 75mm x 50m
- Visqueen GR Lap Tape, 150mm x 10m
- Visqueen Ultimate Top Hat Units
- Visqueen Preformed Units
- VisqueenPro Detailing Strip, 300mm x 10m, 500mm x 10m
- Visqueen TreadGUARD 300, 2m x 75m
- Visqueen TreadGUARD 1500, 1m x 2m

Find your local stockist





- Visqueen Class B FR Vapour Check is a fire resistant AVCL (air and vapour control layer)
- Surpasses all national Building Regulations and Standards for air and vapour control layers
- Fire classification B - s1, d0
- Competitive, efficient and fully tested system (including tapes) for fire resistance



ANOTHER FIRE PROTECTION PRODUCT FROM VISQUEEN

To discover the Visqueen difference visit www.visqueen.com or call us on +44 (0) 333 202 6800



Visqueen Gas Barrier

Storage and handling

Visqueen Gas Barrier should be stored horizontally, under cover in its original packaging.

Care should be taken when handling the product in line with current manual handling regulations.

Preparation

Visqueen Gas Barrier should be installed on a smooth continuous surface e.g. grouted beam and block floor, a compacted blinding layer e.g. 50mm thick sand blinding, or smooth concrete blinding. The substrate should be free from irregularities such as voids or protrusions.

The barrier can be cut with a sharp retractable safety knife or robust scissors.

When installing the membrane in demanding site conditions, use Visqueen GR Lap Tape in place of Visqueen Gas Resistant Foil Lap Tape.

Installation

Visqueen Gas Barrier should be loose laid on the substrate with the blue side up so as to avoid sunlight glare.

The barrier should be clean and dry at the time of jointing. It should be overlapped by at least 150mm, bonded with Visqueen Pro Double Sided Jointing Tape and sealed with Visqueen Gas Resistant Foil Lap Tape.

Alternatively lap joints can be heat welded to achieve an effective seal. Welded lap joints can be less than 150mm provided the joint integrity is not compromised.

Airtight seals should be formed around all service entry points. Visqueen Preformed Top Hat Units should be used for sealing service entry pipes. The base of the top hat and the upstand should be bonded using Visqueen Pro Double Sided Jointing Tape and sealed with Visqueen Gas Resistant Foil Lap Tape. The upstand should be secured with the supplied jubilee clip.

Forming an effective barrier to gases may give rise to complex three-dimensional detailing where, it is recommended Visqueen Preformed Units are used e.g. corners. Alternatively Visqueen Pro Detailing Strip can be used to seal awkward junctions.

If the barrier is punctured or perforated a patch of the same material should be lapped at least 150mm beyond the limits of the puncture and bonded with Visqueen Pro Double Sided Jointing Tape and sealed with Visqueen Gas Resistant Foil Lap Tape. Alternatively a patch can be formed using Visqueen Pro Detailing Strip and lapped at least 150mm beyond the extents of the puncture.

Long periods of exposure to ultraviolet light will reduce the effectiveness of the membrane. The membrane should be covered by a protective layer immediately after installation to prevent damage from following trades, ultraviolet light, etc. Care should be taken to ensure that the membrane is not punctured, stretched or displaced when applying a screed or final floor covering. A minimum thickness of 50mm screed is recommended. When reinforced concrete is to be laid over the barrier the wire reinforcements and spacers must be prevented from puncturing the barrier. Where there is a high risk of potential damage, the barrier should be covered with Visqueen TreadGuard protection, screed, or other approved protection material before positioning the reinforcement.

Usable temperature range

It is recommended that Visqueen Gas Barrier and all associated system components should not be installed below 5°C.

