GEOENVIRONMENTAL ASSESSMENT
WICKHURST GREEN
HORSHAM
VISTRY SOUTH EAST
GEA-21949AV-24-399
JANUARY 2025

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Prepared by		Approved by
Matthew Bayliss	BSc	Linford Shacklady
[redacted]		[redacted]
T [redacted]	BSc, MSc, FGS	

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EXECUTIVE SUMMARY

A Geoenvironmental Assessment was requested by Vistry South East. The purpose of the assessment was to identify any contaminative or geotechnical issues associated with former land use at *Wickhurst Green, Horsham* which might impact on the sites purchase and redevelopment.

SITE DETAILS				
Approximate Area (ha)	**Centred on OSGB Eastings, Northings**	**Previous Use(s)**	**Current Use**	**Proposed Use**
2.4	514850, 130948	Undeveloped field before being used as a site compound for surrounding residential development	Vacant and overgrown	Residential

PHASE 1 NON-INTRUSIVE INVESTIGATION							
Geology			**Groundwater Aquifer**		**Surface Water**	**Radon**	**Flood Risk**
Made Ground	**Superficial**	**Solid**	**Superficial**	**Solid**			
Made ground likely to be present	None recorded	Weald Clay Formation	No superficial deposits on site	Weald Clay is unproductive	Surface water channel flowing through centre of site orientated north to south	Site not affected by radon	Rivers and sea: Low Surface water: Negligible Groundwater risk: Negligible

PHASE 2 INTRUSIVE INVESTIGATION					
Geology			**Contamination**		**Waste Classification**
Made Ground	**Superficial**	**Solid**	**Source ► Pathway ► Receptor**	**Risk Rating**	
Localised made ground southwest and southeast of the site.	Alluvium southwest of site	Weald Clay Formation	Significant contamination was not encountered	VERY LOW TO LOW	Non-Hazardous. Single WAC test indicated soils may not be accepted at inert tip.

Geotechnical			
Foundations	**Buried Concrete**	**Roads and Pavement**	**Soakaways**
Reinforced strip footings into the Weald Clay Formation have been recommended.	DS1 AC-2z.	Recommended less than 2 percent CBR used for preliminary design purposes.	Three falling head test were undertaken but did not record any infiltration. Alternative drainage solution should be sought.

RECOMMENDATIONS			
Remediation	**Waste / Re-use**	**Geotechnical**	**Other**
No remediation for the protection of human health required. The gas regime beneath the site is classified as Characteristic Situation 1 (very low risk) and therefore, gas protection measures are not required in the new buildings.	Natural as-dug arisings (excluding topsoil) can be classed as inert waste without the requirement for WAC testing. If re-use of site won soils is proposed, it is recommended that a Materials Management Plan is prepared to ensure the resource status of soils is clearly defined.	Footings maybe shallowed up provided that the footings are below the made ground/topsoil/alluvium and are beyond or at the foundation depths recommended by Chapter 4.2 of the NHBC Standards.	Continuous groundwater level logging is being undertaken and will be reported under separate cover in March 2025

SECTION 1 INTRODUCTION

1.1 Vistry South East proposes to develop an area of land located south of Broadbridge Way for residential development purposes.

1.2 IDOM Merebrook Limited (IDOM) has been commissioned by Vistry South East to undertake preliminary site investigation works and to advise on the geo-environmental implications of the redevelopment of the site for the proposed end use.

1.3 The objectives of the investigation are to:

i. Assess surface and sub-surface ground conditions present at the site;

ii. Identify hazards associated with ground contamination which may place constraints on the site and the proposed development;

iii. Evaluate the risks associated with any identified hazards;

iv. Provide preliminary recommendations for the mitigation of any significant risks identified; and

v. Provide preliminary geotechnical recommendations.

1.4 The following Tier 1 Preliminary Risk Assessment (Non-intrusive Investigation) has been undertaken for the subject site:

i. Preliminary Risk Assessment, Wickhurst Green, Broadbridge Heath, Horsham, ref: DS-22698-24-154, May 2024 IDOM Merebrook.

1.5 This report presents the findings of the investigation and provides an interpretation of the geo-environmental conditions that exist at the site. The contaminative status of the site and the implications with respect to development have been interpreted in accordance with the current government guidance on source-pathway-receptor risk assessment. This report follows LCRM (Land Contamination Risk Management) guidance to appraise land contamination hazards associated with the site.

1.6 This report has been prepared for Vistry South East for the sole purpose described above and no extended duty of care to any third party is implied or offered. Third parties making reference to the report should consult Vistry South East and IDOM as to the extent to which the findings may be appropriate for their use.

SECTION 2 TIER 1 (NON-INTRUSIVE INVESTIGATION)

2.1 INTRODUCTION

2.1.1 A summary of the Preliminary Geoenvironmental Assessment findings is presented below.

2.2 SITE SETTINGS AND HISTORY

2.2.1 The site occupies an area of approximately 2.4 hectares located at National Grid Reference 514850, 130948. The surrounding area north of the site comprises Broadbridge Way with a recreational ground with residential dwellings beyond. East of the site lies Wickhurst Lane with a large supermarket, petrol station, car wash and car park with other industrial buildings beyond. South and west of the site comprises recent residential development.

2.2.2 A site walkover was undertaken on 17 May 2024 which recorded a bunded yellow oil container in the southwest and an electricity substation located outside the site boundary. No evidence of leaks from the container were observed and the electricity substation was too new to pose a risk of release of polychlorinated biphenyls (PCBs). The review of historical maps highlighted no potentially significant contamination sources on site or within 250 m.

2.2.3 Part of the site was previously used as a site compound during the Wickhurst Green residential development. The near surface soils were investigated after demobilisation and no significant risks from ground contamination were identified.

2.3 GEOLOGY AND HYDROGEOLOGY

2.3.1 The published geological map indicated no superficial deposits. The underlying bedrock is the Weald Clay Formation - Mudstone.

2.3.2 The Weald Clay Formation is an unproductive stratum, and the site does not lie in a groundwater source protection zone. No groundwater abstractions are located within 2 km of the site.

2.3.3 A watercourse is located running through the centre of site orientated north to south before following the northern boundary of the site and being culverted.

2.3.4 The site is at negligible risk of surface and groundwater flooding. The site is designated as Flood Zone 1 (little or no risk), however, a flood risk assessment may be required.

2.4 OTHER POTENTIALLY CONTAMINATIVE ISSUES

2.4.1 A search of trade directory entries and pollution incidents identified the following potentially environmental issues, including:

i. Four waste management site involving two waste exemptions for storing and using waste, both located approximately 45 m and 252 m east, a historical landfill located approximately 206 m southeast and a licensed waste site approximately 230 m southeast; and

ii. a petrol station approximately 42 m east of the site.

2.4.2 The site does not lie within a Radon Affected Area.

2.5 CONCLUSIONS

2.5.1 The following limited potential sources of contamination were identified:

i. Spills and leaks from the discarded fuel container on site; and

ii. Spills and leaks from the adjacent petrol station and car wash.

2.5.2 An overall very low to low risk was assigned to future residents and construction workers due to the potential for hydrocarbon leaks and spills from the identified sources.

SECTION 3 SITE INVESTIGATION RATIONALE

3.1 INTRODUCTION

3.1.1 A site investigation rationale has been devised in accordance with the findings of the Tier 1 Assessment and the resultant preliminary conceptual site model and risk assessment. Priority contaminants were identified as:

i. Hydrocarbons from discarded bunded fuel container onsite; and

ii. Hydrocarbons from leaks and spills from adjacent fuel station.

3.1.2 Intrusive sampling locations were chosen on the basis of providing broad spatial coverage of the site as no obvious features suggesting contaminative use were identified, with exception of the discarded fuel container.

3.1.3 Although the potential presence of PCB contamination was discounted, soils adjacent to the substation were screened for PCBs to confirm the risk rating.

3.2 SITE INVESTIGATION METHODS

3.2.1 An intrusive investigation was carried out by IDOM on 18 October 2024 and comprised the following scope of work:

i. Eight shallow windowless sample probe holes (MWS101 to MWS108) from 1.6 to 4 m bgl;

ii. Four California Bearing Ratio tests (CBR101 to CBR104);

iii. Three falling head tests in shallow windowless sample probe holes (MWS103, MWS105 and MWS107) to depths of between 2.0 m and 4.0 m bgl.

3.2.2 Exploratory hole locations are indicated on drawing 21949av-304-001 in Appendix 1. Logging of exploratory holes was undertaken by an IDOM Officer. Exploratory hole logs are contained in Appendix 2.

3.2.3 A tracked windowless sampling rig was used to advance MWS101 to MWS108. This comprised a rig-mounted drop hammer to drive a hollow steel barrel into the ground. The barrel is recovered along with a removable plastic sleeve, which lines the barrel and holds a core of soil which is retracted for logging and sampling. SPTs were performed at approximate 1 m intervals in all windowless sample holes.

3.2.4 Details of monitoring installations are summarised in Table 1.

Table 1: Summary of gas and groundwater monitoring installations

Location Ref	Depth To Top of Response Zone (m bgl)	Depth To Base Of Response Zone (m bgl)	Strata
MWS101	1.0	2.0	Weald Clay Formation
MWS102	1.0	2.0	
MWS104	1.0	2.0	
MWS108	1.0	2.7	

3.2.5 Groundwater level data loggers will be installed into each standpipe between November 2024 and March 2025. The results will be separately reported on completion of the monitoring.

3.2.6 Representative soil samples were taken from various depths and strata to assess the contaminative status of the site. Soil samples were submitted to an MCERTS/ UKAS accredited laboratory for chemical analysis of a broad suite of potential contaminants. The results are provided in Appendix 3.

3.2.7 A programme of geotechnical laboratory testing was performed on selected soil samples obtained from the boreholes, comprising classification and strength tests. Chemical testing was also undertaken to assess the aggressiveness of the ground with respect to buried concrete. The results are provided in Appendix 4.

SECTION 4 GROUND CONDITIONS

4.1 SURFACE GROUND CONDITIONS

4.1.1 At the time of the investigation the site comprised two sections of open fields split by trees and hedgerows running alongside the stream located centre of site. The majority of site was covered with vegetated topsoil.

4.2 SUB-SURFACE GROUND CONDITIONS

4.2.1 The ground conditions encountered were consistent with the published BGS records. Made ground was encountered in two exploratory hole locations positioned within the southwest and south of the site.

4.2.2 A summary of the ground conditions encountered is presented in Table 2, whilst a more detailed assessment of the strata is contained in the following sections of the report.

Table 2: Summary of sub-surface ground conditions

Strata	Depth to Top of Range (m bgl)	Thickness Range (m)
Topsoil	0.0	0.35 – 0.4
Made Ground	0.0	0.3 – 0.8
Alluvium	0.8	1.4
Weald Clay Formation	0.3 – 0.8	2.4 > depth not proven

4.2.3 Topsoil

4.2.3.1 Topsoil was encountered in all locations except MWS103 and MWS108, generally comprising soft brown gravelly sandy clay.

4.2.3.2 No visual or olfactory evidence of contamination was recorded in the topsoil.

4.2.3.3 No perched water was observed in the topsoil.

4.2.4 Made Ground

4.2.4.1 Made ground, only encountered in MWS103 and MWS108, comprised soft to stiff gravelly sandy clay. Gravels comprised inclusions of flint, brick, concrete and clinker.

4.2.4.2 No visual or olfactory evidence of contamination was recorded, and groundwater was not encountered in the made ground.

4.2.4.3 Alluvium

4.2.4.4 Alluvium was encountered in one location (MWS103) located southwest of the site comprising stiff bluish grey slightly sandy clay with partially decomposed plant material. A moderate organic odour was recorded from the alluvium layer.

4.2.4.5 No visual or olfactory evidence of contamination was recorded, and groundwater was not encountered in the Alluvium.

4.2.4.6 One plasticity limits test was undertaken on a sample of the Alluvium at a depth of 1.5m in MWS103 and recorded a modified plasticity index of 19. Indicative of low volume change potential in accordance with NHBC Standards 2024.

4.2.4.7 Weald Clay Formation

4.2.4.8 The Weald Clay Formation was encountered in all borehole locations. The upper section of the Weald Clay Formation typically comprised firm to very stiff orangish brown and fissured clay with occasional gypsum crystals. The lower sections of the Weald Clay formation comprised extremely weak orangish brown, bluish grey and red mudstone, encountered in each location at depths between 0.7 m and 2.2 m bgl.

4.2.4.9 The Weald Clay Formation had no visual or olfactory evidence of contamination.

4.2.4.10 No groundwater was encountered in the Weald Clay Formation.

4.2.4.11 SPT tests undertaken within the Weald Clay Formation recorded SPT 'N' Values of between 13 and 50, indicating (medium to very high strength) conditions. Each window sample location met refusal between 1.6 and 4.0 m bgl.

4.2.4.12 A total of twelve plasticity limits tests were undertaken on the Weald Clay Formation and recorded modified plasticity limits tests ranging between 15 and 40 classifying the soils as low to high volume change potential in accordance with NHBC Standards 2024.

SECTION 5 PRELIMINARY GEOTECHNICAL RECOMMENDATIONS

5.1 FOUNDATIONS

5.1.1 The proposed development has not yet been finalised but is assumed to comprise low-rise housing and low-rise apartment blocks.

5.1.2 The ground investigation proved a limited thickness (<1 m) of topsoil and made ground overlying the Weald Clay Formation. The Weald Clay Formation was described as firm to very stiff. SPT tests undertaken within these strata indicated soils were of medium to high strength. Mudstone was encountered in the base of all trial holes at depths between 0.7 and 2.2 m. All trial holes refused within this mudstone strata with some refusing as shallow as 2 m bgl and all by 4 m bgl. Some of the SPTs undertaken at 1 m bgl within the mudstone recorded SPT 'N' values up to 44. Descriptions of the strata indicate that it is an extremely weak rock. The Weald Clay Formation is considered to be a suitable founding stratum for strip footings.

5.1.3 Based upon a cautious assessment of SPT 'N' values, allowable bearing pressures of 110 kN/m^2 would be applicable for strip foundations up to 1 m wide, founded at a depth of 1 m with total anticipated settlement of less than 10 mm. Foundations must be taken through any made ground or alluvium to found within the underlying Weald Clay Formation, which may be encountered as a firm to stiff clay or a weak mudstone. As footings are likely to traverse between firm clay and a weak mudstone it is recommended that mesh reinforcement is added to deal with any differential settlements that may occur. Footings may be taken to shallower depths provided they are below the made ground/topsoil/alluvium and below or at the recommended founding depth given by Chapter 4.2 of the NHBC Standards, for building near new

or existing trees and hedges. Therefore, footings may need to be deepened depending on planting proposals or existing vegetation.

5.1.4 Alluvium was encountered in location MWS103 adjacent to a drainage channel that runs north-south through the centre of the site. Care must be taken to ensure that foundations are not founded within the alluvium. Foundations must be taken through these unsuitable soils into the Weald Clay Formation at depth. Alternatively, the proposed development could be planned such that no structures are placed near to the stream/drainage channel to avoid the need for deepened footings.

5.2 EXCAVATIONS AND GROUNDWATER

5.2.1 No groundwater was encountered within the exploratory holes, however the investigation comprised only shallow windowless samples. Given the clay rich geology, and the relatively rapid pace of drilling, any groundwater strikes may have been masked, particularly when considering that a drainage ditch/stream runs north-south through the site. If this is a natural stream it may have some base groundwater input. Additionally, this watercourse joined a drainage ditch running parallel with the northern site boundary, which was culverted to the southeast and beneath a road to the northeast, suggesting these ditches/streams carry water. Care must be taken not to obstruct or disturb the watercourse as this could lead to flooding.

5.2.2 Flooding of the stream/ditch should be considered, and a flood risk assessment is advised. Flooding of footings from surface water run-off is also considered likely due to the clay rich strata and therefore allowance for dewatering should be made.

5.3 FLOOR SLABS

5.3.1 The Alluvium was indicated to have a low volume change potential based upon one test. The Weald Clay Formation was indicated to have low to high volume change potential based upon twelve tests, however only one test was indicated to have a high-volume change potential with a modified plasticity index of 40. It is therefore considered that medium volume change potential could be assumed for Weald Clay Formation on site.

5.4 BURIED CONCRETE

5.4.1 Recommendations given in BRE Special Digest 1:2005 *"Concrete in aggressive ground"* have been followed in order to give recommendations with respect to buried concrete.

5.4.2 Water soluble sulphate analysis was carried out on five soil samples obtained from depths of between 1 and 3 m bgl with soil pH determination also carried out. Water soluble sulphate contents ranged between 14.4 and 121 $mg.l^{-1}$. In accordance with BRE guidelines the characteristic value is calculated by determining the highest result. In this case the characteristic value is 121 $mg.l^{-1}$. On this basis the Design Sulphate Class is DS1.

5.4.3 The pH values in the soil samples varied between 6.4 and 8.0. The lowest value of 6.4 was used as the characteristic value. Mobile groundwater conditions have been assumed and, on this basis, the Aggressive Chemical Environment for Concrete (ACEC) class for the site is AC-2z.

5.5 ROADS AND PAVED AREAS

5.5.1 A total of four in-situ CBR tests were undertaken across the site MCBR101-MCBR104, the positions of the tests are marked on the site location plan in Appendix 1. The tests recorded CBR values between 2.0 and 4.4%. It is recommended that the lowest value of 2.0% is used for the preliminary design of roads and pavements and once the road positions are known testing should be undertaken at regular chainages to understand the ground conditions. Lower CBR values are anticipated where alluvium is encountered which is expected adjacent to the stream running north to south through the site. The test results have been presented alongside the engineers logs in Appendix 4.

5.5.2 In addition, four soaked laboratory CBR tests were undertaken on remoulded specimens collected from the four CBR locations. The specimens were remoulded with a 2.5kg rammer and soaked for 4 days prior to testing and recorded lower CBR values ranging between 1.2 and 2.3%. A design value of less than 2.0% would seem appropriate for the site. The results have been included in Appendix 4.

5.6 FALLING HEAD TESTS

5.6.1 Three falling head tests were undertaken within the windowless sample locations MWS103, MWS105 and MWS107. In each location the windowless samples were filled to the top of the Weald Clay Formation and in each location no movement was recorded over the hour-long observation period. It is therefore advised that alternative drainage solutions should be sought.

5.7 DESICCATION ASSESSMENT

5.7.1 IDOM undertook a desiccation assessment using the plasticity limit data. Some of the samples at depth of beyond 1.5m could be viewed as desiccated. However, the intrusive investigation revealed that the Weald Clay Formation at depth was encountered as a very weak mudstone. This lithified stratum would be expected to have a lower moisture content than a clay. The strata on site are not thought to be displaying signs of desiccation, and therefore the recommendations made in Chapter 4.2 of the NHBC Standards 2024 should be sufficient to protect buildings from any future potential heave.

SECTION 6 ENVIRONMENTAL ASSESSMENT

6.1 SOIL QUALITY

6.1.1 Three samples of topsoil from the site were taken for testing against the British Standard Specification for Topsoil (BS3882). The laboratory analysis certificate is presented in Appendix 3 and results are summarised in Table 3 below. It is noted that whilst two of the samples fail the criteria for multipurpose topsoil, this is simply due to a deficiency in the nutrient status which may be able to be adjusted in consultation with the project landscape architect.

Table 3: Summary of BS3882 Topsoil Testing

SAMPLE	TEXTURE	MULTIPURPOSE	ACID	CALCAREOUS	LOW FERTILITY	COMMENTS
ES1	Sandy silt loam	PASS	FAIL	PASS	FAIL	-
ES2	Sandy silt loam	FAIL	FAIL	FAIL	FAIL	Fails multipurpose on nutrients only (extractable potassium)
ES3	Sandy silt loam	FAIL	FAIL	FAIL	PASS	Fails multipurpose on nutrients only (extractable potassium)

6.1.2 A total of ten soil samples were submitted to the laboratory for chemical analysis, including three samples from natural ground, two samples from made ground and five samples from topsoil. The laboratory chemical analysis certificates are contained in Appendix 3. The results of the analysis are summarised in Table .

6.1.3 An initial screening exercise has been undertaken whereby contaminant concentrations recorded in soils have been assessed against *Suitable for Use Levels* (S4ULs) published in 2015 by LQM/CIEH[1]. These precautionary screening levels are designed to be representative of minimal risk to human health in a number of land use scenarios. In this report S4ULs have been selected for a residential land use where the possibility of consumption of homegrown produce exists and assuming a

[1] Nathanail, C. P., McCaffrey, C., Gillett, A. G., Ogden, R. C. and Nathanail, J. F. 2015. *The LQM/CIEH S4ULs for Human Health Risk Assessment*. Land Quality Press, Nottingham. Copyright Land Quality Management Limited reproduced with permission; Publication Number S4UL3100. All rights reserved. Including August 2015 nickel update.

soil organic matter of 2.5 %. For lead the DEFRA Category 4 Screening Level[2] has been used as this is based on updated toxicological data and a low risk to human health.

6.1.4 An additional set of phytotoxin screening levels have been adopted from 'The Code of Agricultural Practice for the Protection of Soil' Ministry of Agriculture, Fisheries and Food (MAFF), 1993, which are protective of healthy plant growth.

Table 4: Summary of soils chemical analysis results

CONTAMINANT	No of Tests	MAX ($mg.kg^{-1}$)	MEAN ($mg.kg^{-1}$)	SCREENING LEVEL (SL) ($mg.kg^{-1}$)	No > SL*
HUMAN HEALTH RISK ASSESSMENT					
Asbestos in soil	8	Not detected		Detected	0
pH	10	8.4	7.5	5 – 9	0
Arsenic	10	13.0	10.1	37	0
Barium	10	85.0	67.5	1300	0
Cadmium	10	0.3	0.3	11	0
Chromium (III)	10	39.0	28.3	910	0
Hexavalent Chromium	10	Below Detection Limit of <1.8		6	0
Lead	10	38.0	30.5	200	0
Mercury	10	Below Detection Limit of <0.3		40	0
Nickel	10	25.0	15.6	130	0
Selenium	10	1.9	1.5	250	0
Vanadium	10	49.0	40.2	410	0
TPH Aliphatic >EC_5 - EC_6	10	Below Detection Limit of <0.01		42	0
TPH Aliphatic >EC_6 - EC_8	10	Below Detection Limit of <0.01		100	0
TPH Aliphatic >EC_8 - EC_{10}	10	Below Detection Limit of <0.01		27	0
TPH Aliphatic >EC_{10} - EC_{12}	10	Below Detection Limit of <1.0		130	0
TPH Aliphatic >EC_{12} - EC_{16}	10	2.60	2.60	1100	0
TPH Aliphatic >EC_{16} - EC_{21}	10	Below Detection Limit of <8.0		65000	0
TPH Aliphatic >EC_{21} - EC_{35}	10	31.00	31.00	65000	0
TPH Aromatic >EC_5 - EC_7	10	Below Detection Limit of <0.01		70	0
TPH Aromatic >EC_7 - EC_8	10	Below Detection Limit of <0.01		130	0
TPH Aromatic >EC_8 - EC_{10}	10	Below Detection Limit of <0.02		34	0
TPH Aromatic >EC_{10} – EC_{12}	10	Below Detection Limit of <1.0		74	0
TPH Aromatic >EC_{12} - EC_{16}	10	Below Detection Limit of <2.0		140	0
TPH Aromatic >EC_{16} - EC_{21}	10	Below Detection Limit of <10		260	0
TPH Aromatic >EC_{21} - EC_{35}	10	31.00	31.00	1100	0
Benzene	10	Below Detection Limit of <5.0		0.087	0

[2] SP1010 *Development of Category 4 Screening Levels Main Report* (Dec 2013) and SP1010 *Policy Companion Document* (Mar 2014).

CONTAMINANT	No of Tests	MAX (mg.kg^{-1})	MEAN (mg.kg^{-1})	SCREENING LEVEL (SL) (mg.kg^{-1})	No > SL*
Toluene	10	Below Detection Limit of <5.0		130	0
Ethylbenzene	10	Below Detection Limit of <5.0		47	0
Xylene	10	Below Detection Limit of <5.0		56	0
Naphthalene	10	Below Detection Limit of <0.05		2.3	0
Acenaphthylene	10	Below Detection Limit of <0.05		170	0
Acenaphthene	10	Below Detection Limit of <0.05		210	0
Fluorene	10	Below Detection Limit of <0.05		170	0
Phenanthrene	10	0.11	0.08	95	0
Anthracene	10	Below Detection Limit of <0.05		2400	0
Fluoranthene	10	0.35	0.18	280	0
Pyrene	10	0.31	0.16	620	0
Benzo(a)anthracene	10	0.18	0.13	7.2	0
Chrysene	10	0.19	0.14	15	0
Benzo(b)fluoranthene	10	0.27	0.17	2.6	0
Benzo(k)fluoranthene	10	0.14	0.10	77	0
Benzo(a)pyrene	10	0.23	0.17	2.2	0
Indeno(1,2,3-c,d)pyrene	10	0.12	0.10	27	0
Dibenzo(a,h)anthracene	10	Below Detection Limit of <0.05		0.24	0
Benzo(g,h,i)perylene	10	0.16	0.11	320	0
Phenol	10	Below Detection Limit of <1.0		120	0
PCB	2	nd		-	-
PHYTOTOXICITY RISK ASSESSMENT					
Copper	10	24.0	17.8	200	0
Nickel	10	25.0	15.6	110	0
Zinc	10	84.0	63.9	300	0

Notes: * Number of samples exceeding screening level nd = not detected

6.1.5 Zootoxic Metals (harmful to human health)

6.1.5.1 No exceedances of the applicable screening criteria were encountered.

6.1.6 Phytotoxic Metals (harmful to plant health)

6.1.6.1 No phytotoxic metals recorded at concentrations in excess of the applicable screening criteria were encountered.

6.1.7 Organic Contaminants

6.1.7.1 No exceedances of the applicable screening criteria were encountered.

6.1.8 Inorganic Contaminants

6.1.8.1 No exceedances of the applicable screening criteria were encountered.

6.1.9 PCBs

6.1.9.1 Two soil samples were collected near to the southwestern boundary close to the electricity substation and were analysed for PCBs. PCB congeners were below the laboratory detection limit for each sample.

6.1.10 Summary

6.1.10.1 No contaminants in excess of the adopted screening levels were recorded.

6.2 GROUNDWATER

6.2.1 No groundwater strikes were encountered during drilling.

6.2.2 During subsequent monitoring, groundwater was found at levels between 0.94 m and 1.26 m bgl, with sufficient volumes of water to enable sampling. The groundwater was considered to be associated with fissures and claystone nodules recorded in the Weald Clay Formation.

6.2.3 Three samples were submitted to the laboratory for analysis of a typical contamination suite.

6.2.4 Screening levels have been derived in the first instance from the maximum concentrations set out in the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015 Part 2 – Freshwater Long term, referred to as WFD Freshwater in Table 5; or Part 3 Maximum Allowable Concentration Inland Surface Waters, WFD Surface Water MAC in Table 5.

6.2.5 For determinands with no screening levels within the Water Framework Directive screening levels have been derived from The Water Supply (Water Quality) Regulations 2016: Schedule 1 or 2 or The Water Supply (Water Quality) Regulations 1989: schedule 2 in column DWS in Table 5. The laboratory chemical analysis certificate is contained in Appendix 5 and groundwater level data is contained in Appendix 7. A summary of groundwater contaminant concentrations is contained in Table .

Table 5: Summary of groundwater chemical analysis results

Contaminant	Units	Max	Mean	No. Tests	WFD Freshwater	WFD Surface Water MAC	DWS	No. > SL
pH	-	7.3	7.17	3	-	-	6.5 - 9.5	0
Arsenic	$\mu g.l^{-1}$	0.41	0.35	3	50	-	-	0
Cadmium	$\mu g.l^{-1}$	0.51	0.32	3	-	-	5	0

Contaminant	Units	Max	Mean	No. Tests	WFD Freshwater	WFD Surface Water MAC	DWS	No. > SL
Chromium (III)	µg.l^{-1}	0.7	0.37	3	4.7	-	-	0
Chromium (VI)	µg.l^{-1}	<5.0	<5.0	3	3.4	-	-	0
Copper	µg.l^{-1}	3.9	3.23	3	-	-	2000	0
Lead	µg.l^{-1}	<0.2	<0.2	3	-	-	10	0
Mercury	µg.l^{-1}	<0.05	<0.05	3	-	0.07	-	0
Nickel	µg.l^{-1}	31	14.9	3	-	34	-	0
Selenium	µg.l^{-1}	5.2	2.6	3	-	-	10	0
Zinc	µg.l^{-1}	7.2	5.9	3	-	-	5000	0
Cyanide	µg.l^{-1}	<10	<10	3	-	-	<1	0
Sulphate	mg.l^{-1}	157	98.8	3	-	-	250	0
TPH	µg.l^{-1}	<10	<10	3	-	-	<10	0
Benzene	µg.l^{-1}	<3	<3	3	-	50	-	0
Toluene	µg.l^{-1}	<3	<3	3	74	-	-	0
Ethylbenzene	µg.l^{-1}	<3	<3	3	-	-	300	0
Xylene	µg.l^{-1}	<3	<3	3	-	-	500	0
BTEX	µg.l^{-1}	<1.0	<1.0	3	-	-	-	0
PAH (total)	µg.l^{-1}	<0.16	<0.16	3	-	-	-	0
PAH****	µg.l^{-1}	<0.04	<0.04	3	-	-	0.1	0
Anthracene	µg.l^{-1}	<0.01	<0.01	3	-	-	0.1	0
Benzo(a)pyrene	µg.l^{-1}	<0.01	<0.01	3	-	0.27	-	0
Benzo(b)fluoranthene	µg.l^{-1}	<0.01	<0.01	3	-	0.017	-	0
Benzo(k)fluoranthene	µg.l^{-1}	<0.01	<0.01	3	-	0.017	-	0
Benzo(g,h,i)perylene	µg.l^{-1}	<0.01	<0.01	3	-	0.0082	-	0
Fluoranthene	µg.l^{-1}	<0.01	<0.01	3	-	0.12	-	0
Indeno(1,2,3-c,d)pyrene	µg.l^{-1}	<0.01	<0.01	3	-	-	-	0
Naphthalene	µg.l^{-1}	<0.01	<0.01	3	-	-	2	0

Contaminant	Units	Max	Mean	No. Tests	WFD Freshwater	WFD Surface Water MAC	DWS	No. > SL
Phenols	µg.l^{-1}	<10.0	<10.0	3	-	-	0.5	0

Notes: * Samples exceeding screen level
*** Not detected above screening level
**** sum of benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene & indeno(1,2,3-cd)pyrene

6.2.6 There were no contaminants above screening levels within the three water samples.

6.3 HAZARDOUS GAS

6.3.1 Gas monitoring has been undertaken on six occasions between 29 October and 20 January 2025. The maximum and steady state levels of methane, carbon dioxide, oxygen, carbon monoxide and hydrogen sulphide were recorded in each standpipe, together with associated parameters including borehole flow and ambient air pressure. The time taken to reach steady state was also recorded.

6.3.2 The full results are presented in Appendix 7 and a summary of key readings for each strata monitored are presented in Table . Events where the response zone was saturated are marked with an asterisk.

Table 6: Summary of hazardous gas monitoring data with all response zone within Weald Clay Formation

Monitoring Well Reference				MWS101		
Top of Response Zone (m bgl)				1.00		
Bottom of Response Zone (m bgl)				2.00		
Response Zone Stratum				Weald Clay Formation		
Round	AP (mb)	Flow Max (l.hr^{-1})	Flow Steady (l.hr^{-1})	Methane Max (% v/v)	Carbon Dioxide Max (% v/v)	Dip to water (m bgl)
1	1017	0.0	0.0	0.0	0.7	0.94*
2	1025	0.0	0.0	0.0	0.7	1.48
3	996	0.0	0.0	0.0	2.3	0.90*
4	999	0.0	0.0	0.0	2.2	0.75*
5	1011	0.0	0.0	0.0	0.1	0.67*
6	1015	0.0	0.0	0.0	3.1	0.93*

Monitoring Well Reference				MWS102		
Top of Response Zone (m bgl)				1.00		
Bottom of Response Zone (m bgl)				2.00		
Response Zone Stratum				Weald Clay Formation		
Round	AP (mb)	Flow Max ($l.hr^{-1}$)	Flow Steady ($l.hr^{-1}$)	Methane Max (% v/v)	Carbon Dioxide Max (% v/v)	Dip to water (m bgl)
1	1018	0.0	0.0	0.0	2.8	DRY
2	1027	0.0	0.0	0.0	2.7	DRY
3	994	0.0	0.0	0.0	0.7	DRY
4	999	0.0	0.0	0.0	0.9	DRY
5	1011	0.0	0.0	0.0	0.1	DRY
6	1015	0.0	0.0	0.0	4.2	1.30

Monitoring Well Reference				MWS104		
Top of Response Zone (m bgl)				1.00		
Bottom of Response Zone (m bgl)				2.00		
Response Zone Stratum				Weald Clay Formation		
Round	AP (mb)	Flow Max ($l.hr^{-1}$)	Flow Steady ($l.hr^{-1}$)	Methane Max (% v/v)	Carbon Dioxide Max (% v/v)	Dip to water (m bgl)
1	1017	0.0	0.0	0.0	1.4	1.26
2	1027	0.0	0.0	0.0	2.3	1.66
3	991	11.0	0.0	0.0	2.3	0.95*
4	1000	0.0	0.0	0.0	2.1	0.48*
5	1010	0.0	0.0	0.0	0.5	0.46*
6	1014	0.0	0.0	0.0	2.3	0.74*

Monitoring Well Reference				MWS108		
Top of Response Zone (m bgl)				1.00		
Bottom of Response Zone (m bgl)				2.70		
Response Zone Stratum				Weald Clay Formation		
Round	AP (mb)	Flow Max ($l.hr^{-1}$)	Flow Steady ($l.hr^{-1}$)	Methane Max (% v/v)	Carbon Dioxide Max (% v/v)	Dip to water (m bgl)
1	1018	0.0	0.0	0.0	2.1	1.25
2	1026	1.7	0.3	0.0	3.6	1.70
3	991	12.3	0.0	0.0	3.3	1.15
4	999	1.3	0.0	0.0	2.6	0.88*
5	1010	0.0	0.0	0.0	0.4	0.99*
6	1014	0.0	0.0	0.0	2.0	1.25

**groundwater level above the top of the response zone.*

6.3.3 The monitoring rounds were undertaken at barometric pressures ranging from 991 to 1027 mb. Methane (CH_4) concentrations were reported to be below the limit of detection in all five monitoring rounds. The concentrations of carbon dioxide (CO_2) were also low, ranging from 0.1 to 4.2%. The steady gas flow rates were negligible with a maximum value of 0.3 l/hr recorded during the monitoring period. High peak flow rates were observed in MWS104 (11.0l/hr) and MWS108 (12.3 l/hr) in the third monitoring round. However, in both locations, the initial high gas flow rates dropped to zero shortly after the commencement of the monitoring.

6.3.4 Groundwater levels above the top of the response zone were intermittently noted in MWS101, MWS104, and MWS108 during the monitoring period.

