

HOUGH END LEISURE CENTRE, MANCHESTER

FINAL PHASE 2 GEO-ENVIRONMENTAL INVESTIGATION, RISK ASSESSMENT AND REMEDIATION STRATEGY

Job Number: LKC 20 1488
Date: February 2022
Client: ISG plc



INCREASING LAND VALUE

LK
GROUP

INCREASING LAND VALUE



LK
GROUP

LK Consult Document Verification			
Site Address	Hough End Leisure Centre, 480 Princess Rd, Manchester M20 1HP		
Report Title	Final Phase 2 Geo-Environmental Investigation, Risk Assessment and Remediation Strategy		
Job Number	LKC 20 1488	Document Ref.	CL-602-LKC 20 1488-02
Date Issued	February 2022	Report Version	R1
Prepared By	Natasha Jeffery	Reviewed By	Ben Smith
	Beth Ryder		

Revision Record			
Revision No.	Date	Nature of Revision	Approved By
R1	11/02/2022	Update to Figures 1-3	BS

DISCLAIMER

This report has been prepared by LK Consult (LKC) who have exercised such professional skill, care and diligence as may reasonably be expected of a properly qualified and competent consultant, experienced in preparing reports of a similar scope.

However, to the extent that the report is based or relies upon information contained in records, reports or other materials provided to LKC, which have not been independently produced or verified, LKC gives no warranty, representation or assurance as to the accuracy or completeness of such information.

This report is issued on the condition that LKC will not be held liable for any loss arising from ground conditions between sampling points (i.e. boreholes/trial pits/hand augers/surface samples) which have not been shown by the sampling points or related testing carried out during the investigation, nor for any loss arising from conditions below the maximum depth of the investigation. Opinions on such conditions, where given, are for general guidance only.

This report is prepared solely for the benefit of ISG plc. It may not be relied upon by or submitted to a third party for their reliance for the purposes of valuation, mortgage, insurance and regulatory approval, until all invoices have been settled in full.

Those using this information in subsequent assessments or evaluations do so at their own risk.

EXECUTIVE SUMMARY

Site Details

Site Location:	Hough End Leisure Centre and playing fields, located off Princess Road, South Manchester in Chorlton-cum-Hardy. Centred at approximate National Grid Reference 383520E 393280N.
Site Area:	8 Ha. However, only small area of development to include an extension and car parking. LKC understand the remaining site will be modified but still remain as playing fields. The original PRA was for 30ha.
Current Land Use:	Leisure centre, changing rooms block, associated car park, and playing fields.
Proposed Development:	The construction of a number of grass and artificial surfaced sports pitches, a two-storey extension to the existing building built in 2013, the demolition of an existing changing block, the extension of the existing car park and formation of a new over flow carpark formed using a 'grasscrete' type system.
Purpose of Report:	Contamination and Geotechnical Assessment.

Preliminary Risk Assessment

It should be noted that the PRA was originally carried out on a wider site area enclosing some 30ha, this was subsequently reduced to only the areas being redeveloped totalling approximately 8ha.

PRA Details:	Undertaken by LKC in November 2020. Ref: LKC 20 1488.
History:	Nursery, footpath, playing fields, car park and road.
Geology / Hydrogeology:	Superficial: Glaciofluvial deposits (majority), Shirdley Hill Sand Formation (NE) and Alluvium (around the brook), Secondary A Aquifer. Bedrock: Wilmslow Sandstone Formation, Principal Aquifer.
Mining:	No recorded mining.
Relevant Environmental Setting:	Pollution incident on site (1998, organic chemicals 3 Minor Incident). Not within Source Protection Zone.
Preliminary Conceptual Model: PL=Pollutant Linkage	PL1 Direct Contact (Human Health): Moderate (heavy metals, PAH's, ACM) Low (Petroleum hydrocarbons). PL2 Inhalation of Vapours: Low Risk (volatile contaminants). PL3 Gas: Moderate Risk (hazardous and ground gas), Low Risk (radon). PL4 Controlled waters: Moderate Risk (mobile contaminants). PL5 Sulphate Attack: Low Risk (sulphate). PL6 Water Pipelines: Moderate Risk (organic contaminants). PL7 Phytotoxic: Low Risk (metals).
Recommendations:	Site Investigation was recommended to further assess all the above pollutant linkages except PL3 where no gas monitoring recommended unless significant made ground encountered. The client requested that gas monitoring be carried out as part of the site investigation scope of works.

Ground Investigation Work Undertaken

Date of Investigation:	23 rd -24 th March 2021
Intrusive Investigation Work Undertaken:	10no. window sample boreholes (WS101-WS110). 24no. hand excavated pits (HD101-HD124). 4no. hand excavated foundation pits (FP101-FP104). 2no. soakaway tests (SA101-SA102).
Monitoring Wells:	Installed in all boreholes.
Soil Sampling:	28no. samples tested for metals, speciated PAHs, pH, sulphate, asbestos and SOM. 3no. samples tested for metals, speciated PAHs, cyanide, pH, sulphate, asbestos, phenol, TPHCWG, BTEX, VOCs, SVOCs, PCBs and SOM.

	3no. samples tested for Waste Acceptance Classification (WAC).
Groundwater Sampling:	6no. groundwater samples tested for metals / metalloids, pH, sulphate, cyanide suite, TPHCWG, BTEX, MTBE, speciated PAHs, phenol and hardness.
Monitoring:	6no. gas monitoring visit completed over 3 months.
Insitu and Laboratory Geotechnical Testing:	SPTs, DCPs, shear vanes, PSDs, plasticity.

Ground Conditions and Geotechnical Assessment

Proposed Development	-Proposed Development comprises a two-storey extension to the existing leisure centre, demolition of existing changing rooms and additional car parking. Playing fields within the planning boundary will remain and be maintained.
General Ground conditions / Geotechnical Testing	-Topsoil or minimal Made Ground over variably silty gravelly SAND over typically firm to stiff sandy gravelly CLAY. Very dense SAND (weathered sandstone bedrock) was encountered at the base of the holes at depths of between 2.90m and 4.41mbgl. -Based on WS101-WS103 (location of extension). -Maximum investigation depth 3.37mbgl. -Made Ground to 0.70m-0.8mbgl (WS103 and WS101 respectively). -Loose to medium dense variably gravelly silty SAND. SPT N=5 - 14 at 1.2mbgl. -Firm to stiff sandy gravelly CLAY to depths of between 2.90-3.20m. SPTs N=5-10 at 2mbgl. -Refusal on very dense silty SAND (weathered bedrock) at depths of between 3.27-3.37 N=>50 at 3mbgl. -Perched groundwater at 2.40m within WS101 at the location of the proposed extension. Across rest of site perched water encountered at depths of between 1.10m and 2.30mbgl.
Exposed Existing Foundations	-FP101 and FP102: Concrete footings were recorded between 0.35 and 0.45bgl. The thickness of the footings ranged between 0.30m and 0.35m and are recorded bearing onto gravelly silty SAND. -FP103 and FP104: concrete slab (not footing) identified at 0.28-0.35mbgl. The pit was excavated to 1.00m from the brickwork, extent of concrete slab unknown.
Allowable Bearing Pressure	50kN/m ² within cohesive strata. 49-137kN/m ² within the granular strata. In excess of 300N/m ² on the unweathered sandstone.
Anticipated Foundation Type	-Ground conditions below the proposed extension consist of granular over cohesive strata before encountering weathered rock at around 2.90-3.20mbgl. -Traditional shallow foundations recommended from approximately 1mbgl. If soft ground is encountered, foundations may need to be deepened / widened or ground replaced with compacted granular material.
Shallow Groundwater	-Shallow groundwater considered to be representative of perched pockets within the CLAY and SAND encountered across the site at depths of between 1.10m and 2.30mbgl. -Perched groundwater within granular deposits may present a constraint to the development through running sands and instability. -Suitable drainage should be considered in the proposed development layout.
Concrete Requirements	-DS-1 AC-1 classification.
Services	-Services – consideration to the presence of services running through the site. Services may need to be re-routed.
Temporary support of excavation	-May be required; however, exploratory holes were generally recorded as stable.
Plasticity	The modified plasticity index is between 18.20% and 21.60%. This characterises the clay as having a low to medium volume change potential.
Road / Pavement Design	- A design CBR of 5% should be adopted for the natural SAND beneath the Made Ground at depths of between 0.20-0.50mbgl.

Contamination Risk Assessment

The table below shows a summary of the risk assessments undertaken for each pollutant linkage, the revised conceptual model and recommendation for either remediation and / or further investigation.

Pollutant Linkage		Risk	Recommendations
1	Contaminants posing a risk to site users future site users and offsite receptors via dermal contact, ingestion and inhalation (of soil, dust, fibres).	Low (PAH, ACM, metals, petroleum hydrocarbons)	-No elevated contaminants identified. -No ACM identified. - Recommendation: No remediation required.
2	Volatile contaminants posing a risk to site users future site users and offsite receptors via the inhalation of vapours.	Low	-No elevated PID readings and no elevated contaminants identified from soil analysis. - Recommendation: No remediation required.
3	Gas posing a risk to buildings and site users future site users, offsite receptors and buildings via the migration of gas into building causing explosion and asphyxiation.	Moderate / Low	-GSV values classified site as CS1. Elevated CO ₂ recorded in WS102, WS105 and WS109, however given low flow rates (when groundwater is below slotted pipe) and proposed end use CS1 classification justified. - Recommendations: CS1 classification, no gas protection measures required.
		Low (Extension)	-(<1%) No protective measures are necessary in the construction of new dwellings or extensions.
4	Mobile contamination posing a risk to controlled waters via the migration through permeable strata.	Low	-Marginally elevated metals/metalloids when compared to EQS criteria (WS104). Not considered a significant risk to controlled water receptors. - Recommendations: No remediation required.
5	Sulphate posing a risk to building via direct contact (sulphate attack).	Low	-Extension area classified as DS-1 AC-1 upon analysis of soil and water samples. - Recommendations: No remediation (sulphate resistant concrete) required.
6	Organic contaminants posing a risk to water pipes.	Low	-No elevations when compared with UU risk assessment criteria. Given proposed plans, a new pipeline is unlikely, however if this changes a UU risk assessment will need to be undertaken. - Recommendations: if potable pipework requires installing likely standard alkathene pipework will be suitable.
7	Phytotoxic metals posing a risk to flora via root uptake.	Low	-No elevated phytotoxic contaminants. - Recommendations: No remediation required.

The results show that all the samples tested are classified as NON-HAZARDOUS WASTE and potentially maybe accepted as inert waste by the tips.

Recommendations and Remedial Strategy

The table below shows the remediation and validation requirements for the site. This information should be documented in a Site Completion Report for submission to the local authority.