Additional information

When used in accordance BS8485:2015 + A1:2019 a subfloor ventilation system or pressure relief maybe required
Where hydrocarbon or VOC contamination is present use Visqueen Ultimate VOC or HC Blok gas protection systems
To assist build sequencing, Visqueen GR DPC is available for gas protection through the wall constructions
For suspended beam and block floor detailing see GB-01
Visqueen Preformed Top Hat Units should be used at service pipe penetrations see GB-51
For internal and external corners Visqueen Ultimate Preformed Units should be used see PFU-553
To seal around steel columns use Visqueen Pro Detailing Strip see GB-52
For additional detailing information, contact Visqueen Technical Services +44 (0) 333 202 6800

The information in this datasheet was correct at the time of publication. It is the user's responsibility to obtain the latest version of the datasheet as it is updated on a regular basis. The information contained in the latest datasheet supersedes all previously published editions.

Visqueen Gas Barrier

Property	Test method	Units	Compliance criteria	Result
Dimensions	EN 1848-2	m		2 x 50
Overall thickness including scrim mesh	EN 1849-2	mm	+/-10%	0.52
Mass	EN 1849-2	g/m ²	-0%/+5%	400
Tensile strength - MD	EN 12311	N	MLV	350
Tensile strength - CD	EN 12311	N	MLV	350
Tensile elongation - MD	EN 12311	%	MLV	20
Tensile elongation - CD	EN 12311	%	MLV	21
Joint strength	EN 12317-2	N	MLV	332
Watertightness 2kPa	EN 1928	-	Pass/Fail	Pass
Resistance to impact	EN 12691	mm	MDV	150
Dart impact	BS 2782	g	MDV	731
Low temperature flexibility	EN 495-5	°C	MDV	-40
Durability against ageing	EN 1296 and EN 1928	-	Pass/Fail	Pass
Durability chemical resistance	EN 1847	-	Pass/Fail	Pass
Resistance to tearing (nail shank) CD	EN 12310-1	N	MDV	358
Resistance to tearing (nail shank) MD	EN 12310-1	N	MDV	368
Resistance to static loading	EN 12730	kg	MLV	20
Water vapour transmission - resistance	EN 1931	MNs/g	MDV	7000
Water vapour transmission - permeability	EN 1931	g/m ² /d	MDV	0.03
Visible defects	EN 1850 -2	-	Pass/Fail	Pass
Reaction to fire	EN 13501-1	Class	MDV	F
BS 8485:2015 + A1:2019 testing requirements				
Mass	EN 1849-2	g/m ²	Average >370	400
Methane permeability	ISO 15105-1	mls/m ² /d/atm	Pass/Fail	<0.15
Puncture CBR	BS EN ISO 12236	N	MDV	1114
Tensiles yield strength MD	ASTM D4885-01	kN/m	MDV	12.5
Tensiles yield strength CD	ASTM D4885-02	kN/m	MDV	7.3
Resistance to static loading	EN 12730	kg	>MLV	20
Yield elongation CD	ASTM D4885-04	%	MDV	19
Tear resistance - trouser method A - MD	BS ISO 34-1	kN/m	MDV	48.2
Tear resistance - trouser method A - CD	BS ISO 34-1	kN/m	MDV	44.8
Tear resistance - angle method B - MD	BS ISO 34-1	N	MDV	53.5
Tear resistance - angle method B - CD	BS ISO 34-1	N	MDV	60.6

Health and safety information

Refer to the Visqueen Gas Barrier material safety datasheet (MSDS).

Visqueen Gas Barrier

About Visqueen

The Visqueen name has long been recognised as one of the leading manufacturers of high quality advanced membrane technologies and design based solutions by specifiers, distributors, builders merchants and contractors throughout the UK and Europe.

For further guidance on the Visqueen services shown below, please refer to the relevant section of the Visqueen website (www.visqueen.com) or contact Visqueen Technical Services on +44 (0) 333 202 6800 or enquiries@visqueen.com

Complete Range, Complete Solution



Structural
Waterproofing



Gas
Protection



Damp Proof
Membrane



Tapes



Damp Proof
Course



Stormwater



Vapour
Control

Visqueen Technical Support

Visqueen combine an extensive product portfolio with industry leading levels of service and support which includes guidance over the phone, bespoke CAD drawings to help with complex detailing, electronic NBS specifications and access to a dedicated team of highly knowledgeable and experienced field based Technical Support Managers.