6.4 VAPOUR

6.4.1 Vapour monitoring was undertaken concurrently with gas monitoring. The maximum and steady state levels of VOCs were recorded using a PID (photo-ionization device) in each standpipe. Readings were also taken using the hazardous gas monitor which also includes an infra-red sensor for measuring hexane vapour which has an infra-red absorption characteristic that closely matches those of typical fuel and oil vapours.

6.4.2 PID readings ranged from 6.9 to 11.2 ppm. However, hexane was not detected and therefore the PID readings were considered not to be indicative of the presence of hydrocarbon vapours.

6.5 WASTE CLASSIFICATION, OFF-SITE DISPOSAL OR RE-USE

6.5.1 Waste Considerations

6.5.1.1 Waste soils are classified into two main categories: Hazardous and Non-hazardous, based on Technical Guidance WM3: *Guidance on the classification and assessment of waste* (1st Edition v1.2.GB) published by Natural Resources Wales, Scottish Environment Protection Agency and the Environment Agency

6.5.1.2 Waste soil classification has been undertaken to characterise and categorise soils to inform decision making. A waste classification report is presented in Appendix 6.

6.5.1.3 The results indicate that the site soils would be classified as non-hazardous for disposal.

6.5.1.4 Waste Acceptance Criteria (WAC) tests are a supplementary set of tests that determine the acceptability of waste soils into the determined category of landfill based on the waste classification. For non-hazardous waste, WAC testing can determine whether soils could be accepted at inert landfill.

6.5.1.5 One made ground sample was submitted for WAC analysis. The measured concentration of antimony exceeded the threshold for inert landfill.

6.5.1.6 Natural as-dug arisings (excluding topsoil) could be classed as inert waste without the requirement for WAC testing.

6.5.1.7 Materials, including waste soils which are not to be retained on site, should be removed and disposed of in accordance with all relevant statutes.

6.5.1.8 It is a requirement that waste sent to landfill should have been subject to measures to reduce the amount of waste, reduce harmful or hazardous properties and facilitate recycling. These requirements may be satisfied by measures such as segregation and screening of wastes to recover suitable fill and material for crushing, segregation of inert materials and putrescible wastes.

6.5.2 Re-use Considerations

6.5.2.1 As a sustainable alternative to off-site disposal, it may be possible to re-use site-won soils provided the following criteria are met:

i. Use of the material will not create an unacceptable risk of pollution to the environment or harm to human health;

ii. The material must be chemically and geotechnically suitable without further treatment;

iii. There must be certainty of use within the scheme;

iv. Material should only be used in the quantity necessary for that use.

6.5.2.2 Provided these criteria are met, the re-use of site-won materials is unlikely to be deemed a waste activity. Production of a *Materials Management Plan* under the industry *CL:AIRE Code of Practice on the Definition of Waste* represents a robust method of demonstrating that the proposed re-use of material meets the criteria and is not liable for landfill tax.

6.5.2.3 During the course of excavation and re-use of "*uncontaminated soil and other naturally occurring material*", an exclusion to waste legislation can apply under the Waste Framework Directive. To qualify for the exclusion, soils must be:

i. Uncontaminated;

ii. Excavated during the construction activities; and

iii. Certain to be used in its natural state for construction purposes on the same site.

6.5.2.4 Under this exclusion, the definition of uncontaminated soil and other naturally occurring material is as follows:

virgin soil or soil that is equivalent to virgin soil. Other naturally occurring material means soil, stones, gravel, rock, etc.

SECTION 7 GENERIC QUANTITATIVE RISK ASSESSMENT (TIER 2)

7.1 INTRODUCTION

7.1.1 The site investigation has shown no significant soil contamination associated with the potential sources identified in the preliminary risk assessment.

7.1.2 The potential impacts of contamination sources have been considered with respect to the following receptors:

i. Present site users;

ii. Future residents;

iii. Construction workers;

iv. Plants used in landscaping;

v. Controlled waters (surface water and groundwater);

vi. Potable water supply pipework;

vii. Adjacent site users; and

viii. Protected habitat.

7.1.3 The potential sources of contamination at the site and the implications with respect to development have been interpreted in accordance with the current government guidance on source-pathway-receptor risk assessment.

7.1.4 In each case the existence of a pollutant linkage requires a pathway by which the receptor could be exposed to the source. A qualitative assessment of risk is thus considered in the first instance with respect to the site in its current condition and is summarised in the sections below.

7.1.5 The level of risk considers the likelihood of the risk occurring and the severity of the potential consequence of that risk using the approach outlined in Appendix 9. As illustrated in Table , this Tier 2 risk assessment combines the likelihood and severity of the risk using a Risk Assessment Matrix approach as recommended by CIRIA C552, 2001 and updated in *Guidance for the Safe Development of Housing on Land Affected by Contamination R&D66* published by NHBC, EA and CIEH (2008).

Table 7: Risk assessment matrix (after CIRIA C552 and R&D66)

		MAGNITUDE OF POTENTIAL CONSEQUENCE (SEVERITY) OF RISK			
		SEVERE	**MEDIUM**	**MILD**	**MINOR**
LIKELIHOOD OF RISK	**HIGH LIKELIHOOD**	Very High Risk	High Risk	Moderate Risk	Low Risk
	LIKELY	High Risk	Moderate Risk	Moderate / Low Risk	Low Risk
	LOW LIKELIHOOD	Moderate Risk	Moderate / Low Risk	Low Risk	Very Low Risk
	UNLIKELY	Moderate / Low Risk	Low Risk	Very Low Risk	Very Low Risk

7.2 SOIL CONTAMINATION (HEAVY METALS AND HYDROCARBONS)

7.2.1 Given the presence of made ground on the site, a pollution linkage cannot be fully discounted. However, given that no significant soil contamination has been identified, the likelihood of risk has been assessed as unlikely for most receptors with a minor severity.

7.2.2 There are no fruit or vegetables currently grown on site and therefore there is no risk to present site users or the general public.

7.2.3 Made ground is present on site and therefore some site soils may be unsuitable for re-use as a growing medium. Therefore, a slightly elevated risk to future planting has been assigned.

7.2.4 Although no elevated contaminants that may affect buried potable water pipes has been identified, utility providers may consider all made ground to be unsuitable and therefore a slightly elevated risk has also been assigned for this receptor.

7.2.5 The site is located in the River Arun catchment area and there is a surface water feature on-site. While no potentially mobile contamination has been identified on site, it is possible that, during the construction phase, soils may run-off from site and there is considered to be a elevated likelihood of risk during this period. However, the watercourse on site, being a field drain, is considered not to be sensitive and therefore the consequences of the risks are considered to be minor.

7.2.6 Table 8 below summarises the level of risk assigned to each receptor from soil contamination:

Table 8: Risks from soil contamination (heavy metals and hydrocarbons)

Receptor		Pathway / Exposure	Likelihood of Risk	Severity of Risk	Overall Risk Rating
The general public and present site users		dust inhalation	unlikely	minor	VERY LOW
		direct ingestion	unlikely	minor	VERY LOW
		dermal exposure	unlikely	minor	VERY LOW
Residents of future development		dust inhalation	unlikely	minor	VERY LOW
		direct ingestion	unlikely	minor	VERY LOW
		dermal exposure	unlikely	minor	VERY LOW
		ingestion of fruit / vegetables	unlikely	minor	VERY LOW
Construction workers		dust inhalation	unlikely	minor	VERY LOW
		direct ingestion	unlikely	minor	VERY LOW
		dermal exposure	unlikely	minor	VERY LOW
Future planting		direct uptake of phytotoxic metals / unsuitable growing medium due to made ground	likely	minor	LOW
Water supply pipes		direct contact leading to corrosion / permeation	low likelihood	minor	VERY LOW
Adjacent site users		fugitive dust inhalation	unlikely	minor	VERY LOW
Controlled waters	Aquifer	infiltration / leaching	unlikely	minor	VERY LOW
	Surface water	run-off from site (sediments during construction phase)	likely	minor	LOW
Habitat		surface water / sediment run-off	likely	minor	LOW

7.3 SOIL CONTAMINATION (ASBESTOS)

7.3.1 Given the presence of made ground on site, a potential pathway may exist. However, given that no asbestos has been identified on site, the minimum likelihood of risk has been assigned.

7.3.2 Table below summarises the level of risk assigned to each receptor from asbestos contamination:

Table 9: Risks from soil contamination (asbestos)

Receptor	Pathway / Exposure	Likelihood of Risk	Severity of Risk	Overall Risk Rating
The general public and present site users	inhalation of airborne fibres generated from dry soils	unlikely	medium	LOW
Residents of future development		unlikely	medium	LOW
Construction workers		unlikely	medium	LOW
Adjacent site users		unlikely	medium	LOW

7.4 CONTROLLED WATERS (GROUNDWATER)

7.4.1 No significant groundwater contamination was identified and therefore an overall risk rating to surface water of very low has been assigned.

7.4.2 Table below summarises the level of risk to surface water receptors:

Table 10: Risks from groundwater contamination

Receptor	Pathway / Exposure	Likelihood of Risk	Severity of Risk	Overall Risk Rating
Surface water	Aquifer forms basal flow of surface water	unlikely	minor	VERY LOW

7.5 VAPOUR

7.5.1 No evidence of significant contamination with the potential to generate soil or groundwater vapour has been identified and therefore the overall risk to the identified receptors is considered to be very low.

7.5.2 Table below summarises the level of risk assigned to each receptor from vapour generation:

Table 3: Risks from vapour (soil and groundwater)

Receptor	Pathway / Exposure	Likelihood of Risk	Severity of Risk	Overall Risk Rating
The general public and present site users	Volatilisation of VOCs from contaminated soil and groundwater generating vapours that can migrate by diffusion or advection via cracks in foundations / utility trenches / service penetrations. Outdoor inhalation in confined excavations / localised spills.	unlikely	mild	VERY LOW
Residents of future development		unlikely	mild	VERY LOW
Construction workers		unlikely	mild	VERY LOW
Adjacent site users / general public		unlikely	mild	VERY LOW

7.6 HAZARDOUS GAS

7.6.1 As detailed in Section 6.3, groundwater levels above the top of the response zone were occasionally recorded in monitoring wells MWS101, MWS104, and MWS108. The gas monitoring data obtained from these wells, when they were saturated, has been excluded from the hazardous gas risk assessment.

7.6.2 Borehole hazardous gas flow rates (Q_{hg}) were calculated for carbon dioxide and methane using the maximum concentration recorded during each monitoring event together with steady state values of gas flow.

7.6.3 Where no gas borehole flow was detected, the detection limit of the instrumentation was used for the purposes of calculating the Q_{hg}.

7.6.4 Gas Screening Values (GSV) for methane and carbon dioxide have been derived from:

i. The maximum Q_{hg} calculated for methane and carbon dioxide for all monitoring events; and

ii. The maximum Q_{hg} calculated for methane and carbon dioxide across all standpipes and all monitoring rounds.

7.6.5 A worst case check has also been carried using the maximum peak gas flow and maximum peak gas concentrations for methane and carbon dioxide.

7.6.6 The data is presented below.

Gas	Max Q_{hg} events combined	Implied CS
methane	0.0003	1
carbon dioxide	0.0126	1

Gas	Max Q_{hg} using Max Flow events combined	Implied CS
methane	0.0123	1
carbon dioxide	0.5166	2

7.6.7 On the basis of the above, the GSV is taken to be 0.0126L.h^{-1}, which corresponds to Characteristic Situation 1 (very low risk).

7.6.8 As discussed in Section 6.3.3 high peak gas flow rates were observed in MWS104 and MWS108 during the third monitoring round. Initially high when the gas tap was opened, the flow rates rapidly dropped to zero, indicating that the significant flows are not sustained. Given this and the low concentrations of methane and carbon dioxide recorded beneath the site, it considered that classification of the site as a Characteristic Situation 2 (based on the worst-case) would be overly conservative.

7.6.9 Gas monitoring results are presented in Appendix 9, together with:

i. corresponding Wilson and Card Classifications;

ii. gas protection scores required for each Building Types and Characteristic Situation to achieve the appropriate level of protection; and

iii. gas protection elements that can be incorporated into building design with their associated assigned score.

7.6.10 Table presents the Modified Wilson and Card Classifications and their corresponding hazard potentials as defined in BS 8485. The Modified Wilson and Card classification as presented in CIRIA C665 *Assessing risks posed by hazardous ground gases to buildings* instead defines this as the risk classification. The higher the classification the greater the risk posed by the presence of gas.

Table 4: Characteristic Situation and Risk

Characteristic Situation	Modified Wilson and Card Risk Classification
CS1	Very Low
CS2	Low
CS3	Moderate
CS4	Moderate to High

Characteristic Situation	Modified Wilson and Card Risk Classification
CS5	High
CS6	Very High

7.6.11 The risk classification for the site has been used to develop overall risk ratings for each identified receptor.

7.6.12 Table below summarises the level of risk to each receptor from hazardous gas generation:

Table 5: Risks from hazardous gas

Receptor	Pathway / Exposure	Likelihood of Risk	Severity of Risk	Overall Risk Rating
The general public and present site users	decomposition of made ground generating hazardous gas that can migrate by diffusion or advection via cracks in foundations / utility trenches / service penetrations. Outdoor inhalation in confined excavations.	unlikely	mild	VERY LOW
Residents of future development		unlikely	mild	VERY LOW
Construction workers		unlikely	mild	VERY LOW
Adjacent site users		unlikely	mild	VERY LOW

SECTION 8 UPDATED COMBINED CONCEPTUAL SITE MODEL AND RISK ASSESSMENT

8.1 Following completion of the Tier 2 generic quantitative risk assessment, the preliminary combined conceptual site model and risk assessment has been updated and is presented in Table .

Table 6: Combined Conceptual Site Model and Tier 2 Risk Assessment

POTENTIAL CONTAMINANT SOURCE	RELEASE MECHANISM	PATHWAY	EXPOSURE ROUTE	RECEPTOR								
				Present Site Users / General Public	Future Residents / Site Users	Construction Workers	On-Site Planting	Water Supply Pipes	Adjacent Site Users / General Public	Controlled Waters: Surface Water	Controlled Waters: Aquifer	Protected Habitat
SOIL (HEAVY METALS AND HYDROCARBONS)	DUST	AIR	INHALATION	VERY LOW	VERY LOW	VERY LOW			VERY LOW			X
	DIRECT	DIRECT	INGESTION	VERY LOW	VERY LOW	VERY LOW						X
	DIRECT	DIRECT	DERMAL EXPOSURE	VERY LOW	VERY LOW	VERY LOW						X
	DIRECT	DIRECT	DIRECT CONTACT / UPTAKE				LOW	VERY LOW				X
	PLANT UPTAKE	GARDEN FRUIT AND VEGETABLES	INGESTION	X	VERY LOW							
	INFILTRATION / LEACHING	GROUNDWATER FLOW	DIRECT								VERY LOW	
	RUNOFF	SURFACE WATER FLOW	DIRECT							LOW		LOW
MADE GROUND (ASBESTOS)	FIBRE RELEASE	AIR	INHALATION	LOW	LOW	LOW			LOW			
SOIL (PUTRESCIBLE MADE GROUND)	GAS FROM DECOMPOSITION	AIR	INHALATION	VERY LOW	VERY LOW	VERY LOW			VERY LOW			
SOIL (VOC)	VAPOUR FROM VOLATILISATION /	AIR	INHALATION	VERY LOW	VERY LOW	VERY LOW			VERY LOW			
GROUNDWATER (VOC)	VAPOUR FROM VOLATILISATION	AIR	INHALATION	VERY LOW	VERY LOW	VERY LOW			VERY LOW			
GROUNDWATER (DISSOLVED CONTAMINANTS)	DIRECT	BASEFLOW TO SURFACE WATER	DIRECT							VERY LOW		VERY LOW
URANIUM IN UNDERLYING STRATA	RADON FROM RADIOACTIVE DECAY	AIR	INHALATION	LOW	LOW	LOW						

X SOURCE►PATHWAY►RECEPTOR NOT COMPLETE AND NO FURTHER ACTION REQUIRED

SECTION 9 DETAILED QUANTITATIVE RISK ASSESSMENT (TIER 3)

9.1 No contaminant linkages requiring further supplementary site investigation and detailed quantitative risk assessment have been identified.

SECTION 10 PRELIMINARY REMEDIATION STRATEGY AND RECOMMENDATIONS

10.1 INTRODUCTION

10.1.1 The soils on site have found to have levels of contamination below the adopted screening levels and therefore remediation with respect to protection of human health is not required.

10.2 GAS PROTECTION

10.2.1 Based on the results from six rounds of monitoring, the ground gas regime beneath the site is classified as Characteristic Situation 1 and therefore ground gas protection measures are not considered necessary in the new buildings.

10.3 SOFT LANDSCAPING

10.3.1 The identified clean natural subsoils on site are considered to provide a suitable growing medium.

10.3.2 Three topsoil samples have been analysed against the British Standard for Topsoil (BS3882). One of the samples was compliant with multipurpose grade topsoil. The other two samples failed the requirements for multipurpose topsoil based on nutrients. Subject to consultation with the project landscape architect, it may be possible to adjust the nutrients such that the topsoil is suitable for re-use.

10.3.3 Made ground soils, containing brick and concrete for example, will not be suitable for re-use as a growing medium.

10.3.4 Should any soil be imported for the formation of domestic gardens and landscaped areas it should be obtained from a validated source. The validation should incorporate an assessment of the provenance of the material and chemical analysis.

10.4 PROTECTION OF CONSTRUCTION WORKERS

10.4.1 Significant risks to construction workers have not been identified. However, as with all sites the adoption of appropriate Health and Safety procedures will ensure that risks to operatives from hazardous materials at the site are minimised. Operatives should not be allowed to eat, drink or smoke on site except in designated areas and should be required to wash all exposed skin at the end of each shift. Operatives should be informed of the potential hazards at the site and should be required to report any observations of suspect material.

10.5 **WATER SUPPLY PIPES**

10.5.1 It is recommended that the utility provider is consulted with respect to their requirements for water supply pipes. Utility companies apply strict guideline levels on use of polymeric pipes and may consider all made ground unsuitable for typical plastic pipe materials to be used.

10.6 **WASTE**

10.6.1 Materials, including waste soils which are not to be retained on site, should be removed and disposed of in accordance with all relevant statutes.

10.7 **OTHER RECOMMENDATIONS**

10.7.1 It is recommended that this report is submitted to the regulators (Local Authority EHO and Planners, Environment Agency Planning Liaison and NHBC) for approval prior to commencement of the works.

10.7.2 Any observations of ground conditions atypical of those already described should be reported to IDOM immediately so that an assessment of appropriate action can be made.

SECTION 11 CONCLUSIONS

11.1 Localised made ground was encountered comprising gravelly sandy clay with inclusions of flint, brick, concrete and clinker south of the site. The made ground is likely from the previous use of the site as a compound. The underlying bedrock geology comprised the Weald Clay Formation, consistent with the published geology, with exception from superficial deposits of Alluvium encountered southwest of site.

11.2 Significant contamination has not been encountered in the soil or groundwater. The risk to all identified receptors is either very low or low.

11.3 Made ground containing brick and concrete will not be suitable for re-use as a growing medium in soft landscaped areas.

11.4 Preliminary classification indicated that soils would be classified as non-hazardous for off-site disposal but may fail acceptance criteria for inert tip.

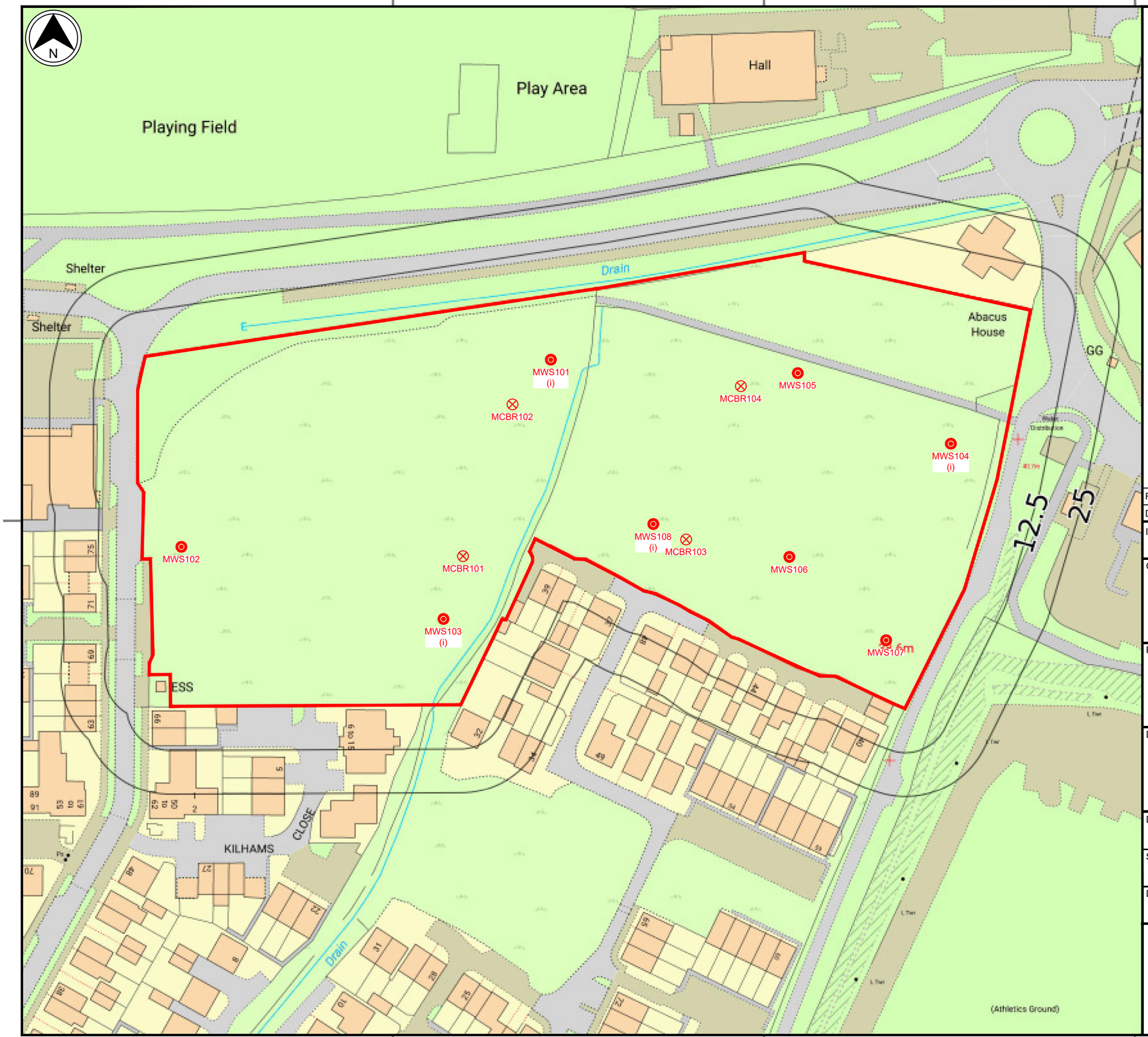
11.5 Natural as-dug arisings (excluding topsoil) could be classed as inert waste without the requirement for WAC testing.

11.6 Based on the results from the six rounds of monitoring, the gas regime beneath the site is classified as Characteristic Situation 1 and therefore, gas protection measures will not be required in the new buildings.

11.7 Long term continuous groundwater level monitoring is being undertaken and will be reported under separate cover in March 2025.

11.8 The ground investigation found a relatively limited thickness of made ground and topsoil on the majority of the site underlain by the Weald Clay Formation. Allowable Bearing Pressures for reinforced strip footings taken into the Weald Clay Formation have been provided. Footings maybe shallowed up from 1m bgl provided that they are taken through the topsoil/made ground/Alluvium and are below or at the depth recommended by Chapter 4.2 of NHBC Standards 2024.

APPENDIX 1 ▪ Drawings



LEGEND

- Site boundary
- MWSref — Merebrook window sample with location reference
- MCBRref — California bearing ratio test with location reference
- (i) — Install

DESCRIPTION	DATE	DWN	CHD	APP'D	REV
First Issue	12/11/2024	FO	MB	MB	-

ISSUE PURPOSE: PRELIMINARY

CLIENT: Vistry Central Home Counties

PROJECT: Wickhurst Green, Horsham

DWG TITLE: Undertaken Site Investigation Locations Plan

DWG NO.: 21949av-304-001

SCALE	DATE	FRAME DIMS (mm)
N.T.S	November 2024	(A3) 420 x 297

DRAWN	CHECKED	APPROVED
FO	MB	MB

IDOM
Registered Office: Cromford Mills, Mill Lane, Matlock, Derbyshire, DE4 3RQ
Website: www.merebrook.co.uk t: +44(0)1773 829 988 e: info.derbyshire@idom.com

APPENDIX 2 ▪ Exploratory Hole Logs

Windowless Sample Log

Project Name: Wickhurst Green	Client: Vistry	Date: 18/10/2024
Location: Horsham	Contractor: 3D Drilling	
Project No. : 21949av	Crew Name:	Drilling Equipment: Terrier Rig Dynamic Sampler

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
MWS101	WLS		MB	1:50	Sheet 1 of 1

Well	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.20	ES		0.35			[TOPSOIL] - Grass over soft brown slightly gravelly slightly sandy CLAY with occasional rootlets. Gravels are subangular to subrounded fine to medium flint. Sand is fine to coarse.
	0.40	ES					
	0.70	D		0.80			Stiff orangish brown CLAY with rare gypsum crystals. [WEALD CLAY FORMATION]
	1.00	SPT	N=44 (4,5/9,16,13,6)				Extremeley weak orangish brown mottled red MUDSTONE. [WEALD CLAY FORMATION]
	1.20	D					
	2.00	SPT	N=50 (25 for 95mm/50 for 80mm)	2.00			End of Borehole at 2.00m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Refusal at 2.0 m bgl. No groundwater encountered

Windowless Sample Log

Project Name: Wickhurst Green	Client: Vistry	Date: 18/10/2024
Location: Horsham	Contractor: 3D Drilling	
Project No. : 21949av	Crew Name:	Drilling Equipment: Terrier Rig Dynamic Sampler

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
MWS102	WLS		MB	1:50	Sheet 1 of 1

Well	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.20	ES		0.35			[TOPSOIL] - Grass over soft brown slightly gravelly slightly sandy CLAY with occasional rootlets. Gravels are subangular to subrounded fine to medium flint. Sand is fine to coarse.
	0.40	ES					Stiff orangish brown CLAY with rare gypsum crystals. [WEALD CLAY FORMATION]
	0.80	D		0.70			Extremeley weak orangish brown mottled red MUDSTONE. [WEALD CLAY FORMATION]
	1.00	SPT	N=31 (5,6/6,7,8,10)				
	2.00	D		2.00			End of Borehole at 2.00m
	2.00	SPT	N=50 (7,12/50 for 190mm)				

1 2 3 4 5 6 7 8 9 10

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Refusal at 2.0 m bgl. No groundwater encountered

Windowless Sample Log

Project Name: Wickhurst Green	Client: Vistry	Date: 18/10/2024
Location: Horsham	Contractor: 3D Drilling	
Project No. : 21949av	Crew Name:	Drilling Equipment: Terrier Rig Dynamic Sampler

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
MWS103	WLS		MB	1:50	Sheet 1 of 1

Well	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.50	ES		0.30			MADE GROUND comprising grass over soft brown slightly gravelly slightly sandy CLAY with occasional rootlets. Gravels are subangular to subrounded fine to medium flint, brick and clinker. Sand is fine to coarse.
	1.00	SPT	N=11 (2,3/3,2,3,3)	0.80			MADE GROUND comprising stiff orangish brown mottled red slightly gravelly slightly sandy CLAY with low cobble content. Sand is fine to coarse. Gravels are subangular to subrounded fine to coarse flint, concrete and brick. Cobbles are subangular brick.
	1.50	D					Stiff blush grey slightly sandy CLAY with rare partially decomposed plan material. Sand is fine to medium. [ALLUVIUM]
	2.00	SPT	N=13 (1,5/3,3,3,4)				*Moderate organic odour*
	2.50	D		2.20			Extremely weak orangish brown mottled red MUDSTONE with rare gysum crystals. [WEALD CLAY FORMATION]
	3.00	SPT	N=32 (5,7/5,8,9,10)				
	4.00	SPT	N=50 (8,13/50 for 160mm)	4.00			End of Borehole at 4.00m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Refusal at 4.0 m bgl. No groundwater encountered

Windowless Sample Log

Project Name: Wickhurst Green	Client: Vistry	Date: 18/10/2024
Location: Horsham	Contractor: 3D Drilling	
Project No. : 21949av	Crew Name:	Drilling Equipment: Terrier Rig Dynamic Sampler

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
MWS104	WLS		MB	1:50	Sheet 1 of 1

Well	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.20	ES		0.40			[TOPSOIL] - Grass over soft brown slightly gravelly slightly sandy CLAY with occasional rootlets. Gravels are subangular to subrounded fine to medium flint. Sand is fine to coarse.
	0.50	D					Stiff orangish brown CLAY with rare gypsum crystals. [WEALD CLAY FORMATION]
	1.00	SPT	N=13 (2,3/3,3,3,4)	0.90			Extremely weak orangish brown mottled red MUDSTONE. [WEALD CLAY FORMATION]
	1.80	D					
	2.00	SPT	N=50 (5,6/50 for 170mm)	2.00			End of Borehole at 2.00m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Refusal at 2.0 m bgl. No groundwater encountered

Windowless Sample Log

Project Name: Wickhurst Green	Client: Vistry	Date: 18/10/2024
Location: Horsham	Contractor: 3D Drilling	
Project No. : 21949av	Crew Name:	Drilling Equipment: Terrier Rig Dynamic Sampler

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
MWS105	WLS		MB	1:50	Sheet 1 of 1

Well	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.20	ES					[TOPSOIL] - Grass over soft brown slightly gravelly slightly sandy CLAY with occasional rootlets. Gravels are subangular to subrounded fine to medium flint. Sand is fine to coarse.
	0.40	ES		0.40			Stiff orangish brown mottled red CLAY. [WEALD CLAY FORMATION]
	0.75	D		0.80			Extremely weak orangish brown mottled red MUDSTONE. [WEALD CLAY FORMATION]
	1.00	SPT	N=24 (1,4/4,6,7,7)				
	2.00	D		2.00			End of Borehole at 2.00m
	2.00	SPT	N=50 (25 for 125mm/50 for 90mm)				

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Refusal at 2.0 m bgl. No groundwater encountered

Windowless Sample Log

Project Name: Wickhurst Green	Client: Vistry	Date: 18/10/2024
Location: Horsham	Contractor: 3D Drilling	
Project No. : 21949av	Crew Name:	Drilling Equipment: Terrier Rig Dynamic Sampler

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
MWS106	WLS		MB	1:50	Sheet 1 of 1

Well	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.20	ES		0.40			[TOPSOIL] - Grass over soft brown slightly gravelly slightly sandy CLAY with occasional rootlets. Gravels are subangular to subrounded fine to medium flint. Sand is fine to coarse.
	0.60	D		0.80			Firm to stiff orangish brown mottled red CLAY. [WEALD CLAY FORMATION]
	1.00	SPT	N=14 (3,4/3,3,4,4)				Extremely weak orangish brown mottled red MUDSTONE. [WEALD CLAY FORMATION]
	1.50	D					
	1.60	SPT	N=50 (28 for 120mm/23,11,9,7)	1.60			End of Borehole at 1.60m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Refusal at 1.6 m bgl. No groundwater encountered

Windowless Sample Log

Project Name: Wickhurst Green	Client: Vistry	Date: 18/10/2024
Location: Horsham	Contractor: 3D Drilling	
Project No. : 21949av	Crew Name:	Drilling Equipment: Terrier Rig Dynamic Sampler

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
MWS107	WLS		MB	1:50	Sheet 1 of 1

Well	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.20	ES		0.40			[TOPSOIL] - Grass over soft brown slightly gravelly slightly sandy CLAY with occasional rootlets. Gravels are subangular to subrounded fine to medium flint. Sand is fine to coarse.
	0.50	D					Stiff orangish brown mottled red fissured CLAY. Fissures are closely spaced, randomly orientated, planar smooth. [WEALD CLAY FORMATION]
	1.00	SPT	N=14 (1,2/3,2,4,5)	1.30			
	1.50	D					Very weak orangish brown mottled red MUDSTONE. [WEALD CLAY FORMATION]
	2.00	SPT	N=44 (1,4/4,6,14,20)	1.80			Very stiff orangish brown mottled red fissured CLAY with occasional claystone nodules. Fissures are closley spaced, randomly orientated, planar smooth. [WEALD CLAY FORMATION]
	2.40	D		2.20			Extremely weak bluish grey MUDSTONE. [WEALD CLAY FORMATION]
	2.40	SPT	N=50 (25 for 75mm/50 for 125mm)	2.40			End of Borehole at 2.40m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Refusal at 2.4 m bgl. No groundwater strike. Slight groundwater seepage between 3.0 and 4.0 m bgl

Windowless Sample Log

Project Name: Wickhurst Green	Client: Vistry	Date: 18/10/2024
Location: Horsham	Contractor: 3D Drilling	
Project No. : 21949av	Crew Name:	Drilling Equipment: Terrier Rig Dynamic Sampler

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
MWS108	WLS		MB	1:50	Sheet 1 of 1

Well	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.20	ES		0.30			MADE GROUND comprising grass over soft brown slightly gravelly slightly sandy CLAY with occasional rootlets. Gravels are subangular to subrounded fine to medium flint, brick and clinker. Sand is fine to coarse.
	0.50	D					Stiff orangish brown mottled light yellow fissured CLAY. Fissures are closely spaced, randomly orientated, planar, smooth. [WEALD CLAY FORMATION]
	1.00	SPT	N=13 (2,2/3,3,3,4)				
	1.50	D		1.50			Extremely weak red MUDSTONE. [WEALD CLAY FORMATION]
	1.70	SPT	N=29 (10,10/7,6,8,8)	2.00			Very stiff orangish brown mottled red fissured CLAY with occasional claystone nodules. Fissures are closley spaced, randomly orientated, planar smooth. [WEALD CLAY FORMATION]
	2.50	D		2.40			Extremely weak grey MUDSTONE. [WEALD CLAY FORMATION]
	2.70	SPT	N=50 (25 for 95mm/50 for 90mm)	2.70			End of Borehole at 2.70m

1 2 3 4 5 6 7 8 9 10

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Refusal at 2.7 m bgl. No groundwater encountered

IDOM Merebrook Limited
Cromford Mills
Mill Lane
Cromford
Derbyshire
DE4 3RQ
For the attention of Dawn Drake

Report No: C9096
Issue No 01

LABORATORY TEST REPORT

Project Name	**WICKHURST GREEN**		
Project Number	**C9096**	Date samples received	
Your Ref		Date written instructions received	02/10/2024
Purchase Order	24-777-DD-21949av	Date testing commenced	18/10/2024

Please find enclosed the results as summarised below

Item No	Test Quantity	Description	ISO 17025 Accredited
10.05	4	Insitu CBR	Yes

Remarks :

Issued by : J Hopkins

Date of Issue : 22/10/2024

Approved Signatories : [redacted] 22/10/2024

J.Hopkins (Laboratory Coordinator), M D Brown (Senior Quality Manager), R Norris (Supervisor), R Collett (Site Supervisor), M Bryan (Senior Lab Technician)

Key to symbols used in this report
S/C : Testing was sub-contracted

Unless we are notified to the contrary, any remaining samples will dispossed of, 4 weeks after the date this report was issued

Results contained in this report are provisional unless signed by an approved signatory

Only those results indicated in this report are UKAS accredited and any opinions or interpretations expressed are outside the scope of UKAS accreditation.