Phase	PL	Remediation Requirements	Validation Requirements
Pre-Construction	ALL	No remediation is anticipated for the site.	
	ALL	<u>Earthworks Inspections / Unexpected Contamination</u> The relevant contractors should be briefed that during development works at the site should any unusual ground conditions and / or visual or olfactory evidence of contamination (including asbestos containing material) be encountered at the site, LKC and the Local Authority should be informed, and further assessment of the material may be required. Should asbestos be identified during groundworks, precautions should be taken to ensure the safety of the construction workers and nearby land users. It would be advisable to introduce an asbestos management strategy in line with CIRIA C733	Log of work undertaken including photographs. Details of any sampling undertaken and validation of any potential additional remedial work.
Other Considerations		<u>Grubbing Out of In-Ground Structures</u> It is recommended that in-ground structures are grubbed out as part of the groundworks. In-ground structures expected in the south of site, associated with the onsite former changing rooms building.	
		<u>Re-use of site won material</u> To ensure material is compliant with appropriate waste regulations, any site won material re-used onsite should be in recourse to appropriate exemptions. A U1 and T5 exemption should be registered. This will allow the following to be used onsite or brought in for use onsite (refer to guidance for types of waste that can be used: 5,000 tonnes (c. 2,500m³) <u>treatment</u> of crushed concrete / stone. 1,000 tonnes (c. 500³) <u>use of</u> non-hazardous soil 5,000 tonnes (c. 2,500m³) <u>use of</u> clays, sand, gravel, brick, concrete, stone etc. 50,000 tonnes (c. 25,000m³) <u>use of</u> bituminous material to be used in roadways. A Materials Management Plan (MMP) with recourse to the CL:AIRE Code of Practice may be required if volumes exceed exemption limits. This must be registered before material movement starts onsite. If an MMP is required, this needs to be registered by a Qualified Person (QP) and there must be 'certainty of use' for any material re-used onsite or exported to site to ensure there is no 'sham recovery'. For all the above material will need to be tested at the rate and analytical suites presented in Table 9-2.	
		<u>Health and Safety Considerations</u> In working with, removing or treating any contaminating material it is important that any potential risks associated with the actual site works are mitigated by good environmental management of the site during the remedial phases. Standard health and safety precautions (as per HSE guidance) should be adopted by all workers involved with site enabling and construction works.	
		<u>Asbestos Survey</u>	

A Pre-Demolition and Major Refurbishment Asbestos Survey should be undertaken, and any ACMs removed and properly disposed of, prior to the demolition of the existing buildings, by a suitably qualified professional.

There is no requirements to import topsoil for an environmental cover. However, if soil is to be imported onto site as a cover system then the following MCC protocol should be employed.

Material Type	Source	Suite of Analysis	Sampling Rate (min. 3 per source) *		
			Garden	Landscape	Other **
Topsoil / subsoil / Fill material	Greenfield	Suite A	200m ³	200m ³	200m ³
	Remediated	Suite A / B dependent upon original SI	100m ³	150m ³	200m ³
	Brownfield / Unknown	Suite B	50m ³	150m ³	200m ³
Quarried Fill	First Generation i.e. quarried sand (subsoil) or stone (break layer)	No testing is required. Certification of material provenance is required.			

Notes:
Suite A - Heavy metals, pH, water soluble sulphate, speciated PAH, soil organic matter and asbestos screen.
Suite B - Heavy metals, pH, water soluble sulphate, speciated PAH, phenol, total and free cyanide, soil organic matter, asbestos screen, banded petroleum hydrocarbons (TPH CWG), BTEX, MTBE.
** Other assumed to be stone / 6F2 etc.

Any soil with visual or olfactory evidence of hydrocarbons should be rejected.

In addition, it should be ensured that the matrix of the topsoil is suitable as a growing medium and no undesirable material is present (in line with BS3882). LKC advise this information is provided by the supplier before material is imported onto site.

CONTENTS

EXECUTIVE SUMMARY	iv
1 Introduction	1
1.1 Background	1
1.2 Site Details	1
2 Previous Work	2
2.1 Summary of Existing Information	2
2.2 Site History	2
2.3 Environmental Setting	4
2.4 Previous Investigations	5
2.5 Site Reconnaissance	6
2.6 Contamination Sources / Pathways and Receptors	7
2.7 Potential Receptors	7
2.8 Potential Pathways	8
2.9 LKC Preliminary Contamination Conceptual Model	8
2.10 Recommendations	9
3 Ground Investigation	11
3.1 Site Investigation Design and Methodology	11
3.2 Well Installations	12
3.3 Sampling Protocol	12
3.4 Gas Monitoring	14
3.5 Geotechnical Testing	14
3.6 Soakaway Tests	16
3.7 Geotechnical Laboratory Testing	16
4 Ground Conditions	18
4.1 Geology – Generalised Sequence	18
4.2 Groundwater	19
4.3 In-Situ Geotechnical Testing	21
5 Geotechnical Assessment	23
5.1 Proposed Development	23
5.2 Summary of Ground Conditions	23
5.3 Existing Foundations	23
5.4 Site Preparation	23
5.5 Foundation Conditions and Bearing Capacity	24
5.6 Ground Floor Slabs	26
5.7 Pavement Construction	26

5.8	Drainage.....	27
5.9	Excavations	27
5.10	Construction Activity and Inspection	27
6	Generic Risk Assessment	28
6.1	Introduction	28
6.2	Soil Risk Assessment.....	28
6.3	Gas Risk Assessment	31
6.4	Controlled Water Assessment	35
6.5	Additional Risk Assessments	36
6.6	Revised Contamination Conceptual Model.....	37
7	Waste Disposal Assessment.....	40
7.1	Waste Acceptance Criteria (WAC) Testing.....	40
8	Conclusions.....	42
8.1	Geotechnical	42
8.2	Contamination Assessment.....	43
9	Recommendations and Remedial Strategy	44
9.1	Remediation and Validation Recommendations	44
9.2	Validation of Subsoil / Topsoil	45
9.3	Site Completion Report	46

FIGURES

- Figure 1: Site Location and Boundary Plan
Figure 2: Proposed Development Plan
Figure 3: Site Investigation Location Plan

APPENDICES

- Appendix A: Risk Matrix
Appendix B: Profile Logs / DCP Output Sheets
Appendix C: Certificate of Analysis – Soil
Appendix D: Certificate of Analysis - Water
Appendix E: Certificate of Analysis - Geotechnical
Appendix F: Gas Monitoring Results
Appendix G: Soakaway Tests Results
Appendix H: Generic Assessment Criteria Values
Appendix I: HazWaste Online Output Sheets

1 Introduction

1.1 Background

LK Consult Ltd (LKC) has been commissioned by ISG PLC to carry out a Phase 2 Geo-Environmental Investigation, Risk Assessment and Remediation Strategy for Hough End Leisure Centre. The investigation was undertaken in support of a planning application to develop the site for use as a leisure centre and sports pitches with additional car parking.

The following work has previously been undertaken:

- » A Phase 2 report undertaken by Coffey Geotechnics (Ref: 02108AA_R_003A_RS-FinalGIRReport, dated November 2013)
- » Preliminary Risk Assessment (PRA) report, undertaken by LKC (Ref: LKC 20 1488, dated November 2020).

This investigation has been undertaken to confirm the ground conditions below the site and to allow a contamination and geotechnical assessment to be undertaken.

The investigation will aim to confirm the risks of the potential pollutant linkages identified in the PRA and recommend further assessment / remediation, as required.

1.2 Site Details

A summary of the site details is presented in Table 1-1. Figures 1 indicates the site location and boundary. Figure 2 indicates the proposed development within the planning boundary as well as the wider area which will remain as playing fields without significant development works.

Location	Hough End Leisure Centre and playing fields, located off Princess Road, South Manchester in Chorlton-cum-Hardy. Centred at approximate National Grid Reference 383520E 393280N.
Area	8 Ha. However, only small area of development to include an extension and car parking. LKC understand the remaining site will be modified but still remain as playing fields. The original PRA was for 30ha.
Topography	30-35 metres Above Ordnance Datum (AOD). Site sits higher in the northeast in comparison to the west.
Land Use	<u>Site</u> Leisure centre, changing rooms block, associated car park, and playing fields. <u>Surrounding Area</u> North: Mauldeth Road West, residential properties, garage. East: Princess Parkway, residential properties South: Tram lines, allotment, cemetery West: Rugby union, brook, residential properties.
Proposed Development	The construction of a number of grass and artificial surfaced sports pitches, a two-storey extension to the existing leisure centre building built in 2013, the demolition of an existing changing block, the extension of the existing car park and formation of a new overflow carpark formed using a 'grasscrete' type system.

Table 1-1. Summary of site details.

2 Previous Work

2.1 Summary of Existing Information

A PRA report (Ref: CL-602-LKC 20 1488-01, dated November 2020) has previously been undertaken by LKC and is summarised in Section 2.2-2.6.

A previous investigation was undertaken by Coffey Geotechnics (Ref: 02108AA_R_003A_RS-FinalGIReport, dated November 2013) and the information gathered was used to develop a contamination conceptual model for the site.

This also includes a summary of a previous intrusive investigation undertaken by LKC (Section 2.4).

The conceptual model (Section 2.6) has been updated to be in line with LKC current risk assessment methodology.

2.2 Site History

Table 2-1 summarises features on site. It should be noted that these features are based on the original PRA which contained the entire 30Ha site area. The site boundary was subsequently reduced as the majority of playing fields were not being upgraded or changed. Only pitch's within the updated boundary are being modified as part of the proposed development. Therefore a number of the features below, such as Platt Brook, Temporary war housing and Red Lion Brook are no longer on site. LKC has not updated this at this stage as the scope of the site investigation would not have been impacted.

Table 2-2 summarises potentially contaminative land uses within approximately 50m and potentially infilled features within approximate 250m.

Site Features	Location on Site	Dates Present		Comments
		From	To	
8no. Field boundaries	Whole site	1848	1923	8no. field boundaries across the site, NE-SW and NW-SE. No longer present by 1934 mapping.
Nursery	N	1848	Only	No longer present by 1894 mapping.
Red Lion Brook and embankment	N	1848	Present	Flowing from the E, presumably joining Chorlton Brook adjacent to the NW corner of the site.
4no. Ponds	Centre, SE	1848	1933	Central 2no. ponds annotated as marsh land by 1894 mapping. Only 2no. ponds in the E present by 1908 mapping. No ponds present by 1934 mapping.
Platt Brook	NW	1894	1933	No longer present by 1651-55 mapping.
Footpath	N	1894	1933	Footpath running north through the site. No longer present by 1951 mapping.
Cricket and Tennis Ground	W	1923	Only	No longer present by 1934 mapping.
Telephone Call Box	W	1934	1938	No longer present by 1955 mapping.
Hough End Playing Fields	Whole site	1934	Present	First annotated by 1934 mapping.

Table 2-1: Summary of site features. Dates based on available historical map editions.

Site Features	Location on Site	Dates Present		Comments
		From	To	
Housing estate	North section of the site	1951	1966	Associated roads. No longer present by 1975 mapping. Thought to be temporary prefabricated post war housing.
Small rectangular features	SW border	1951	1956	Unknown use.
Pavilion, Framley Road, and Car Park	E	1973	Present	
Sub Station	SE	1973	1992	No longer present on the 2000 aerial photo.
Sports Centre and Car Park	E	2020	Present	

Table 2-1 (continued): Summary of site features. Dates based on available historical map editions.