Visqueen Technical Support is available to all our customers including architects, specifiers, distributors, builders merchants, contractors and end users. All of our technical team have been awarded the industry recognised qualification Certificated Surveyor in Structural Waterproofing (CSSW).

Visqueen CPD Seminars

The Visqueen Continuing Professional Development (CPD) Seminars provide up-to-date information on changes within Building Regulations/Building Standards and nationally recognised industry guidance affecting damp proofing, water vapour control, hazardous ground gas protection and below ground structural waterproofing.

The one hour seminars have been produced for design specialists within the construction sector and are delivered by our team of Technical Support Managers.

Visqueen PI designs and special projects

From initial design to the completed project, Visqueen are with you every step of the way. Whether it be hazardous ground gas protection and/or below ground waterproofing protection employing barrier, structurally integral or drained systems, Visqueen can offer professional indemnity (PI) insurance for bespoke Visqueen design solutions.

Visqueen Technical Support Managers work with all stakeholders to provide cost effective Visqueen solutions offering complete peace of mind throughout the construction phase and beyond.

Visqueen Training Academy

Based at our manufacturing facility in Derbyshire, the Visqueen Training Academy is available to support Visqueen customers throughout the UK by providing a wide range of both theory and practical skills related training.

Courses include one day product awareness training for our distributors and builders merchants to help them in their day-to-day jobs, through to intensive three day courses giving detailed hands-on training in the practical skills required for safe and robust product installation.

Paddock Johnson Drawing Ref. - 21059-PJA-00-ZZ-DR-A-1000-O



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REV:	DATE:	DESCRIPTION:	BY:
A	15.7.21	Bungalows Added	PO
B	16.7.21	Areas Revised	PO
C	7.10.21	Drain Shown and Layout Adjusted	PO
D	1.11.21	Further landscaping shown	PO
E	23.11.21	Site Entrance Revised	PO
F	25.02.22	Parking shown for 31-37 Victoria Avenue	PO
G	1.3.22	Increased Road Radius Near Plot 17	PO
H	4.3.22	Revised Road Layout	PO
I	4.3.22	Pinch Point Increased	PO
J	11.3.22	Road widend at bends	PO
K	22.3.22	Parking outside 33 & 35 reinstated	PO
L	8.4.22	Landscaping notes added	PO
M	17.8.22	Additional Information Shown	PO
N	19.10.22	Road Revised	PO
O	1.11.22	Revised to Highways Comments	PO

- 3B5P Houses
Type A
18 no. @ 84m2 (90% NDSS)

2B3P Walk Up Apartments
Type B
6 no. @ 55/63m2 (90% NDSS)

2B3P Bungalows
Type C
6 no. @ 55m2 (90% NDSS)

Total 30 no. units
- 2.1m Masonry Wall to match dwellings

1.8m Proposed close board fence with 300mm concrete gravel board
- Ornamental Street Tree
12-14cm girth, heavy standard, root balled or containerised clear stem minimum 175cm
Amelanchier x grandiflora 'Robin Hill'
Betula pendula 'Zwitsers Glorie'
Quercus 'Green Pillar'

ORNAMENTAL PLANTING BEDS
CONTAINING SHRUBS, HERBACEOUS PLANTS AND GRASSES

SHRUBS, 3-5L CONTAINERISED, PLANTED AT 3-5/M2
Choisya x dewitteana 'White Dazzler'
Cistus x purpureus
Cornus alba 'Aurea'
Hebe 'Caledonia'
Hebe pinguifolia 'Sutherlandii'
Hydrangea paniculate 'LimeLight'
Hypericum calycinum
Lavandula angustifolia 'Hidcote'
Leycesteria Formosa 'Golden lanterns'
Pachysandra terminalis
Pittosporum tenuifolium 'Tom Thumb'
Potentilla fruticosa 'Tangerine'
Rubus tricolor
Santolina Chaemocypris
Skimmia confuse 'Kew Green'
Vinca minor 'Gertrude Jekyll'