Feedback on the this report may be left:
https://forms.office.com/pages/responsepage.aspx?id=CwCZTjwYeUGWZfDBJbk1g0fy8UwdJQhLttd3HBD1SytUMzNYWTdFVVpMWjdHREcwQUg1MDJLM09OTi4u&wdLOR=c7402C39D-A5DB-45FF-9DBB-660DBDE76494

MCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME
UKAS TESTING 0126
AGS REGISTERED USER 2023

College Road North, Aston Clinton, Bucks, HP22 5EZ
Tel: +44 (0)1494 810 136 Fax: +44 (0)1494 784 837
astonclinton@igne.com
www.igne.com
Terra Tek Ltd is registered in Scotland. SC121594
Offices in Airdrie, Aston Clinton, Barnsley, Daventry
Head Office : Whistleberry Road, Hamilton, Glasgow, Scotland, ML3 0HP

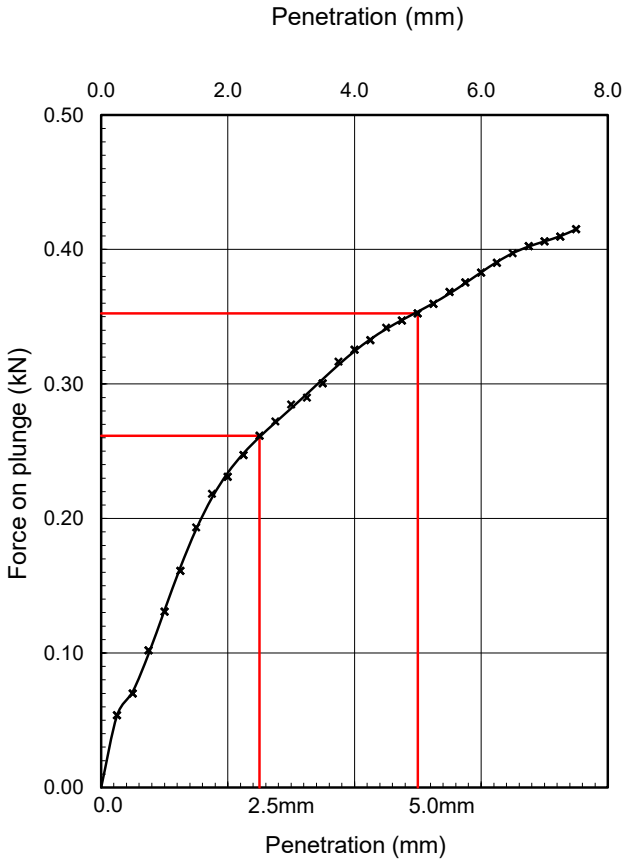
Site: WICKHURST GREEN		**Contract No** **C9096**
Client: IDOM Merebrook		Test No. 1
Engineer: -		Date 18/10/2024
		Depth (m) 0.20
		Hole ID MCBR01

Description: Soft intact light brown mottled light grey slightly sandy CLAY.

Test Conditions:
Surcharge 0 kg Equivalent 0 kPa
Moisture content beneath plunger: 26 %

Note: No particles larger than 20mm found beneath the plunger

CBR Value: 2.0%



Originator	Checked & Approved
SP	[redacted]
	22/10/2024

IN-SITU CALIFORNIA BEARING RATIO
BS1377 : Part 9 : 1990 Clause 4.3

College Road North, Aston Clinton, Bucks, HP22 5EZ

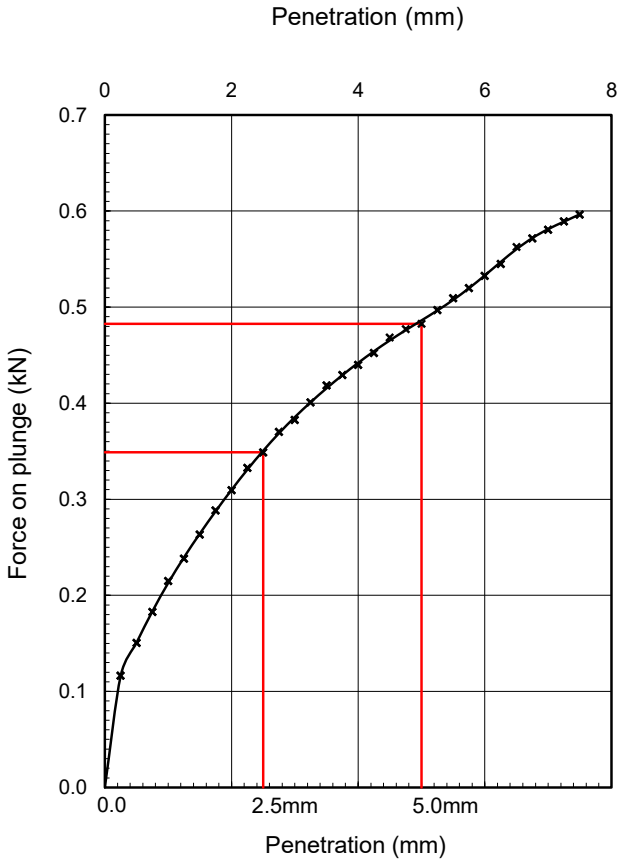
Site: WICKHURST GREEN		**Contract No** **C9096**
Client: IDOM Merebrook		Test No. 2
Engineer: -		Date 18/10/2024
		Depth (m) 0.40
		Hole ID MCBR02

Description: Firm intact light brown slightly sandy CLAY.

Test Conditions:
Surcharge 0 kg Equivalent 0 kPa
Moisture content beneath plunger: 23 %

Note: No particles larger than 20mm found beneath the plunger

CBR Value: 2.6%



Originator	Checked & Approved
SP	[redacted] 22/10/2024

IN-SITU CALIFORNIA BEARING RATIO
BS1377 : Part 9 : 1990 Clause 4.3

College Road North, Aston Clinton, Bucks, HP22 5EZ

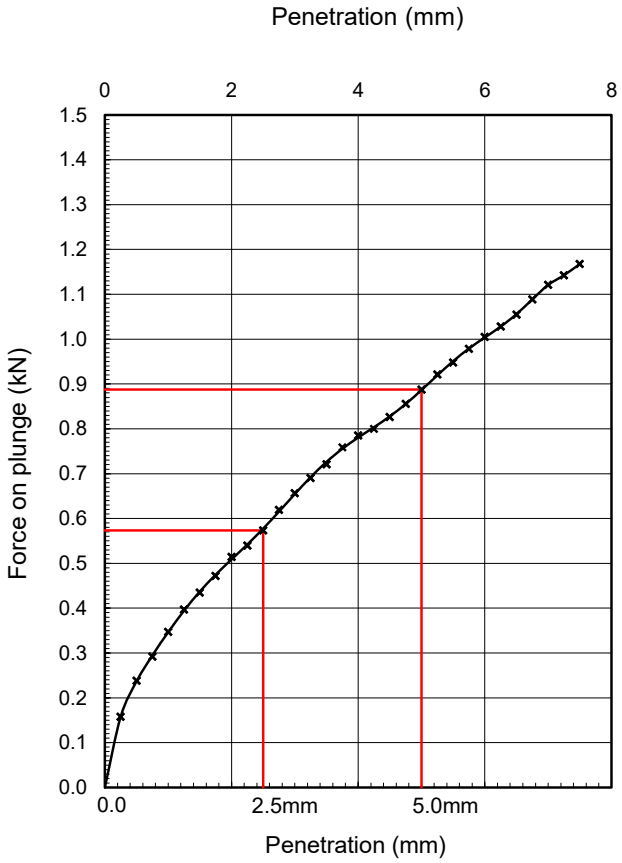
Site	WICKHURST GREEN	**Contract No** **C9096**
Client	IDOM Merebrook	Test No. 3
Engineer	-	Date 18/10/2024
		Depth (m) 0.40
		Hole ID MCBR03

Description: Firm intact light brown slightly gravelly slightly sandy CLAY. Gravel is fine to medium.

Test Conditions:
Surcharge 0 kg Equivalent 0 kPa
Moisture content beneath plunger: 23 %

Note: No particles larger than 20mm found beneath the plunger

CBR Value: 4.4%



Originator	Checked & Approved
SP	[redacted]
	22/10/2024

IN-SITU CALIFORNIA BEARING RATIO
BS1377 : Part 9 : 1990 Clause 4.3

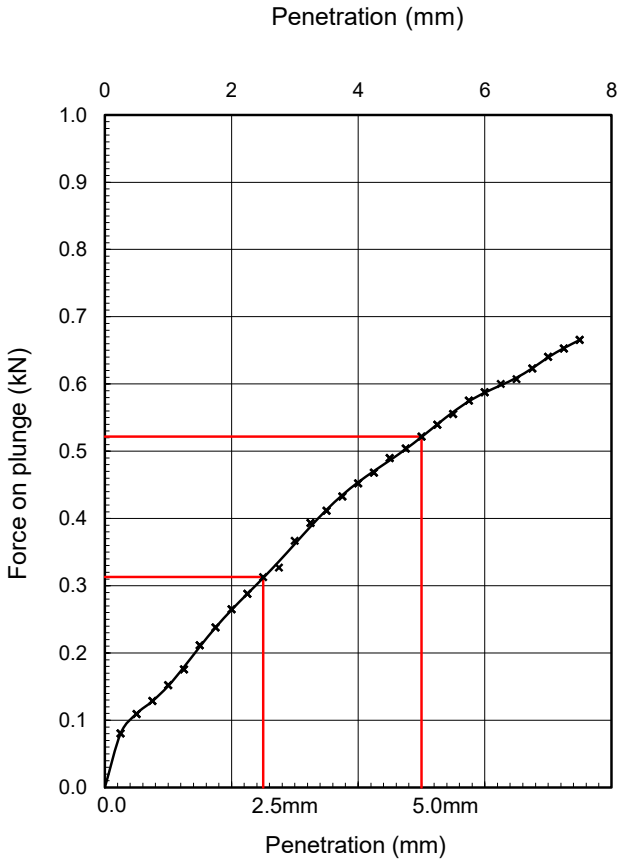
Site: WICKHURST GREEN		**Contract No** **C9096**
Client: IDOM Merebrook		Test No. 4
Engineer: -		Date 18/10/2024
		Depth (m) 0.50
		Hole ID MCBR04

Description: Firm intact brown slightly sandy CLAY.

Test Conditions:
Surcharge 0 kg Equivalent 0 kPa
Moisture content beneath plunger: 28 %

Note: No particles larger than 20mm found beneath the plunger

CBR Value: 2.6%



Originator	Checked & Approved
SP [redacted]	22/10/2024

IN-SITU CALIFORNIA BEARING RATIO
BS1377 : Part 9 : 1990 Clause 4.3

College Road North, Aston Clinton, Bucks, HP22 5EZ

APPENDIX 3

- Soil Chemistry
- Summary Spreadsheet
- Laboratory Analysis Certificates

Merebrook
First Floor
1 Leonard Place
Westerham Road
Keston
BR2 6HQ

t: 01689 889980

e: mbaylis@idom.com
coliveira@idom.com

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

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

Analytical Report Number : 24-049120

Project / Site name:	Wickhurst Green	**Samples received on:**	22/10/2024
Your job number:	21949AV	**Samples instructed on/ Analysis started on:**	22/10/2024
Your order number:	24-2-FDO-LABS	**Analysis completed by:**	29/10/2024
Report Issue Number:	1	**Report issued on:**	29/10/2024
Samples Analysed:	10 soil samples		

Signed: [redacted]

Caterina Bentley
Customer Service Advisor
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

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

Analytical Report Number: 24-049120
Project / Site name: Wickhurst Green
Your Order No: 24-2-FDO-LABS

Lab Sample Number				355250	355251	355252	355253	355254
Sample Reference				MWS101-ES	MWS101-ES	MWS102-ES	MWS102-ES	MWS103-ES
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.40	0.20	0.40	0.50
Date Sampled				18/10/2024	18/10/2024	18/10/2024	18/10/2024	18/10/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	19	19	15	16	13
Total mass of sample received	kg	0.1	NONE	1.3	1.4	1.3	1.3	1.4
Asbestos								
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	-	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	MBI	-	MBI	MBI	MBI
General Inorganics								
pH (L099)	pH Units	N/A	MCERTS	7.1	7.6	8	8.4	7.6
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	110	110	210	620	340
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0536	0.0572	0.107	0.308	0.172
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	53.6	57.2	107	308	172
Organic Matter (automated)	%	0.1	MCERTS	3.1	0.5	1.4	1.6	1.5
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	1.8	0.3	0.8	0.9	0.8
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.07	0.09
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.08	< 0.05	0.08	0.23	0.29
Pyrene	mg/kg	0.05	MCERTS	0.06	< 0.05	0.07	0.21	0.25
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.13	0.18
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.11	0.16
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	0.07	0.22	0.23
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	0.06	0.14
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.19	0.23
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.11	0.12
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.05	0.13	0.16
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80	< 0.80	< 0.80	1.47	1.84

Analytical Report Number: 24-049120
Project / Site name: Wickhurst Green
Your Order No: 24-2-FDO-LABS

Lab Sample Number				355250	355251	355252	355253	355254
Sample Reference				MWS101-ES	MWS101-ES	MWS102-ES	MWS102-ES	MWS103-ES
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.40	0.20	0.40	0.50
Date Sampled				18/10/2024	18/10/2024	18/10/2024	18/10/2024	18/10/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8.2	8.8	9.6	10	11
Barium (aqua regia extractable)	mg/kg	1	MCERTS	58	48	71	70	85
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3	< 0.2	0.3	0.2	0.3
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	23	39	33	32	30
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	25	39	33	32	30
Copper (aqua regia extractable)	mg/kg	1	MCERTS	12	20	20	23	24
Lead (aqua regia extractable)	mg/kg	1	MCERTS	27	19	27	29	33
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	14	22	25	20	18
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	1.1
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	37	49	46	44	42
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	52	65	80	84	83
Petroleum Hydrocarbons								
TPHCWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	31
TPHCWG - Aliphatic >EC35 - EC40 $_{EH\_CU\_1D\_AL}$	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPHCWG - Aliphatic >EC5 - EC35 $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	< 10	< 10	< 10	< 10	31
TPHCWG - Aliphatic >EC5 - EC40 $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	< 10	< 10	< 10	< 10	31
TPHCWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.02	MCERTS	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	31
TPHCWG - Aromatic >EC35 - EC40 $_{EH\_CU\_1D\_AR}$	mg/kg	10	NONE	< 10	< 10	< 10	< 10	19
TPHCWG - Aromatic >EC5 - EC35 $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	< 10	< 10	< 10	< 10	31
TPHCWG - Aromatic >EC5 - EC40 $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	< 10	< 10	< 10	< 10	49
TPH Total >EC5 - EC40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	NONE	< 10	< 10	< 10	< 10	80

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Lab Sample Number				355250	355251	355252	355253	355254
Sample Reference				MWS101-ES	MWS101-ES	MWS102-ES	MWS102-ES	MWS103-ES
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.40	0.20	0.40	0.50
Date Sampled				18/10/2024	18/10/2024	18/10/2024	18/10/2024	18/10/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**					
VOCs								
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
PCBs by GC-MS								
PCB Congener 28	mg/kg	0.001	MCERTS	-	-	-	< 0.001	< 0.001
PCB Congener 52	mg/kg	0.001	MCERTS	-	-	-	< 0.001	< 0.001
PCB Congener 101	mg/kg	0.001	MCERTS	-	-	-	< 0.001	< 0.001
PCB Congener 118	mg/kg	0.001	MCERTS	-	-	-	< 0.001	< 0.001
PCB Congener 138	mg/kg	0.001	MCERTS	-	-	-	< 0.001	< 0.001
PCB Congener 153	mg/kg	0.001	MCERTS	-	-	-	< 0.001	< 0.001
PCB Congener 180	mg/kg	0.001	MCERTS	-	-	-	< 0.001	< 0.001
Total PCBs	mg/kg	0.007	MCERTS	-	-	-	< 0.007	< 0.007

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

Analytical Report Number: 24-049120
Project / Site name: Wickhurst Green
Your Order No: 24-2-FDO-LABS

Lab Sample Number				355255	355256	355257	355258	355259
Sample Reference				MWS105-ES	MWS105-ES	MWS106-ES	MWS107-ES	MWS108-ES
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.40	0.20	0.20	0.20
Date Sampled				18/10/2024	18/10/2024	18/10/2024	18/10/2024	18/10/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	17	19	20	16	16
Total mass of sample received	kg	0.1	NONE	0.8	0.3	0.3	1.1	1.3
Asbestos								
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	-	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	SPU	-	WEM	SPU	SPU
General Inorganics								
pH (L099)	pH Units	N/A	MCERTS	7.2	7.8	6	7.3	7.7
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	21	73	270	89	180
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0105	0.0366	0.137	0.0444	0.0918
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	10.5	36.6	137	44.4	91.8
Organic Matter (automated)	%	0.1	MCERTS	2.6	0.8	3.1	2.8	1.9
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	1.5	0.4	1.8	1.6	1.1
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.06	0.11
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.07	< 0.05	0.11	0.22	0.35
Pyrene	mg/kg	0.05	MCERTS	0.06	< 0.05	0.11	0.18	0.31
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.06	0.16
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.09	0.19
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	0.07	0.15	0.27
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	0.09
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.06	< 0.05	0.2
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.07	0.1
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.08	0.14
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80	< 0.80	< 0.80	0.91	1.93

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Lab Sample Number				355255	355256	355257	355258	355259
Sample Reference				MWS105-ES	MWS105-ES	MWS106-ES	MWS107-ES	MWS108-ES
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.40	0.20	0.20	0.20
Date Sampled				18/10/2024	18/10/2024	18/10/2024	18/10/2024	18/10/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	11	7.2	13	12	10
Barium (aqua regia extractable)	mg/kg	1	MCERTS	77	34	82	74	76
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3	< 0.2	0.3	0.3	0.3
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (III)	mg/kg	1	NONE	26	25	26	25	24
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	27	25	27	25	25
Copper (aqua regia extractable)	mg/kg	1	MCERTS	19	14	16	15	15
Lead (aqua regia extractable)	mg/kg	1	MCERTS	38	37	32	35	28
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	12	9.9	11	13	11
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	1.9	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	39	30	41	39	35
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	60	40	58	61	56
Petroleum Hydrocarbons								
TPHCWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	2.6
TPHCWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
TPHCWG - Aliphatic >EC35 - EC40 $_{EH\_CU\_1D\_AL}$	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPHCWG - Aliphatic >EC5 - EC35 $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPHCWG - Aliphatic >EC5 - EC40 $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.01	MCERTS	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
TPHCWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.02	MCERTS	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
TPHCWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPHCWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPHCWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC35 - EC40 $_{EH\_CU\_1D\_AR}$	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC5 - EC35 $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPHCWG - Aromatic >EC5 - EC40 $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH Total >EC5 - EC40 $_{EH\_CU+HS\_1D\_TOTAL}$	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10

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Lab Sample Number				355255	355256	355257	355258	355259
Sample Reference				MWS105-ES	MWS105-ES	MWS106-ES	MWS107-ES	MWS108-ES
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.40	0.20	0.20	0.20
Date Sampled				18/10/2024	18/10/2024	18/10/2024	18/10/2024	18/10/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**					
VOCs								
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	< 8.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
PCBs by GC-MS								
PCB Congener 28	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 52	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 101	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 118	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 138	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 153	mg/kg	0.001	MCERTS	-	-	-	-	-
PCB Congener 180	mg/kg	0.001	MCERTS	-	-	-	-	-
Total PCBs	mg/kg	0.007	MCERTS	-	-	-	-	-

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

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
355250	MWS101-ES	None Supplied	0.2	Brown clay and loam with vegetation
355251	MWS101-ES	None Supplied	0.4	Brown clay
355252	MWS102-ES	None Supplied	0.2	Brown clay and loam with vegetation
355253	MWS102-ES	None Supplied	0.4	Brown clay and loam with vegetation
355254	MWS103-ES	None Supplied	0.5	Brown clay
355255	MWS105-ES	None Supplied	0.2	Brown clay and loam with vegetation
355256	MWS105-ES	None Supplied	0.4	Brown clay
355257	MWS106-ES	None Supplied	0.2	Brown clay and loam with vegetation
355258	MWS107-ES	None Supplied	0.2	Brown clay and loam with vegetation
355259	MWS108-ES	None Supplied	0.2	Brown clay with vegetation

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
PCB's By GC-MS in soil	Determination of PCB by extraction with hexane followed by GC-MS	In-house method based on USEPA 8082	L027B	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic	In-house method	L076B/L088-PL	D/W	MCERTS
Chromium III in soil	In-house method by calculation from total Cr and Cr VI	In-house method by calculation	L080-PL/L130B	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080-PL	W	MCERTS
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099-PL	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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

Sample Deviation Report

Analytical Report Number : 24-049120
Project / Site name: Wickhurst Green

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

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

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
MWS101-ES	N/A	S	355250	b	BTEX and/or Volatile organic compounds in soil	L073B	b
MWS101-ES	N/A	S	355250	b	Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	L076B/L088-PL	b
MWS101-ES	N/A	S	355251	b	BTEX and/or Volatile organic compounds in soil	L073B	b
MWS101-ES	N/A	S	355251	b	Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	L076B/L088-PL	b
MWS105-ES	N/A	S	355256	b	BTEX and/or Volatile organic compounds in soil	L073B	b
MWS105-ES	N/A	S	355256	b	Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil	L076B/L088-PL	b

Merebrook
First Floor
1 Leonard Place
Westerham Road
Keston
BR2 6HQ

t: 01689 889980

e: ndellow@idom.com
coliveira@idom.com

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

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

Analytical Report Number : 24-054006

Project / Site name:	Wickhurst Green	**Samples received on:**	15/11/2024
Your job number:	21949AV	**Samples instructed on/ Analysis started on:**	15/11/2024
Your order number:	24-2-FDO-LABS	**Analysis completed by:**	25/11/2024
Report Issue Number:	1	**Report issued on:**	25/11/2024
Samples Analysed:	3 soil samples		

Signe[redacted]

Rachel Chappell
Key Account Manager
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

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

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

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Certificate of Analysis

BS 3882:2015 Specification For Topsoil

	Pass BS 3882 for Multipurpose Topsoil; Calcareous;		client
Report No:	**24-054006**		**Merebrook**
Location	Wickhurst Green		
Lab Reference (Sample Number)	380197		
Sampling Date	14/11/2024		
Sample ID	ES1		

				Compliant with range (Y/N)					
Depth (m)									
		unit	**Result**	**Multi-P**	**Acid**	**Calc**	**Low-F**	**Low-F(a)**	**Low-F(c)**
Soil texture	<2mm fraction	%m/m	SANDY SILT LOAM	Y	Y	Y	Y	Y	Y
Maximum coarse fragment content:	>2mm	%m/m	6.20	Y	Y	Y	Y	Y	Y
	>20mm	%m/m	0.00	Y	Y	Y	Y	Y	Y
	>50mm	%m/m	0.00	Y	Y	Y	Y	Y	Y
Mass loss on ignition		%	10.00						
	Clay 5-20%		Y	Y	Y	Y	Y	Y	Y
	Clay 20-35%		-	-	-	-	-	-	-
Soil pH:		pH	7.70	Y	N	Y	Y	N	Y
Carbonate:		%m/m	4.20	-	-	Y	-	-	Y
Available plant nutrients	Nitrogen	%m/m	0.42	Y	Y	Y	-	-	-
	Extractable Phosphate (as P)	mg/l	31.00	Y	Y	Y	N	N	N
	Extractable Potassium	mg/l	203.00	Y	Y	Y	-	-	-
	Extractable Magnesium	mg/l	120.00	Y	Y	Y	-	-	-
Carbon: Nitrogen Ratio:		:1	14.80	Y	Y	Y	Y	Y	Y
Conductivity		us/cm	1700.00	Y	-	-	-	-	-
Phytotoxic contaminants:	** Total Zinc	mg/kg	58.00	Y	Y	Y	Y	Y	Y
	** Total Copper	mg/kg	14.00	Y	Y	Y	Y	Y	Y
	** Total Nickel	mg/kg	9.70	Y	Y	Y	Y	Y	Y
Visible contaminants:	>2mm	%m/m	0.00	Y	Y	Y	Y	Y	Y
	Plastics	%m/m	0.00	Y	Y	Y	Y	Y	Y
	Sharps	no. in 1 kg	0.00	Y	Y	Y	Y	Y	Y
Compliancy:				Pass	Fail	Pass	Fail	Fail	Fail

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and I2 cannot be held responsible for any discrepencies with current legislation

** = MCERTS accrediited

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

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Certificate of Analysis

BS 3882:2015 Specification For Topsoil

	Fail BS 3882		client	
Report No:	**24-054006**		**Merebrook**	
Location	Wickhurst Green			
Lab Reference (Sample Number)	380198			
Sampling Date	14/11/2024			
Sample ID	ES2			
Depth (m)			**Compliant with range (Y/N)**	

		unit	Result	Multi-P	Acid	Calc	Low-F	Low-F(a)	Low-F(c)
Soil texture	<2mm fraction	%m/m	SANDY SILT LOAM	Y	Y	Y	Y	Y	Y
Maximum coarse fragment content:	>2mm	%m/m	1.80	Y	Y	Y	Y	Y	Y
	>20mm	%m/m	0.00	Y	Y	Y	Y	Y	Y
	>50mm	%m/m	0.00	Y	Y	Y	Y	Y	Y
Mass loss on ignition		%	9.80						
	Clay 5-20%		Y	Y	Y	Y	Y	Y	Y
	Clay 20-35%		-	-	-	-	-	-	-
Soil pH:		pH	6.00	Y	N	N	Y	N	N
Carbonate:		%m/m	5.30	-	-	Y	-	-	Y
Available plant nutrients	Nitrogen	%m/m	0.45	Y	Y	Y	-	-	-
	Extractable Phosphate (as P)	mg/l	26.00	Y	Y	Y	N	N	N
	Extractable Potassium	mg/l	109.00	N	N	N	-	-	-
	Extractable Magnesium	mg/l	180.00	Y	Y	Y	-	-	-
Carbon: Nitrogen Ratio:		:1	12.77	Y	Y	Y	Y	Y	Y
Conductivity		us/cm	1700.00	Y	-	-	-	-	-
Phytotoxic contaminants:	** Total Zinc	mg/kg	66.00	Y	Y	Y	Y	Y	Y
	** Total Copper	mg/kg	15.00	Y	Y	Y	Y	Y	Y
	** Total Nickel	mg/kg	9.30	Y	Y	Y	Y	Y	Y
Visible contaminants:	>2mm	%m/m	0.00	Y	Y	Y	Y	Y	Y
	Plastics	%m/m	0.00	Y	Y	Y	Y	Y	Y
	Sharps	no. in 1 kg	0.00	Y	Y	Y	Y	Y	Y
Compliancy:				Fail	Fail	Fail	Fail	Fail	Fail

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and I2 cannot be held responsible for any discrepencies with current legislation

** = MCERTS accrediited

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Watford, WD18 8YS

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Certificate of Analysis

BS 3882:2015 Specification For Topsoil

	Pass BS 3882 for Low fertility;		client
Report No:	**24-054006**		**Merebrook**
Location	Wickhurst Green		
Lab Reference (Sample Number)	380199		
Sampling Date	14/11/2024		
Sample ID	ES3		
Depth (m)			

		unit	Result	Compliant with range (Y/N) Multi-P	Acid	Calc	Low-F	Low-F(a)	Low-F(c)
Soil texture	<2mm fraction	%m/m	SANDY SILT LOAM	Y	Y	Y	Y	Y	Y
Maximum coarse fragment content:	>2mm	%m/m	1.90	Y	Y	Y	Y	Y	Y
	>20mm	%m/m	0.00	Y	Y	Y	Y	Y	Y
	>50mm	%m/m	0.00	Y	Y	Y	Y	Y	Y
Mass loss on ignition		%	9.90						
	Clay 5-20%		Y	Y	Y	Y	Y	Y	Y
	Clay 20-35%		-	-	-	-	-	-	-
Soil pH:		pH	6.20	Y	N	N	Y	N	N
Carbonate:		%m/m	3.70	-	-	Y	-	-	Y
Available plant nutrients	Nitrogen	%m/m	0.41	Y	Y	Y	-	-	-
	Extractable Phosphate (as P)	mg/l	16.00	Y	Y	Y	Y	Y	Y
	Extractable Potassium	mg/l	80.90	N	N	N	-	-	-
	Extractable Magnesium	mg/l	150.00	Y	Y	Y	-	-	-
Carbon: Nitrogen Ratio:		:1	14.30	Y	Y	Y	Y	Y	Y
Conductivity		us/cm	1400.00	Y	-	-	-	-	-
Phytotoxic contaminants:	** Total Zinc	mg/kg	44.00	Y	Y	Y	Y	Y	Y
	** Total Copper	mg/kg	12.00	Y	Y	Y	Y	Y	Y
	** Total Nickel	mg/kg	8.00	Y	Y	Y	Y	Y	Y
Visible contaminants:	>2mm	%m/m	0.00	Y	Y	Y	Y	Y	Y
	Plastics	%m/m	0.00	Y	Y	Y	Y	Y	Y
	Sharps	no. in 1 kg	0.00	Y	Y	Y	Y	Y	Y
Compliancy:				Fail	Fail	Fail	Pass	Fail	Fail

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and I2 cannot be held responsible for any discrepencies with current legislation

** = MCERTS accrediited

Analytical Report Number : 24-054006
Project / Site name: Wickhurst Green

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
380197	ES1	None Supplied	None Supplied	Brown loam and clay with gravel and vegetation
380198	ES2	None Supplied	None Supplied	Brown loam and clay with gravel and vegetation
380199	ES3	None Supplied	None Supplied	Brown loam and clay with gravel and vegetation

Analytical Report Number : 24-054006
Project / Site name: Wickhurst Green

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Coarse Fragment and Contaminant Analysis	Determination of >2mm contaminants	BS3882:2007 & BS8601:2013 & PAS 100:2005	L019B	D	NONE
Density of available extract	Gravimetric determination of density of dried sample up to 2 mm	In-house method	L019B	D	NONE
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Conductivity (BS 3882/BS 8601)	Determination of the conductivity of soil in accordance with BS 3882:2007 methodology	BS 3882:2007 & BS 8601:2013	L031B	D	NONE
Carbonate (Topsoil - BS 3882)	Determination of Carbonate as per BS 3882:2015	Method based on BS 3882:2015	L034-PL	D	NONE
Extractable/Available Metals (BS 3882/BS 8601)	Determination of the extractable metals in soil, in accordance with BS 3882:2007 methodology	BS3882:2007 & BS8601:2013	L038B	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L038B	D	MCERTS
Carbon to Nitrogen Ratio (Topsoil - BS3882:2015)	Carbon to Nitrogen ratio (:1) calculated using Loss on Ignition	BS3882:2015	L047-PL/L087B	W	NONE
Mass loss on ignition (Topsoil - BS 3882)	Determination of Loss on Ignition as per BS 3882:2015	Method based on BS 3882:2015	L047-PL	D	NONE
Phosphorus as PO4 (BS 3882/BS 8601)	Determination of the extractable phosphorus in soil, in accordance with BS 3882:2007 methodology	Method based on BS 3882:2015 & BS 8601:2013	L048B	D	NONE
Kjeldahl nitrogen in soil	Determination of total nitrogen using the Kjeldahl-digestion method and ion selective electrode	In-house method based on BS 7755-3.7:1995	L087B	D	NONE
pH (BS 3882/BS 8601)	Determination of the pH of soil in accordance with BS 3882:2007 methodology	BS 3882:2007 & BS 8601:2013	L099-PL	D	NONE
Topsoil (BS 3882:2015)	Specification for topsoil	BS 3882:2015	PL		NONE
Textural Classification Diagram (BS 3882:2015)	BS 3882:2015	BS 3882:2015	PL		NONE

Analytical Report Number : 24-054006
Project / Site name: Wickhurst Green

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Geotechnical Testing	See attached geotechnical report	See attached geotechnical report	PL		NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

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

TEST CERTIFICATE

SPECIFICATION FOR TOPSOIL
In-house method based on: BS 3882: 2015

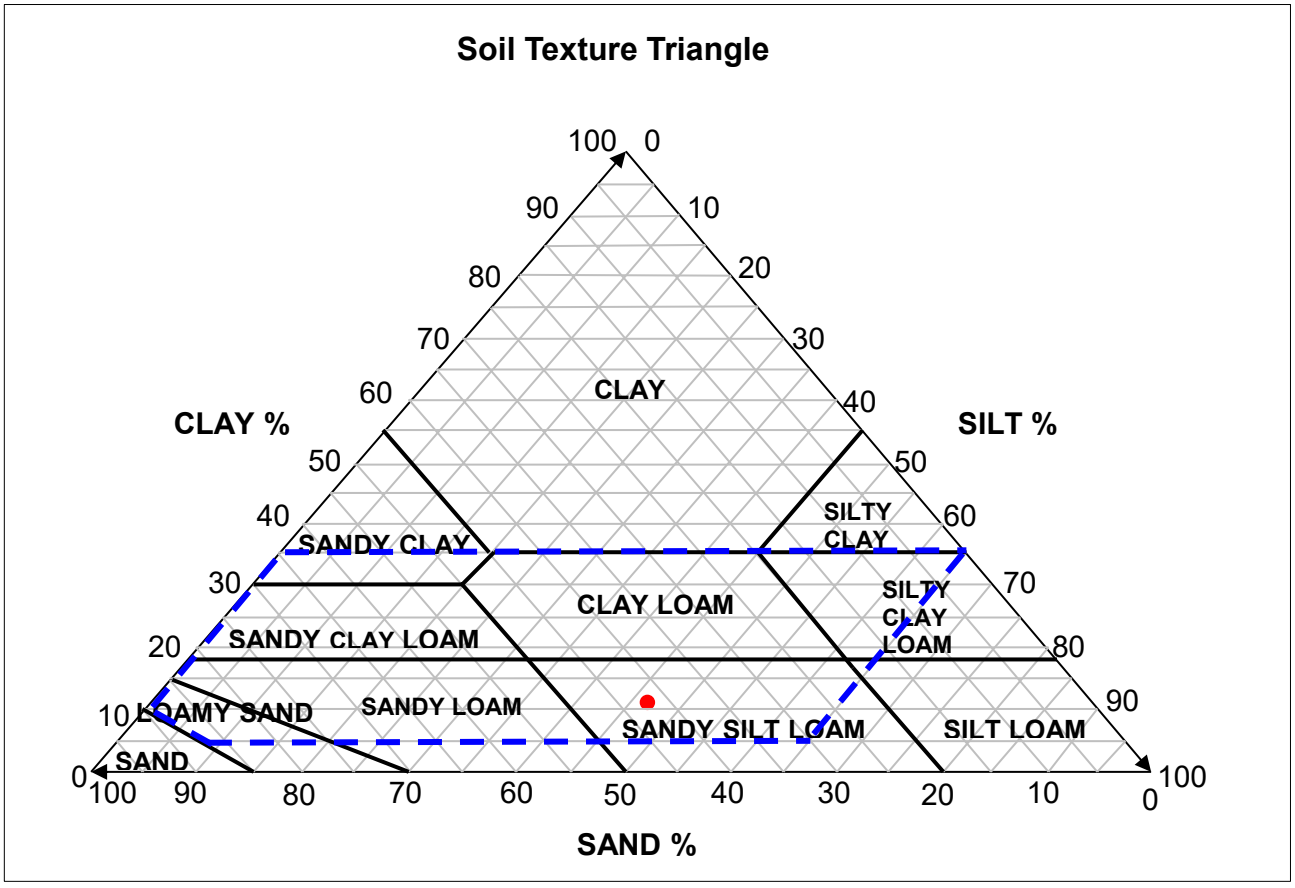
i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