Surrounding Area Features	Distance (m)	Direction	Dates Present		Comments
			From	To	
7no. Ponds	100m, 150m, 120m, 120m, 180m, 200m, 20m	SE, SE, SW, SW, S, S, E	1848	1923	No longer present by 1934 mapping.
Railway Lines	Adjacent, 95m	N, S	1894	Present	Manchester Central Station Line (north), Manchester South District Line (south). Renamed London and North Eastern Railway (north) and London Midland & Scottish railway (south) by 1938 mapping. South line dismantled by 1973 mapping. North line dismantled by 1993 mapping and replaced as a cycling /walking track. South line now used as metrolink line.
Surrounding Roads	Adjacent	N, NW, E	1934	Present	
Sports Ground and Pavilion	20m	SW	1934	1952	No longer present by 1983 mapping.
3no. Refuse Heaps	20m, 50m	W, N	1951	1952	Embankment still present by 1961 mapping. No longer present by 1982 mapping.
Allotment Garden	60m	NW	1951	1952	No longer present by 1961 mapping.
Garage	50m	NW	1999	Present	

Table 2-2: Summary of potentially contaminative features within approximately 50m and potentially infilled features with approximately 250m. Dates are based on available historical map editions.

2.3 Environmental Setting

The environmental setting is summarised in Table 2-2.

Categories (data sources)		Details
Geology	Artificial	- None recorded.
	Superficial	- Glaciofluvial deposits (sand and gravel) across the majority of the site. - Shirdley Hill Sand Formation (sand) is present in the NE of the site. - Alluvium is present in the NW of the site around the Chorlton Brook.
	Bedrock	- Wilmslow Sandstone Formation is present across the whole site,
	BGS Logs (<50m)	- None, but previous site investigation in the leisure centre indicate sandstone bedrock at c. 3.5mbgl.
Hydro-geology	Aquifer Designation	- Superficial - Secondary A Aquifer.
		- Bedrock - Principal Aquifer.
	Source Protection Zone (SPZ)	- Site not within an SPZ.
	Groundwater Abstractions (100m)	- None.
Hydrology	Surface Water Courses (100m)	- Red Lion Brook on site (north), flowing NW to Chorlton Brook - River Quality B.
	Flooding risk	- Low risk to the west of the site.
	Surface Water Abstractions (100m)	- None.
	Discharge Consents	- 2no on site – storm sewage overflow of Chorlton Brook. - 1no 57m W – sewage effluent to unnamed receiving groundwater.
	Pollution Incidents	- 2no incidents on site: - Year: 1998. - Pollutant: Other organic chemicals and raw water caused by river works. - Severity: Category 3 Minor Incident. - Receiving water: Chorlton Brook
Minerals & Mining	Coal Mining	- Not within a Coal Reporting Area. - Not within a Development High Risk Area.
	Surface Mineral Extractions (250m)	- None.
	Cheshire Brine Compensation District	- Not within Compensation District. - Not within Consultation Area.
	Non-Coal Mining Area	- Not within an area of conclusive metalliferous mining.
Ground Stability	Collapsible Ground	- No to very low hazard.
	Compressible Ground	- No to moderate hazard. Moderate in N & NW.
	Ground Dissolution	- No hazard.
	Landslide	- Very low hazard.
Ground Stability continued	Running Sand	- Very low to low hazard.
	Shrinking / Swelling Clay	- No to very low hazard.
Landfill Sites (250m)	Known / Registered	- None.
	Potentially Infilled Land (non-water and water), based on Envirocheck Report	- 16no. features, all water (ponds). - 4no. on site, 12no. offsite: 3m E, 54m N, 75m N, 117m SE, 130m SW, 152m N, 161m S, 173m W, 187m NE, 204m S, 211m NE, 232m NW.
Radon Potential		- <1% of homes above Action Level. No protective measures are necessary in the construction of new dwellings or extensions.

Table 2-2: Summary of the environmental setting.

Categories ^(data sources)	Details
Designated Sites (50m)	- None.
Contemporary Trade Directory (50m)	- 1no. active: - 44-46m N Texaco Petrol Filling station, Active.
Fuel Station Entries (50m)	- 44-46m N Texaco Petrol Station.
Unexploded Bomb Risk (UXO)	- Moderate. - Pre-Desk Study Assessment recommended Detailed Desk Study for UXO. Reported under separate cover.

Table 2-2 (continued): Summary of the environmental setting.

2.4 Previous Investigations

A ground investigation report (Ref: 02108AA_R_003A_RS-FinalGIRReport, dated November 2013) has previously been undertaken by Coffey Geotechnics in the area of the current leisure centre and future extension, which is summarised below.

No previous site investigations for the playing fields have been provided.

An intrusive investigation was carried out between 30th September and 4th October 2013. The investigation included:

- » 4no. cable boreholes to depths of 3.10-5.50mbgl.
- » 7no. trial pits to depths of 2.40-3.10mbgl.
- » Falling head tests in 3no. of the boreholes.
- » Soakaway tests in 2no. of the trial pits.
- » Plate bearing tests at 0.45mbgl at 4no. trial pit locations.
- » Leachate testing.
- » Soil and Groundwater sampling.
- » Gas Monitoring (4no. visits over 1 month).

Ground conditions comprised:

- » Topsoil in landscaped areas to 0.40mbgl.
- » Made ground encountered between 0.40 and 0.90mbgl (sandy gravelly clay with ash, clinker, concrete, brick, glass, tarmac, metal and wood). No evidence of gross contamination was observed.
- » Glaciofluvial Sheet Deposits between 1.10 and >2.40mbgl (loose-medium dense variably gravelly sand / variably sandy silt).
- » Glacial Till between 1.30 and 2.70mbgl (firm to stiff variably sandy / gravelly clay).
- » Weathered sandstone at the base of all locations 2.40-5.50mbgl (except 2no. trial pits) recovered as gravelly sand.

Groundwater was encountered at a depth of 1.92-2.83mbgl during monitoring, and 0.70-5.00mbgl during the site investigation.

Soil results were compared to SGVs, LQM/CEIH, EIS/AGS/CL:AIRE and US EPA screening values. Within the made ground and natural samples, no samples were identified above commercial assessment criteria. Asbestos (chrysotile) was identified in one sample at 0.30m depth.

Slightly elevated chromium and lead was identified in the leachate testing however were below freshwater GACs and therefore not considered to pose a significant risk to controlled waters.

The pH ranged from 6.6 – 8.7 and water-soluble sulphate between <1.5 mg/l and 69 mg/l. Groundwater samples contained soluble sulphate concentrations ranging from 30 to 53 mg/l with a pH of 7.3 to 7.4. Sulphate results were classed as DS-1 and AC-1 for the Design Sulphate Class and ACEC Class.

A detailed Unexploded Ordnance (UXO) Assessment was also recommended.

2.5 Site Reconnaissance

A site reconnaissance was carried out on 16 November 2020. Hand dug trial holes were undertaken in accessible areas to confirm the shallow ground conditions. It should be noted that the original site reconnaissance was undertaken on a much larger area (30ha).

Relevant features identified on site are summarised below:

- » Site is accessed through a car park off Princess Road. It is open access to members of the public.

2.5.1 Car Park and Leisure Centre

- » The car park and leisure centre are present in the east of the site. The car park was in good condition with no spillages or leakages seen (tarmac in good condition). The main entrance to the leisure centre was off the car park. The leisure centre was not accessed at the time of the walkover. Services including water and electricity present at the entrance of the building and along the east wall of the building. An electricity substation was present in the north of the car park.
- » An abandoned building was present west of the car park. This was previously used as changing rooms and a chimney like structure was noted, presumably where old water tanks were located. This building was not accessed at the time of the walkover as it has been declared unsafe. Asbestos was anecdotally said to be present within the building.

2.5.2 Playing Fields

- » The rest of the site comprising an open playing field with some line paint and multiple posts present across the site. An assault course was present in the north of the site fenced off with hedges fencing.
- » A mound was present in the centre / north of the site.
- » A change in ground cover was noted in the north of the site, from uniform field grass to rough long grass land, adjacent to Hough End Crescent, in the location of the previous airfield.
- » Embankments were present on the northwest border of the site. An electricity substation was also present in the northwest of the site, looking to be in good condition. Flood lights were also present in this area of the field. At the time of the walkover helicopter stunts were taking place in this area.
- » Mature trees were present around the edge of the remainder of the site and in the northwest of the site.
- » Red Lion Brook runs through the north of the site and sits approximately 2.00mbgl with mature trees either side of the banks and 3no. bridges noted to cross over it. No evidence of surface water contamination was observed.
- » The Metrolink line is present adjacent to the southwest of the site; in the northwest it is at the same level but in the south sits below ground level. Possible Japanese Knotweed noted to be present next to the fence along the line. An electricity substation is also present which looks in good condition.

➤➤ No evidence of contamination identified.

2.6 Contamination Sources / Pathways and Receptors

Potential contamination sources are detailed in Table 2-3.

Potential Source	Contaminants
On Site	
Made Ground below some or all of the site.	- Demolition rubble, ash and clinker: Asbestos, heavy metals, sulphates, PAHs¹. - If organic / putrescible material: Hazardous gas (principally carbon dioxide and methane). Not anticipated. The previous SI report in location of the Leisure Centre noted 1no. carbon dioxide >5%v/v only once in BH1 and if real is likely from organic silts in the superficial deposits with minimal flow rates significant gas build up is minimal.
Agricultural fields, pastoral (sheep, dairy)	- No significant contamination source anticipated within the fields.
Former changing rooms	- Demolition rubble, ash and clinker: Asbestos, heavy metals, sulphates, PAHs². - Asbestos Containing Material (ACM).
Car Park	- Assuming hardstood surface and no signs of spills / leaks on the site surface: No significant contamination source anticipated.
Electricity substation	- Polychlorinated biphenyl (PCBs) and transistor oils. But still live so not accessible (contaminants are not mobile and would be limited to footprint). - Given current status, recent maintenance is assumed and is not considered a significant source of contamination.
Surrounding Area	
Adjacent railway line ³	- PAH, metals from fall out (possible). Herbicides (unlikely to be a significant source as railway was at lower elevation). Cutting still present and not been infilled.
Landfills / offsite potentially infilled features within 250m	- Given size, distance and age of features, there is not considered to be a source of hazardous gas (principally carbon dioxide and methane). The surrounding area are mainly small pond all not present by 1934 mapping. Any remaining gas generation is unlikely to be at flow rates high enough to migrate to the site.
Airfield	- Metals and semi-metals, inorganic chemicals including cyanide. Main processes: Fuelling of aircraft using aviation kerosene, gasoline, and diesel. De-icing operations chemicals – glycol, urea and acetate-based formulations. Servicing and maintenance. Solvents for cleaning. (unlikely to be a significant source given distance from site).

Table 2-3: Potential contamination sources.

2.7 Potential Receptors

Potential receptors are detailed in Table 6-2.

Receptors	
Human Health	- Future site users (including children, visitors and staff). - Offsite land users.
Controlled Waters	- Red Lion Brook on site, leading to Chorlton Brook. - Principal (bedrock) and Secondary A Aquifer (superficial).
Buildings and structures.	
Potable water pipes.	
Flora within future gardens and landscaping.	

Table 2-4: Potential receptors.

¹ Defra (2002). "Potential Contaminants for the Assessment of Land". R&D Publication CLR 8.

² Defra (2002). "Potential Contaminants for the Assessment of Land". R&D Publication CLR 8.

³ Department of the Environment Industry Profile – Railway Land (1995).

2.8 Potential Pathways

Potential pathways are detailed in Table 6-3.