HERBACEOUS PLANTS, 2L, CONTAINERISED, 5-6/M2
Anemone x hybrida 'Honorine Jobert'
Bergenia cordifolia 'Purpurea'
Centranthus ruber 'Albus'
Digitalis lutea
Digitalis purpurea
Erysimum 'Bowles Mauve'
Euphorbia amygdaloides 'Purpurea'
Heuchera 'Obsidian'
Kniphofia 'Tawny King'
Kiriopie muscari
Rudbeckia fulgida var. sullivantii Goldsturm'
Salvia officinalis 'Purpureascens'
Salvia x sylvestris 'Mainarcht'
Sedum 'Jose Aubergine'
Sisyrinchium striatum
Stachys byzantina

GRASSES 2L CONTAINERISED, 4-6/M2
Carex morrowii 'Ice Dance'
Sesleria autumnalis
- Tarmacadam road and pedestrian path

600 x 600 Grey Concrete Pavers

Permeable Concrete Block Pavers

Amenity Grass Turf
Rowan Medallion
Supplier - Rolawn
- HH - Hedgehog Highway in gravel board to allow access between gardens for hedgehogs

EV -Electric Veichle Charging
Houses and Bungalows - Pod
Point Solo - Home or similar.
Apartments - Pod Point Twin
Charger or similar