Client:	Merebrook	Client Reference:	21949AV
Client Address:	First Floor, 1 Leonard Place, Westerham Road, Keston, BR2 6HQ	Job Number:	24-054006-1
		Date Sampled:	14/11/2024
		Date Received:	15/11/2024
Contact:	Nathan Dellow	Date Tested:	19/11/2024
Site Address:	Wickhurst Green	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	380197	Depth Top [m]:	0.00
Hole No.:	ES1	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	ES
Sample Description:	SANDY SILT LOAM		



Sample Proportion	% dry mass
Sand	42.5
Silt	45.3
Clay	12.2

Texture within acceptable area (Y/N) Y

Remarks:

Signed: [redacted]

Katarzyna Koziel
Geotechnical Reporting Team Leader
for and on behalf of i2 Analytical Ltd

Date Reported: 21/11/2024

GF 286.11

TEST CERTIFICATE

SPECIFICATION FOR TOPSOIL
In-house method based on: BS 3882: 2015

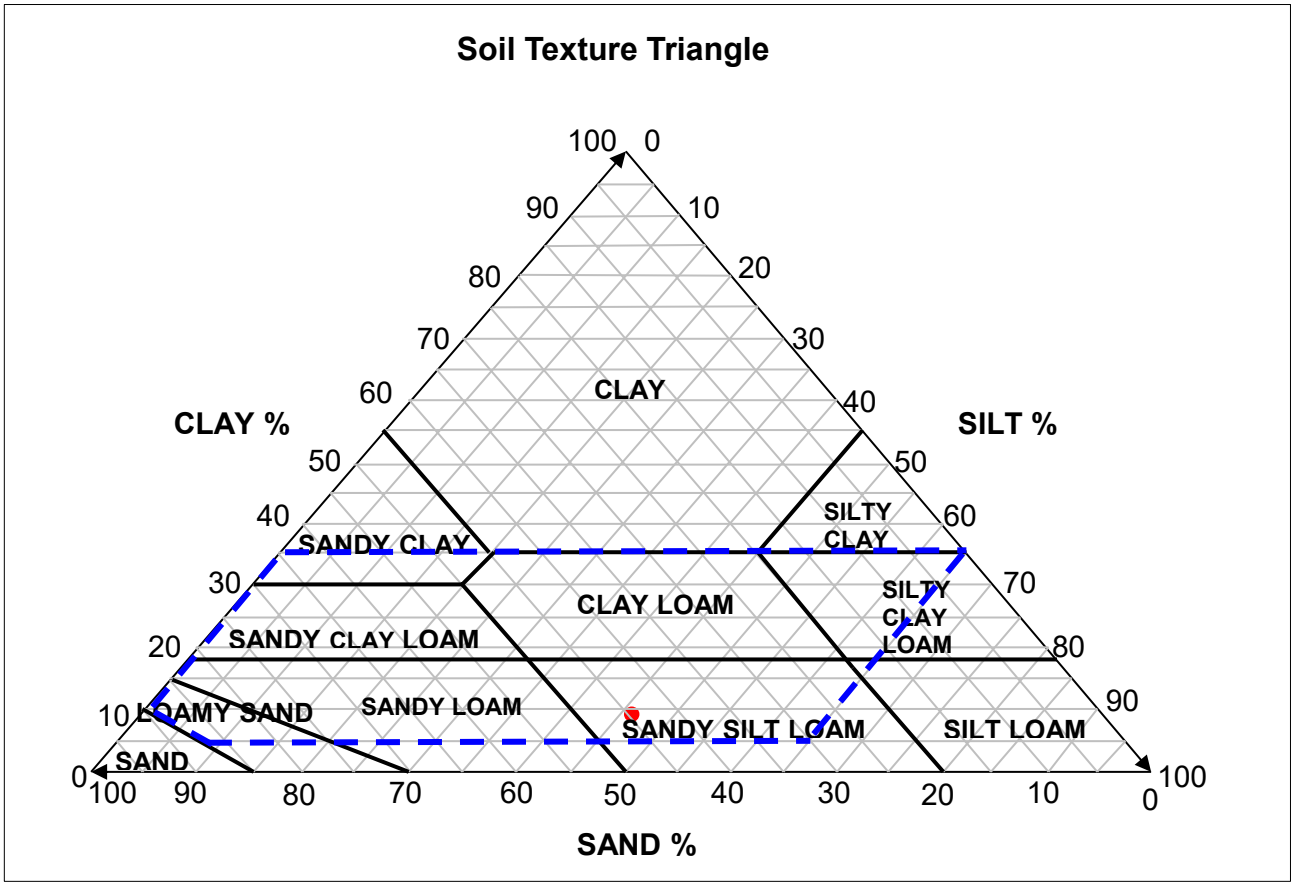
i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

Client:	Merebrook	Client Reference:	21949AV
Client Address:	First Floor, 1 Leonard Place, Westerham Road, Keston, BR2 6HQ	Job Number:	24-054006-1
		Date Sampled:	14/11/2024
		Date Received:	15/11/2024
Contact:	Nathan Dellow	Date Tested:	19/11/2024
Site Address:	Wickhurst Green	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	380198	Depth Top [m]:	0.00
Hole No.:	ES2	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	ES
Sample Description:	SANDY SILT LOAM		



Sample Proportion	% dry mass
Sand	44.9
Silt	44.8
Clay	10.3

Texture within acceptable area (Y/N) Y

Remarks:

Signed: [redacted]

Katarzyna Koziel
Geotechnical Reporting Team Leader
for and on behalf of i2 Analytical Ltd

Date Reported: 21/11/2024

GF 286.11

TEST CERTIFICATE

SPECIFICATION FOR TOPSOIL
In-house method based on: BS 3882: 2015

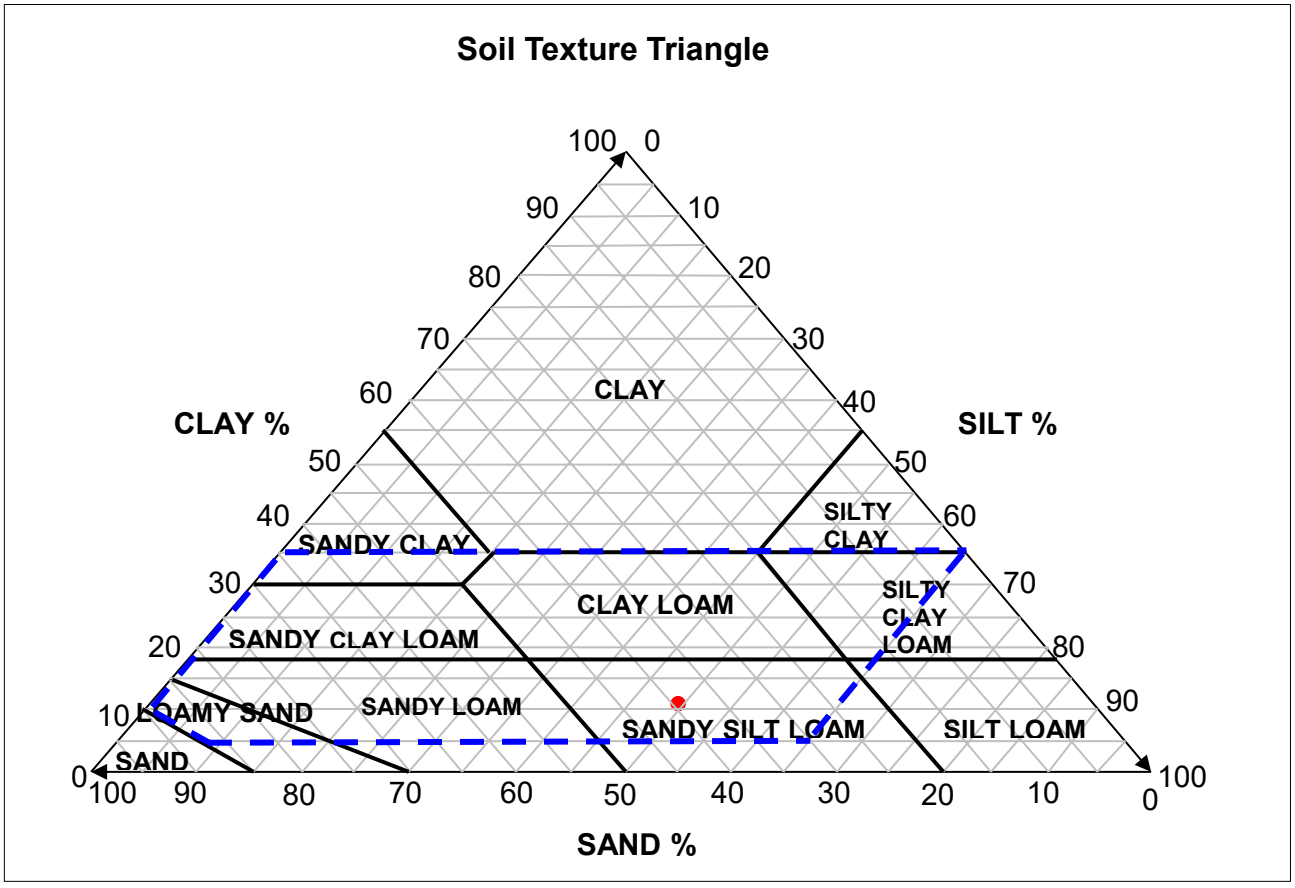
i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

Client:	Merebrook	Client Reference:	21949AV
Client Address:	First Floor, 1 Leonard Place, Westerham Road, Keston, BR2 6HQ	Job Number:	24-054006-1
		Date Sampled:	14/11/2024
		Date Received:	15/11/2024
Contact:	Nathan Dellow	Date Tested:	19/11/2024
Site Address:	Wickhurst Green	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	380199	Depth Top [m]:	0.00
Hole No.:	ES3	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	ES
Sample Description:	SANDY SILT LOAM		



Sample Proportion	% dry mass
Sand	39.7
Silt	48.3
Clay	12.0

Texture within acceptable area (Y/N) Y

Remarks:

Signed: [redacted]

Katarzyna Koziel
Geotechnical Reporting Team Leader
for and on behalf of i2 Analytical Ltd

Date Reported: 21/11/2024

GF 286.11

APPENDIX 4 ▪ Geotechnical Laboratory Certificates

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS EN ISO 17892-12:2018+A2:2022, cl 5.3 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022, cl 5.2 and 6

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Client:	Merebrook	Client Reference:	21949AV
Client Address:	First Floor, 1 Leonard Place, Westerham Road, Keston, BR2 6HQ	Job Number:	24-051115-1
		Date Sampled:	18/10/2024
		Date Received:	29/10/2024
Contact:	Tim Stempt	Date Tested:	06/11/2024
Site Address:	Not Given	Sampled By:	Client - Tim Stempt

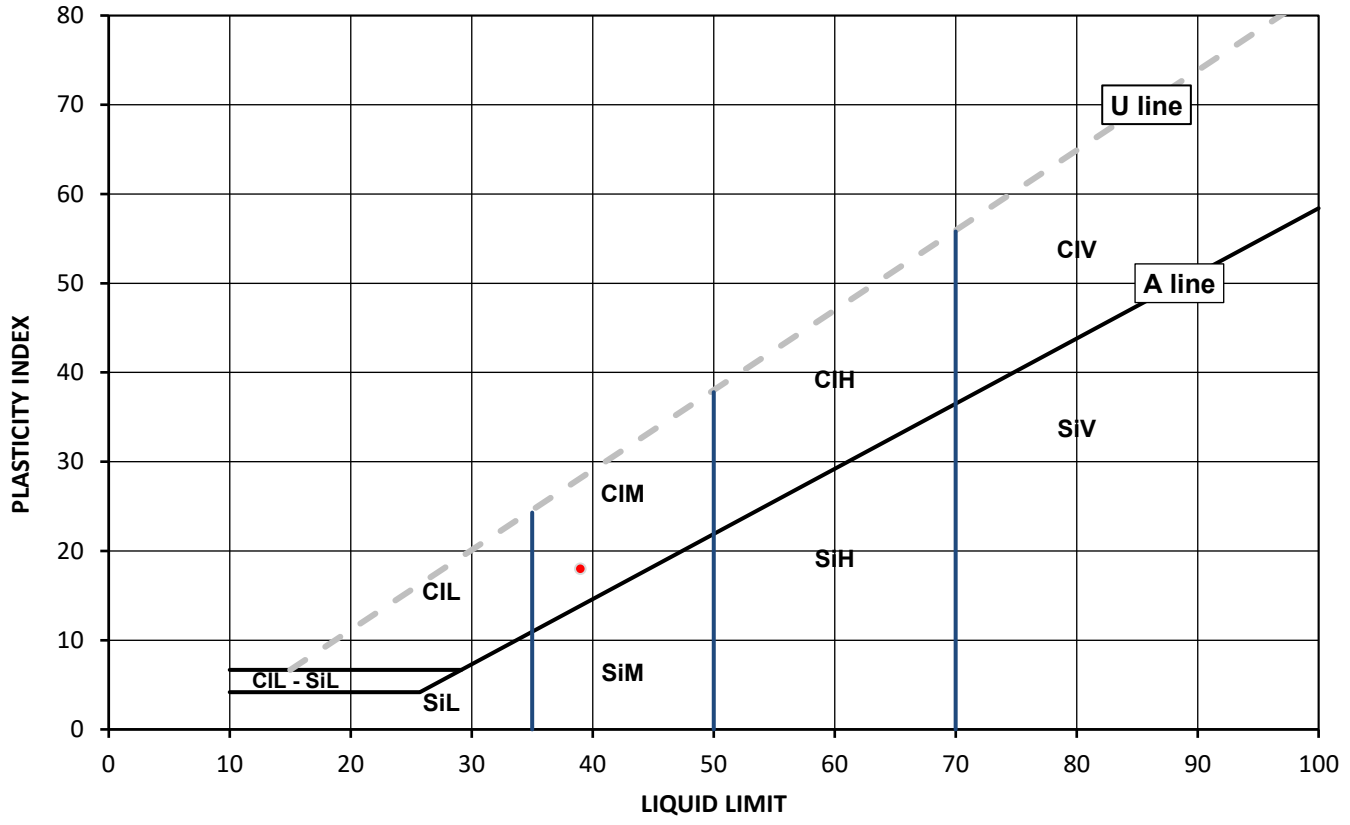
Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	365445	Depth Top [m]:	1.20
Hole No.:	MWS101	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Light brown slightly gravelly sandy CLAY		

Sample Preparation: Tested after >0.425mm removed by hand; The water content in the sample was increased
Cone Type: 80g/30deg

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
14.2	39	21	18	-0.39	1.39	98



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS EN ISO 17892-1:2014+A1:2022, BS 1377-2:2022; # Non accredited

Remarks:

Signed: [redacted]

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 18/11/2024

GF 337.14

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS EN ISO 17892-12:2018+A2:2022, cl 5.3 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022, cl 5.2 and 6

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

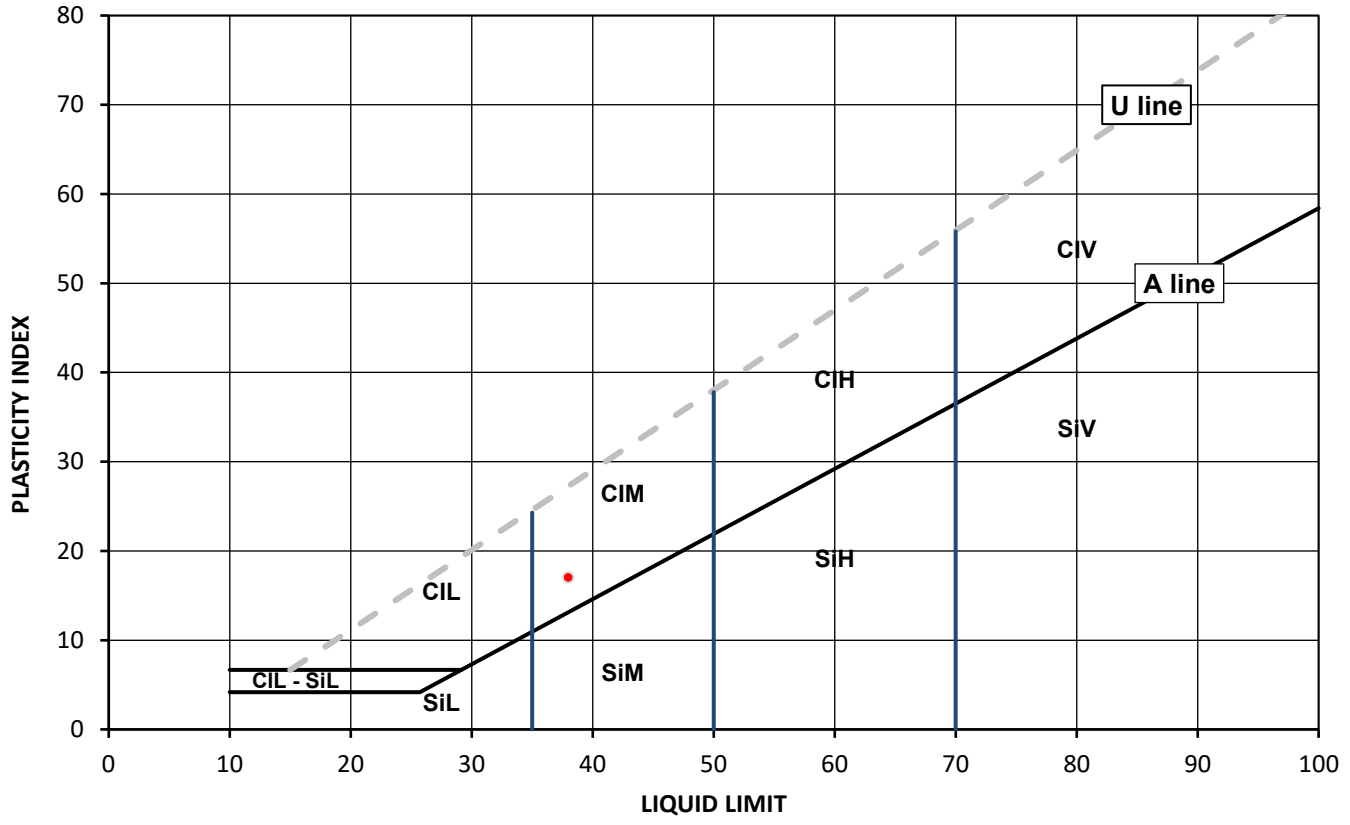
Client:	Merebrook	Client Reference:	21949AV
Client Address:	First Floor, 1 Leonard Place, Westerham Road, Keston, BR2 6HQ	Job Number:	24-051115-1
		Date Sampled:	18/10/2024
		Date Received:	29/10/2024
Contact:	Tim Stempt	Date Tested:	06/11/2024
Site Address:	Not Given	Sampled By:	Client - Tim Stempt

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	365446	Depth Top [m]:	0.80
Hole No.:	MWS102	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Yellowish brown slightly gravelly sandy CLAY		
Sample Preparation:	Tested after >0.425mm removed by hand; The water content in the sample was increased		
Cone Type:	80g/30deg		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
18.0	38	21	17	-0.18	1.18	96



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS EN ISO 17892-1:2014+A1:2022, BS 1377-2:2022; # Non accredited

Remarks:

Signed: [redacted]

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 18/11/2024

GF 337.14

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS EN ISO 17892-12:2018+A2:2022, cl 5.3 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022, cl 5.2 and 6

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

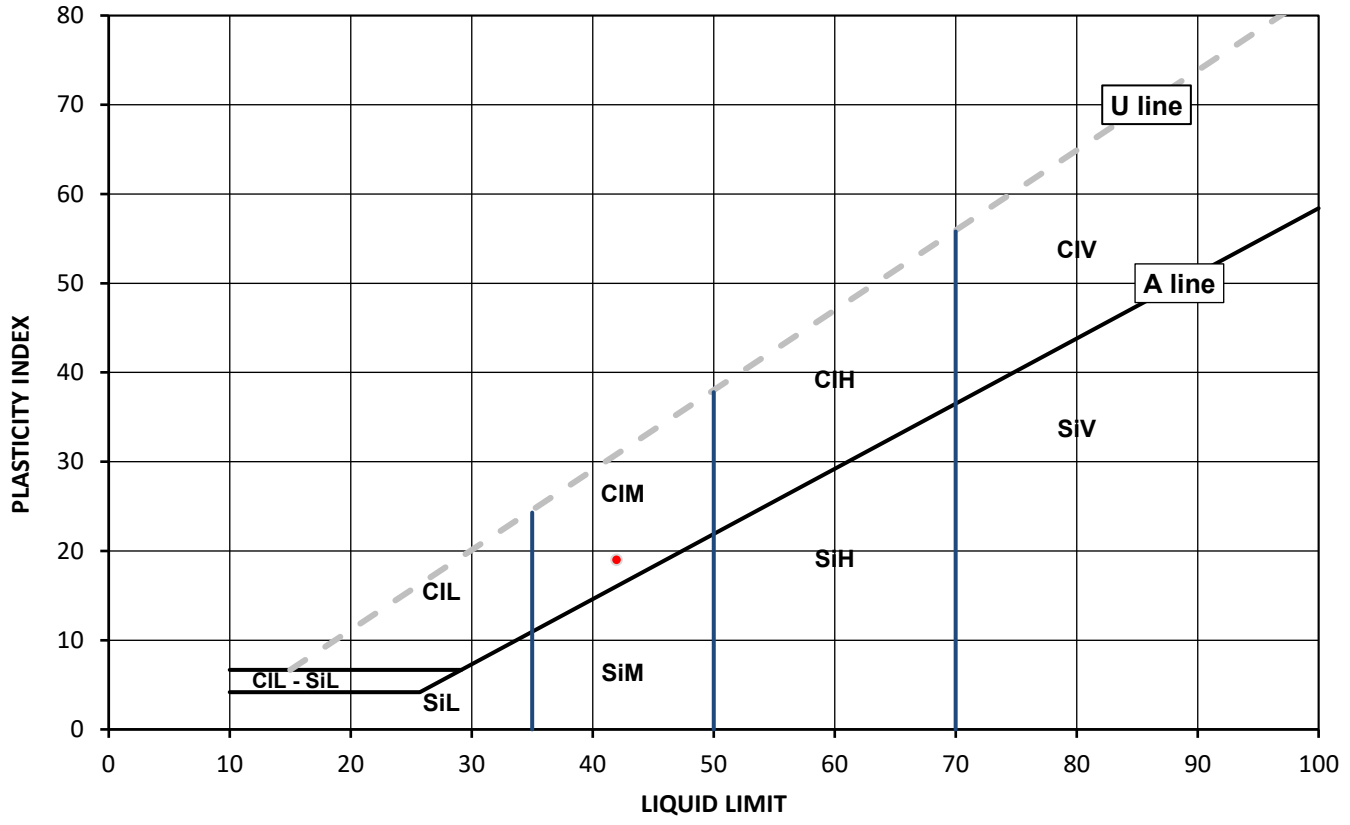
Client:	Merebrook	Client Reference:	21949AV
Client Address:	First Floor, 1 Leonard Place, Westerham Road, Keston, BR2 6HQ	Job Number:	24-051115-1
		Date Sampled:	18/10/2024
		Date Received:	29/10/2024
Contact:	Tim Stempt	Date Tested:	06/11/2024
Site Address:	Not Given	Sampled By:	Client - Tim Stempt

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	365447	Depth Top [m]:	2.00
Hole No.:	MWS102	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Light brown slightly gravelly sandy CLAY		
Sample Preparation:	Tested after >0.425mm removed by hand; The water content in the sample was increased		
Cone Type:	80g/30deg		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
15.8	42	23	19	-0.37	1.37	97



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS EN ISO 17892-1:2014+A1:2022, BS 1377-2:2022; # Non accredited

Remarks:

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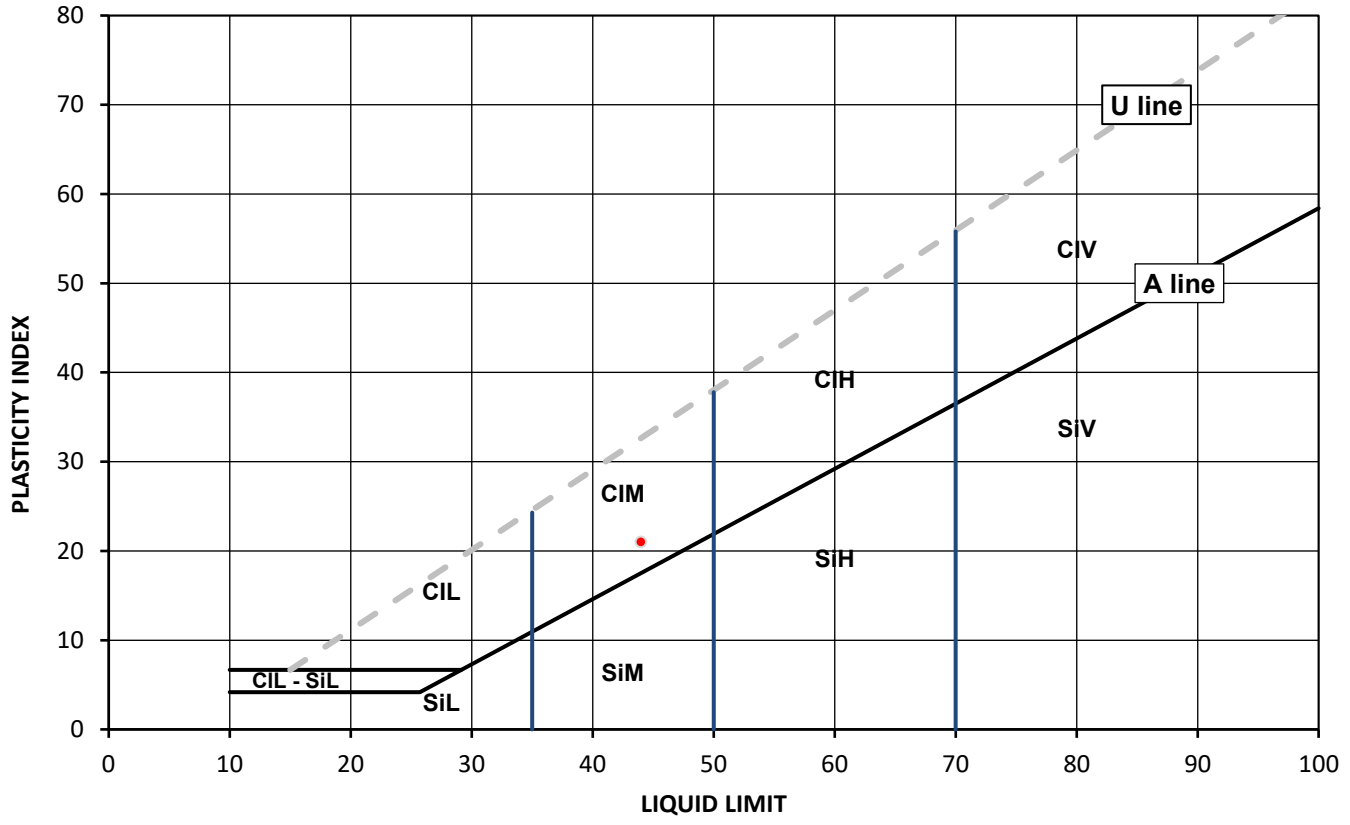
		Date Sampled:	18/10/2024
		Date Received:	29/10/2024
Contact:	Tim Stempt	Date Tested:	06/11/2024
Site Address:	Not Given	Sampled By:	Client - Tim Stempt

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	365448	Depth Top [m]:	1.50
Hole No.:	MWS103	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Brown slightly gravelly sandy CLAY		
Sample Preparation:	Tested after >0.425mm removed by hand; The water content in the sample was increased		
Cone Type:	80g/30deg		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
21.9	44	23	21	-0.05	1.05	92



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS EN ISO 17892-1:2014+A1:2022, BS 1377-2:2022; # Non accredited

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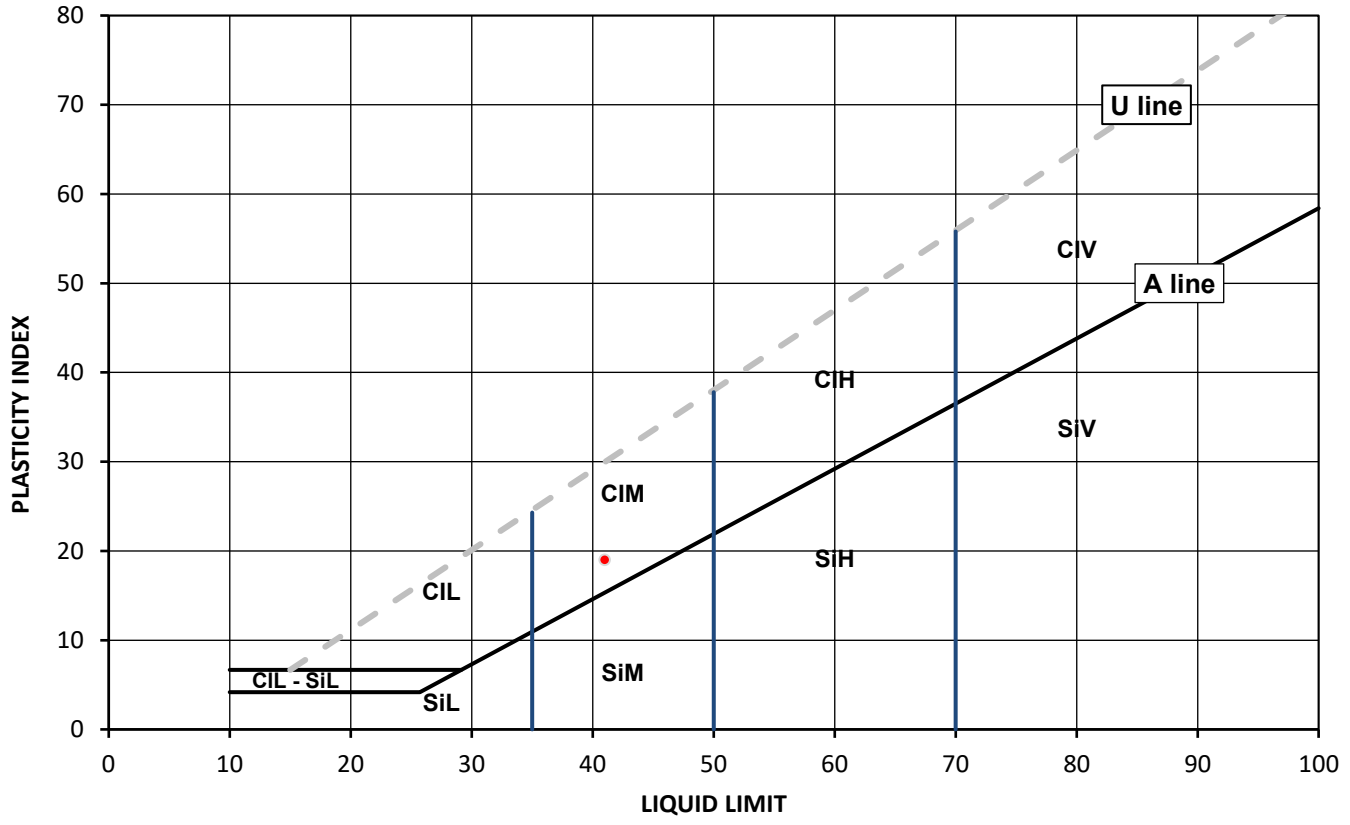
		Date Received:	29/10/2024
Contact:	Tim Stempt	Date Tested:	06/11/2024
Site Address:	Not Given	Sampled By:	Client - Tim Stempt

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	365449	Depth Top [m]:	0.50
Hole No.:	MWS104	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Yellowish brown slightly gravelly sandy CLAY		
Sample Preparation:	Tested after >0.425mm removed by hand; The water content in the sample was increased		
Cone Type:	80g/30deg		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
28.6	41	22	19	0.37	0.63	91



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS EN ISO 17892-1:2014+A1:2022, BS 1377-2:2022; # Non accredited

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		Date Sampled:	18/10/2024
		Date Received:	29/10/2024
Contact:	Tim Stempt	Date Tested:	06/11/2024
Site Address:	Not Given	Sampled By:	Client - Tim Stempt