Pathways		
Soil	Human Health ⁴ (for Public Open Space park (POS _{park}) and commercial land use with soft landscaping)	- Ingestion of soil. - Ingestion of soil-derived indoor dust. - Dermal contact with soil. - Dermal contact with soil-derived indoor dust. - Inhalation of soil-derived outdoor dust. - Inhalation of soil-derived indoor dust. - Inhalation of vapours outside. - Inhalation of vapours inside. - Leisure Centre (Commercial end use) - Omitted: ingestion of contaminated vegetables and ingestion of soil attached to vegetables. - Sport Pitches (POS_{park} end use) – Omit as above and all indoor exposure routes.
		- Windblown dust and fibres to adjacent receptors.
		- Direct contact with receptors (building foundations, services).
		- Root uptake.
Water		- Surface run-off over impermeable surfaces (e.g. car park). - Site is predominantly flat and grassed; therefore, surface run-off will be limited.
		- Infiltration into the ground, through potentially contaminated material (contamination possibly going into solution). - Site is predominantly flat and grassed; therefore, infiltration is likely.
Water and Gas		- Migration through potentially permeable strata and preferential pathways. - Superficial (sand and gravel) is likely to be relatively permeable. - Bedrock (sandstone) likely to be relatively permeable. - Preferential pathways: services.
Gas		- Migration into buildings (e.g. via services) and accumulation of gases in confined spaces (potentially causing explosion if methane is present).

Table 2-5: Potential pathways

2.9 LKC Preliminary Contamination Conceptual Model

The preliminary contamination conceptual model using contaminant-pathway-receptor linkages based on guidance in LCRM⁵ has been summarised in Table 2-6.

The aim of the conceptual model is to provide a preliminary assessment of the likelihood of a pollutant linkage for each potential combination of contaminant, pathway and receptor. A conceptual model can be used to make an informed decision on the contamination risks associated with the site and determine what site investigation work is required.

The preliminary contamination conceptual model has identified seven generic potential pollutant linkages. Each linkage is described along with an assessment of the risk based upon guidance on probabilities and consequences outlined in CIRIA C552⁶.

In order to assess the potential risk for each pollutant linkage, an assessment of the magnitude of the potential consequence (severity) of the risk occurring and the

⁴ EA (2008). "Updated Technical Background to the CLEA Model". Science Report – SC050021/SR3.

⁵ Land Contamination Risk Management (LCRM) <https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm>

⁶ CIRIA (2001). "Contaminated land risk assessment: A guide to good practice". C552.

magnitude of the probability (likelihood) of the risk occurring has been considered and classified. This is based on the guidance provided in CIRIA C552 and further details including a risk matrix is provided in Appendix A.

Where LKC identified a low to very low risk, limited intrusive investigation work, a watching brief (during construction work) or no investigation work will be recommended. This will be dependent on the nature of the site and the proposed development.

Where the risk falls into the moderate/low risk, LKC will undertake an assessment to establish what category the pollutant linkage will fall into (i.e., moderate, or low risk will be chosen).

Where LKC identifies a moderate or higher risk, intrusive work or precautionary remedial measures will be recommended.

The conceptual model is based on the future use of the site (post development), in line with proposed development scheme.

It should be noted that there may be risk from short term exposure from contaminated soil to site workers during development work. The Preliminary Contamination Conceptual Model deals with long term exposure to key receptors associated with the future use of the site. Acute risks can be easily mitigated by good environmental management of the site during site works. Standard health and safety precautions (as per HSE guidance⁷) should be adopted by all workers involved with site enabling and construction works. Therefore, this receptor is not considered in the contamination conceptual model.

2.10 Recommendations

Based upon the Preliminary Contamination Conceptual Model a site investigation was recommended to assess the potential pollutant linkages further.

⁷ HSE (1991). "Protection of Workers and the General Public During Development of Contaminated Land" London HMSO.

PL	Pathway	Receptor	Contaminants of Concern (CoC)	Probability	Consequence	Risk	Recommendations
1	- Dermal contact. - Inhalation of soil, fibres and dust. - Ingestion of soils, dust. - Windblown dust.	- Future site users. - Offsite receptors.	- Heavy metals. - PAHs. - ACM.	Likely (given site history, site conditions and proposed end use)	Medium	Moderate	Low density intrusive investigation required. Soil analysis of CoC, subject to ground conditions encountered.
			- Petroleum hydrocarbons. - Oils.	Unlikely (Not expecting significant spillages in car park)	Medium	Low	No specific testing required unless evidence of hydrocarbon contamination identified.
2	- Inhalation of vapours. - Migration via permeable strata and preferential pathways.	- Future site users. - Offsite receptors.	- Volatile contaminants (TPHCWG, SVOC, VOCs).	Unlikely (given site history, site conditions and proposed end use)	Medium	Low	No specific testing required unless evidence of volatile contamination identified.
3	- Inhalation of gas. - Migration via permeable strata and preferential pathways. - Explosion in confined spaces. - Exposure to radon.	- Future site users. - Buildings. - Offsite land users.	- Ground / hazardous gas (carbon dioxide, methane).	Low Likelihood (previous SI noted low CO ₂ with low flow rates likely for organic silts. With limited made ground of <1m assessment would be not to do gas monitoring under RB17).	Severe	Moderate (Extension)	Gas monitoring or precautionary CS ₂ gas protection (in line with assumed existing building) ONLY if a gas source is identified during site work. However, scope requested gas monitoring.
			- Radon.	Unlikely (as <1% of homes above action level)	Medium	Low (Extension)	(<1%) No protective measures are necessary in the construction of new dwellings or extensions.
4	- Surface run-off. - Migration via permeable strata and preferential pathways. - Perched waters migration.	- Groundwater (Principal Aquifer, Secondary A Aquifer). - Surface water (Red Lion/Chorlton Brook).	- Mobile contaminants such as metals and PAHs.	Low (Significant mobile contamination is not anticipated, considering likely contamination id for ash, clinker, pottery, which is likely to be immobile)	Medium	Moderate / Low	Moderate risk assumed at this stage. River and groundwater sampling if high soil concentrations identified during the site investigation.
5	- Sulphate attack on concrete.	- Building structure.	- Sulphate.	Low Likelihood (given site history, site conditions and proposed end use)	Mild	Low	Soil analysis for min. sulphate and pH as part of contamination suite. Results of previous investigations indicate an AC-1 and DS-1 classification.
6	- Ingestion of tainted water supply.	- Future site users. - Water pipes.	- Organic contaminants such as petroleum hydrocarbons, naphthalene, mobile compounds.	Low Likelihood (although some contamination may be present, significant contamination not expected at pipeline depth)	Medium	Moderate / Low	Low risk assumed given anticipated limited made ground and contamination. Shallow soil results will be assessed to UU guidelines.
7	- Direct contact (plant uptake).	- Flora.	- Phytotoxic contaminants such as Cu, Ni, Zn.	Likely (given site history, site conditions and proposed end use, but only in areas of planting)	Minor	Low	Low density sampling as per PL1 and tested for phytotoxic metals.

Table 2-6: Preliminary Contamination Conceptual Model.

Notes: PL = Pollutant Linkage. Contaminant of Concern (CoC) - See Table 6-1 for contamination sources. Site conditions based on observations during site reconnaissance.

3 Ground Investigation

3.1 Site Investigation Design and Methodology

In order to assess the ground conditions at the site and to investigate the potential pollutant linkages identified in the preliminary contamination conceptual model an intrusive investigation was undertaken. This work was in part related to the scope provided by the client.

The investigation was carried out on 23rd to the 26th of March 2021 and comprised the following:

- 10no. window sample boreholes drilled to 3.27-4.41 metres below ground level (mbgl) (ref. WS101 to WS110).
- 24no. hand pits (using hand auger / spade) excavated to 0.5-1.0mbgl (ref. HD101 to HD124).
- 4no. foundation pits excavated to 0.35-1.20mbgl (FP101-FP104).
- 10no. Dynamic Cone Penetration tests to 1mbgl (ref. DCP101 to DC110).
- 2no. Soakaway Tests (SA101-102).

Foundation pits were undertaken to allow an assessment of the conditions of the foundation below the existing building.

All site investigation locations are shown in Figure 3.

The locations were chosen to allow a good spread across the site as well as target areas of concern. Table 3-1 details the targeted and general coverage (non-targeted) site investigation locations.

Site Investigation Locations	Rationale
HD101-HD124	General site coverage.
WS101 & WS102	Proposed extension area for geotechnical assessment and general site coverage.
WS103	Location of current car park.
WS104 & WS105	Location of current changing rooms building and general site coverage.
WS106-WS110	General site coverage.
FP101	Foundation pits on northern elevation of current leisure centre.
FP102	Foundation pits on northern elevation of former changing rooms building.
FP103 & FP104	Foundation pits on eastern elevation of current leisure centre.

Table 3-1: Summary of sampling locations.

The number of site investigation location points corresponds to approximately one location per 40m square centres. This is considered to be a conservative acceptable sampling density and is in line with BS10175⁸ for an 'exploratory investigation'. Given proposed end use LKC consider that, unless significant contamination is identified during investigation works, this sampling density should be sufficient to satisfy the planning conditions.

⁸ British Standard (2017). "Investigation of Potentially Contaminated Sites – Code of Practice." BS10175:2017.

All profile logs are provided in Appendix B and are in line with BS14688-1⁹ and BS5930¹⁰.

3.2 Well Installations

All of the boreholes were installed with monitoring wells for gas and groundwater monitoring and groundwater sampling. Monitoring wells were installed in accordance with BS10175 and CIRIA C665¹¹ and generally comprised approximately 1m plain pipe over a length of slotted pipe surrounded by pea gravel and sealed at the top with bentonite and concrete.

The response zones for the window sample boreholes were installed along the entire length of the borehole.

Well installation details are provided in Profile Logs in Appendix B.

3.3 Sampling Protocol

3.3.1 Soil Sampling (Contamination)

Standard sampling protocol and preservation of samples was undertaken as described in the EA guidance on site investigation¹².

Soil was collected for onsite testing. A plastic zip bag was half filled with soil allowing a suitably sized headspace. The bag was sealed and stored for at least 20 minutes before being tested for total volatile organic compounds (TVOCs) using a PhoCheck photoionisation detector (PID). Results of the PID readings are presented on the profile logs (Appendix B). The on-site monitoring was carried out in line CIRIA C665¹³ to aid in screening samples for volatile analysis.

Soil samples of approximately 500g were recovered in amber jars, amber vials for volatile analysis and plastic tubs. All the samples were labelled and stored in cool boxes prior to being collected by courier at the end of the day for delivery to the Chemtest laboratory in Newmarket for chemical testing. If collection was not possible the same day then samples were stored in the sample storage fridge at the LK Group offices below 4°C. Samples were tracked using appropriate Chain of Custody forms provided by Chemtest.

Many of the contamination tests are UKAS or MCERTS accredited and further details are given in the Certificate of Analysis presented in Appendix C. Table 3-2 shows the soil testing undertaken.

⁹ British Standards (2002) Geotechnical investigation and testing – Identification and Classification of Soil. Part 1: Identification and description. BS EN ISO 14688-1:2002.

¹⁰ British Standard (2015). "Code of Practice for Ground Investigations". BS5930:2015.

¹¹ CIRIA (2007). "Assessing Risks Posed by Hazardous Ground Gases to Buildings." CIRIA C665.