CLIENT:
Onward Homes

PROJECT:
Former Wheatfields Day Care Centre
Victoria Avenue, Whitefield

DRAWING NUMBER:
21059-PJA-00-ZZ-DR-A-1000-O

DRAWING TITLE:
Proposed Site Plan

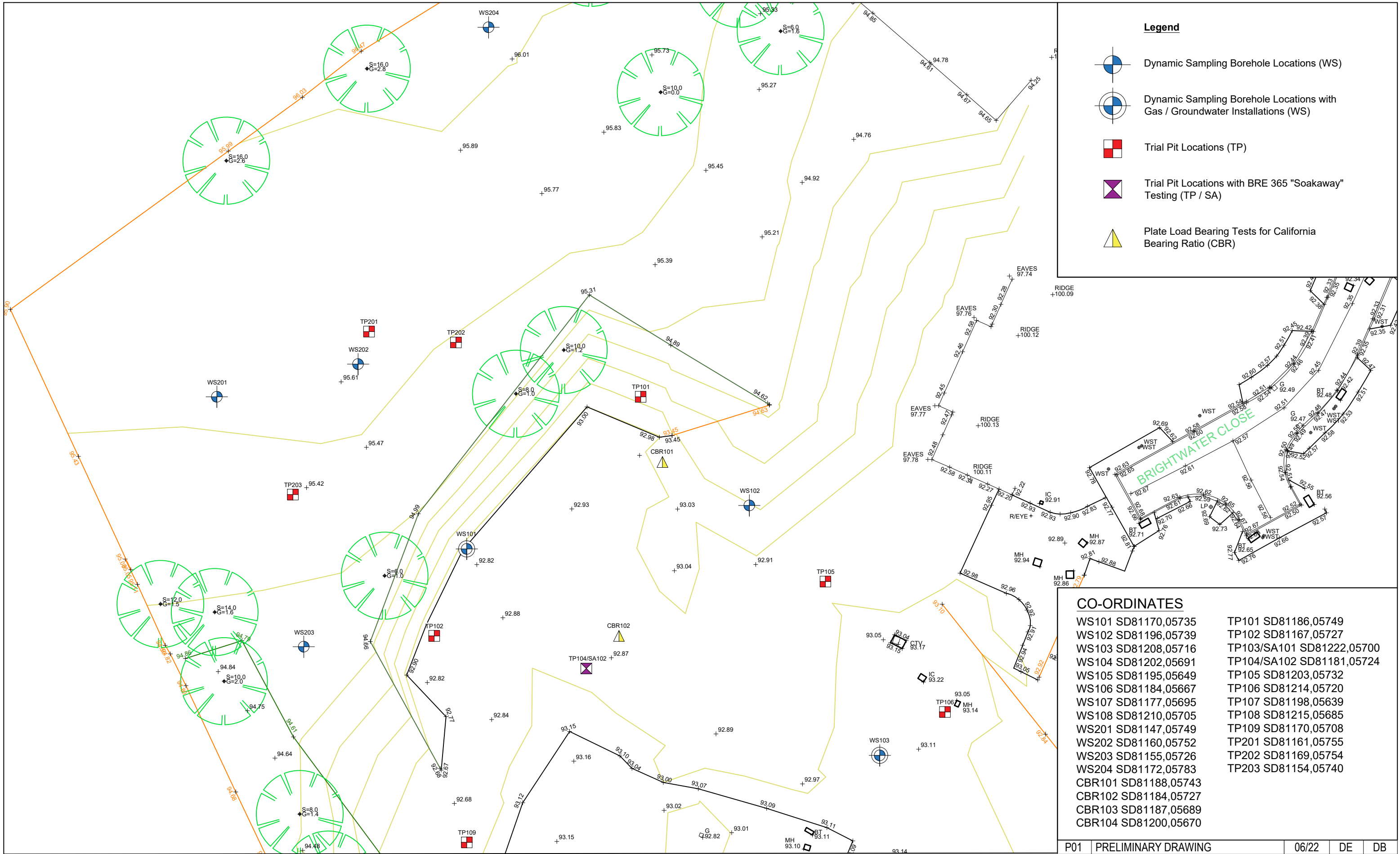
STATUS:
PLANNING

SCALE: 1 : 500@A2 DATE: 30.6.21 BY: PO CHECKED: VA

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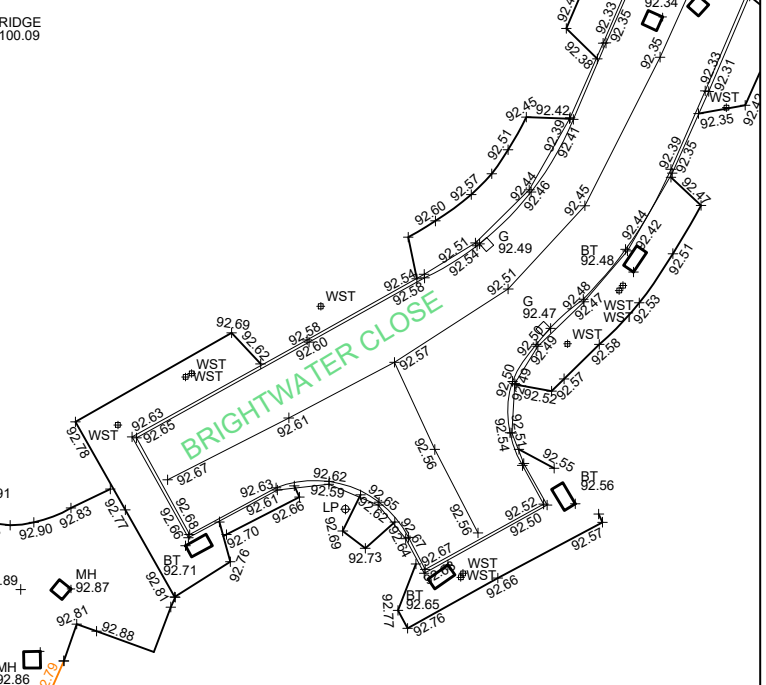
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Drawing Ref. – 31990-SUT-ZZ-00-DR-G-720-0001 – Site Investigation on Existing Layout (Northern Section)