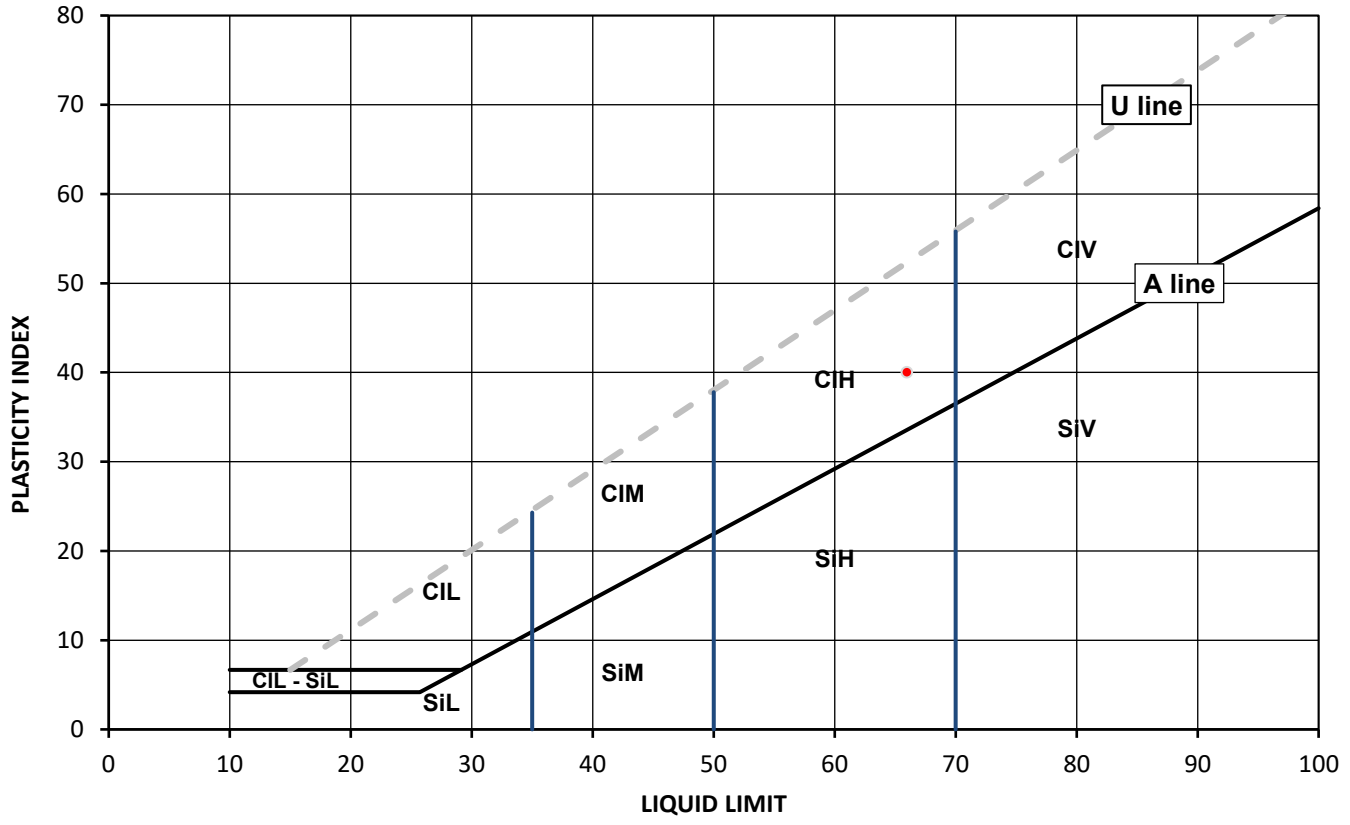
Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	365450	Depth Top [m]:	1.80
Hole No.:	MWS104	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Orangish brown slightly gravelly CLAY		

Sample Preparation: Tested after >0.425mm removed by hand; The water content in the sample was increased
Cone Type: 80g/30deg

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
24.1	66	26	40	-0.05	1.05	99



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS EN ISO 17892-1:2014+A1:2022, BS 1377-2:2022; # Non accredited

Remarks:

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Client Address:	First Floor, 1 Leonard Place, Westerham Road, Keston, BR2 6HQ	Job Number:	24-051115-1
		Date Sampled:	18/10/2024
		Date Received:	29/10/2024
Contact:	Tim Stempt	Date Tested:	06/11/2024
Site Address:	Not Given	Sampled By:	Client - Tim Stempt

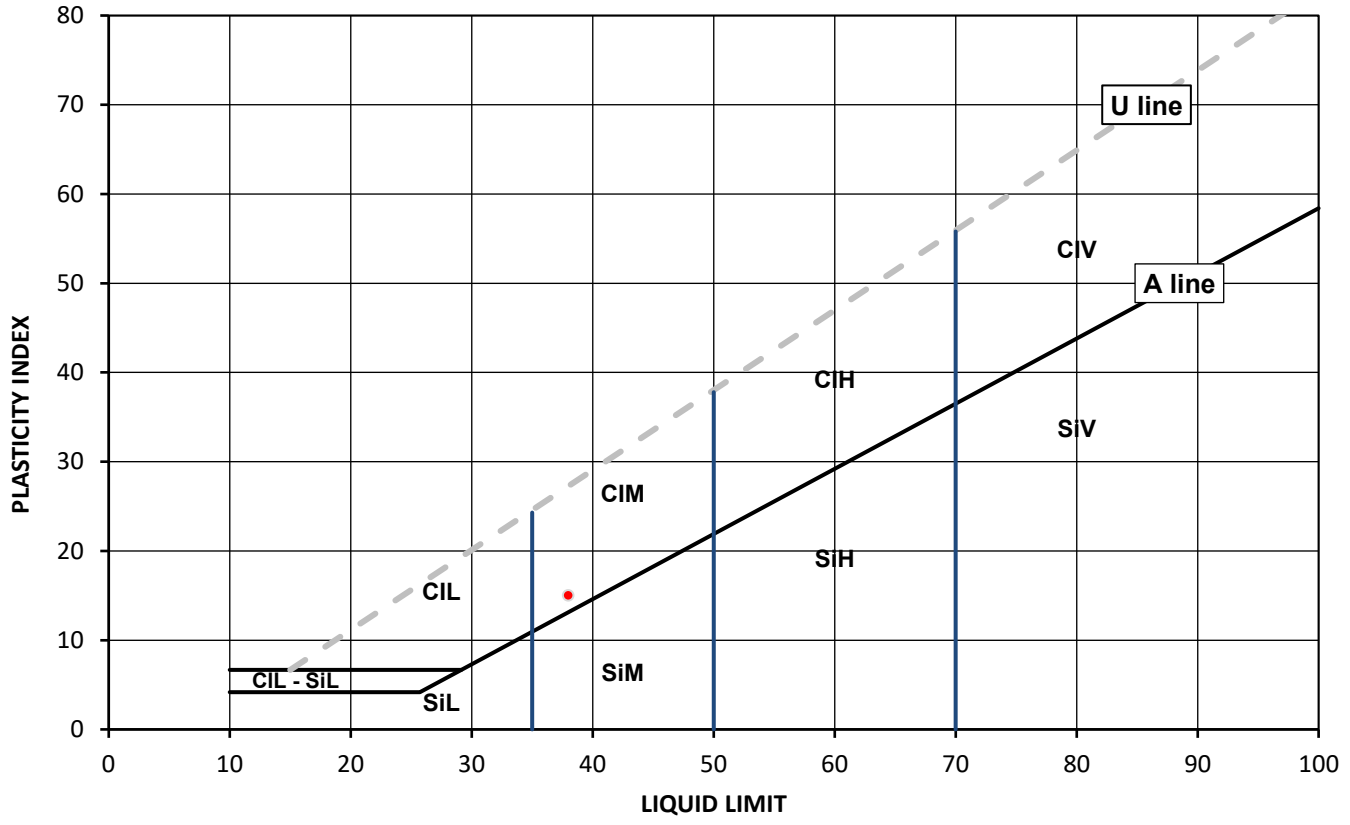
Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	365451	Depth Top [m]:	0.40
Hole No.:	MWS105	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Brown sandy CLAY		

Sample Preparation: Tested in natural condition; The water content in the sample was increased
Cone Type: 80g/30deg

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
22.9	38	23	15	0.00	1.00	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS EN ISO 17892-1:2014+A1:2022, BS 1377-2:2022; # Non accredited

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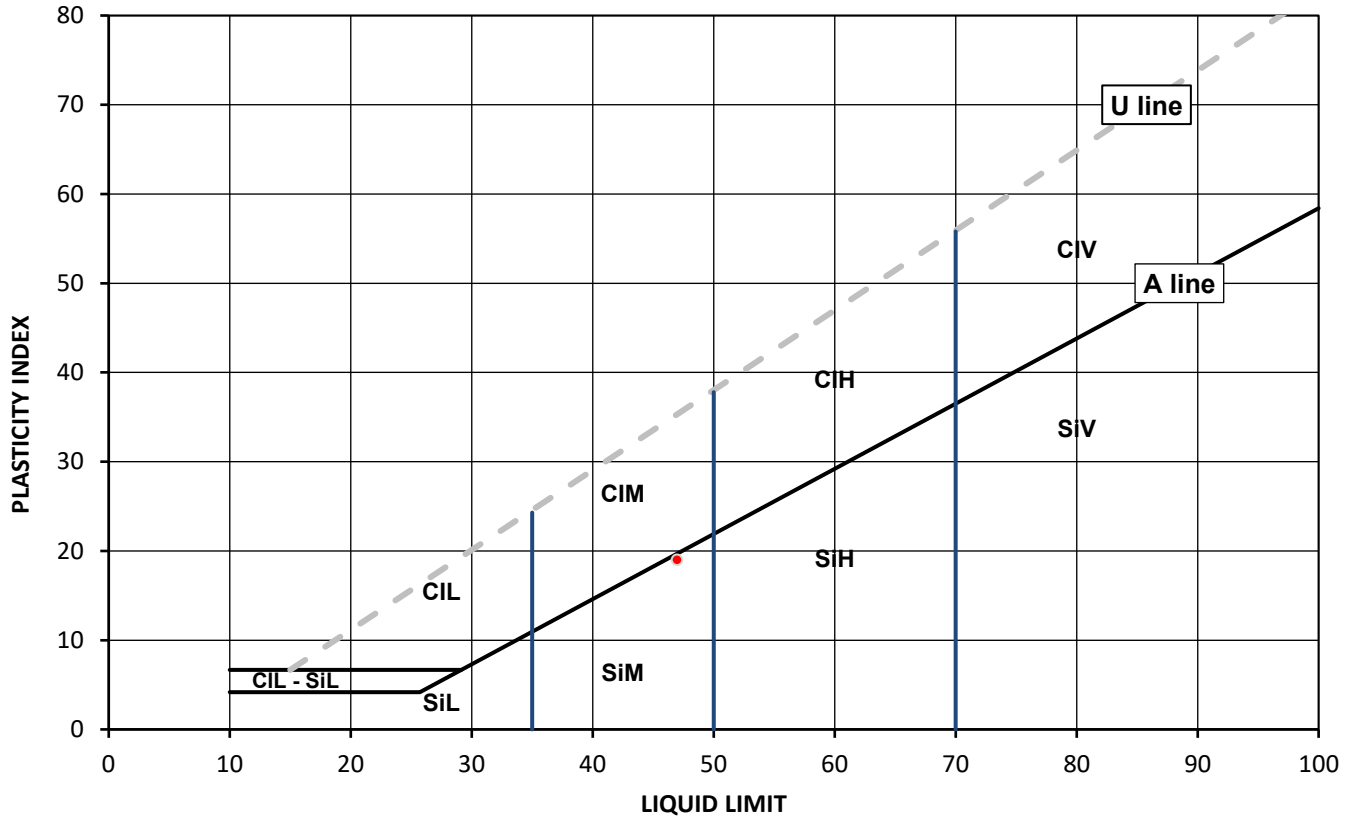
		Date Sampled:	18/10/2024
		Date Received:	29/10/2024
Contact:	Tim Stempt	Date Tested:	06/11/2024
Site Address:	Not Given	Sampled By:	Client - Tim Stempt

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	365452	Depth Top [m]:	0.20
Hole No.:	MWS106	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Brown slightly gravelly slightly sandy silty CLAY		
Sample Preparation:	Tested after >0.425mm removed by hand; The water content in the sample was increased		
Cone Type:	80g/30deg		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
29.1	47	28	19	0.05	0.95	98



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS EN ISO 17892-1:2014+A1:2022, BS 1377-2:2022; # Non accredited

Remarks:

Signed: [redacted]

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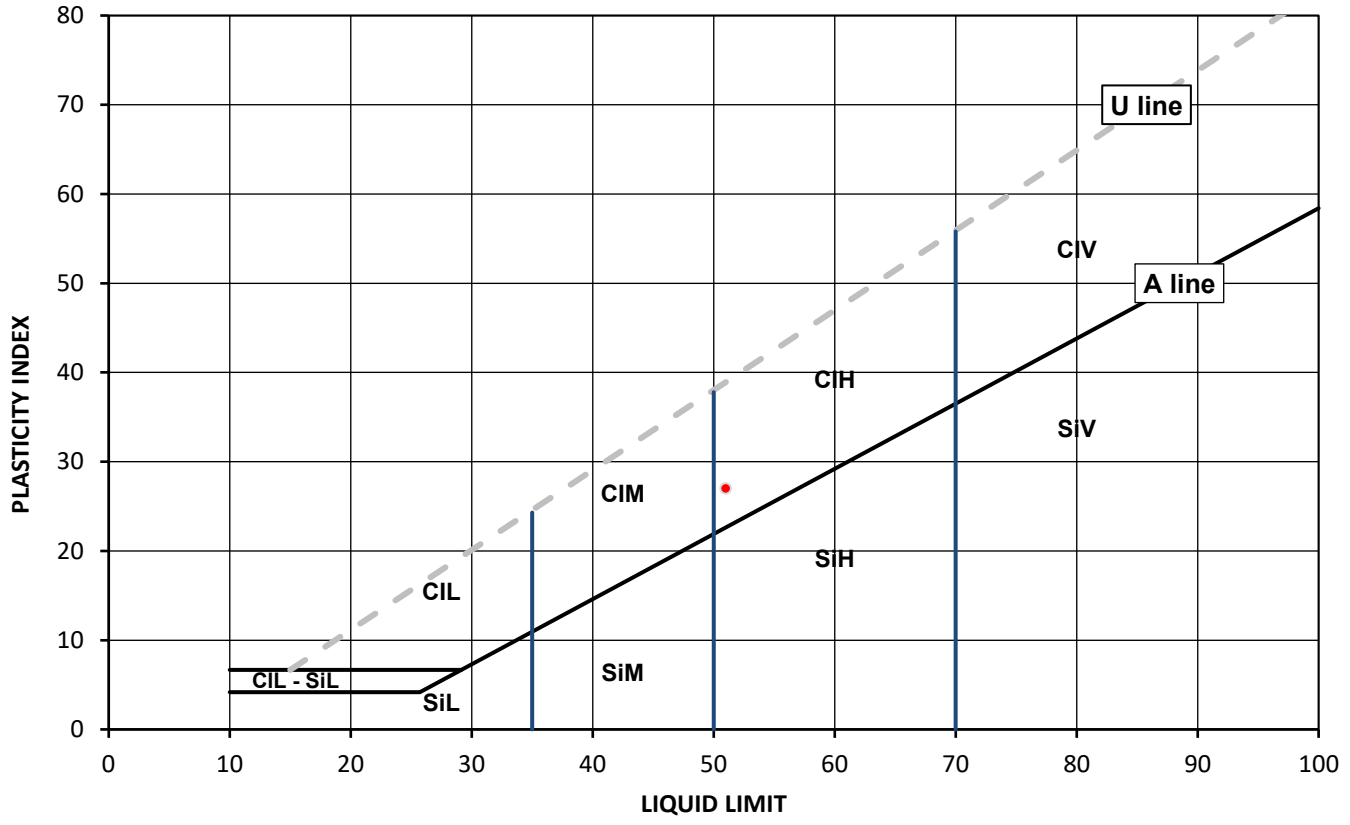
Client:	Merebrook	Client Reference:	21949AV
Client Address:	First Floor, 1 Leonard Place, Westerham Road, Keston, BR2 6HQ	Job Number:	24-051115-1
		Date Sampled:	18/10/2024
		Date Received:	29/10/2024
Contact:	Tim Stempt	Date Tested:	06/11/2024
Site Address:	Not Given	Sampled By:	Client - Tim Stempt

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	365453	Depth Top [m]:	1.50
Hole No.:	MWS106	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Brown slightly sandy CLAY		
Sample Preparation:	Tested in natural condition; The water content in the sample was increased		
Cone Type:	80g/30deg		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
29.4	51	24	27	0.19	0.81	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS EN ISO 17892-1:2014+A1:2022, BS 1377-2:2022; # Non accredited

Remarks:

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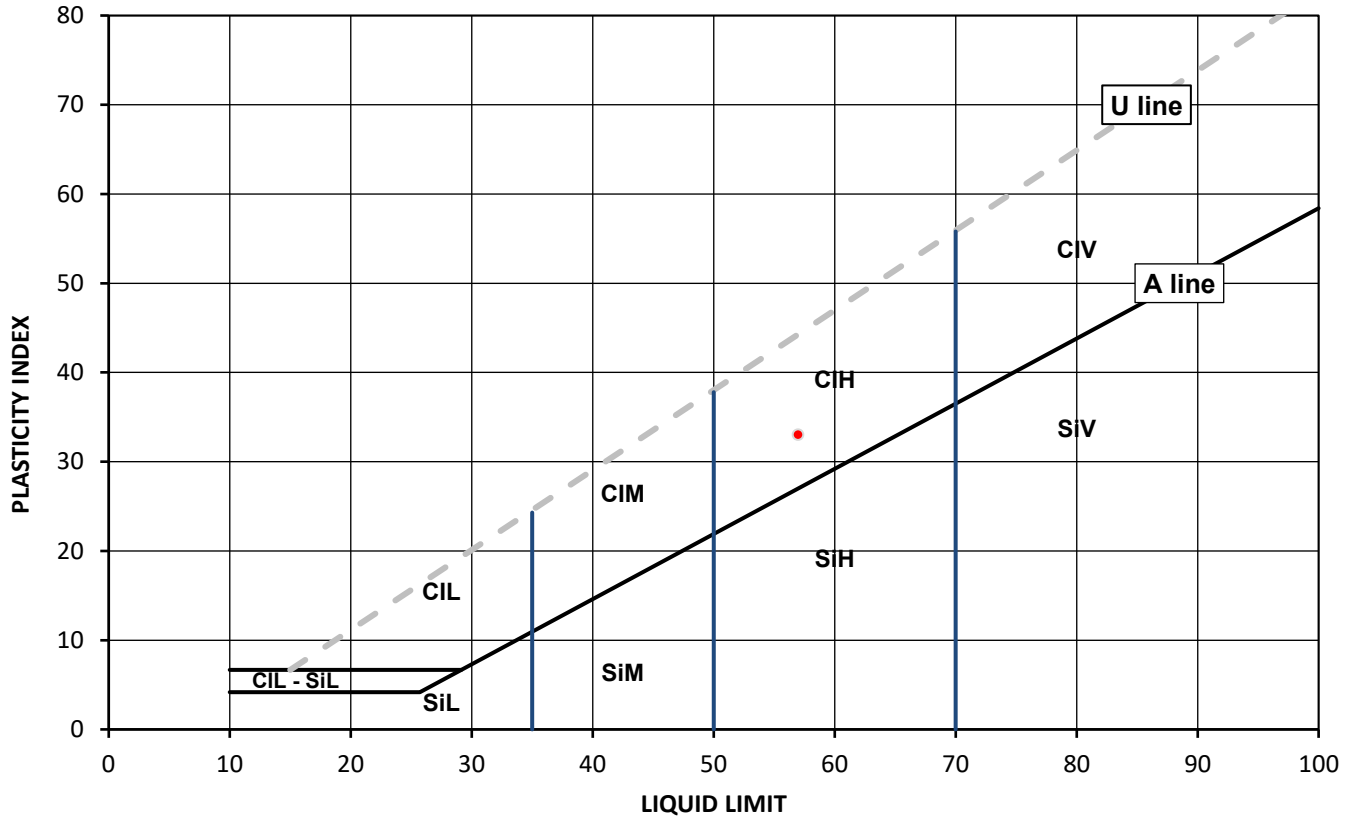
		Date Sampled:	18/10/2024
		Date Received:	29/10/2024
Contact:	Tim Stempt	Date Tested:	06/11/2024
Site Address:	Not Given	Sampled By:	Client - Tim Stempt

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	365454	Depth Top [m]:	1.50
Hole No.:	MWS107	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Brown slightly gravelly slightly sandy CLAY		
Sample Preparation:	Tested after >0.425mm removed by hand; The water content in the sample was increased		
Cone Type:	80g/30deg		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
20.9	57	24	33	-0.09	1.09	71



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS EN ISO 17892-1:2014+A1:2022, BS 1377-2:2022; # Non accredited

Remarks:

Signed: [redacted]

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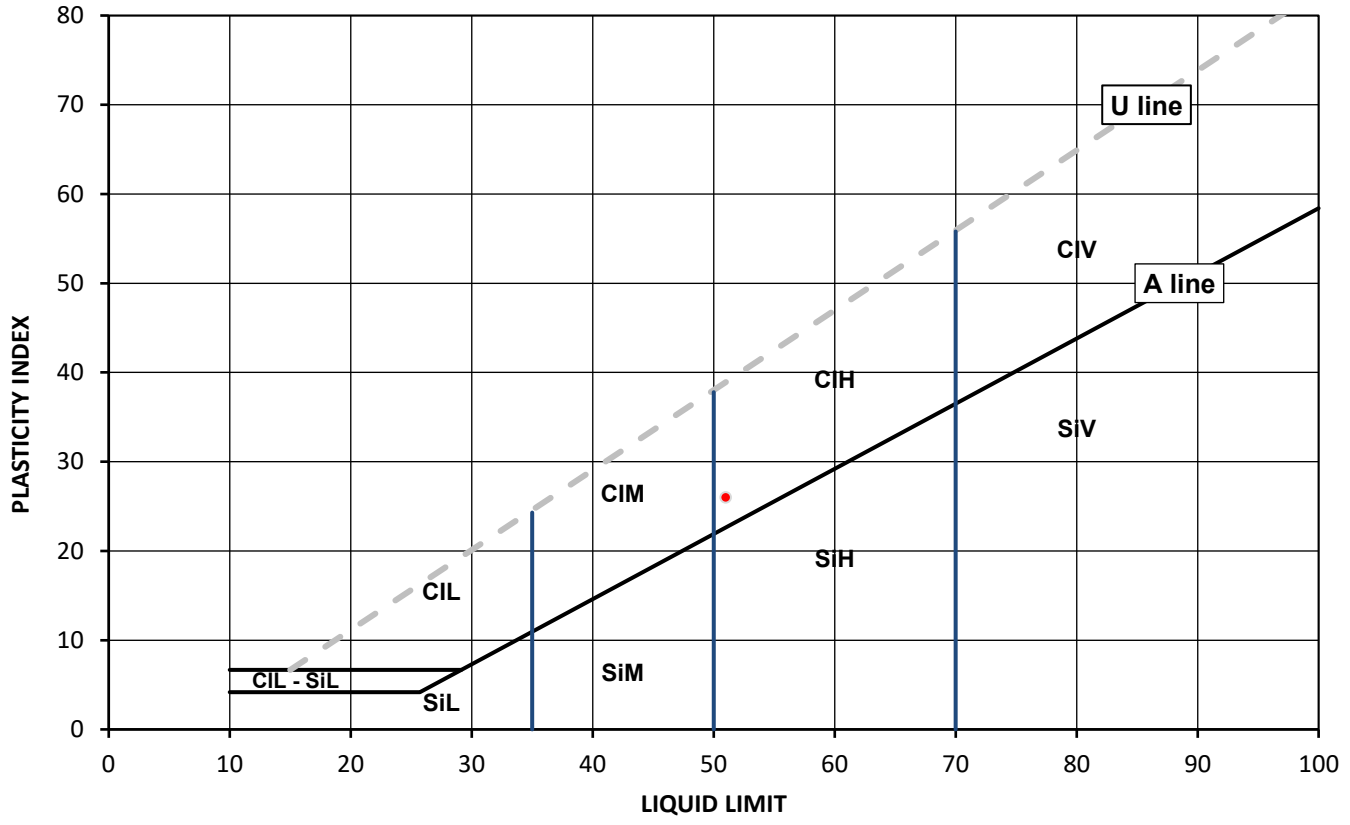
Client:	Merebrook	Client Reference:	21949AV
Client Address:	First Floor, 1 Leonard Place, Westerham Road, Keston, BR2 6HQ	Job Number:	24-051115-1
		Date Sampled:	18/10/2024
		Date Received:	29/10/2024
Contact:	Tim Stempt	Date Tested:	06/11/2024
Site Address:	Not Given	Sampled By:	Client - Tim Stempt

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	365455	Depth Top [m]:	0.50
Hole No.:	MWS108	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Yellowish brown slightly sandy CLAY		
Sample Preparation:	Tested in natural condition; The water content in the sample was increased		
Cone Type:	80g/30deg		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
23.4	51	25	26	-0.08	1.08	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS EN ISO 17892-1:2014+A1:2022, BS 1377-2:2022; # Non accredited

Remarks:

Signed: [redacted]

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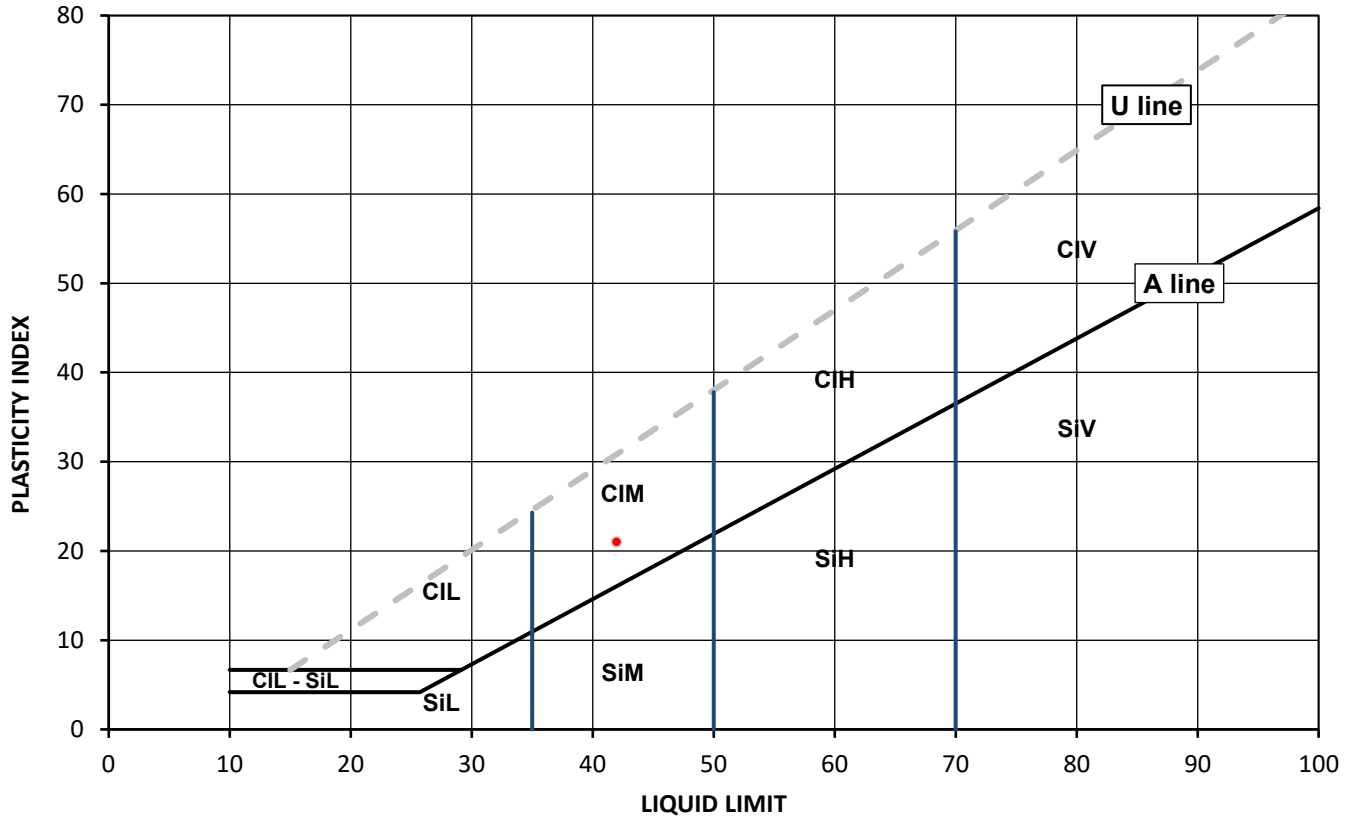
		Date Sampled:	18/10/2024
		Date Received:	29/10/2024
Contact:	Tim Stempt	Date Tested:	06/11/2024
Site Address:	Not Given	Sampled By:	Client - Tim Stempt

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	365456	Depth Top [m]:	1.50
Hole No.:	MWS108	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Yellowish brown sandy CLAY		
Sample Preparation:	Tested in natural condition; The water content in the sample was increased		
Cone Type:	80g/30deg		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
15.0	42	21	21	-0.29	1.29	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS EN ISO 17892-1:2014+A1:2022, BS 1377-2:2022; # Non accredited

Remarks:

Signed: [redacted]

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 18/11/2024

GF 337.14

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS EN ISO 17892-12:2018+A2:2022, cl 5.3 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022, cl 5.2 and 6

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

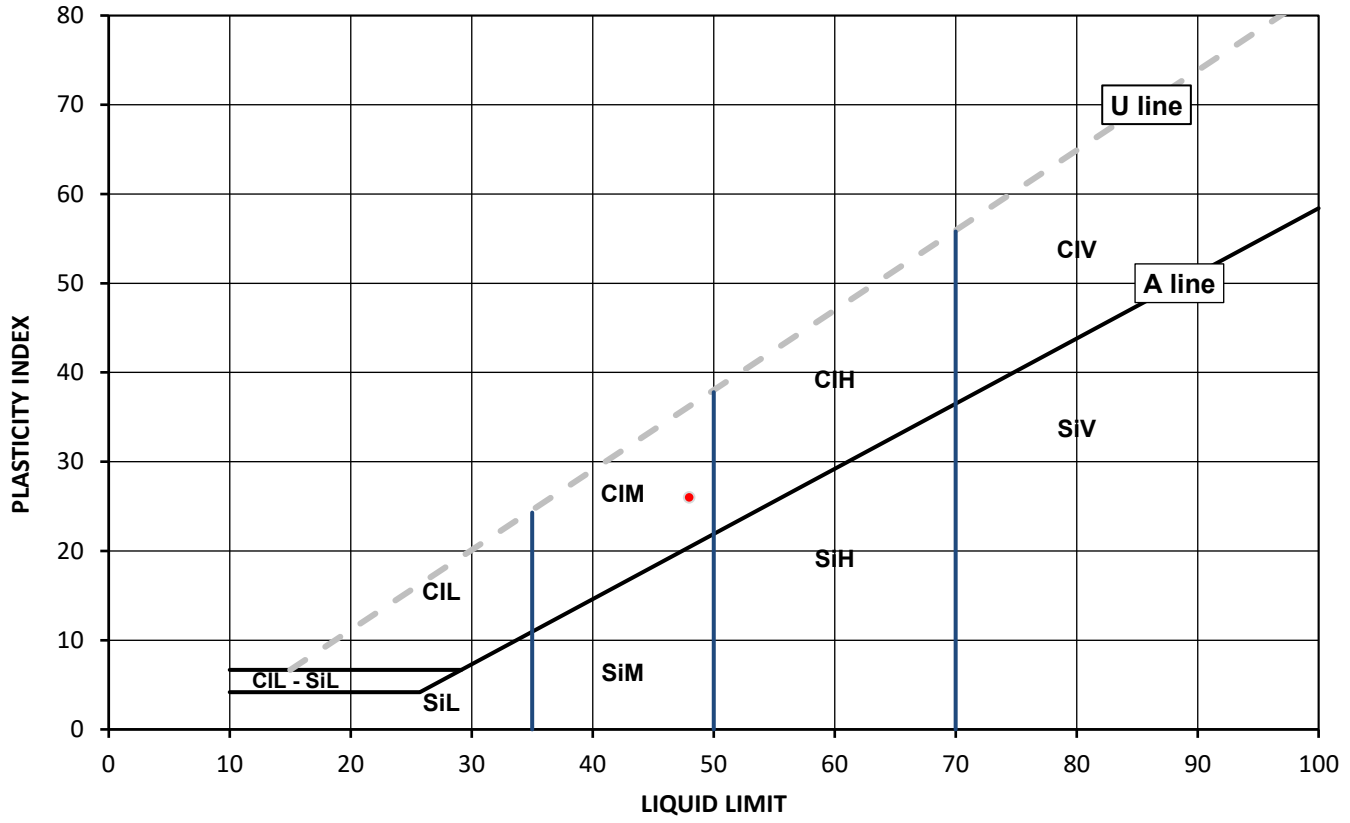
Client:	Merebrook	Client Reference:	21949AV
Client Address:	First Floor, 1 Leonard Place, Westerham Road, Keston, BR2 6HQ	Job Number:	24-051115-1
		Date Sampled:	18/10/2024
		Date Received:	29/10/2024
Contact:	Tim Stempt	Date Tested:	06/11/2024
Site Address:	Not Given	Sampled By:	Client - Tim Stempt

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	365457	Depth Top [m]:	2.50
Hole No.:	MWS108	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Brownish grey slightly sandy CLAY		
Sample Preparation:	Tested in natural condition; The water content in the sample was increased		
Cone Type:	80g/30deg		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
12.3	48	22	26	-0.38	1.38	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS EN ISO 17892-1:2014+A1:2022, BS 1377-2:2022; # Non accredited

Remarks:

Signed: [redacted]

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 18/11/2024

GF 337.14

SUMMARY REPORT

SUMMARY OF CLASSIFICATION TEST RESULTS

Tested in Accordance with:

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Client: Merebrook

Client Address: First Floor, 1 Leonard Place, Westerham Road, Keston, BR2 6HQ

Contact: Tim Stempt

Site Address: Not Given

BS EN ISO 17892-12:2018+A2:2022 cl 5.3 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022, cl 5.2 and 6. W by BS EN ISO 17892-1:2014+A1:2022.

Client Reference: 21949AV
Job Number: 24-051115-1
Date Sampled: 18/10/2024
Date Received: 29/10/2024
Date Tested: 06/11/2024
Sampled By: Client - Tim Stempt

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	W	Liquid & Plastic Limit							Density		
		Reference	Depth Top m	Depth Base m	Type			%	% Passing 425um %	WL* %	Correlation Factor	Wp %	Ip %	Cone type	Sample Preparation	bulk Mg/m3	dry Mg/m3	PD Mg/m3
365445	MWS101	Not Given	1.20	Not Given	D	Light brown slightly gravelly sandy CLAY	Atterberg 4 Point	14.2	98	39	-	21	18	80g/30 deg	R / I			
365446	MWS102	Not Given	0.80	Not Given	D	Yellowish brown slightly gravelly sandy CLAY	Atterberg 4 Point	18.0	96	38	-	21	17	80g/30 deg	R / I			
365447	MWS102	Not Given	2.00	Not Given	D	Light brown slightly gravelly sandy CLAY	Atterberg 4 Point	15.8	97	42	-	23	19	80g/30 deg	R / I			
365448	MWS103	Not Given	1.50	Not Given	D	Brown slightly gravelly sandy CLAY	Atterberg 4 Point	21.9	92	44	-	23	21	80g/30 deg	R / I			
365449	MWS104	Not Given	0.50	Not Given	D	Yellowish brown slightly gravelly sandy CLAY	Atterberg 4 Point	28.6	91	41	-	22	19	80g/30 deg	R / I			
365450	MWS104	Not Given	1.80	Not Given	D	Orangish brown slightly gravelly CLAY	Atterberg 4 Point	24.1	99	66	-	26	40	80g/30 deg	R / I			
365451	MWS105	Not Given	0.40	Not Given	D	Brown sandy CLAY	Atterberg 4 Point	22.9	100	38	-	23	15	80g/30 deg	N / I			
365452	MWS106	Not Given	0.20	Not Given	D	Brown slightly gravelly slightly sandy silty CLAY	Atterberg 4 Point	29.1	98	47	-	28	19	80g/30 deg	R / I			
365453	MWS106	Not Given	1.50	Not Given	D	Brown slightly sandy CLAY	Atterberg 4 Point	29.4	100	51	-	24	27	80g/30 deg	N / I			
365454	MWS107	Not Given	1.50	Not Given	D	Brown slightly gravelly slightly sandy CLAY	Atterberg 4 Point	20.9	71	57	-	24	33	80g/30 deg	R / I			

Note: # Non accredited; NP - Non plastic; N - Tested in natural condition, R - Tested after >0,425mm removed by hand, WR - Tested after washing to remove >425mm; I - The water content in the sample was increased , D - The water content in the sample was decreased; * - One point liquid limit corrected as per the report Correlation Factor by Clayton C.R.I and Jukes A.W (1978)

Comments:

Signed: [redacted]

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 18/11/2024 **GF 362.16**

SUMMARY REPORT

SUMMARY OF CLASSIFICATION TEST RESULTS

Tested in Accordance with:

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Client: Merebrook

Client Address: First Floor, 1 Leonard Place, Westerham Road, Keston, BR2 6HQ

Contact: Tim Stempt

Site Address: Not Given

BS EN ISO 17892-12:2018+A2:2022 cl 5.3 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022, cl 5.2 and 6. W by BS EN ISO 17892-1:2014+A1:2022.