¹² EA (2000). "Technical Aspects of Site Investigation. Volumes 1 & 2 Text Supplements Research and Development Technical Report." P5-065/Tr.

¹³ CIRIA (2007). "Assessing Risks Posed by Hazardous Ground Gases to Buildings." CIRIA C665.

Suites and Contaminants	No. Samples	Justification
Metals / metalloids, pH, water soluble sulphate, speciated PAHs, SOM and asbestos screen.	28	A basic suite with a broad selection of contaminants tested on samples across the site where no significant evidence of contamination was identified (with the exception of occasional ash and coal) and no TVOCs identified from the PID tests.
Metals / metalloids, pH, water soluble sulphate, cyanide suite, phenol, TPHCWG, BTEX, MTBE, speciated PAHs, SOM, asbestos screen, and WAC testing.	3	Although no visual/olfactory evidence of contamination was identified, a detailed suite was undertaken alongside a waste acceptance classification (WAC) test on soils that are likely to be removed from site.
pH and sulphate	38	To assess the conditions for concrete requirements. BRE SD1 Short Suite was undertaken on a selection of natural samples within the proposed sports pitches and extension area. pH and sulphate is also included in suite 1 and suite 5.

Table 3-2. Summary of soil sample testing undertaken.

Notes:

If asbestos present during screen identification and quantification will be undertaken.

Metal/metalloids=arsenic, cadmium, chromium, (total and hexavalent), copper, lead, mercury, nickel, selenium, vanadium, zinc and boron; TPHCWG=carbon banded and aromatic/aliphatic split petroleum hydrocarbons; PAH=polycyclic aromatic hydrocarbons, BTEX=benzene, toluene, ethylbenzene and xylenes; MTBE=Methyl tert-butyl ether, SOM=Soil Organic Matter.

3.3.2 Water Sampling

To establish the condition of shallow groundwater LKC undertook 6no. groundwater samples.

The groundwater samples were collected a minimum of 1 week after drilling had finished and following well development. Sample collection was undertaken using a low flow sampling pump using thin-walled tubing to encourage laminar flow and minimise the potential loss of volatiles during sampling. The borehole was purged of all standing water and the sample collected from the recharged water. The sample was collected in glass and plastic bottles and a glass vial. A water meter was used to test the pH, temperature and conductivity before sampling until equilibrium conditions were met, as per BS1017514 guidelines.

All water samples were placed in glass bottles, plastic bottles and septum topped vials and stored in ice packed cool boxes. The samples were sent to Chemtest on the same day for analysis. The sampling suite is presented in Table 3-3.

Sampling was carried out in accordance with BS5930¹⁵ and BS5667-11¹⁶.

Many of the tests are UKAS or MCERTS accredited and further details are given in the Certificate of Analysis presented in Appendix D. Table 3-3 shows the groundwater / leachate testing undertaken.

¹⁴ British Standard (2017). "Investigation of Potentially Contaminated Sites – Code of Practice." BS10175:2017.

¹⁵ British Standard (2015). "Code of Practice for Ground Investigations". BS5930:2015.

¹⁶ British Standard (2009). "Water Quality – Sampling. Part 11: Guidance on Sampling of Groundwaters". BS ISO 5667-11:2009.

Suites and Contaminants	No. Samples	Location	Justification
Metals / metalloids, pH, sulphate, cyanide suite, TPHCWG, BTEX, MTBE, speciated PAHs, phenol and hardness.	6	WS110 (G) WS109 (G) WS108 (G) WS106 (G) WS104 (G) WS103 (G)	Detailed suite undertaken from selected boreholes as a precaution. Detailed suite undertaken in WS103 due to location of car park and olfactory evidence of hydrocarbons in soil noted during site investigation.

Table 3-3. Summary of groundwater sampling tests undertaken.

Notes:

G=Groundwater Sample

Metal/metalloids=arsenic, cadmium, chromium, (total and hexavalent), copper, lead, mercury, nickel, selenium, vanadium, zinc and boron; TPHCWG=carbon banded and aromatic/aliphatic split petroleum hydrocarbons; PAH=polycyclic aromatic hydrocarbons, BTEX=benzene, toluene, ethylbenzene and xylenes; MTBE=Methyl tert-butyl ether, VOC=Volatile organic Compounds and SVOC= Semi Volatile Organic Compounds.

All groundwater results and analysis are discussed further in Section 5.4.

3.4 Gas Monitoring

Six gas monitoring visits have been undertaken over a 12-week period / 3-month period (8th April 2021 to 5th February 2022) in all installed boreholes.

The typical / idealised monitoring period and frequency is in line with C665¹⁷ for a low gassing potential of a source and low to moderate sensitivity development (generally outdoor space with enclosed leisure centre) is between 6 visits over a 2 or 3 month period. The gas monitoring carried out is therefore in line with the recommendations in C665¹⁸ for the proposed end use.

Monitoring was undertaken using a Geotechnical Instruments GA5000 in accordance with the monitoring protocol outlined in CIRIA C665 (flow rate measured first). The monitoring was undertaken over a range of weather conditions (including low and falling barometric pressure and heavy rain) to demonstrate worst-case conditions.

WS104 was inaccessible during the 1st monitoring visit and WS104 and WS105 were inaccessible during the 2nd monitoring visit.

It should be noted considering the site conditions gas monitoring would not have been required but was undertaken as part of the scope requirement provided.

The gas monitoring results are reproduced in full in Appendix F.

3.5 Geotechnical Testing

3.5.1 In-situ Onsite Geotechnical Testing

In-situ geotechnical tests were performed in the boreholes to further characterise the sub-soil conditions. The following tests were undertaken:

- Standard Penetration Tests (SPTs) were performed in the window sample boreholes at approximately 1m intervals, generally within the natural strata.
- Pocket Penetrometer tests (giving undrained shear strength) were performed in the window sample boreholes (to a maximum depth of 3mbgl) within the natural clay strata.

¹⁷ CIRIA (2007). "Assessing Risks Posed by Hazardous Ground Gases to Buildings." CIRIA C665.

The SPT and pocket penetrometer readings are provided within the profile logs (Appendix B).

3.5.2 Laboratory Geotechnical Testing

Soil samples taken during the investigation were collected in tubs and bulk bags and sent to Murray Rix Laboratories for geotechnical testing.

Many of the tests are UKAS accredited and further details are given in the laboratory report presented in Appendix E. Table 3-4 shows the geotechnical testing undertaken.

Suites and Contaminants	No. Samples	Location	Justification
Atterberg Limits (plasticity testing)	7	WS101 1.70-2.00 WS102 1.50-2.00 WS103 1.50-2.00 WS104 1.80-2.00 WS106 1.50-2.00 WS108 2.80-3.00 WS109 2.40-2.60	A selection of clay samples across the site were tested for Atterberg Limits to assess their shrinkability potential associated with current and proposed trees.
Particle Size Distribution (PSD) and Moisture Content	8	WS105 1.50-2.00 WS107 1.50-2.00 WS110 1.00-1.50 HD101 0.50-1.00 HD105 0.50-0.80 HD108 0.50-0.80 HD119 0.40-0.55 HD124 0.50-0.80	PSD undertaken to confirm grading of granular material.

Table 3-4. Summary of geotechnical testing undertaken.

3.5.3 Dynamic Cone Penetrometer Tests

10no. Dynamic Penetration Tests (DCP101-110) were undertaken to determine the characteristic strength of the shallow ground associated with the proposed carparking. Equivalent CBR values can be calculated from the DCP tests.

The DCPs were carried out adjacent to hand dug pits and window sample boreholes to allow correlation of the strata.

Table 3-5 shows the DCP and correlating profile logs:

DCP Test Reference	Corresponding Profile Log
DCP101	HD108
DCP102	WS105
DCP103	WS104
DCP104	HD106
DCP105	HD107
DCP106	HD104
DCP107	WS110
DCP108	HD102
DCP109	HD121
DCP110	HD101

Table 3-5: DCP and correlating profile log.

The DCP rig is a manually operated, hand held rig which utilises an 8kg weight falling 575mm to strike an anvil. This in turn drives a 60 degree cone into the soil. The number of blows and penetration of each blow are recorded by the operative and the results used to calculate an equivalent CBR value. The test requires that a minimum 50mm

diameter hole is cut through any hardstanding. The cone should be driven from a partial height until the cone is below the reference surface.

Prior to undertaking works in each sampling location, the scale is calibrated and a reference surface, normally a staff or other straight edge, placed on the ground.

DCP data sheets are presented in Appendix B and locations are presented in Figure 3. Corresponding profile logs are presented in Appendix B.

3.6 Soakaway Tests

Soakaway tests were undertaken in SA101-SA102 in accordance with BRE Digest 365¹⁹.

The trial pits were machine excavated to dimensions of 0.5m wide, 1.0m long and 1.5m depth. The arisings were logged in accordance with BS14688-1²⁰ and BS5930.

A slotted standpipe was placed vertically in the pit and gravel was backfilled into the bottom of the pit to prevent the sides falling in during water influx.

The pits were filled from a water bowser and the drop in level timed and recorded using a dip meter inside the temporary standpipe.

3.7 Geotechnical Laboratory Testing

3.7.1 Particle Size Distribution

Particle size distribution (PSDs) tests were carried out on granular strata to confirm the material type. Full results are presented in Appendix E and summarised below in Table 3-6.

Location	Depth (mbgl)	Material	Percent passing through sieve		
			63mm	2mm	0.063mm
WS105	1.50-2.00	Brown slightly silty SAND with frequent gravel.	100%	69%	3%
WS107	1.50-2.00	Brown slightly silty SAND with frequent gravel.	100%	78%	2%
HD101	0.50-1.00	Brown silty SAND with rare gravel.	100%	99%	8%
HD105	0.50-0.80	Brown silty SAND with rare gravel.	100%	91%	20%
HD108	0.50-0.80	Brown silty SAND with rare gravel.	100%	94%	16%
HD119	0.40-0.55	Brown silty SAND with rare gravel.	100%	98%	15%
HD124	0.50-0.80	Brown silty SAND with rare gravel.	100%	83%	10%

Table 3-6 Summary of particle size distribution results.

Notes:

% passing: 63mm = cobble / gravel boundary; 2mm = gravel / sand boundary; 0.063mm = sand / silt boundary

¹⁹ BRE (2003) 'Soakaway Design' British Research Establishment BRE Digest 365 2003

²⁰ British Standards (2002). Geotechnical investigation and testing – Identification and Classification of Soil. Part 1: Identification and description. BS EN ISO 14688-1:2002.

3.7.2 Atterberg Limits

Representative samples of natural clay were subjected to Atterberg Limits (plasticity) and Moisture Content testing. Results are presented in Appendix E and summarised in Table 3-6.

Table 3-7 also includes the modified plasticity index as detailed in Chapter 4.2-D5 of the NHBC standards (modified plasticity index = plasticity index x % less than 425µm sieve / 100%).

Location	Depth (mbgl)	Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Class	Passing 425 micron (%)	Modified Plasticity Index (%)
WS101	1.70-2.00	20	37	15	22	CL	88	19.36
WS102	1.55-2.00	20	38	14	24	CL	90	21.60
WS103	1.50-2.00	14	34	13	21	CL	94	19.74
WS104	1.80-2.00	15	32	12	20	CL	91	18.20
WS106	1.50-2.00	19	36	14	22	CL	93	20.46
WS108	2.80-3.00	23	37	16	21	CL	90	18.90

Table 3-7: Summary of plasticity index testing.