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			

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FOR INFORMATION

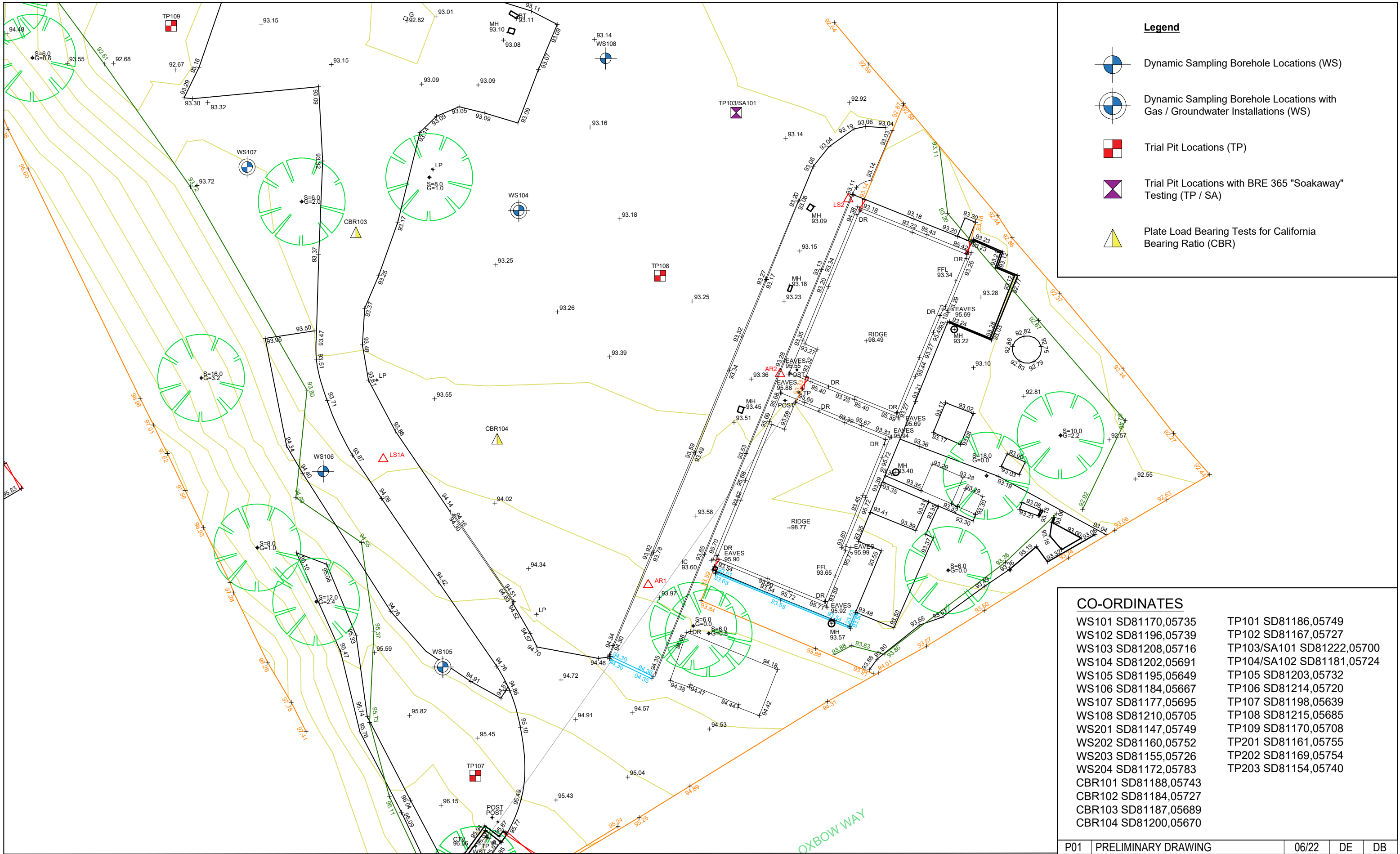
Client
ONWARD

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			Project Number		
NTS			31990LG		
Sheet Number				Revision	
31990-SUT-ZZ-00-DR-G-720-0001				P01	

Drawing Ref. – 31990-SUT-ZZ-00-DR-G-720-0001 – Site Investigation on Existing Layout (Southern Section)



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			



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Drawing Status

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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