Client Reference: 21949AV
Job Number: 24-051115-1
Date Sampled: 18/10/2024
Date Received: 29/10/2024
Date Tested: 06/11/2024
Sampled By: Client - Tim Stempt

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	W	Liquid & Plastic Limit							Density		
		Reference	Depth Top m	Depth Base m	Type			%	% Passing 425um %	WL* %	Correlation Factor	Wp %	Ip %	Cone type	Sample Preparation	bulk Mg/m3	dry Mg/m3	PD Mg/m3
365455	MWS108	Not Given	0.50	Not Given	D	Yellowish brown slightly sandy CLAY	Atterberg 4 Point	23.4	100	51	-	25	26	80g/30 deg	N / I			
365456	MWS108	Not Given	1.50	Not Given	D	Yellowish brown sandy CLAY	Atterberg 4 Point	15.0	100	42	-	21	21	80g/30 deg	N / I			
365457	MWS108	Not Given	2.50	Not Given	D	Brownish grey slightly sandy CLAY	Atterberg 4 Point	12.3	100	48	-	22	26	80g/30 deg	N / I			

Note: # Non accredited; NP - Non plastic; N - Tested in natural condition, R - Tested after >0,425mm removed by hand, WR - Tested after washing to remove >425mm; I - The water content in the sample was increased , D - The water content in the sample was decreased; * - One point liquid limit corrected as per the report Correlation Factor by Clayton C.R.I and Jukes A.W (1978)

Comments:

Signed: [redacted]

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 18/11/2024 **GF 362.16**

SUMMARY REPORT

DETERMINATION OF WATER CONTENT

Tested in Accordance with: BS EN ISO 17892-1:2014+A1:2022, BS 1377-2: 2022, clause 4.1

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Client: Merebrook

Client Address: First Floor, 1 Leonard Place,
Westerham Road, Keston,
BR2 6HQ

Contact: Tim Stempt

Site Address: Not Given

Client Reference: 21949AV
Job Number: 24-051115-1
Date Sampled: 18/10/2024
Date Received: 29/10/2024
Date Tested: 06/11/2024
Sampled By: Client - Tim Stempt

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	WC											
		Reference	Depth Top m	Depth Base m	Type			%											
365445	MWS101	Not Given	1.20	Not Given	D	Light brown slightly gravelly sandy CLAY		14.2											
365446	MWS102	Not Given	0.80	Not Given	D	Yellowish brown slightly gravelly sandy CLAY		18.0											
365447	MWS102	Not Given	2.00	Not Given	D	Light brown slightly gravelly sandy CLAY		15.8											
365448	MWS103	Not Given	1.50	Not Given	D	Brown slightly gravelly sandy CLAY		21.9											
365449	MWS104	Not Given	0.50	Not Given	D	Yellowish brown slightly gravelly sandy CLAY		28.6											
365450	MWS104	Not Given	1.80	Not Given	D	Orangish brown slightly gravelly CLAY		24.1											
365451	MWS105	Not Given	0.40	Not Given	D	Brown sandy CLAY		22.9											
365452	MWS106	Not Given	0.20	Not Given	D	Brown slightly gravelly slightly sandy silty CLAY		29.1											
365453	MWS106	Not Given	1.50	Not Given	D	Brown slightly sandy CLAY		29.4											
365454	MWS107	Not Given	1.50	Not Given	D	Brown slightly gravelly slightly sandy CLAY		20.9											

Comments:

Signed: [redacted]

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 18/11/2024

GF 126.18

SUMMARY REPORT

DETERMINATION OF WATER CONTENT

Tested in Accordance with: BS EN ISO 17892-1:2014+A1:2022, BS 1377-2: 2022, clause 4.1

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Client: Merebrook

Client Address: First Floor, 1 Leonard Place,
Westerham Road, Keston,
BR2 6HQ

Contact: Tim Stempt

Site Address: Not Given

Client Reference: 21949AV
Job Number: 24-051115-1
Date Sampled: 18/10/2024
Date Received: 29/10/2024
Date Tested: 06/11/2024
Sampled By: Client - Tim Stempt

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	WC											
		Reference	Depth Top m	Depth Base m	Type			%											
365455	MWS108	Not Given	0.50	Not Given	D	Yellowish brown slightly sandy CLAY		23.4											
365456	MWS108	Not Given	1.50	Not Given	D	Yellowish brown sandy CLAY		15.0											
365457	MWS108	Not Given	2.50	Not Given	D	Brownish grey slightly sandy CLAY		12.3											

Comments:

Signed: [redacted]

Monika Siewior
Reporting Specialist
for and on behalf of i2 Analytical Ltd

Date Reported: 18/11/2024

Merebrook
First Floor
1 Leonard Place
Westerham Road
Keston
BR2 6HQ

t: 01689 889980

e: coliveira@idom.com
tstempt@idom.com

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

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

Analytical Report Number : 24-051118

Project / Site name:		**Samples received on:**	29/10/2024
Your job number:	21949AV	**Samples instructed on/ Analysis started on:**	31/10/2024
Your order number:	24 2 FDO LABS	**Analysis completed by:**	07/11/2024
Report Issue Number:	1	**Report issued on:**	08/11/2024
Samples Analysed:	5 soil samples		

Signed:

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

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

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

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

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

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

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

Analytical Report Number: 24-051118

Your Order No: 24 2 FDO LABS

Lab Sample Number				365462	365463	365464	365465	365466
Sample Reference				MWS101	MWS103	MWS105	MWS107	MWS107
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.70	2.50	1.00	0.50	2.40
Date Sampled				18/10/2024	18/10/2024	18/10/2024	18/10/2024	18/10/2024
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	17	15	18	19	11
Total mass of sample received	kg	0.1	NONE	0.6	0.9	0.8	0.8	0.9
General Inorganics								
pH (L099)	pH Units	N/A	MCERTS	7.8	7.1	7.3	8	6.4
Total Sulphate as SO_4	%	0.005	MCERTS	0.022	0.013	0.03	0.016	0.056
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	150	33	44	29	240
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	73	16.4	22.1	14.4	121
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	4.1	4.9	7.4	7.3	160
Total Sulphur	mg/kg	50	MCERTS	90	63	110	110	1100
Total Sulphur	%	0.005	MCERTS	0.009	0.006	0.011	0.011	0.11
Ammoniacal Nitrogen as NH_4^+	mg/kg	0.5	MCERTS	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Ammonium as NH_4^+ (10:1 leachate equivalent)	mg/l	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Water Soluble Nitrate (2:1) as N	mg/kg	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Heavy Metals / Metalloids								
Magnesium (leachate equivalent)	mg/l	2.5	NONE	< 2.5	< 2.5	4.1	2.5	41
Magnesium (water soluble)	mg/kg	5	NONE	< 5.0	< 5.0	8.1	5.1	81

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

Analytical Report Number : 24-051118
Project / Site name:

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
365462	MWS101	None Supplied	0.7	Brown clay and sand
365463	MWS103	None Supplied	2.5	Brown clay and sand
365464	MWS105	None Supplied	1	Brown clay and sand
365465	MWS107	None Supplied	0.5	Brown clay and sand
365466	MWS107	None Supplied	2.4	Brown clay and sand with vegetation

Analytical Report Number : 24-051118
Project / Site name:

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight	In-house method based on British Standard Methods and MCERTS requirements.	L019B	D	NONE
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES	In-house method based on TRL 447	L038B	D	NONE
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES	In-house method	L038B	D	MCERTS
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08, 2:1 extraction	L078-PL	W	NONE
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser	In-house method	L082B	D	MCERTS
Ammonium as NH4 in soil	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method, 10:1 water extraction.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082B	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099-PL	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

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

IDOM Merebrook Limited
Cromford Mills
Mill Lane
Cromford
Derbyshire
DE4 3RQ
For the attention of Tim Stemp

Report No: C9139
Issue No 01

LABORATORY TEST REPORT

Project Name	**WICKHURST**		
Project Number	**C9139**	Date samples received	20/11/2024
Your Ref	21949av	Date written instructions received	20/11/2024
Purchase Order		Date testing commenced	20/11/2024

Please find enclosed the results as summarised below

Item No	Test Quantity	Description	ISO 17025 Accredited
4.41	4	Remoulded CBR	Yes
4.45	4	EO item 4.41, 4.42 and 4.43 for soaking and measuring swelling for 4 days	Yes

Remarks :

Issued by : J Hopkins

Date of Issue : 29/01/2025

[redacted]

Approved Signatories : 29/01/2025

J.Hopkins (Laboratory Coordinator), M D Brown (Senior Quality Manager), R Norris (Supervisor), R Collett (Site Supervisor), M Bryan (Senior Lab Technician)

Key to symbols used in this report
S/C : Testing was sub-contracted

Feedback on the this report may be left:
https://forms.office.com/pages/responsepage.aspx?id=CwCZTjwYeUGWZfDBJbk1g0fy8UwdJQhLttd3HBD1SytUMzNYWTdFVVpMWjdHREcwQUg1MDJLM09OTi4u&wdLOR=c7402C39D-A5DB-45FF-9DBB-660DBDE76494

College Road North, Aston Clinton, Bucks, HP22 5EZ
Tel: +44 (0)1494 810 136 Fax: +44 (0)1494 784 837
astonclinton@igne.com
www.igne.com
Terra Tek Ltd is registered in Scotland. SC121594
Offices in Airdrie, Aston Clinton, Barnsley, Daventry
Head Office : Whistleberry Road, Hamilton, Glasgow, Scotland, ML3 0HP

igne	Site WICKHURST	Contract No	21949av
	Client IDOM Merebrook Limited	Sample No	MCBR101
	Engineer	Sample Type	Sampled by IGNE

Non Engineering Description: Brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse.

Preparation Details:

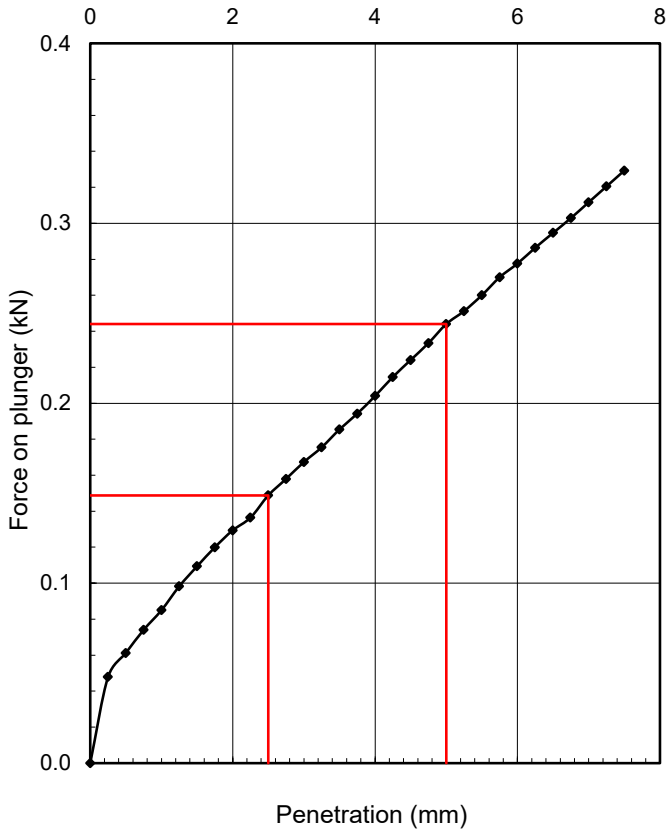
Specimen was prepared at natural moisture content
Compaction using 2.5kg compactive effort

Specimen Bulk Density	1.96	Mg/m³
Specimen Dry Density	1.55	Mg/m³
Mass of sample > 20 mm	2.9	%

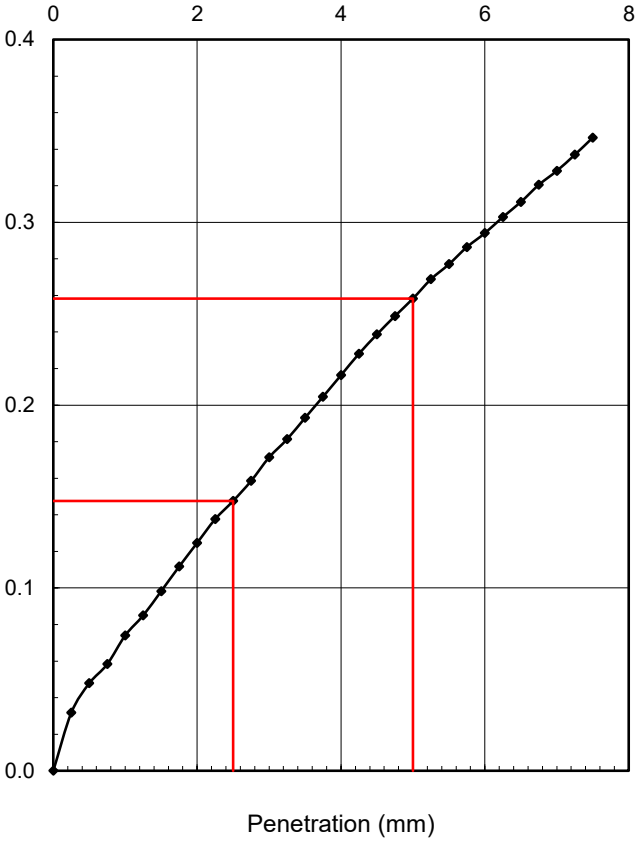
Specimen Soaked

Test Details:	**Top**		**Base**	
Surcharge:	4.0	kg	4.0	kg
Seating Load:	10	N	10	N
Moisture Content:	27	%	26	%
CBR Value:	1.2	%	1.3	%

Top of Specimen Penetration (mm)



Base of Specimen Penetration (mm)



Specimen consolidated by -0.08mm over 4 days.

Originator	Checked & Approved
HW	29/01/2025

CALIFORNIA BEARING RATIO

BS1377 : Part 4 : Clause 7 : 1990

College Road North, Aston Clinton, Bucks, HP22 5EZ

igne	Site WICKHURST	Contract No	21949av
	Client IDOM Merebrook Limited	Sample No	MCBR102
	Engineer	Sample Type	Sampled by IGNE

Non Engineering Description: Brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse.

Preparation Details:

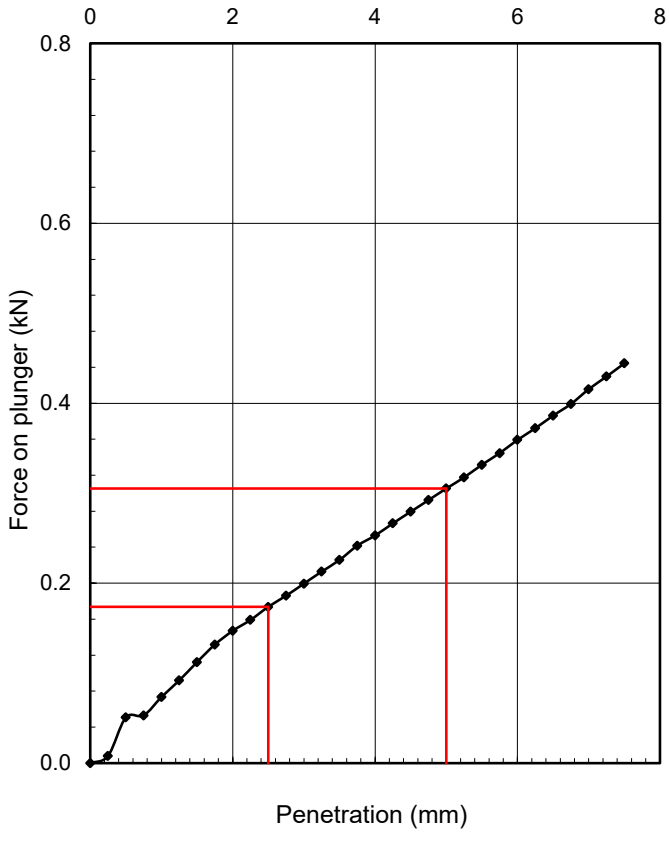
Specimen was prepared at natural moisture content
Compaction using 2.5kg compactive effort

Specimen Bulk Density	1.91	Mg/m³
Specimen Dry Density	1.50	Mg/m³
Mass of sample > 20 mm	2.6	%

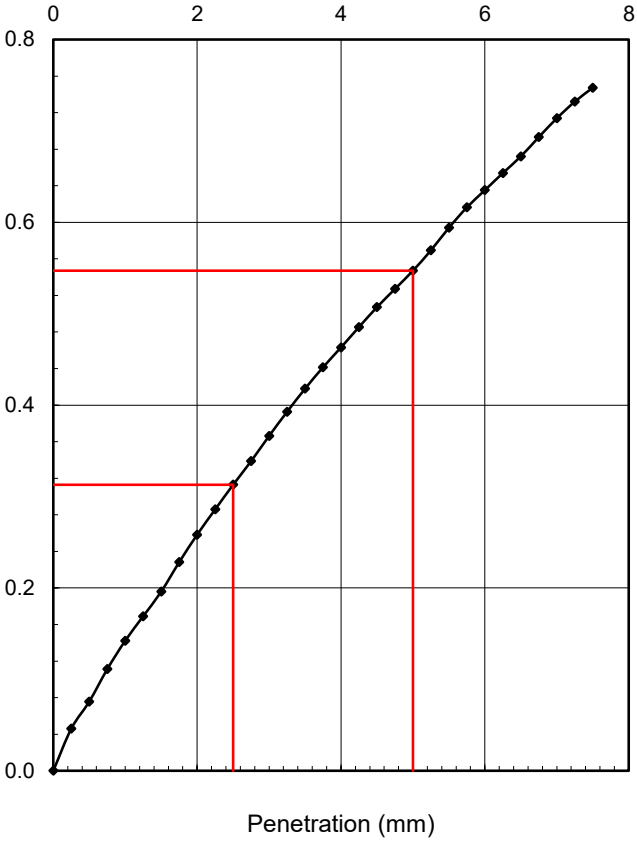
Specimen Soaked

Test Details:	**Top**		**Base**	
Surcharge:	4.0	kg	4.0	kg
Seating Load:	10	N	10	N
Moisture Content:	27	%	28	%
CBR Value:	1.5	%	2.7	%

Top of Specimen
Penetration (mm)



Base of Specimen
Penetration (mm)



Specimen swelled by 0.04mm over 4 days.

Originator	Checked & Approved
HW	[redacted] 29/01/2025

CALIFORNIA BEARING RATIO

BS1377 : Part 4 : Clause 7 : 1990

College Road North, Aston Clinton, Bucks, HP22 5EZ

Site	WICKHURST	**Contract No**	**21949av**
Client	IDOM Merebrook Limited	Sample No	MCBR103
Engineer		Sample Type	Sampled by IGNE

Non Engineering Description: Brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse.

Preparation Details:

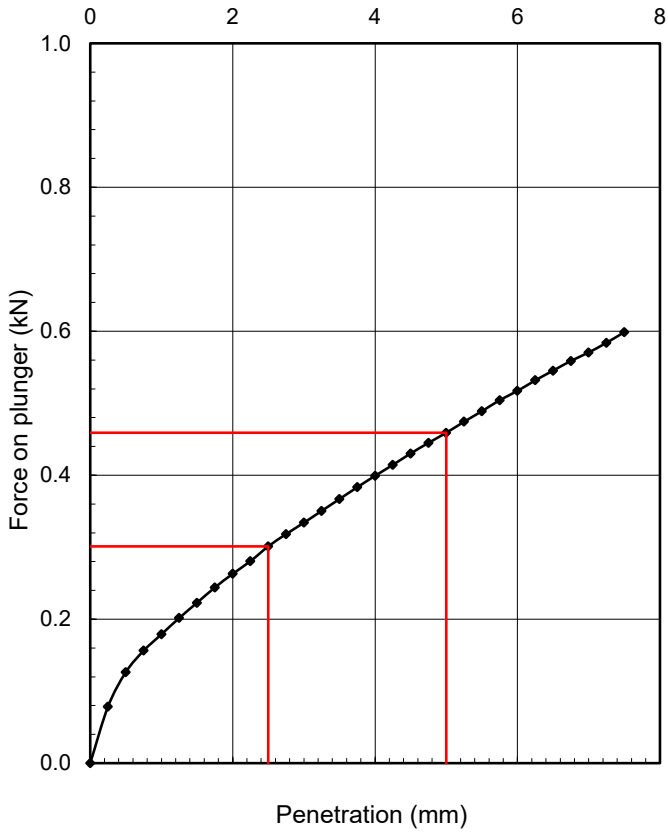
Specimen was prepared at natural moisture content
Compaction using 2.5kg compactive effort

Specimen Bulk Density	2.37	Mg/m³
Specimen Dry Density	1.91	Mg/m³
Mass of sample > 20 mm	1.0	%

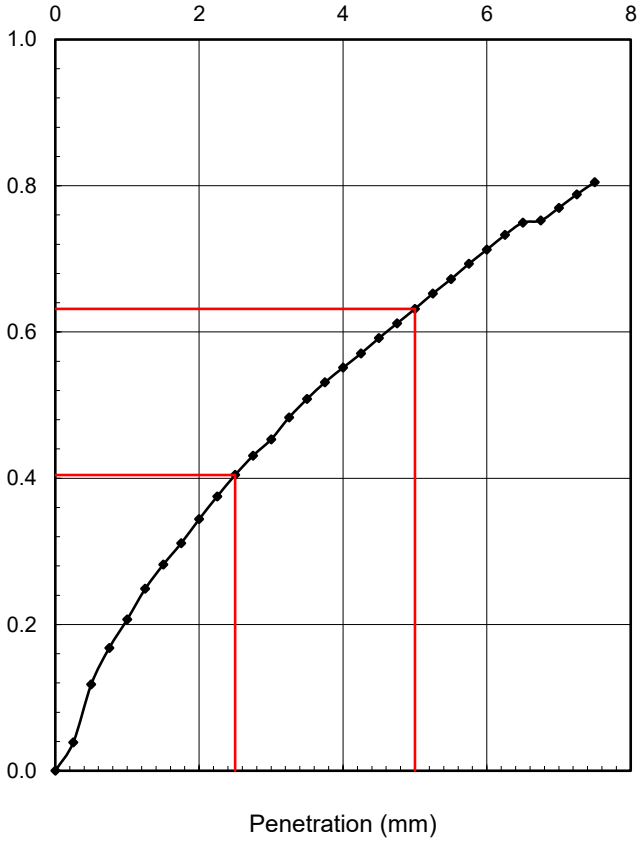
Specimen Soaked

Test Details:	**Top**		**Base**	
Surcharge:	4.0	kg	4.0	kg
Seating Load:	10	N	10	N
Moisture Content:	24	%	24	%
CBR Value:	2.3	%	3.2	%

Top of Specimen
Penetration (mm)



Base of Specimen
Penetration (mm)



Specimen swelled by 0.12mm over 4 days.

Originator	Checked & Approved
HW	[redacted] 29/01/2025

CALIFORNIA BEARING RATIO

BS1377 : Part 4 : Clause 7 : 1990

College Road North, Aston Clinton, Bucks, HP22 5EZ

Site	WICKHURST	Contract No	21949av
Client	IDOM Merebrook Limited	Sample No	MCBR104
Engineer		Sample Type	Sampled by IGNE

Non Engineering Description: Slightly sandy slightly gravelly CLAY. Gravel is fine to medium.

Preparation Details:

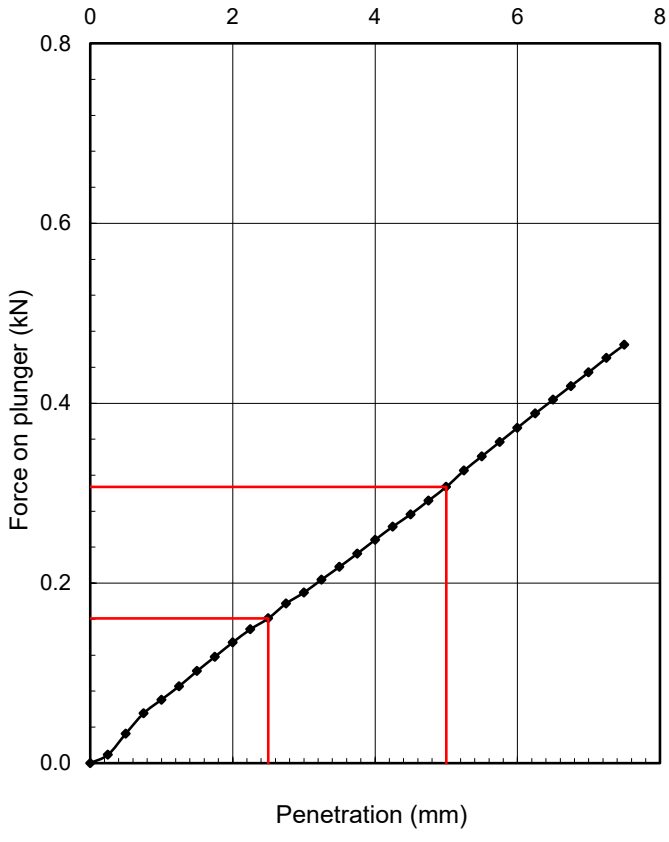
Specimen was prepared at natural moisture content
Compaction using 2.5kg compactive effort

Specimen Bulk Density	0.85	Mg/m³
Specimen Dry Density	0.66	Mg/m³
Mass of sample > 20 mm	0.0	%

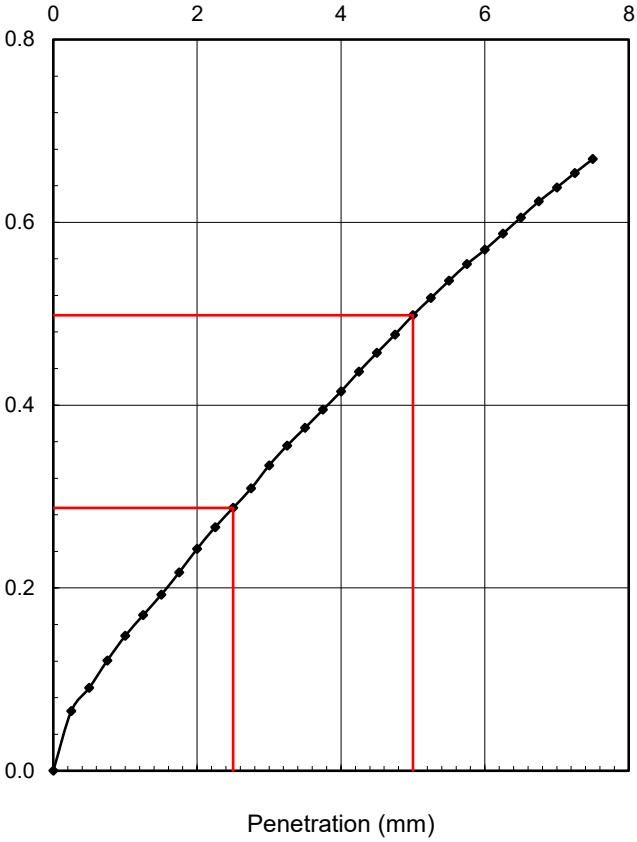
Specimen Soaked

Test Details:	**Top**		**Base**	
Surcharge:	4.0	kg	4.0	kg
Seating Load:	10	N	10	N
Moisture Content:	28	%	28	%
CBR Value:	1.5	%	2.5	%

Top of Specimen
Penetration (mm)



Base of Specimen
Penetration (mm)



Specimen consolidated by -0.22mm over 4 days.

Originator	Checked & Approved
HW	29/01/2025

CALIFORNIA BEARING RATIO

BS1377 : Part 4 : Clause 7 : 1990

College Road North, Aston Clinton, Bucks, HP22 5EZ

APPENDIX 5 ▪ Groundwater Laboratory Certificates

Merebrook
First Floor
1 Leonard Place
Westerham Road
Keston
BR2 6HQ

t: 01689 889980

e: coliveira@idom.com
fleahy@idom.com

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

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

Analytical Report Number : 24-051026

Project / Site name:	Wickhurst Green	**Samples received on:**	30/10/2024
Your job number:	21949AV	**Samples instructed on/ Analysis started on:**	31/10/2024
Your order number:	24 2 FDO LABS	**Analysis completed by:**	06/11/2024
Report Issue Number:	1	**Report issued on:**	07/11/2024
Samples Analysed:	3 water samples		

Signed: _____

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

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

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

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

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

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

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

Analytical Report Number: 24-051026
Project / Site name: Wickhurst Green

Your Order No: 24 2 FDO LABS

Lab Sample Number				365135	365136	365137
Sample Reference				MWS101	MWS104	MWS108
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				29/10/2024	29/10/2024	29/10/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**			
General Inorganics						
pH (L099)	pH Units	N/A	ISO 17025	7.2	7.3	7
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10	< 10
Sulphate as SO_4	µg/l	45	ISO 17025	157000	68200	71200
Sulphide	µg/l	5	NONE	< 5.0	< 5.0	< 5.0
Dissolved Organic Carbon (DOC)	mg/l	0.1	ISO 17025	4.25	3.63	3.11
Total Phenols						
Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	< 10	< 10
Speciated PAHs						
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01
Total PAH						
Total EPA-16 PAHs	µg/l	0.16	ISO 17025	< 0.16	< 0.16	< 0.16
Heavy Metals / Metalloids						
Arsenic (dissolved)	µg/l	0.15	ISO 17025	0.41	0.3	0.34
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.2	0.24	0.51
Chromium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	0.7	< 0.2
Copper (dissolved)	µg/l	0.5	ISO 17025	3.9	3	2.8
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	< 0.2
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	3.6	10	31
Selenium (dissolved)	µg/l	0.6	ISO 17025	5.2	1.3	1.3
Zinc (dissolved)	µg/l	0.5	ISO 17025	5.3	5.1	7.2
Calcium (dissolved)	mg/l	0.012	ISO 17025	170	120	170
Chromium (hexavalent)	µg/l	5	ISO 17025	U/S *U/S g	< 5.0	< 5.0

Analytical Report Number: 24-051026
Project / Site name: Wickhurst Green

Your Order No: 24 2 FDO LABS

Lab Sample Number				365135	365136	365137
Sample Reference				MWS101	MWS104	MWS108
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				29/10/2024	29/10/2024	29/10/2024
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**			
Petroleum Hydrocarbons						
TPH - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH - Aliphatic >EC10 - EC12 $_{EH\_1D\_AL\_MS}$	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aliphatic >EC12 - EC16 $_{EH\_1D\_AL\_MS}$	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aliphatic >EC16 - EC21 $_{EH\_1D\_AL\_MS}$	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aliphatic >EC21 - EC35 $_{EH\_1D\_AL\_MS}$	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aliphatic >EC5 - EC35 $_{HS+EH\_1D\_AL\_MS}$	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0
TPH - Aromatic >EC10 - EC12 $_{EH\_1D\_AR\_MS}$	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aromatic >EC12 - EC16 $_{EH\_1D\_AR\_MS}$	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aromatic >EC16 - EC21 $_{EH\_1D\_AR\_MS}$	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aromatic >EC21 - EC35 $_{EH\_1D\_AR\_MS}$	µg/l	10	NONE	< 10	< 10	< 10
TPH - Aromatic >EC5 - EC35 $_{HS+EH\_1D\_AR\_MS}$	µg/l	10	NONE	< 10	< 10	< 10
VOCs						
MTBE (Methyl Tertiary Butyl Ether)	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Benzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Toluene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
Ethylbenzene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
p & m-xylene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0
o-xylene	µg/l	3	ISO 17025	< 3.0	< 3.0	< 3.0

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

Analytical Report Number : 24-051026
Project / Site name: Wickhurst Green

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited matrices: SW, PW, GW, except B - SW,GW, Hg - SW,PW, Al - SW,PW	In-house method based on USEPA Method 6020 & 200.8 for the determination of trace elements in water by ICP-MS	L012B	W	ISO 17025
Sulphide in water	Determination of sulphide in water by ion selective electrode	In-house method	L029-PL	W	NONE
Dissolved Organic Carbon in water	Determination of dissolved organic carbon in water by TOC/DOC NDIR Analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037B	W	ISO 17025
Sulphate in water	Determination of sulphate in water after filtration by acidification followed by ICP-OES. Accredited matrices: SW, PW, GW, PrW, DI PrW, FSE, LL	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025
Total Petroleum Hydrocarbons with carbon banding in water by GC-MS	Determination of total petroleum hydrocarbons in water by GC-MS with carbon banding aliphatic and aromatic	In-house method	L070B	W	NONE
BTEX and/or Volatile Organic Compounds in water	Determination of volatile organic compounds in water by headspace GC-MS. Accredited matrices: SW, PW, GW	In-house method based on USEPA 8260	L073B	W	ISO 17025
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5-diphenylcarbazide, followed by colorimetry. Accredited matrices: SW, PW, GW, FSE, LL	In-house method by continuous flow analyser	L080-PL	W	ISO 17025
Monohydric phenols in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
Total cyanide in water	Determination of total cyanide in water by distillation followed by colorimetry. Accredited matrices: SW, PW, GW, FSE, LL	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
Total Petroleum Hydrocarbons in water by HS-GC-MS	Determination of total petroleum hydrocarbons in water by headspace GC-MS. Accredited matrices: SW, PW, GW	In-house method	L088-PL	W	ISO 17025
pH of water at 20°C (automated)	Determination of pH of water by electrochemical measurement. Accredited matrices: SW, PW, GW, FSE, LL	In-house method	L099-PL	W	ISO 17025
Speciated PAHs and/or Semi-volatile organic compounds in water	Determination of semi-volatile organic compounds (including PAHs) in water by extraction in dichloromethane followed by GC-MS. Accredited matrices (PAHs): SW, PW, GW	In-house method based on USEPA 8270	L102B	W	ISO 17025
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited matrices: SW, PW, GW, FSE, LL; PrW, DI PrW (Al, Cu, Fe,Zn)	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil	L039B	W	ISO 17025

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

Analytical Report Number : 24-051026
Project / Site name: Wickhurst Green

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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

*U/S g - Unsuitable for analysis due to high colour intensity.