The modified plasticity index is between 18.20% and 21.60%. This characterises the clay as having a low to medium volume change potential.

3.7.3 Sulphate and pH

Water soluble sulphate and pH tests were carried out on soil and groundwater samples. Full results are presented in Appendix C (soils) and Appendix D (groundwater) and summarised in Table 3-8.

Strata	pH		Sulphate	
	Soil	Groundwater	Soil (g/l)	Groundwater (mg/l)
Made Ground	6.3-8.3	6.8-8.5	<0.01-0.018	4.3-78
Natural	5.9-9.0		<0.01-0.024	

Table 3-8: Summary of pH and sulphate results.

4 Ground Conditions

4.1 Geology – Generalised Sequence

The ground conditions beneath the site comprised topsoil or made ground underlain by natural sand and natural gravelly clay. A summary section of the logs is provided in Plate 4-1, with additional comments below.

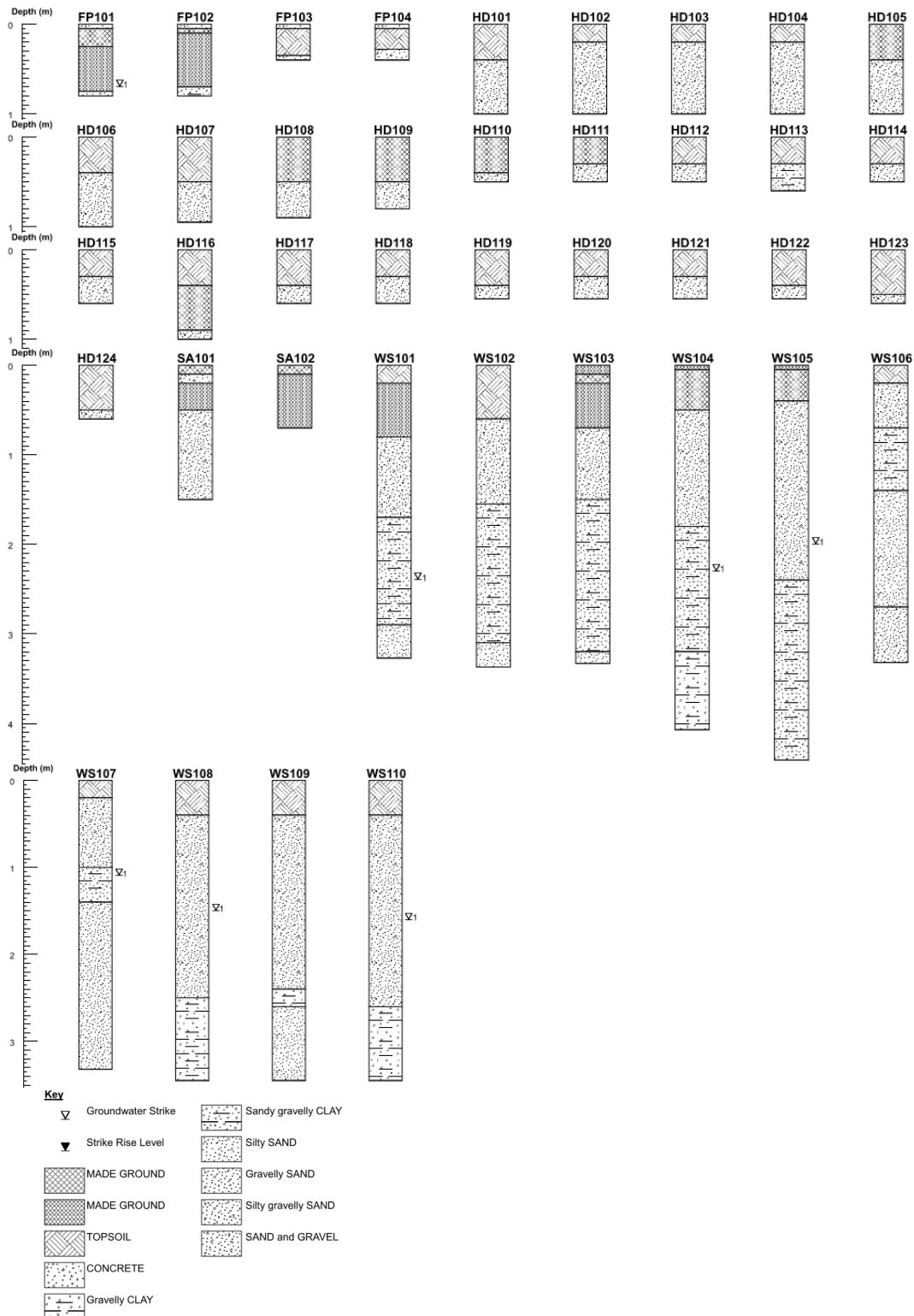


Plate 4-1: Summary of ground conditions.

Additional information on ground conditions:

- Topsoil was present in all the boreholes and hand dug pits to depths between 0.20-0.50mbgl. Exceptions to this were:
 - Made ground present in HD105, 108, 109, 110, 116 consisting of silty sand with anthropogenic material including ash, clinker, plastic pieces, brick fragments and pottery to depths of 0.40-0.90mbgl.
 - Made ground was also recorded in WS101 and WS104 of silty sand to depths of 0.50-0.80mbgl.
 - WS103 consisted of made ground of sandy gravel to depth of 0.70mbgl.
- A slight PAH odour was noted in WS103 at a depth of 0.2-0.5mbgl. This is located within the current car park area and related to tarmacadam fragments.

The ground conditions beneath the site comprised topsoil or made ground underlain by natural sand or natural gravelly clay. A summary is provided in Table 4-1.

Depth to Top of Strata (mbgl)	Depth to Base of Strata (mbgl)	Thickness of Strata (m)	Description
0.0	0.2- 0.6	0.2-0.6	TOPSOIL: sandy silt with frequent rootlets Present in almost all the boreholes and hand dug pits.
0.0 to 0.5	1.0 to 2.0	0.2 to 0.5	MADE GROUND 1: gravelly silty sand with brick ash and clinker. WS101 WS104 WS105 HD105 HD108 HD109 HD110
0.0 to 0.5	1.0 to 2.0	0.2 to 0.5	MADE GROUND 2: sandy gravel with ash clinker and tarmac fragments. WS103
0.2 to 2.9	0.55 to 3.27	0.15 to 2.20	SAND: yellow / grey sand WS102 WS103 WS105 WS104 WS106 WS107 WS108 WS109 WS110 Present in all the hand dug pits.
1.4 to 2.4	2.5 to 4.41	0.2 to 2.01	CLAY: Sandy / gravelly clay WS101 WS102 WS104 WS105 WS106 WS108 WS109 WS110
1.4 to 3.2	3.32 to 3.45	0.13 to 1.92	SAND: Orange / reddish brown sand WS101 WS02 WS103 WS106 WS107 WS109

Table 4-1: Summary of ground conditions.

4.2 Groundwater

4.2.1 Groundwater Levels

Groundwater strikes were recorded during the investigation in the boreholes. In addition, groundwater monitoring within the borehole wells has been undertaken on one occasion. All the hand dug pits were noted as dry except HD108 with a water strike at the base at 0.90mbgl. Results are summarised in Table 4-2.

BH/TP	Water Strike Depths (mbgl)	Well Response Zone (mbgl)	No. of Monitoring Visits	Monitoring Depths (mbgl)			Sample Taken?	Evidence of Contam?
				Min	Max	Base		
WS101	2.4	1.0-3.0 (S&G, C)	4	0.95	1.17	2.80-2.85	N	N
WS102	1.8	1.0-3.0 (C)	6	0.70	0.85	2.81-2.84	N	N
WS103	2.3	1.0-3.0 (S, C)	6	0.68	1.15	2.92	N	N
WS104	2.3	0.8-3.0 (S, C)	5*	0.65	0.80	1.79-1.80	N	N
WS105	2.0	1.0-3.50 (S, C)	4**	0.64	0.73	3.44-3.49	N	N
WS106	0.8	1.0-3.0 (S, C)	6	0.80	1.00	2.75-2.78	N	N
WS107	1.1	1.0-2.0 (S)	6	0.75	0.80	1.40-1.46	N	N
WS108	1.5	1.0-2.20 (S)	6	0.48	1.03	1.96-2.10	N	N
WS109	1.6	1.0-1.50 (S)	6	0.87	1.01	2.30-2.43	N	N
WS110	1.6	1.0-3.0 (S, C)	6	1.23	1.30	2.10-2.20	N	N

Table 4-3 (continued): Summary of water strike depths within boreholes and trial pits.

Response Zones:

S=Sand; C=Clay.

*WS104 results are compiled from visits 3 and 4.

**WS105 results are compiled from visits 1, 3 and 4.

4.2.2 Permeability Tests

Soakaway Tests

Soakaway tests were also carried out within sandstone strata at the request of the client. The results of the soakaways are presented in Appendix G and summarised in Table 4-4.

SA102 could not be undertaken in the proposed location due to the presence of underground services. Upon correspondence with Curtins and ISG plc, a suitable alternative location could not be found and the pit was abandoned..

BRE365²¹ indicates that the calculation of the soil infiltration rate is made from the time taken for the water level to fall from 75% to 25% effective storage depth in each pit.

$$\text{Soil infiltration rate, } f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

Where:

V_{p75-25} = the effective storage volume of water in the trial pit between 75% and 25% effective depth.

a_{p50} = the internal surface area of the trial pit up to 50% effective depth including the base area.

t_{p75-25} = the time for the water level to fall from 75% to 25% effective depth.

²¹ BRE (2003) 'Soakaway Design' British Research Establishment BRE Digest 365 2003

TP	Test No.	Strata at Test Level	Time for outflow between 75% and 25% (mins)	Soil infiltration rate (m/s)
SA101	1	slightly gravelly very silty SAND	47.00	1.33×10^{-5}
	2	slightly gravelly very silty SAND	46.67	1.34×10^{-5}
	3	slightly gravelly very silty SAND	49.04	1.28×10^{-5}

Table 4-4: Summary of soakaway tests and permeability.

Based on the results of the soakaway tests, the permeability of the sandstone has been calculated within an order of magnitude of 10^{-5} m/sec.

4.3 In-Situ Geotechnical Testing

4.3.1 Standard Penetration Tests

In-situ standard penetration tests (SPTs) were undertaken, predominantly in the natural ground. The results are summarised in Table 4-5 and provided within the profile logs in Appendix B.

Approximate Depth (mbgl)	SPT 'N' Values				
	WS101	WS102	WS103	WS104	WS105
1-2	14 (SG)	10 (S)	5 (S)	10 (S)	12 (S)
2-3	10 (C)	9 (C)	5 (C)	10 (C)	2 (S)
3-4	50 (S)	50 (S)	50 (S)	13 (C)	5 (C)
4-5	-	-	-	50 (C)	50 (C)
GW Level	0.95-2.4	0.7-1.8	0.68-2.3	0.65-2.3	0.64-2.0
Approximate Depth (mbgl)	SPT 'N' Values				
	WS106	WS107	WS108	WS109	WS110
1-2	9 (S)	15 (S)	11 (S)	11 (S)	16 (S)
2-3	18 (C)	11 (S)	4 (S)	6 (S)	5 (S)
3-4	50 (S)	9 (S)	9 (C)	9 (S)	12 (C)
GW Level	0.8-1.0	0.75-1.1	0.48-1.5	0.87-1.6	1.23-1.6

Table 4-5: Summary of Standard Penetration Tests.

Notes:

SG=Sands and Gravel; S=Sand; C=Clay

Groundwater level based on strikes during investigation and monitoring data.

4.3.2 Pocket Penetrometer

Pocket Penetrometer readings, recording undrained shear strength (s_u), were taken within the clay strata. The results are summarised in Table 4-6 and provided within the profile logs in Appendix B.

Approximate Depth (mbgl)	Average Undrained Shear Strength (kN/m ²)				
	WS101	WS102	WS103	WS104	WS105
1-2	-	49	85	37	-
2-3	60	49	61	-	25
3-4	-	-	-	49	-
GW Level	0.95-2.4	0.7-1.8	0.68-2.3	0.65-2.3	0.64-2.0
Approximate Depth (mbgl)	Average Undrained Shear Strength (kN/m ²)				
	WS106	WS108	WS109	WS110	
1-2	37	-	-	-	
2-3	-	49	49	60	
3-4	-	-	-	-	
GW Level	0.8-1.0	0.48-1.5	0.87-1.6	1.23-1.6	

Table 4-6: Summary of average pocket penetrometer readings.

Notes:

Groundwater level based on strikes during investigation and monitoring data.

Pocket penetrometer readings can be influenced by coarse material including coarse silt.

4.3.3 Dynamic Cone Penetrometer Tests

Equivalent CBR values from the DCP results have been calculated using UK DCP v3.1 software provided by the Transport Research Laboratory. The DCP Logs and software output sheets are provided in Appendix B.

The software can also identify an assumed change in layers based upon changes in density and these are highlighted on the output sheets.

Exceptionally high or low CBR results which deviate from the expected best fit line are most likely due to the driving of coarse gravel or cobble sized particles or encountering localised very loose or soft unconsolidated strata.

Equivalent CBR results are presented in Table 4-7.

DCP101		DCP102		DCP103		DCP104		DCP105	
Depth (m)	CBR (%)	Depth (m)	CBR (%)	Depth (m)	CBR (%)	Depth (m)	CBR (%)	Depth (m)	CBR (%)
0.192 (MG)	2	0.390 (MG)	5	0.358 (MG)	4	0.887 (S)	4	0.272 (TS)	3
0.860 (S)	6	0.846 (S)	9	0.859 (S)	9	-	-	0.569 (S)	7
-	-	-	-	-	-	-	-	0.724 (S)	5
-	-	-	-	-	-	-	-	0.842 (S)	8
DCP106		DCP107		DCP108		DCP109		DCP110	
Depth (m)	CBR (%)	Depth (m)	CBR (%)	Depth (m)	CBR (%)	Depth (m)	CBR (%)	Depth (m)	CBR (%)
0.350 (S)	3	0.400 (TS)	5	0.244 (S)	35	0.659 (S)	4	0.727 (S)	4
0.864 (S)	6	0.860 (S)	3	0.943 (S)	6	0.900 (S)	9	0.899 (S)	9

Table 4-7: Summary of Equivalent CBR (%) values

Notes

Depth = depth to layer bottom (m), strata type given in brackets

TS=Topsoil, S=Sand

* where CBR recorded as maximum of 100% but calculated as greater than 100%.

Equivalent CBR readings in the made ground varied between 2 and 5%.

Equivalent CBR readings in the topsoil encountered ranged from 3 and 5% within DCP107 and DCP105.

Equivalent CBR readings in the sand varied between 3 and 35%.

5 Geotechnical Assessment

5.1 Proposed Development

It is understood that the proposed development will comprise the construction of a two-storey extension to the existing leisure centre, the demolition of an existing changing rooms block and additional car parking with associated infrastructure.

It is anticipated that the finished ground levels will not vary significantly from current levels. However, should the development proposals or finished levels be altered then the comments/recommendations in this section may require revising.

The depths of any underground engineering works (sewers etc.) are unknown and therefore have not been taken into account in the following assessment. It is considered that any such works will be designed so as not to have an effect on, or compromise, proposed or existing foundations or ground stability.

Given the nature of the proposed development it is considered that the structure meets the criteria of Geotechnical Category 2 of Euro Code 7.

5.2 Summary of Ground Conditions

Topsoil was present in all the boreholes and hand dug pits to depths between 0.20-0.50mbgl. The exception to this was the presence of Made Ground in HD105, HD108, HD109, HD110 and HD116 consisting of silty sand with anthropogenic material including ash, clinker, plastic pieces, brick fragments and pottery to depths of 0.40-0.90mbgl; Made Ground was also recorded in WS101; and WS104 of silty sand to depths of 0.50-0.80mbgl. WS103 consisted of made ground of sandy gravel to depth of 0.70mbgl. A slight PAH odour was noted in WS103 at a depth of 0.2-0.5mbgl.

A detailed summary is provided in Table 4-1 and all profile logs are in Appendix B.

5.3 Existing Foundations

A total of 4no. foundation pits were excavated adjacent to the current leisure centre and the former changing room. The locations of the foundation pits are shown on Figure 2 and the details are contained in logs FP101-FP104. A photographic record has been provided to the client.

In summary within FP101 and FP102: Concrete footings were recorded between 0.35 and 0.45bgl. The thickness of the footings ranged between 0.30m and 0.35m and are recorded bearing onto gravelly silty SAND. Within FP103 and FP104 a concrete slab thought not to be a footing was identified at 0.28-0.35mbgl. The pit was excavated to 1.00m out from the brickwork before termination. The extent of concrete slab could not be determined.

5.4 Site Preparation

The site should be cleared and any vegetation below areas of proposed development stripped in accordance with Series 200 of the Specification for Highway Works. This should include:

- Roots present below the footprint of proposed structures and infrastructure should be grubbed out and the resulting void infilled with suitable compacted engineered fill.
- Redundant services should be sealed off and grubbed out and replaced with suitable compacted engineered fill; and,
- Foundations associated with the changing rooms to be demolished should be grubbed out during demolition works.

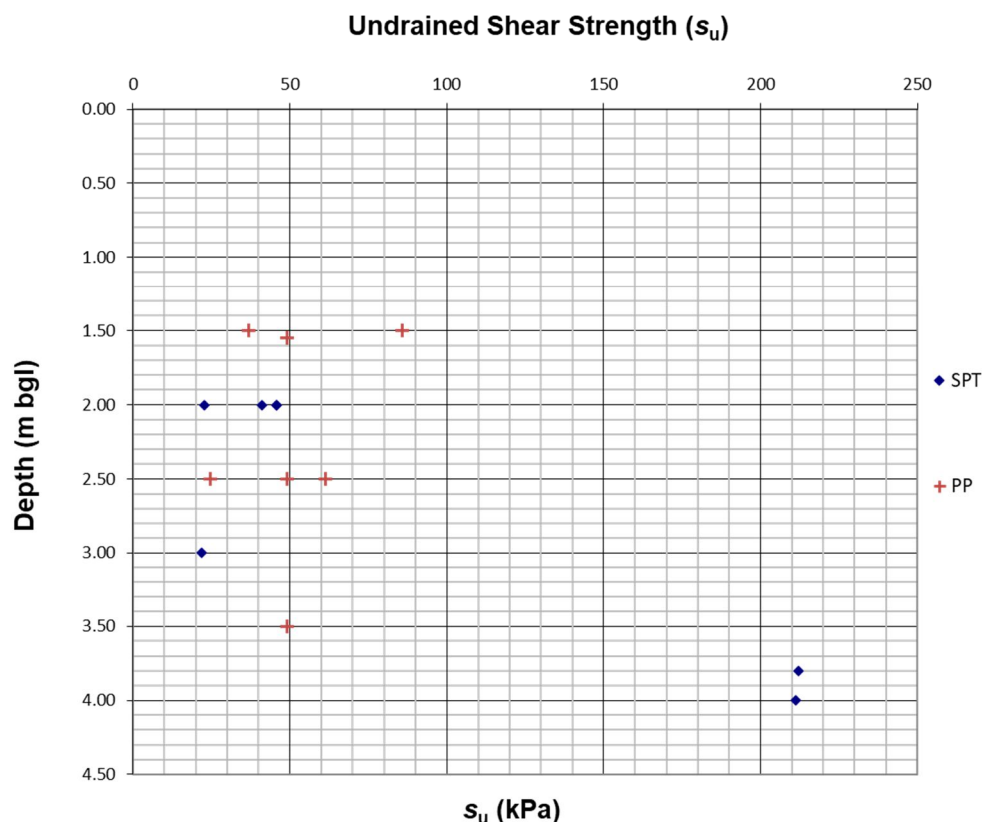
The near surface soils may potentially be disturbed by weathering and site traffic. Precautions should be taken to avoid this, as excessive disturbance may result in more onerous floor slab design, road cap thickness and increased amount of site disposal etc.

5.5 Foundation Conditions and Bearing Capacity

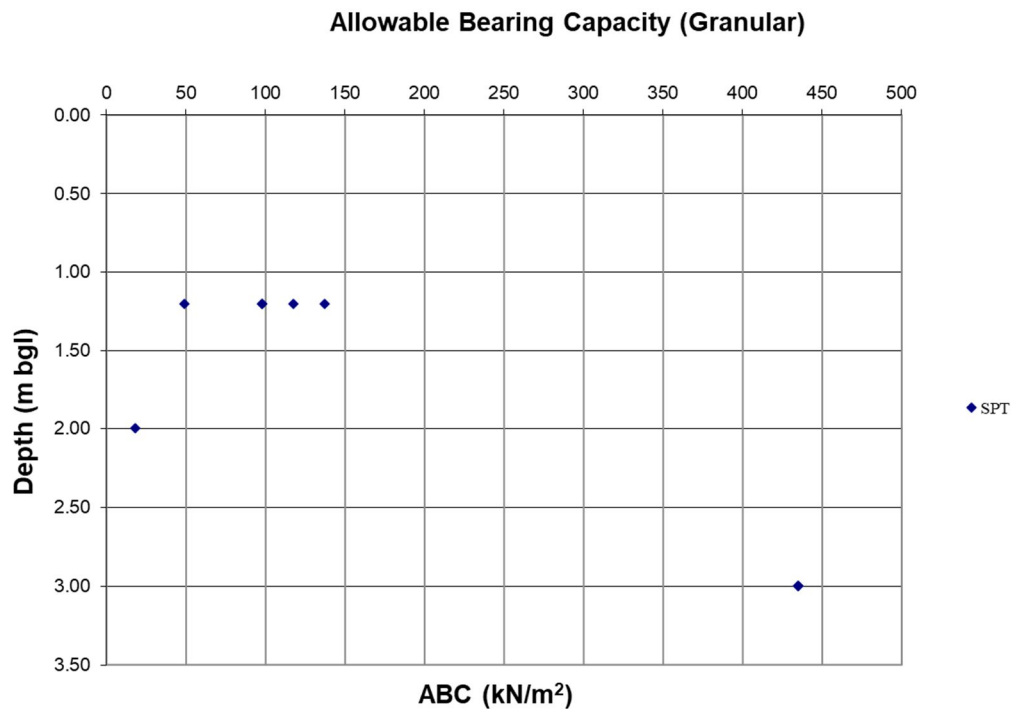
5.5.1 General

It is considered that the Made Ground not suitable for a founding material due to the inherent variability of the material. Strength of the natural cohesive material has been assessed using in-situ testing by SPT and Pocket Penetrometer tests (PP). The density of the granular materials and subsequent Allowable Bearing Capacity (ABC) for shallow strip foundations has been assessed from in-situ SPTs.