APPENDIX 6

- Waste Acceptance Criteria Certificate and Waste Classification Report

Merebrook
First Floor
1 Leonard Place
Westerham Road
Keston
BR2 6HQ

t: 01689 889980

e: mbaylis@idom.com
coliveira@idom.com

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

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

Analytical Report Number : 24-049123

Project / Site name:	Wickhurst Green	**Samples received on:**	22/10/2024
Your job number:	21949AV	**Samples instructed on/ Analysis started on:**	22/10/2024
Your order number:	24-2-FDO-LABS	**Analysis completed by:**	30/10/2024
Report Issue Number:	1	**Report issued on:**	30/10/2024
Samples Analysed:	10:1 WAC sample		

Signed: [redacted]

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

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

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

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

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

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

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

Analytical Report Number: 24-049123
Project / Site name: Wickhurst Green
Your Order No: 24-2-FDO-LABS

Lab Sample Number				355283
Sample Reference				MWS103-ES
Sample Number				None Supplied
Depth (m)				0.50
Date Sampled				18/10/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	13
Total mass of sample received	kg	0.1	NONE	1.4
General Inorganics				
pH (L005B)	pH Units	N/A	MCERTS	8.2
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.8
Loss on Ignition @ 450°C	%	0.2	MCERTS	4.6
Acid Neutralisation Capacity	+/- mmol/kg	-9999	NONE	12
Speciated PAHs				
Naphthalene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.13
Anthracene	mg/kg	0.05	MCERTS	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.32
Pyrene	mg/kg	0.05	MCERTS	0.28
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.18
Chrysene	mg/kg	0.05	MCERTS	0.21
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.27
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.1
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.16
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.07
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.08
Coronene	mg/kg	0.05	NONE	< 0.05
Total PAH				
Total WAC-17 PAHs	mg/kg	0.85	NONE	1.78
Petroleum Hydrocarbons				
Mineral Oil (EC10 - EC40) EH_CU_1D_AL	mg/kg	10	NONE	39
VOCs				
Benzene	µg/kg	5	MCERTS	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0
o-Xylene	µg/kg	5	MCERTS	< 5.0
Total BTEX	µg/kg	10	MCERTS	< 10

Analytical Report Number: 24-049123
Project / Site name: Wickhurst Green
Your Order No: 24-2-FDO-LABS

Lab Sample Number				355283
Sample Reference				MWS103-ES
Sample Number				None Supplied
Depth (m)				0.50
Date Sampled				18/10/2024
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**	
PCBs by GC-MS				
PCB Congener 28	mg/kg	0.001	MCERTS	< 0.001
PCB Congener 52	mg/kg	0.001	MCERTS	< 0.001
PCB Congener 101	mg/kg	0.001	MCERTS	< 0.001
PCB Congener 118	mg/kg	0.001	MCERTS	< 0.001
PCB Congener 138	mg/kg	0.001	MCERTS	< 0.001
PCB Congener 153	mg/kg	0.001	MCERTS	< 0.001
PCB Congener 180	mg/kg	0.001	MCERTS	< 0.001
Total PCBs	mg/kg	0.007	MCERTS	< 0.007

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

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

Telephone: 01923 225404
Fax: 01923 237404
email:reception@i2analytical.com

Waste Acceptance Criteria Analytical Results

Report No:	**24-049123**						
					Client:	**MEREBROOK**	
Location	**Wickhurst Green**						
Lab Reference (Sample Number)	355283				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	18/10/2024				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	MWS103-ES						
Depth (m)	0.50						
Solid Waste Analysis							
TOC (%)**	0.8				3%	5%	6%
Loss on Ignition (%) **	4.6				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	39				500	--	--
Total PAH (WAC-17) (mg/kg)	1.78				100	--	--
pH (units)**	8.2				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	12				--	To be evaluated	To be evaluated
Eluate Analysis (BS EN 12457 - 2 preparation utilising end over end leaching procedure)	10:1 mg/l			10:1 mg/kg	Limit values for compliance leaching test using BS EN 12457-2 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.00395			0.0395	0.5	2	25
Barium *	0.00881			0.0881	20	100	300
Cadmium *	< 0.000100			< 0.00100	0.04	1	5
Chromium *	0.0013			0.013	0.5	10	70
Copper *	0.015			0.15	2	50	100
Mercury *	< 0.000500			< 0.00500	0.01	0.2	2
Molybdenum *	0.00277			0.0277	0.5	10	30
Nickel *	0.0019			0.019	0.4	10	40
Lead *	< 0.0010			< 0.010	0.5	10	50
Antimony *	0.0090			0.090	0.06	0.7	5
Selenium *	< 0.0040			< 0.040	0.1	0.5	7
Zinc *	0.0048			0.048	4	50	200
Chloride *	3.3			33	800	15000	25000
Fluoride*	0.73			7.3	10	150	500
Sulphate *	15			150	1000	20000	50000
TDS*	81			810	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.010			< 0.10	1	-	-
DOC	9.31			93.1	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.4						
Dry Matter (%)	87						
Moisture (%)	13						

Results are expressed on a dry weight basis, after correction for moisture content where applicable.

*= UKAS accredited (liquid eluate analysis only)

Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation

** = MCERTS accredited

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

Analytical Report Number : 24-049123
Project / Site name: Wickhurst Green

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
355283	MWS103-ES	None Supplied	0.5	Brown clay

Analytical Report Number : 24-049123
Project / Site name: Wickhurst Green

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

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

Analytical Report Number : 24-049123
Project / Site name: Wickhurst Green

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Monohydric phenols 10:1 WAC	Determination of phenols in leachate by distillation followed by colorimetry	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L080-PL	W	ISO 17025
Chloride 10:1 WAC	Determination of Chloride colorimetrically by discrete analyser	In-house based on MEWAM Method ISBN 0117516260	L082B	W	ISO 17025

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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

Waste Classification Report

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

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

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

T3P36-GV6J9-LLSMW

Job name

Wickhurst Green

Description/Comments

Idom Merebrook Site Investigation
i2 Analytical Report Number: 24-049120

Project

21949av

Site

Wickhurst Green

Classified by

Name:
Linford Shacklady
Date:
19 Nov 2024 15:38 GMT
Telephone:
01773829988

Company:
Idom Merebrook Ltd
Cromford Mills
Mill Lane
Matlock
DE4 3RQ

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

HazWasteOnline™ Certification: CERTIFIED

Course	Date
Hazardous Waste Classification	04 Aug 2022

Next 3 year Refresher due by Aug 2025

Purpose of classification

2 - Material Characterisation

Address of the waste

Broadbridge Heath, Horsham **Post Code** RH12 3LZ

SIC for the process giving rise to the waste

41202 Construction of domestic buildings

Description of industry/producer giving rise to the waste

redevelopment of vacant parcel, formerly greenfield and site compound area for surrounding development

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

waste will be created through roads, foundations and drainage

Description of the waste

made ground on site has inclusions of brick and concrete
rudimentary topsoil present

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	MWS101-ES	0.20	Non Hazardous		3
2	MWS101-ES[2]	0.40	Non Hazardous		6
3	MWS102-ES	0.20	Non Hazardous		9
4	MWS102-ES[2]	0.40	Non Hazardous		12
5	MWS103-ES	0.50	Non Hazardous		15
6	MWS105-ES	0.20	Non Hazardous		18
7	MWS105-ES[2]	0.40	Non Hazardous		21
8	MWS106-ES	0.20	Non Hazardous		24
9	MWS107-ES	0.20	Non Hazardous		27
10	MWS108-ES	0.20	Non Hazardous		30

Related documents

#	Name	Description
1	Merebrook 2024 - worst case species adjusted to most common	waste stream template used to create this Job

Report

Created by: Linford Shacklady

Created date: 19 Nov 2024 15:38 GMT

Classification of sample: MWS101-ES

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

Sample details

Sample name:
MWS101-ES
Sample Depth:
0.20 m
Moisture content:
19%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 19% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
1		asbestos				<	%		<	%	<		**ND**
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5									
2	●	pH				7.1	pH		7.1	pH	7.1 pH		
				PH									
3		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
4	●	acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			205-917-1	208-96-8									
5	●	acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-469-6	83-32-9									
6	●	fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-695-5	86-73-7									
7	●	phenanthrene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-581-5	85-01-8									
8	●	anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			204-371-1	120-12-7									
9	●	fluoranthene				0.08	mg/kg		0.0648	mg/kg	0.00000648 %	✓	
			205-912-4	206-44-0									
10	●	pyrene				0.06	mg/kg		0.0486	mg/kg	0.00000486 %	✓	
			204-927-3	129-00-0									
11		benzo[a]anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-033-00-9	200-280-6	56-55-3									
12		chrysene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-048-00-0	205-923-4	218-01-9									
13		benzo[b]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-034-00-4	205-911-9	205-99-2									
14		benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-036-00-5	205-916-6	207-08-9									

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
15		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
16		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
17		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
18		benzo[ghi]perylene		205-883-8	191-24-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
19		arsenic { arsenic compounds, with the exception of those specified elsewhere in this Annex }	033-002-00-5			1	8.2	mg/kg		6.642	mg/kg	0.000664 %	✓	
20		barium { barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthalenyl aryl sulphonic acid, and of salts specified elsewhere in this Annex }	056-002-00-7			1	58	mg/kg		46.98	mg/kg	0.0047 %	✓	
21		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.3	mg/kg	1.142	0.278	mg/kg	0.0000278 %	✓	
22		chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8	mg/kg	2.27	<4.086	mg/kg	<0.000409 %		<LOD
23		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		23	mg/kg	1.462	27.229	mg/kg	0.00272 %	✓	
24		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		12	mg/kg	1.126	10.944	mg/kg	0.00109 %	✓	
25		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	27	mg/kg		21.87	mg/kg	0.00219 %	✓	
26		mercury { mercury(II) sulfide }		215-696-3	1344-48-5		<0.3	mg/kg	1.16	<0.348	mg/kg	<0.0000348 %		<LOD
27		nickel { nickel(II) oxide (nickel monoxide) }	028-003-00-2	215-215-7 [1] 234-323-5 [2] - [3]	1313-99-1 [1] 11099-02-8 [2] 34492-97-2 [3]		14	mg/kg	1.273	14.431	mg/kg	0.00144 %	✓	
28		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
29		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		37	mg/kg	1.785	53.502	mg/kg	0.00535 %	✓	
30		zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		52	mg/kg	1.968	82.909	mg/kg	0.00829 %	✓	
31		benzene	601-020-00-8	200-753-7	71-43-2		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
32		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
33		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
34		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.008	mg/kg		<0.008	mg/kg	<0.0000008 %		<LOD
35		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
36		TPH (C6 to C40) petroleum group			TPH		<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
37		confirm TPH has NOT arisen from diesel or petrol					☑							

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
38		monohydric phenols		P1186		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
										Total:	0.0284 %		

Key

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

Classification of sample: MWS101-ES[2]

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

Sample details

Sample name:
MWS101-ES[2]
Sample Depth:
0.40 m
Moisture content:
19%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 19% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1	●	pH			PH		7.6 pH		7.6 pH	7.6 pH		
2		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
3	●	acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
4	●	acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
5	●	fluorene		201-695-5	86-73-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
6	●	phenanthrene		201-581-5	85-01-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
7	●	anthracene		204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
8	●	fluoranthene		205-912-4	206-44-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
9	●	pyrene		204-927-3	129-00-0		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
10		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
11		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
12		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
13		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
14		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
15	●	indeno[123-cd]pyrene		205-893-2	193-39-5		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
16		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
17	●	benzo[ghi]perylene		205-883-8	191-24-2		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
18	arsenic { arsenic compounds, with the exception of those specified elsewhere in this Annex }	033-002-00-5			1	8.8	mg/kg		7.128	mg/kg	0.000713 %	✓	
19	barium { barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthalenyl aryl sulphonic acid, and of salts specified elsewhere in this Annex }	056-002-00-7			1	48	mg/kg		38.88	mg/kg	0.00389 %	✓	
20	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2	mg/kg	1.142	<0.228	mg/kg	<0.0000228 %		<**LOD**
21	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8	mg/kg	2.27	<4.086	mg/kg	<0.000409 %		<**LOD**
22	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		39	mg/kg	1.462	46.171	mg/kg	0.00462 %	✓	
23	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		20	mg/kg	1.126	18.239	mg/kg	0.00182 %	✓	
24	lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	19	mg/kg		15.39	mg/kg	0.00154 %	✓	
25	mercury { mercury(II) sulfide }		215-696-3	1344-48-5		<0.3	mg/kg	1.16	<0.348	mg/kg	<0.0000348 %		<**LOD**
26	nickel { nickel(II) oxide (nickel monoxide) }	028-003-00-2	215-215-7 [1] 234-323-5 [2] - [3]	1313-99-1 [1] 11099-02-8 [2] 34492-97-2 [3]		22	mg/kg	1.273	22.678	mg/kg	0.00227 %	✓	
27	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<**LOD**
28	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		49	mg/kg	1.785	70.854	mg/kg	0.00709 %	✓	
29	zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		65	mg/kg	1.968	103.636	mg/kg	0.0104 %	✓	
30	benzene	601-020-00-8	200-753-7	71-43-2		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
31	toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
32	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
33	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.008	mg/kg		<0.008	mg/kg	<0.0000008 %		<**LOD**
34	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
35	TPH (C6 to C40) petroleum group			TPH		<10	mg/kg		<10	mg/kg	<0.001 %		<**LOD**
36	confirm TPH has NOT arisen from diesel or petrol					☑							
37	monohydric phenols			P1186		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
										Total:	0.0342 %		

Key

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

Classification of sample: MWS102-ES

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

Sample details

Sample name:
MWS102-ES
Sample Depth:
0.20 m
Moisture content:
15%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 15% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		asbestos	650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<	%		<	%	<		**ND**
2		pH			PH		8	pH		8	pH	8pH		
3		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
4		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
5		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
6		fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
7		phenanthrene		201-581-5	85-01-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
8		anthracene		204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
9		fluoranthene		205-912-4	206-44-0		0.08	mg/kg		0.068	mg/kg	0.0000068 %	✓	
10		pyrene		204-927-3	129-00-0		0.07	mg/kg		0.0595	mg/kg	0.00000595 %	✓	
11		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
12		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
13		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.07	mg/kg		0.0595	mg/kg	0.00000595 %	✓	
14		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
15		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
16		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
17		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
18		benzo[ghi]perylene		205-883-8	191-24-2		0.05	mg/kg		0.0425	mg/kg	0.00000425 %	✓	
19		arsenic { arsenic compounds, with the exception of those specified elsewhere in this Annex }	033-002-00-5			1	9.6	mg/kg		8.16	mg/kg	0.000816 %	✓	
20		barium { barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthalenyl aryl sulphonic acid, and of salts specified elsewhere in this Annex }	056-002-00-7			1	71	mg/kg		60.35	mg/kg	0.00604 %	✓	
21		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.3	mg/kg	1.142	0.291	mg/kg	0.0000291 %	✓	
22		chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8	mg/kg	2.27	<4.086	mg/kg	<0.000409 %		<LOD
23		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		33	mg/kg	1.462	40.997	mg/kg	0.0041 %	✓	
24		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		20	mg/kg	1.126	19.14	mg/kg	0.00191 %	✓	
25		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	27	mg/kg		22.95	mg/kg	0.00229 %	✓	
26		mercury { mercury(II) sulfide }		215-696-3	1344-48-5		<0.3	mg/kg	1.16	<0.348	mg/kg	<0.0000348 %		<LOD
27		nickel { nickel(II) oxide (nickel monoxide) }	028-003-00-2	215-215-7 [1] 234-323-5 [2] - [3]	1313-99-1 [1] 11099-02-8 [2] 34492-97-2 [3]		25	mg/kg	1.273	27.043	mg/kg	0.0027 %	✓	
28		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
29		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		46	mg/kg	1.785	69.801	mg/kg	0.00698 %	✓	
30		zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		80	mg/kg	1.968	133.851	mg/kg	0.0134 %	✓	
31		benzene	601-020-00-8	200-753-7	71-43-2		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
32		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
33		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
34		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.008	mg/kg		<0.008	mg/kg	<0.0000008 %		<LOD
35		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
36		TPH (C6 to C40) petroleum group			TPH		<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
37		confirm TPH has NOT arisen from diesel or petrol					☑							

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
38		monohydric phenols		P1186		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
										Total:	0.0401 %		

Key

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

Classification of sample: MWS102-ES[2]

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

Sample details

Sample name:
MWS102-ES[2]
Sample Depth:
0.40 m
Moisture content:
16%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 16% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1		asbestos	650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<	%		<	%	<		**ND**
2		pH			PH		8.4	pH		8.4	pH	8.4 pH		
3		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
4		acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
5		acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
6		fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
7		phenanthrene		201-581-5	85-01-8		0.07	mg/kg		0.0588	mg/kg	0.00000588 %	✓	
8		anthracene		204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
9		fluoranthene		205-912-4	206-44-0		0.23	mg/kg		0.193	mg/kg	0.0000193 %	✓	
10		pyrene		204-927-3	129-00-0		0.21	mg/kg		0.176	mg/kg	0.0000176 %	✓	
11		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.13	mg/kg		0.109	mg/kg	0.0000109 %	✓	
12		chrysene	601-048-00-0	205-923-4	218-01-9		0.11	mg/kg		0.0924	mg/kg	0.00000924 %	✓	
13		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.22	mg/kg		0.185	mg/kg	0.0000185 %	✓	
14		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.06	mg/kg		0.0504	mg/kg	0.00000504 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
15		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.19	mg/kg		0.16	mg/kg	0.000016 %	✓	
16		indeno[123-cd]pyrene		205-893-2	193-39-5		0.11	mg/kg		0.0924	mg/kg	0.00000924 %	✓	
17		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
18		benzo[ghi]perylene		205-883-8	191-24-2		0.13	mg/kg		0.109	mg/kg	0.0000109 %	✓	
19		arsenic { arsenic compounds, with the exception of those specified elsewhere in this Annex }	033-002-00-5			1	10	mg/kg		8.4	mg/kg	0.00084 %	✓	
20		barium { barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthalenyl aryl sulphonic acid, and of salts specified elsewhere in this Annex }	056-002-00-7			1	70	mg/kg		58.8	mg/kg	0.00588 %	✓	
21		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.2	mg/kg	1.142	0.192	mg/kg	0.0000192 %	✓	
22		chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8	mg/kg	2.27	<4.086	mg/kg	<0.000409 %		<**LOD**
23		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		32	mg/kg	1.462	39.287	mg/kg	0.00393 %	✓	
24		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		23	mg/kg	1.126	21.752	mg/kg	0.00218 %	✓	
25		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	29	mg/kg		24.36	mg/kg	0.00244 %	✓	
26		mercury { mercury(II) sulfide }		215-696-3	1344-48-5		<0.3	mg/kg	1.16	<0.348	mg/kg	<0.0000348 %		<**LOD**
27		nickel { nickel(II) oxide (nickel monoxide) }	028-003-00-2	215-215-7 [1] 234-323-5 [2] - [3]	1313-99-1 [1] 11099-02-8 [2] 34492-97-2 [3]		20	mg/kg	1.273	21.38	mg/kg	0.00214 %	✓	
28		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<**LOD**
29		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		44	mg/kg	1.785	65.98	mg/kg	0.0066 %	✓	
30		zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		84	mg/kg	1.968	138.89	mg/kg	0.0139 %	✓	
31		benzene	601-020-00-8	200-753-7	71-43-2		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
32		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
33		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
34		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.008	mg/kg		<0.008	mg/kg	<0.0000008 %		<**LOD**
35		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
36		TPH (C6 to C40) petroleum group			TPH		<10	mg/kg		<10	mg/kg	<0.001 %		<**LOD**
37		confirm TPH has NOT arisen from diesel or petrol					☑							

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
38		monohydric phenols		P1186		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
										Total:	0.0399 %		

Key

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

Classification of sample: MWS103-ES

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

Sample details

Sample name:
MWS103-ES
Sample Depth:
0.50 m
Moisture content:
13%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 13% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
1		asbestos				<	%		<	%	<		**ND**
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5									
2	●	pH				7.6	pH		7.6	pH	7.6 pH		
				PH									
3		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
4	●	acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			205-917-1	208-96-8									
5	●	acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-469-6	83-32-9									
6	●	fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-695-5	86-73-7									
7	●	phenanthrene				0.09	mg/kg		0.0783	mg/kg	0.00000783 %	✓	
			201-581-5	85-01-8									
8	●	anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			204-371-1	120-12-7									
9	●	fluoranthene				0.29	mg/kg		0.252	mg/kg	0.0000252 %	✓	
			205-912-4	206-44-0									
10	●	pyrene				0.25	mg/kg		0.218	mg/kg	0.0000218 %	✓	
			204-927-3	129-00-0									
11		benzo[a]anthracene				0.18	mg/kg		0.157	mg/kg	0.0000157 %	✓	
		601-033-00-9	200-280-6	56-55-3									
12		chrysene				0.16	mg/kg		0.139	mg/kg	0.0000139 %	✓	
		601-048-00-0	205-923-4	218-01-9									
13		benzo[b]fluoranthene				0.23	mg/kg		0.2	mg/kg	0.00002 %	✓	
		601-034-00-4	205-911-9	205-99-2									
14		benzo[k]fluoranthene				0.14	mg/kg		0.122	mg/kg	0.0000122 %	✓	
		601-036-00-5	205-916-6	207-08-9									

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
15		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.23	mg/kg		0.2	mg/kg	0.00002 %	✓	
16		indeno[123-cd]pyrene		205-893-2	193-39-5		0.12	mg/kg		0.104	mg/kg	0.0000104 %	✓	
17		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
18		benzo[ghi]perylene		205-883-8	191-24-2		0.16	mg/kg		0.139	mg/kg	0.0000139 %	✓	
19		arsenic { arsenic compounds, with the exception of those specified elsewhere in this Annex }	033-002-00-5			1	11	mg/kg		9.57	mg/kg	0.000957 %	✓	
20		barium { barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthalenyl aryl sulphonic acid, and of salts specified elsewhere in this Annex }	056-002-00-7			1	85	mg/kg		73.95	mg/kg	0.0074 %	✓	
21		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.3	mg/kg	1.142	0.298	mg/kg	0.0000298 %	✓	
22		chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8	mg/kg	2.27	<4.086	mg/kg	<0.000409 %		<**LOD**
23		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		30	mg/kg	1.462	38.147	mg/kg	0.00381 %	✓	
24		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		24	mg/kg	1.126	23.509	mg/kg	0.00235 %	✓	
25		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	33	mg/kg		28.71	mg/kg	0.00287 %	✓	
26		mercury { mercury(II) sulfide }		215-696-3	1344-48-5		<0.3	mg/kg	1.16	<0.348	mg/kg	<0.0000348 %		<**LOD**
27		nickel { nickel(II) oxide (nickel monoxide) }	028-003-00-2	215-215-7 [1] 234-323-5 [2] - [3]	1313-99-1 [1] 11099-02-8 [2] 34492-97-2 [3]		18	mg/kg	1.273	19.929	mg/kg	0.00199 %	✓	
28		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		1.1	mg/kg	2.554	2.444	mg/kg	0.000244 %	✓	
29		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		42	mg/kg	1.785	65.231	mg/kg	0.00652 %	✓	
30		zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		83	mg/kg	1.968	142.138	mg/kg	0.0142 %	✓	
31		benzene	601-020-00-8	200-753-7	71-43-2		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
32		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
33		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
34		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.008	mg/kg		<0.008	mg/kg	<0.0000008 %		<**LOD**
35		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
36		TPH (C6 to C40) petroleum group			TPH		80	mg/kg		69.6	mg/kg	0.00696 %	✓	
37		confirm TPH has NOT arisen from diesel or petrol					☑							

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
38		monohydric phenols		P1186		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
										Total:	0.0481 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous Property to non-hazardous for cumulative determinand results below the threshold of: 1 % (1%) because: Waste Classification for Soils – A Practitioners' Guide Association of Geotechnical and Geoenvironmental Specialists, 2019 "In general flammability applies to solvents and fuels which are likely to be hazardous by other properties at 0.1% to 1.0% concentrations (and at such concentrations are unlikely to be flammable)."

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00696%)

Classification of sample: MWS105-ES

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

Sample details

Sample name:
MWS105-ES
Sample Depth:
0.20 m
Moisture content:
17%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 17% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
1		asbestos 650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<	%		<	%	<		**ND**
2		pH 	 	 PH		7.2	pH		7.2	pH	7.2 pH		
3		naphthalene 601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
4		acenaphthylene 	205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
5		acenaphthene 	201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
6		fluorene 	201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
7		phenanthrene 	201-581-5	85-01-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
8		anthracene 	204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
9		fluoranthene 	205-912-4	206-44-0		0.07	mg/kg		0.0581	mg/kg	0.00000581 %	✓	
10		pyrene 	204-927-3	129-00-0		0.06	mg/kg		0.0498	mg/kg	0.00000498 %	✓	
11		benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
12		chrysene 601-048-00-0	205-923-4	218-01-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
13		benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
14		benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
15		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
16		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
17		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
18		benzo[ghi]perylene		205-883-8	191-24-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
19		arsenic { arsenic compounds, with the exception of those specified elsewhere in this Annex }	033-002-00-5			1	11	mg/kg		9.13	mg/kg	0.000913 %	✓	
20		barium { barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthalenyl aryl sulphonic acid, and of salts specified elsewhere in this Annex }	056-002-00-7			1	77	mg/kg		63.91	mg/kg	0.00639 %	✓	
21		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.3	mg/kg	1.142	0.284	mg/kg	0.0000284 %	✓	
22		chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8	mg/kg	2.27	<4.086	mg/kg	<0.000409 %		<LOD
23		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		26	mg/kg	1.462	31.54	mg/kg	0.00315 %	✓	
24		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		19	mg/kg	1.126	17.755	mg/kg	0.00178 %	✓	
25		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	38	mg/kg		31.54	mg/kg	0.00315 %	✓	
26		mercury { mercury(II) sulfide }		215-696-3	1344-48-5		<0.3	mg/kg	1.16	<0.348	mg/kg	<0.0000348 %		<LOD
27		nickel { nickel(II) oxide (nickel monoxide) }	028-003-00-2	215-215-7 [1] 234-323-5 [2] - [3]	1313-99-1 [1] 11099-02-8 [2] 34492-97-2 [3]		12	mg/kg	1.273	12.675	mg/kg	0.00127 %	✓	
28		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
29		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		39	mg/kg	1.785	57.786	mg/kg	0.00578 %	✓	
30		zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		60	mg/kg	1.968	98.026	mg/kg	0.0098 %	✓	
31		benzene	601-020-00-8	200-753-7	71-43-2		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
32		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
33		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
34		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.008	mg/kg		<0.008	mg/kg	<0.0000008 %		<LOD
35		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
36		TPH (C6 to C40) petroleum group			TPH		<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
37		confirm TPH has NOT arisen from diesel or petrol					☑							

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
38		monohydric phenols		P1186		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
										Total:	0.0341 %		

Key

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

Classification of sample: MWS105-ES[2]

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

Sample details

Sample name:
MWS105-ES[2]
Sample Depth:
0.40 m
Moisture content:
19%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 19% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
1	●	pH			PH		7.8	pH		7.8	pH	7.8 pH		
2		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
3	●	acenaphthylene		205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
4	●	acenaphthene		201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
5	●	fluorene		201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
6	●	phenanthrene		201-581-5	85-01-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
7	●	anthracene		204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
8	●	fluoranthene		205-912-4	206-44-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
9	●	pyrene		204-927-3	129-00-0		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
10		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
11		chrysene	601-048-00-0	205-923-4	218-01-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
12		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
13		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
14		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
15	●	indeno[123-cd]pyrene		205-893-2	193-39-5		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
16		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
17	●	benzo[ghi]perylene		205-883-8	191-24-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD

#	Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
18	arsenic { arsenic compounds, with the exception of those specified elsewhere in this Annex }	033-002-00-5			1	7.2	mg/kg		5.832	mg/kg	0.000583 %	✓	
19	barium { barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthalenyl aryl sulphonic acid, and of salts specified elsewhere in this Annex }	056-002-00-7			1	34	mg/kg		27.54	mg/kg	0.00275 %	✓	
20	cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		<0.2	mg/kg	1.142	<0.228	mg/kg	<0.0000228 %		<LOD
21	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8	mg/kg	2.27	<4.086	mg/kg	<0.000409 %		<LOD
22	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		25	mg/kg	1.462	29.597	mg/kg	0.00296 %	✓	
23	copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		14	mg/kg	1.126	12.768	mg/kg	0.00128 %	✓	
24	lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	37	mg/kg		29.97	mg/kg	0.003 %	✓	
25	mercury { mercury(II) sulfide }		215-696-3	1344-48-5		<0.3	mg/kg	1.16	<0.348	mg/kg	<0.0000348 %		<LOD
26	nickel { nickel(II) oxide (nickel monoxide) }	028-003-00-2	215-215-7 [1] 234-323-5 [2] - [3]	1313-99-1 [1] 11099-02-8 [2] 34492-97-2 [3]		9.9	mg/kg	1.273	10.205	mg/kg	0.00102 %	✓	
27	selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
28	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		30	mg/kg	1.785	43.38	mg/kg	0.00434 %	✓	
29	zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		40	mg/kg	1.968	63.776	mg/kg	0.00638 %	✓	
30	benzene	601-020-00-8	200-753-7	71-43-2		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
31	toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
32	ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
33	xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.008	mg/kg		<0.008	mg/kg	<0.0000008 %		<LOD
34	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
35	TPH (C6 to C40) petroleum group			TPH		<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
36	confirm TPH has NOT arisen from diesel or petrol					☑							
37	monohydric phenols			P1186		<1	mg/kg		<1	mg/kg	<0.0001 %		<LOD
										Total:	0.0242 %		

Key

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

Classification of sample: MWS106-ES

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

Sample details

Sample name:
MWS106-ES
Sample Depth:
0.20 m
Moisture content:
20%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 20% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
1		asbestos 650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		<	%		<	%	<		**ND**
2		pH 	 	 PH		6	pH		6	pH	6pH		
3		naphthalene 601-052-00-2	202-049-5	91-20-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
4		acenaphthylene 	205-917-1	208-96-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
5		acenaphthene 	201-469-6	83-32-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
6		fluorene 	201-695-5	86-73-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
7		phenanthrene 	201-581-5	85-01-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
8		anthracene 	204-371-1	120-12-7		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
9		fluoranthene 	205-912-4	206-44-0		0.11	mg/kg		0.088	mg/kg	0.0000088 %	✓	
10		pyrene 	204-927-3	129-00-0		0.11	mg/kg		0.088	mg/kg	0.0000088 %	✓	
11		benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
12		chrysene 601-048-00-0	205-923-4	218-01-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
13		benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		0.07	mg/kg		0.056	mg/kg	0.0000056 %	✓	
14		benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
15		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.06	mg/kg		0.048	mg/kg	0.0000048 %	✓	
16		indeno[123-cd]pyrene		205-893-2	193-39-5		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
17		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
18		benzo[ghi]perylene		205-883-8	191-24-2		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
19		arsenic { arsenic compounds, with the exception of those specified elsewhere in this Annex }	033-002-00-5			1	13	mg/kg		10.4	mg/kg	0.00104 %	✓	
20		barium { barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthalenyl aryl sulphonic acid, and of salts specified elsewhere in this Annex }	056-002-00-7			1	82	mg/kg		65.6	mg/kg	0.00656 %	✓	
21		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.3	mg/kg	1.142	0.274	mg/kg	0.0000274 %	✓	
22		chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8	mg/kg	2.27	<4.086	mg/kg	<0.000409 %		<**LOD**
23		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		26	mg/kg	1.462	30.4	mg/kg	0.00304 %	✓	
24		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		16	mg/kg	1.126	14.411	mg/kg	0.00144 %	✓	
25		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	32	mg/kg		25.6	mg/kg	0.00256 %	✓	
26		mercury { mercury(II) sulfide }		215-696-3	1344-48-5		<0.3	mg/kg	1.16	<0.348	mg/kg	<0.0000348 %		<**LOD**
27		nickel { nickel(II) oxide (nickel monoxide) }	028-003-00-2	215-215-7 [1] 234-323-5 [2] - [3]	1313-99-1 [1] 11099-02-8 [2] 34492-97-2 [3]		11	mg/kg	1.273	11.199	mg/kg	0.00112 %	✓	
28		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		1.9	mg/kg	2.554	3.882	mg/kg	0.000388 %	✓	
29		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		41	mg/kg	1.785	58.554	mg/kg	0.00586 %	✓	
30		zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		58	mg/kg	1.968	91.334	mg/kg	0.00913 %	✓	
31		benzene	601-020-00-8	200-753-7	71-43-2		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
32		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
33		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
34		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.008	mg/kg		<0.008	mg/kg	<0.0000008 %		<**LOD**
35		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
36		TPH (C6 to C40) petroleum group			TPH		<10	mg/kg		<10	mg/kg	<0.001 %		<**LOD**
37		confirm TPH has NOT arisen from diesel or petrol					☑							

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
38		monohydric phenols		P1186		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
										Total:	0.0328 %		

Key

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

Classification of sample: MWS107-ES

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

Sample details

Sample name:
MWS107-ES
Sample Depth:
0.20 m
Moisture content:
16%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 16% Wet Weight Moisture Correction applied (MC)

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
1		asbestos				<	%		<	%	<		**ND**
		650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5									
2	●	pH				7.3	pH		7.3	pH	7.3 pH		
				PH									
3		naphthalene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-052-00-2	202-049-5	91-20-3									
4	●	acenaphthylene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			205-917-1	208-96-8									
5	●	acenaphthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-469-6	83-32-9									
6	●	fluorene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			201-695-5	86-73-7									
7	●	phenanthrene				0.06	mg/kg		0.0504	mg/kg	0.00000504 %	✓	
			201-581-5	85-01-8									
8	●	anthracene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
			204-371-1	120-12-7									
9	●	fluoranthene				0.22	mg/kg		0.185	mg/kg	0.0000185 %	✓	
			205-912-4	206-44-0									
10	●	pyrene				0.18	mg/kg		0.151	mg/kg	0.0000151 %	✓	
			204-927-3	129-00-0									
11		benzo[a]anthracene				0.06	mg/kg		0.0504	mg/kg	0.00000504 %	✓	
		601-033-00-9	200-280-6	56-55-3									
12		chrysene				0.09	mg/kg		0.0756	mg/kg	0.00000756 %	✓	
		601-048-00-0	205-923-4	218-01-9									
13		benzo[b]fluoranthene				0.15	mg/kg		0.126	mg/kg	0.0000126 %	✓	
		601-034-00-4	205-911-9	205-99-2									
14		benzo[k]fluoranthene				<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
		601-036-00-5	205-916-6	207-08-9									

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
15		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
16		indeno[123-cd]pyrene		205-893-2	193-39-5		0.07	mg/kg		0.0588	mg/kg	0.00000588 %	✓	
17		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<LOD
18		benzo[ghi]perylene		205-883-8	191-24-2		0.08	mg/kg		0.0672	mg/kg	0.00000672 %	✓	
19		arsenic { arsenic compounds, with the exception of those specified elsewhere in this Annex }	033-002-00-5			1	12	mg/kg		10.08	mg/kg	0.00101 %	✓	
20		barium { barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthalenyl aryl sulphonic acid, and of salts specified elsewhere in this Annex }	056-002-00-7			1	74	mg/kg		62.16	mg/kg	0.00622 %	✓	
21		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.3	mg/kg	1.142	0.288	mg/kg	0.0000288 %	✓	
22		chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8	mg/kg	2.27	<4.086	mg/kg	<0.000409 %		<LOD
23		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		25	mg/kg	1.462	30.693	mg/kg	0.00307 %	✓	
24		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		15	mg/kg	1.126	14.186	mg/kg	0.00142 %	✓	
25		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	35	mg/kg		29.4	mg/kg	0.00294 %	✓	
26		mercury { mercury(II) sulfide }		215-696-3	1344-48-5		<0.3	mg/kg	1.16	<0.348	mg/kg	<0.0000348 %		<LOD
27		nickel { nickel(II) oxide (nickel monoxide) }	028-003-00-2	215-215-7 [1] 234-323-5 [2] - [3]	1313-99-1 [1] 11099-02-8 [2] 34492-97-2 [3]		13	mg/kg	1.273	13.897	mg/kg	0.00139 %	✓	
28		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<LOD
29		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		39	mg/kg	1.785	58.483	mg/kg	0.00585 %	✓	
30		zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		61	mg/kg	1.968	100.861	mg/kg	0.0101 %	✓	
31		benzene	601-020-00-8	200-753-7	71-43-2		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
32		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
33		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
34		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.008	mg/kg		<0.008	mg/kg	<0.0000008 %		<LOD
35		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<LOD
36		TPH (C6 to C40) petroleum group			TPH		<10	mg/kg		<10	mg/kg	<0.001 %		<LOD
37		confirm TPH has NOT arisen from diesel or petrol					☑							

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
38		monohydric phenols		P1186		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
										Total:	0.0339 %		

Key

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

Classification of sample: MWS108-ES

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

Sample details

Sample name:
MWS108-ES
Sample Depth:
0.20 m
Moisture content:
16%
(wet weight correction)

LoW Code:
Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 16% Wet Weight Moisture Correction applied (MC)

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
1		asbestos	650-013-00-6	- - - - - - -	12001-28-4 132207-32-0 12172-73-5 77536-66-4 77536-68-6 77536-67-5 12001-29-5		< %		< %	<		**ND**
2	●	pH			PH		7.7 pH		7.7 pH	7.7 pH		
3		naphthalene	601-052-00-2	202-049-5	91-20-3		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
4	●	acenaphthylene		205-917-1	208-96-8		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
5	●	acenaphthene		201-469-6	83-32-9		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
6	●	fluorene		201-695-5	86-73-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
7	●	phenanthrene		201-581-5	85-01-8		0.11 mg/kg		0.0924 mg/kg	0.00000924 %	✓	
8	●	anthracene		204-371-1	120-12-7		<0.05 mg/kg		<0.05 mg/kg	<0.000005 %		<**LOD**
9	●	fluoranthene		205-912-4	206-44-0		0.35 mg/kg		0.294 mg/kg	0.0000294 %	✓	
10	●	pyrene		204-927-3	129-00-0		0.31 mg/kg		0.26 mg/kg	0.000026 %	✓	
11		benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3		0.16 mg/kg		0.134 mg/kg	0.0000134 %	✓	
12		chrysene	601-048-00-0	205-923-4	218-01-9		0.19 mg/kg		0.16 mg/kg	0.000016 %	✓	
13		benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2		0.27 mg/kg		0.227 mg/kg	0.0000227 %	✓	
14		benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9		0.09 mg/kg		0.0756 mg/kg	0.00000756 %	✓	

#		Determinand	EU CLP index number	EC Number	CAS Number	CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
15		benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8		0.2	mg/kg		0.168	mg/kg	0.0000168 %	✓	
16		indeno[123-cd]pyrene		205-893-2	193-39-5		0.1	mg/kg		0.084	mg/kg	0.0000084 %	✓	
17		dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3		<0.05	mg/kg		<0.05	mg/kg	<0.000005 %		<**LOD**
18		benzo[ghi]perylene		205-883-8	191-24-2		0.14	mg/kg		0.118	mg/kg	0.0000118 %	✓	
19		arsenic { arsenic compounds, with the exception of those specified elsewhere in this Annex }	033-002-00-5			1	10	mg/kg		8.4	mg/kg	0.00084 %	✓	
20		barium { barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthalenyl aryl sulphonic acid, and of salts specified elsewhere in this Annex }	056-002-00-7			1	76	mg/kg		63.84	mg/kg	0.00638 %	✓	
21		cadmium { cadmium oxide }	048-002-00-0	215-146-2	1306-19-0		0.3	mg/kg	1.142	0.288	mg/kg	0.0000288 %	✓	
22		chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }	024-017-00-8				<1.8	mg/kg	2.27	<4.086	mg/kg	<0.000409 %		<**LOD**
23		chromium in chromium(III) compounds { chromium(III) oxide (worst case) }		215-160-9	1308-38-9		24	mg/kg	1.462	29.465	mg/kg	0.00295 %	✓	
24		copper { dicopper oxide; copper (I) oxide }	029-002-00-X	215-270-7	1317-39-1		15	mg/kg	1.126	14.186	mg/kg	0.00142 %	✓	
25		lead { lead compounds with the exception of those specified elsewhere in this Annex }	082-001-00-6			1	28	mg/kg		23.52	mg/kg	0.00235 %	✓	
26		mercury { mercury(II) sulfide }		215-696-3	1344-48-5		<0.3	mg/kg	1.16	<0.348	mg/kg	<0.0000348 %		<**LOD**
27		nickel { nickel(II) oxide (nickel monoxide) }	028-003-00-2	215-215-7 [1] 234-323-5 [2] - [3]	1313-99-1 [1] 11099-02-8 [2] 34492-97-2 [3]		11	mg/kg	1.273	11.759	mg/kg	0.00118 %	✓	
28		selenium { nickel selenate }	028-031-00-5	239-125-2	15060-62-5		<1	mg/kg	2.554	<2.554	mg/kg	<0.000255 %		<**LOD**
29		vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1		35	mg/kg	1.785	52.484	mg/kg	0.00525 %	✓	
30		zinc { trizinc bis(orthophosphate) }	030-011-00-6	231-944-3	7779-90-0		56	mg/kg	1.968	92.593	mg/kg	0.00926 %	✓	
31		benzene	601-020-00-8	200-753-7	71-43-2		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
32		toluene	601-021-00-3	203-625-9	108-88-3		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
33		ethylbenzene	601-023-00-4	202-849-4	100-41-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
34		xylene	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]		<0.008	mg/kg		<0.008	mg/kg	<0.0000008 %		<**LOD**
35		tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane	603-181-00-X	216-653-1	1634-04-4		<0.005	mg/kg		<0.005	mg/kg	<0.0000005 %		<**LOD**
36		TPH (C6 to C40) petroleum group			TPH		<10	mg/kg		<10	mg/kg	<0.001 %		<**LOD**
37		confirm TPH has NOT arisen from diesel or petrol					☑							

#		Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
		EU CLP index number	EC Number	CAS Number									
38		monohydric phenols		P1186		<1	mg/kg		<1	mg/kg	<0.0001 %		<**LOD**
										Total:	0.0316 %		

Key

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

Appendix A: Classifier defined and non GB MCL determinands

- **pH** (CAS Number: PH)

Description/Comments: Appendix C4
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: None.

- **acenaphthylene** (EC Number: 205-917-1, CAS Number: 208-96-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H302 , Acute Tox. 1; H330 , Acute Tox. 1; H310 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315

- **acenaphthene** (EC Number: 201-469-6, CAS Number: 83-32-9)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Aquatic Chronic 2; H411

- **fluorene** (EC Number: 201-695-5, CAS Number: 86-73-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **phenanthrene** (EC Number: 201-581-5, CAS Number: 85-01-8)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Carc. 2; H351 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410 , Skin Irrit. 2; H315

- **anthracene** (EC Number: 204-371-1, CAS Number: 120-12-7)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 17 Jul 2015
Hazard Statements: Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Skin Sens. 1; H317 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **fluoranthene** (EC Number: 205-912-4, CAS Number: 206-44-0)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Acute Tox. 4; H302 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **pyrene** (EC Number: 204-927-3, CAS Number: 129-00-0)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 21 Aug 2015
Hazard Statements: Skin Irrit. 2; H315 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

- **indeno[123-cd]pyrene** (EC Number: 205-893-2, CAS Number: 193-39-5)

Description/Comments: Data from C&L Inventory Database
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 06 Aug 2015
Hazard Statements: Carc. 2; H351

- **benzo[ghi]perylene** (EC Number: 205-883-8, CAS Number: 191-24-2)

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 28/02/2015
Data source: http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database
Data source date: 23 Jul 2015
Hazard Statements: Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

arsenic compounds, with the exception of those specified elsewhere in this Annex

GB MCL index number: 033-002-00-5
Description/Comments: Worst Case: IARC considers arsenic compounds Group 1; Carcinogenic to humans
Additional Hazard Statement(s): Carc. 1A; H350
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 1A; H350 hazard statement sourced from: IARC Group 1 (23, Sup 7, 100C) 2012

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

Description/Comments: Data from C&L Inventory Database
Data source: https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806
Data source date: 17 Jul 2015
Hazard Statements: Acute Tox. 4; H332 , Acute Tox. 4; H302 , Eye Irrit. 2; H319 , STOT SE 3; H335 , Skin Irrit. 2; H315 , Resp. Sens. 1; H334 , Skin Sens. 1; H317 , Repr. 1B; H360FD , Aquatic Acute 1; H400 , Aquatic Chronic 1; H410

lead compounds with the exception of those specified elsewhere in this Annex

GB MCL index number: 082-001-00-6
Description/Comments: Least-worst case: IARC considers lead compounds Group 2A; Probably carcinogenic to humans; Lead REACH Consortium, following MCL protocols, considers many simple lead compounds to be Carcinogenic category 2
Additional Hazard Statement(s): Carc. 2; H351
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2A (Sup 7, 87) 2006; Lead REACH Consortium www.reach-lead.eu/substanceinformation.html. Review date 29/09/2015

mercury(II) sulfide (EC Number: 215-696-3, CAS Number: 1344-48-5)

Description/Comments: Data from ECHA's C&L and SDS Sigma Aldrich V6 dated 17/9/2019

Threshold for EUH031 based on calculation method in WM3 Box C12.1
Data source: https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/8530
Data source date: 14 May 2020
Hazard Statements: EUH031 >= 1 % , EUH031 , Skin Sens. 1; H317 , STOT RE 2; H373

ethylbenzene (EC Number: 202-849-4, CAS Number: 100-41-4)

GB MCL index number: 601-023-00-4
Description/Comments:
Additional Hazard Statement(s): Carc. 2; H351
Reason for additional Hazards Statement(s):
20 Nov 2021 - Carc. 2; H351 hazard statement sourced from: IARC Group 2B (77) 2000

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

Description/Comments: Hazard statements taken from WM3 1st Edition 2015; Risk phrases: WM2 3rd Edition 2013
Data source: WM3 1st Edition 2015
Data source date: 25 May 2015
Hazard Statements: Flam. Liq. 3; H226 , Asp. Tox. 1; H304 , STOT RE 2; H373 , Muta. 1B; H340 , Carc. 1B; H350 , Repr. 2; H361d , Aquatic Chronic 2; H411

confirm TPH has NOT arisen from diesel or petrol

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

monohydric phenols (CAS Number: P1186)

Description/Comments: Combined hazards statements from harmonised entries in CLP for phenol, cresols and xylenols (604-001-00-2, 604-004-00-9, 604-006-00-X)
Data source: CLP combined data
Data source date: 26 Mar 2019
Hazard Statements: Muta. 2; H341 , Acute Tox. 3; H331 , Acute Tox. 3; H311 , Acute Tox. 3; H301 , STOT RE 2; H373 , Skin Corr. 1B; H314 , Skin Corr. 1B; H314 >= 3 % , Skin Irrit. 2; H315 1 <= conc. < 3 % , Eye Irrit. 2; H319 1 <= conc. < 3 % , Aquatic Chronic 2; H411

Appendix B: Rationale for selection of metal species

arsenic {arsenic compounds, with the exception of those specified elsewhere in this Annex}

Reasonable worst case based on site history, geoenvironmental setting and other laboratory analysis.

barium {barium salts, with the exception of barium sulphate, salts of 1-azo-2-hydroxynaphthalenyl aryl sulphonic acid, and of salts specified elsewhere in this Annex}

Reasonable worst case based on site history, geoenvironmental setting and other laboratory analysis.

cadmium {cadmium oxide}

Reasonable case CLP species based on hazard statements/molecular weight, very low solubility in water. Industrial sources include: electroplating baths, electrodes for storage batteries, catalysts, ceramic glazes, phosphors, pigments and nematocides. (edit as required) Worst case compounds in CLP: cadmium sulphate, chloride, fluoride & iodide not expected as either very soluble and/or compound's industrial usage not related to site history (edit as required)

chromium in chromium(VI) compounds {chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex}

Worst case species based on hazard statements/molecular weight (edit as required)

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

Reasonable case species based on hazard statements/molecular weight. Industrial sources include: tanning, pigment in paint, inks and glass (edit as required)

copper {dicopper oxide; copper (I) oxide}

Reasonable case CLP species based on hazard statements/molecular weight and insolubility in water. Industrial sources include: oxidised copper metal, brake pads, pigments, antifouling paints, fungicide. (edit as required) Worse case copper sulphate is very soluble and likely to have been leached away if ever present and/or not enough soluble sulphate detected. (edit as required)

lead {lead compounds with the exception of those specified elsewhere in this Annex}

Reasonable worst case based on site history, geoenvironmental setting and other laboratory analysis.

mercury {mercury(II) sulfide}

Reasonable worst case based on site history, geoenvironmental setting and other laboratory analysis.

nickel {nickel(II) oxide (nickel monoxide)}

Reasonable worst case based on site history, geoenvironmental setting and other laboratory analysis.

selenium {nickel selenate}

Worst case CLP species based on hazard statements/molecular weight (edit as required)

vanadium {divanadium pentaoxide; vanadium pentoxide}

Worst case species (edit as required)

zinc {trizinc bis(orthophosphate)}

Reasonable worst case based on site history, geoenvironmental setting and other laboratory analysis.

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.2.GB - Oct 2021
HazWasteOnline Classification Engine Version: 2024.304.6320.11573 (30 Oct 2024)
HazWasteOnline Database: 2024.304.6320.11573 (30 Oct 2024)

This classification utilises the following guidance and legislation:
WM3 v1.2.GB - Waste Classification - 1st Edition v1.2.GB - Oct 2021
CLP Regulation - Regulation 1272/2008/EC of 16 December 2008
1st ATP - Regulation 790/2009/EC of 10 August 2009
2nd ATP - Regulation 286/2011/EC of 10 March 2011
3rd ATP - Regulation 618/2012/EU of 10 July 2012
4th ATP - Regulation 487/2013/EU of 8 May 2013
Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013
5th ATP - Regulation 944/2013/EU of 2 October 2013
6th ATP - Regulation 605/2014/EU of 5 June 2014
WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014
Revised List of Waste 2014 - Decision 2014/955/EU of 18 December 2014
7th ATP - Regulation 2015/1221/EU of 24 July 2015
8th ATP - Regulation (EU) 2016/918 of 19 May 2016
9th ATP - Regulation (EU) 2016/1179 of 19 July 2016
10th ATP - Regulation (EU) 2017/776 of 4 May 2017
HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017
13th ATP - Regulation (EU) 2018/1480 of 4 October 2018
14th ATP - Regulation (EU) 2020/217 of 4 October 2019
15th ATP - Regulation (EU) 2020/1182 of 19 May 2020
The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020
The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1540 of 16th December 2020
GB MCL List - version 1.1 of 09 June 2021
GB MCL List v2.0 - version 2.0 of 20th October 2023
GB MCL List v3.0 - version 3.0 of 11th January 2024
GB MCL List v4.0 - version 4.0 of 2nd March 2024
GB MCL List v5.0 - version 5.0 of 26th June 2024

APPENDIX 7

- Field Monitoring Records
- Groundwater Level Data
- Hazardous Soil Gas Data

GAS MONITORING RECORD ROUND 1

Location Reference	Time	Flow and Pressure Measurements				Gas Measurements									VOC Measurements		Dip Measurements		Comments
		Flow max	Flow steady	Atmospheric Pressure	Differential Pressure	Methane Max	Methane Steady	Methane LEL	Carbon Dioxide Max	Carbon Dioxide Steady	Oxygen	Carbon Monoxide	Hydrogen Sulphide	Time Taken to Reach Steady State	Hexane	PID	Depth to Water	Depth to Base	
		l hr^{-1}		mb	Pa	%	%	%	%	%	%	ppm	ppm	s	%	ppm	m bgl	m bgl	
MWS101	11:30	0	0	1017	0	0	0	0	0.7	0.7	19.9	0	0	50.000	0.000	8	0.94	1.87	Well purged sufficiently.
MWS102	12:00	0	0	1018	0	0	0	0	2.8	2.8	10.6	0	0	50.000	0.000	9	Dry	1.90	-
MWS104	12:45	0	0	1017	0	0	0	0	1.4	1.4	17.8	0	0	50.000	0.000	7	1.26	1.86	Well purged sufficiently.
MWS108	13:30	0	0	1018	0	0	0	0	2.1	2.1	17.3	0	0	50.000	0.000	11	1.25	2.62	Well purged sufficiently.
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Weather:	Overcast. Atmospheric Pressure rising during the past 18 hours.	nr = not recorded	Gas Analyser	PID	Site:	Wickhurst Green
		Model:	GFM436-1	PGM7320	Project Number:	21949av
		Serial Number:	10783	592-920925	Monitored By:	Finn Leahy
		Date of Last Calibration:	03/05/2024	07/06/2024	Date:	29/10/2024

GAS MONITORING RECORD ROUND 2

Location Reference	Time	Flow and Pressure Measurements				Gas Measurements									VOC Measurements		Dip Measurements		Comments
		Flow max	Flow steady	Atmospheric Pressure	Differential Pressure	Methane Max	Methane Steady	Methane LEL	Carbon Dioxide Max	Carbon Dioxide Steady	Oxygen	Carbon Monoxide	Hydrogen Sulphide	Time Taken to Reach Steady State	Hexane	PID	Depth to Water	Depth to Base	
		$l\ hr^{-1}$		mb	Pa	%	%	%	%	%	%	ppm	ppm	s	%	ppm	m	m	
MWS101	10:35	0	0	1025	0	0	0	0	0.7	0.7	20.1	0	0	45	0.000	4	1.48	1.98	-
MWS102	10:30	0	0	1027	0	0	0	0	2.7	2.4	14.3	0	0	60	0.000	5	DRY	1.95	-
MWS104	10:14	0	0	1027	0	0	0	0	2.3	2.3	16.4	0	0	30	0.000	8	1.66	1.97	-
MWS108	10:05	1.7	0.3	1026	0	0	0	0	3.6	3.6	15	0	0	30	0.000	8	1.70	2.67	-
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Weather:	Clear and sunny	nr = not recorded	Gas Analyser	PID	Site:	Wickhurst Green
		Model:	GFM436-1	PGM7320	Project Number:	21949av
		Serial Number:	10783	592-920925	Monitored By:	Deji Juwa
		Date of Last Calibration:	03/05/2024	07/06/2024	Date:	14/11/2024

GAS MONITORING RECORD ROUND 3

IDOM

Location Reference	Time	Flow and Pressure Measurements				Gas Measurements									VOC Measurements		Dip Measurements		Comments
		Flow		Atmospheric Pressure	Differential Pressure	Methane Max	Methane Steady	Methane LEL	Carbon Dioxide Max	Carbon Dioxide Steady	Oxygen	Carbon Monoxide	Hydrogen Sulphide	Time Taken to Reach Steady State	Hexane	PID	Depth to Water	Depth to Base	
		max	steady																
		$l\ hr^{-1}$		mb	Pa	%	%	%	%	%	%	ppm	ppm	s	%	ppm	m	m	
MWS101	10:30	0	0	996	0	0	0	0	2.3	2.3	14.7	0	0	30	0.000	0	0.90	1.98	-
MWS102	10:40	0	0	994	0	0	0	0	0.7	0.7	19.9	0	0	30	0.000	0	DRY	1.95	-
MWS104	10:50	11	0	991	0	0	0	0	2.3	2.3	16.1	0	0	30	0.000	0	0.95	1.97	-
MWS108	11:00	12.3	0	991	0	0	0	0	3.3	3.3	15.3	0	0	30	0.000	0	1.15	2.67	-
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Weather:	Cloudy. Atmospheric pressure falling during past 12 hours				
	nr = not recorded	Gas Analyser	PID	Site:	Wickhurst Green
	Model:	GFM436-1	PGM7320	Project Number:	21949av
	Serial Number:	10783	592-920925	Monitored By:	Matt Baylis
	Date of Last Calibration:	03/05/2024	07/06/2024	Date:	21/11/2024

GAS MONITORING RECORD ROUND 4

Location Reference	Time	Flow and Pressure Measurements				Gas Measurements									VOC Measurements		Dip Measurements		Comments
		Flow max	Flow steady	Atmospheric Pressure	Differential Pressure	Methane Max	Methane Steady	Methane LEL	Carbon Dioxide Max	Carbon Dioxide Steady	Oxygen	Carbon Monoxide	Hydrogen Sulphide	Time Taken to Reach Steady State	Hexane	PID	Depth to Water	Depth to Base	
		l hr^{-1}		mb	Pa	%	%	%	%	%	%	ppm	ppm	s	%	ppm	m	m	
MWS101	11:45	0	0	999	0	0	0	0	2.2	2.2	16.1	0	0	30	0	0	0.75	1.98	Divers installed
MWS102	12:00	0	0	999	0	0	0	0	0.9	0.9	19.5	0	0	30	0	0	DRY	1.95	-
MWS104	12:15	0	0	1000	0	0	0	0	2.1	2.1	16.8	0	0	30	0	1	0.48	1.97	Divers installed
MWS108	12:25	1.3	0	999	0	0	0	0	2.6	2.6	16.6	0	0	30	0	0	0.88	2.67	Divers installed
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Weather:	Cloudy. Atmospheric pressure falling during past 12 hours	nr = not recorded	Gas Analyser	PID	Site:	Wickhurst Green
		Model:	GFM436-1	PGM7320	Project Number:	21949av
		Serial Number:	10783	592-920925	Monitored By:	Matt Baylis
		Date of Last Calibration:	03/05/2024	07/06/2024	Date:	25/11/2024

GAS MONITORING RECORD ROUND 5

Location Reference	Time	Flow and Pressure Measurements				Gas Measurements									VOC Measurements		Dip Measurements		Comments
		Flow max	Flow steady	Atmospheric Pressure	Differential Pressure	Methane Max	Methane Steady	Methane LEL	Carbon Dioxide Max	Carbon Dioxide Steady	Oxygen	Carbon Monoxide	Hydrogen Sulphide	Time Taken to Reach Steady State	Hexane	PID	Depth to Water	Depth to Base	
		$l\ hr^{-1}$		mb	Pa	%	%	%	%	%	%	ppm	ppm	s	%	ppm	m	m	
MWS101	10:45	0	0	1011	0	0	0	0	0.1	0.1	20.3	0	0	60	0	3	0.7	1.9	-
MWS102	11:00	0	0	1011	0	0	0	0	0.1	0.1	20.4	0	0	60	0	4	Dry	1.9	-
MWS104	11:30	0	0	1010	0	0	0	0	0.5	0.5	20.3	0	0	60	0	6	0.5	1.9	-
MWS108	11:45	0	0	1010	0	0	0	0	0.4	0.4	20.2	0	0	60	0	1	1.0	2.6	-
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Weather:	Overcast. Atmospheric Pressure rising during the past 6 hours.	nr = not recorded	**Gas Analyser**	**PID**	**Site:** Wickhurst Green
		Model:	GFM436-1	PGM7320	**Project Number:** 21949av
		Serial Number:	10783	592-920925	**Monitored By:** Finn Leahy
		Date of Last Calibration:	03/05/2024	07/06/2024	**Date:** 02/12/2024

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GAS MONITORING RECORD ROUND 6

Location Reference	Time	Flow and Pressure Measurements				Gas Measurements									VOC Measurements		Dip Measurements		Comments
		Flow		Atmospheric Pressure	Differential Pressure	Methane Max	Methane Steady	Methane LEL	Carbon Dioxide Max	Carbon Dioxide Steady	Oxygen	Carbon Monoxide	Hydrogen Sulphide	Time Taken to Reach Steady State	Hexane	PID	Depth to Water	Depth to Base	
		max	steady																
		$l\ hr^{-1}$		mb	Pa	%	%	%	%	%	%	ppm	ppm	s	%	ppm	m	m	
MWS101	12:02	0	0	1015	0	0	0	0	3.1	0.7	19.9	0	0	-	0	0	0.9	2.0	-
MWS102	11:53	0	0	1015	0	0	0	0	4.2	3.8	15.7	0	0	-	0	0	1.3	2.0	-
MWS104	12:44	0	0	1014	0	0	0	0	2.3	2.3	19.6	0	0	-	0	0	0.7	1.9	-
MWS108	12:37	0	0	1014	0	0	0	0	2	2	19.4	0	0	-	0	0	1.3	2.8	-
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Weather:	Overcast. Atmospheric pressure falling past 12 hours.		Gas Analyser	PID		
		nr = not recorded			Site:	Wickhurst Green
		Model:	GFM436-1	PGM7320	Project Number:	21949av
		Serial Number:	10783	592-920925	Monitored By:	Ben Alexander
		Date of Last Calibration:	03/05/2024	07/06/2024	Date:	20/01/2025

APPENDIX 8 ▪ Gas Risk Assessment

MODIFIED WILSON AND CARD GAS CHARACTERISTIC SITUATION

SITE: Wickhurst Green JOB NUMBER: 21949av 13/11/2024

Modified Wilson and Card Classification

					BS 8485:2015+A1:2019 Gas Protection Scores - refer to standard for full guidance			
					Minimum Gas Protection Score Required			
Characteristic Situation	Risk Classification	Gas Screening Value Threshold (L hr^{-1})	Additional Factors	Typical Source of Generation	Type A Building	Type B Building	Type C Building	Type D Building
1	very low risk	<0.07	typically methane not to exceed 1% and/or carbon dioxide 5% otherwise consider increase to situation 2	natural soils with low organic content; 'typical' made ground	0	0	0	0
2	low risk	0.07 to <0.7	borehole air flow rate not to exceed 70 L hr^{-1} otherwise consider increase to situation 3	natural soils with high peat/organic content; 'typical' made ground	3.5	3.5	2.5	1.5
3	moderate risk	0.7 to <3.5		old landfill, inert waste, mineworking flooded	4.5	4	3	2.5
4	moderate to high risk	3.5 to <15	quantitative risk assessment required to evaluate scope of protective measures	mineworking susceptible to flooding, completed landfill	6.5 A)	5.5 A)	4.5	3.5
5	high risk	15 to <70		mineworking unflooded inactive with shallow workings near surface	hazard too high for this method to define protection measures	6 A)	5.5	4.5
6	very high risk	>70		recent landfill site	hazard too high for this method to define protection measures	hazard too high for this method to define protection measures	hazard too high for this method to define protection measures	6

BS 8485:2015+A1:2019 Gas Protection Measures - refer to standard for full guidance
Select two or more elements from the following three types of protection to achieve score (only one element per type permitted)

Structural Barrier	Score A)	Ventilation Measures		Score	Gas Resistant Membrane	Score
Precast suspended segmental subfloor (i.e. beam and block)	0	Pressure relief pathway (usually formed of low fines gravel or with a thin geocomposite blanket or strips terminating in a gravel trench external to the building)		0.5	Gas resistant membrane meeting all of the following criteria: 1. sufficiently impervious, both in the sheet material and in the sealing of sheets and sealing around sheet penetrations, to prevent any significant passage of methane and/or carbon dioxide through the membrane. *A membrane with a methane gas transmission rate <40.0 ml/day/m2/atm (average) for sheets and joints (tested in accordance with BS ISO 15105-1:2007 manometric method) is regarded as sufficiently impervious.* 2. sufficiently durable to remain serviceable for the anticipated life of the building and duration of gas emissions 3. 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) and to withstand in-service stresses (e.g. settlement if placed below a floor slab) 5. capable, after installation, of providing a complete barrier to the entry of the relevant gas 6. verified in accordance with CIRIA C735 * For example, reinforced LDPE (virgin polymer) membranes having a minimum mass per unit area of 370 g/m2 and not significantly less than 0.4 mm thickness between the reinforcement scrim (tested in accordance with Procedure D (2 mm diameter tip) of BS EN ISO 9863-1:2016) installed above floor slabs are considered sufficiently strong to meet the performance criteria (see also C.3). Thicker and more robust membranes or an additional membrane protection layer should be installed directly beneath cast-in-situ floor slabs	2
Cast in situ ground-bearing floor slab (with only nominal mesh reinforcement)	0.5	Passive sub floor dispersal layer	Very good performance E)	2.5		
			Good performance E)	1.5		
Cast in situ monolithic reinforced ground bearing raft or reinforced cast in situ suspended floor slab with minimal penetrations	1 or 1.5 B)	Active dispersal layer, usually comprising fans with active abstraction (suction) from a subfloor dilution layer, with roof level vents. The dilution layer may comprise a clear void or be formed of geocomposite or polystyrene void formers E)		1.5 to 2.5		
Basement floor and walls conforming to BS 8102:2009, Grade 2 waterproofing C) D)	2	Active positive pressurization by the creation of a blanket of external fresh air beneath the building floor slab by pumps supplying air to points across the central footprint of the building into a permeable layer, usually formed of a thin geocomposite blanket E)		1.5 to 2.5		
Basement floor and walls conforming to BS 8102:2009, Grade 3 waterproofing C) D)	2.5	Ventilated car park (floor slab of occupied part of the building under consideration is underlain by a basement or undercroft car park) F)		4		

Notes

A) The scores are conditional on breaches of floor slabs, etc., being effectively sealed

B) To achieve a score of 1.5 the raft or suspended slab should be well reinforced to control cracking and have minimal penetrations cast in

C) The score is conditional on the waterproofing being provided by a suitable structural barrier with the design and detailing of the walls and floor meeting the requirements for Type B protection. The score cannot be assigned for Type A (waterproof membrane) or Type C (drained cavity wall).

D) If a membrane is installed beneath and around the basement to provide Type A waterproofing (BS 8102:2009), it can be assigned a gas protection score in accordance with Table 7, if it meets all the criteria for a gas resistant membrane in that table

E) Refer to BS 8485:2015 Annex B to determine performance and assign score

F) Assumes that the car park is vented to deal with car exhaust fumes, designed to Buildings Regulations 2000, Approved Document F

Building Types

Type A
Private ownership with no building management controls on alterations to the internal structure, the use of rooms, the ventilation of rooms or the structural fabric of the building. Some small rooms present. Probably conventional building construction (rather than civil engineering). Examples include private housing and some retail premises.

FOR TYPE A BUILDINGS ACTIVE VENTILATION MEASURES ARE INAPPROPRIATE

Type B
Private or commercial property with central building management control of any alterations to the building or its uses but limited or no central building management control of the maintenance of the building, including the gas protection measures. Multiple occupancy. Small to medium size rooms with passive ventilation of rooms and other internal spaces throughout ground floor and basement areas. May be conventional building or civil engineering construction. Examples include managed apartments, multiple occupancy offices, some retail premises and parts of some public buildings (such as schools, hospitals, leisure centres) and parts of hotels.

Type C
Commercial building with central building management control of any alterations to the building or its uses and central building management control of the maintenance of the building, including the gas protection measures. Single occupancy of ground floor and basement areas. Small to large size rooms with active ventilation or good passive ventilation of all rooms and other internal spaces throughout ground floor and basement areas. Probably civil engineering construction. Examples include offices, some retail premises, and parts of some public buildings (such as schools, hospitals, leisure centres and parts of hotels).

Type D
Industrial style building having large volume internal space(s) that are well ventilated. Corporate ownership with building management controls on alterations to the ground floor and basement areas of the building and on maintenance of ground gas protective measures. Probably civil engineering construction. Examples are retail park sales buildings, factory shop floor areas, warehouses. (Small rooms within these style buildings should be separately categorized as Type B or Type C).

APPENDIX 9 ▪ Detailed Quantitative Risk Assessment

RISK ASSESSMENT METHODOLOGY (FOLLOWING CIRIA C552, 2001)

The potential sources of contamination at the site and the implications with respect to development have been interpreted in accordance with the current government guidance on source-pathway-receptor risk assessment.

The existence of a pollutant linkage requires a pathway by which the receptor could be exposed to the source.

Where a complete pollutant linkage is deemed to be present, the level of *risk* is then determined taking into account the *likelihood* of significant impact and the *severity* of potential impact using the following classification tables which broadly follow the method set out in CIRIA C552.

Table A1: Classification of Severity (or Consequence)

CLASSIFICATION	DEFINITION
Severe	Short term (acute) risk to human health likely to result in "significant harm" as defined by the Environment Protection Act 1990, Part IIA. Short term risk of sensitive water resource. Catastrophic damage to buildings/property. A short term risk to a particular ecosystem or organism forming part of such ecosystem (note: the definitions of ecological systems within the Draft Circular on Contaminated Land, DETR, 2000).
Medium	Chronic damage to Human Health ("significant harm" as defined in DETR, 2000). Pollution of sensitive water resources, significant change in a particular ecosystem or organism forming part of such ecosystem.
Mild	Pollution of non sensitive water resources. Significant damage to crops, buildings, structures and services ("significant harm" as defined in the Draft Circular on Contaminated Land, DETR, 2000). Damage to sensitive buildings/structures/services or the environment.
Minor	Harm, although not necessarily significant harm, which may result in a financial loss or expenditure to resolve. Non permanent health effects to human health (easily prevented by means such as personal protective clothing, etc). Easily repairable effects of damage to buildings, structures and services.

Table A2: Classification of Likelihood (Probability)

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

Table A3: Risk Estimation – Combination of Consequence and Probability(after CIRIA C552 and R&D66)

		MAGNITUDE OF POTENTIAL CONSEQUENCE (SEVERITY) OF RISK			
		SEVERE	**MEDIUM**	**MILD**	**MINOR**
LIKELIHOOD OF RISK	**HIGH LIKELIHOOD**	Very High Risk	High Risk	Moderate Risk	Low Risk
	LIKELY	High Risk	Moderate Risk	Moderate / Low Risk	Low Risk
	LOW LIKELIHOOD	Moderate Risk	Moderate / Low Risk	Low Risk	Very Low Risk
	UNLIKELY	Moderate / Low Risk	Low Risk	Very Low Risk	Very Low Risk

Table A4: Description of the Classified Risks and Likely Reaction Required

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

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IDOM Cromford Mills, Mill Lane, Matlock, Derbyshire DE4 3RQ
t +44 (0)1773 829 988 **e** info.derbyshire@idom.com **idom.com**
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