The results of the testing from window samples WS101 to WS105 have been plotted against depth as is shown in Graph 5-1 for the cohesive material and Graph 5-2 for the granular strata.



Graph 5-1: Summary of s_u vs depth from in-situ SPT and PP testing in cohesive strata.



Graph 5-2: Summary of ABC vs depth from in-situ SPT in granular strata.

From Graph 5-1 it can be seen that the undrained shear strength (s_u) of the cohesive deposits is generally uniform, typically between 22 and 61kPa between 1.50m and 3.50mbgl before increasing to 211kPa at 3.80 – 4.00mbgl. At this depth SPTs within WS104 and WS105, located in the area of the redundant changing rooms, met with refusal. Using a conservative s_u of 25kPa in the shallower cohesive material would give an ABC of 50 for shallow strip foundations.

From Graph 5-2, an assessment of the Allowable Bearing Capacity (ABC) of the granular deposits show a range between 49 and 137kN/m² at a depth of 1.20mbgl. A low value of 18kN/m² was recorded at a depth of 2.00mbgl within WS105 co-incident with a water strike in the granular material. Groundwater was not evident in all locations and is therefore considered as perched in this borehole. Refusals of SPTs was met at 3.00mbgl within the granular strata in WS101, WS102 and WS103 on very dense reddish orange silty SAND considered likely representative of bedrock.

5.5.2 Strip Foundations

Given the varying depths and thickness of the SAND and underlying CLAY strata, it is considered that shallow foundations bearing onto these strata will have a great potential for differential settlements and it is recommended that foundations are taken through this material and bear directly upon the bedrock, encountered at depths of between 2.90m and 3.20mbgl at the locations of WS101 to WS103 and at 4.07 to 4.41mbgl at the locations of WS104 & WS105.

It is considered that the SPT refusals on very dense strata is representative of the weathered SANDSTONE bedrock a conservative bearing pressure of 600kN/m² is obtainable for spread foundations. As the depth to bedrock is greater than 2.50m it is considered that foundations should be designed by a specialist structural engineer.

5.5.3 Pad Foundations

Based upon density of the SAND material and the s_u obtained from the in-situ testing of the CLAY material, an assessment has been made on a pad foundation supporting column loads. For preliminary assessment purposes, two sizes of pad (1m^2 and 2m^2) have been considered at depths of 1m and 2mbgl. The bearing capacity assessment has been made in line with combination 1 (partial factors on Actions) and Combination 2 (partial factors on materials), results are shown in Table 5-1.

Pad Size	Pad Depth (mbgl)	Allowable Load (kN)
1m^2 (1.00m x 1.00m)	1.00	772
	2.00	731
2m^2 (1.42m x 1.42m)	1.00	1070
	2.00	1013

Table 5-1: Summary of pad Allowable Load.

The pads show an ABC of 772kN for a 1m^2 pad and 1070kN for a 2m^2 pad foundation placed at a depth of 1mbgl in the target stratum of medium dense SAND over the CLAY. Strip foundations supporting cladding walls should be able to support loadings of 50kN/m^2 .

It can be seen that increasing the size of the foundation results in a greater ABC, however, increasing the depth of the foundation reduces the ABC.

The above is for assessment purposes only, foundation design should be undertaken by a specialist contractor.

5.6 Ground Floor Slabs

Following suitable preparation of the sub-grade, by a combination of excavation and re-compaction, a ground bearing floor slab should be suitable for the proposed structure. Floor slabs should be designed by a suitably experienced structural engineer.

5.7 Pavement Construction

An assessment of the likely California Bearing Ratio (CBR) for the shallow ground has been assessed from the following sources:

- » In Situ CBR tests undertaken using the TRL Probe;
- » Description of the materials encountered in the exploratory holes.

It is considered that the topsoil is not suitable for use as a sub-grade. CBR values beneath the topsoil ranged between 5 – 9%, with one low value obtained at the location of DCP108 of 3%.

It is considered a CBR value of 5% is adopted for the proposed car parking areas.

Following excavation the sub formation should be proof rolled and any soft material inspected and replaced with compacted granular material.

5.8 Drainage

The soil infiltration tests show some soakage potential for the slightly gravelly very silty SAND returning soil infiltrations rates of between 1.33^{-5} and 1.28^{-5} m/s which are considered suitable rates for the use of Sustainable Urban Drainage systems (SUDs), however the underlying clay is likely to be of low permeability. The lateral continuity of the SAND appears consistent and therefore it is considered that soakaways will likely be suitable for disposal of surface water runoff.

5.9 Excavations

Site observations indicated that excavations should be feasible in the near surface with normal plant. Excavations appeared stable however perched groundwater was encountered in some of the exploratory holes and where encountered within granular material consideration must be given to the potential for running sands and instability.

As natural deposits included granular strata containing perched groundwater. The short and long term stability of near vertically sided excavations can therefore not be guaranteed and random and sudden instability within these soils should be anticipated.

Due to the potential for instability it is considered that all excavations are supported or battered back in accordance with guidance contained in CIRIA R97²². Groundwater seepages were noted in several exploratory holes, however, these were minor and it is considered that conventional sump pumping should be adequate.

5.10 Construction Activity and Inspection

The following activities and inspections should be incorporated into the site works:

- » It is recommended that sufficient allowance is made for the inspection of formation and sub formations to foundations and pavement construction;
- » Excavations where access is required should be subject to a risk assessment from a competent person and where appropriate mitigation measures such as benching back the sides or use of support systems in accordance with CIRIA R97 utilised;
- » It is considered that de-watering may be required, especially following periods of heavy rainfall. Removal of surface water and water within trenches should be possible with conventional sump pumping. Discharge of any water should be agreed with the relevant regulatory body and be undertaken under a trade effluent discharge, where required. Measures to remove silt and suspended solids may be required and consideration should be given to provision of space for settling tanks or an attenuation pond;
- » Where access to confined spaces is required appropriate mitigation measures should be addressed within the Construction Stage Health and Safety Plan. Particular account should be taken of the gas results;
- » The presence of potential contamination and mitigation measures should be addressed as part of the Construction Stage Health and Safety Plan and should include measures to design out the risks, reduce their impact and finally the use of Personnel Protective Equipment (PPE).

²² CIRIA Report 97 – Trenching Practice – Second Edition (2001 revision)

6 Generic Risk Assessment

6.1 Introduction

Current good practice requires that the findings from a site investigation should be evaluated on a site-specific basis, using a risk-based approach. Risk assessment involves identification and evaluation of the hazards presented by the concentrations of contaminants measured followed by an evaluation of the risks which are associated with these hazards (LCRM²³). Information gathered from the risk assessment has been collated in the revised contamination conceptual model in Section 6.6.

6.2 Soil Risk Assessment

6.2.1 Methodology

With regards to the soil risk assessment LKC will use the following hierarchy:

- Category 4 Screening Levels (C4SLs).
- LQM Suitable 4 Use Levels (S4ULs).
- ATRISK Soil Screening Values (SSVs) and CL:AIRE Generic Assessment Criteria (GACs).

C4SLs were published in 2013^{24,25}. The recent change to the contaminated land guidance has changed the evaluation of risk from 'minimal' (referred to as Health Criteria values (HCVs))²⁶ used to generate Soil Guideline Values (SGVs) to 'low' (referred to as Lowest Level of Toxicological Concern (LLTCs)). The policy companion document and supporting letter by Defra, dated 3rd September 2014, states that C4SLs *'could be used under the planning regime, as well as within Part 2A'*. Based on these comments LKC considers the justifications and assumptions used to generate 'low' risk are suitable for the planning regime.

Where no C4SLs have been generated LKC will use the LQM S4ULs²⁷. Similar assumptions and land uses to C4SLs have been used. However, toxicological information has been based on 'minimal risk' as per previous guidelines and assumptions^{28,29,30,31}.

If contaminants are not present as C4SLs and S4ULs then LKC will use ATRISK SSVs or CL:AIRE GACs³². These follow the 'minimal' risk principle and more stringent exposure parameters and will be conservative.

LKC consider the main risk drivers for PAHs are benzo(a)pyrene (B(a)P) and naphthalene. This is due to B(a)P possibly being a carcinogen and most toxic of the

²³ Land Contamination Risk Management (LCRM) <https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm>

²⁴ Defra (2014). "SP1010: Development of Category 4 Screening Levels and Assessment of Land Affected by Contamination – Policy Companion Document."

²⁵ CL:AIRE (2013). "SP1010: Development of Category 4 Screening Levels and Assessment of Land Affected by Contamination – Final project Report."

²⁶ EA (2008). "Human Health Toxicological Assessment of Contaminants in Soils." Science Report – SC050021/SR2.

²⁷ LQM (2014). "The LQM/CIEH S4ULs for Human Health Risk Assessment."

²⁸ EA (2008). "Updated Technical Background to the CLEA Model." Science Report – SC050021/SR3.

²⁹ EA (2008). "Human Health Toxicological Assessment of Contaminants in Soils." Science Report – SC050021/SR2.

³⁰ EA (2008). "A Review of Body Weight and Height Data used within the Contaminated Land Exposure Assessment Model (CLEA)." Project SC050021/Technical Review 1.

³¹ EA (2009). "Compilation of Data for Priority Organic Pollutants for Derivation of Soil Guideline Values." Science report SC050021/SR7.

³² CL:AIRE (2009). "The Soil Generic Assessment Criteria for Human Health Risk Assessment."

PAHs^{33,34} and naphthalene the most volatile and soluble³⁵. The new C4SLs indicate B(a)P as a surrogate marker for carcinogenic PAHs, if it falls within appropriate limits, since the risk from other non-carcinogenic PAHs are considered negligible³⁶. For B(a)P to be used as a surrogate marker it should follow the profile described by the HPA (2008)³⁷ and CL:AIRE (2013). Naphthalene will be treated separately using the LQM S4ULs.

The proposed development is for an extension to the current Leisure Centre building with various sports pitches. Therefore the assessment criteria for 'Public Open Space Park (POS_{park})' end use has been used for the area of the pitches and the 'Commercial' end use for areas around the proposed extension and carpark.

All criteria have been generated using the CLEA V1.06 model³⁸ based either on 1%, 2.5% and 6% Soil Organic matter (SOM). Results will be compared to the nearest appropriate SOM.

A summary of the generic assessment criteria is provided in Appendix H. ATRISK SSVs and CL:AIRE GACs were not required for this dataset and have not been included.

³³ EA (2002). "Contaminants in Soils: Collation of Toxicological Data and Intake Values for Humans. Benzo[a]pyrene." R&D Publication TOX2.

³⁴ USEPA (1984). "Health Effects Assessment of Polycyclic Aromatic Hydrocarbons (PAHs). EPA 540/1-86-013."

³⁵ EA (2003). "Review of the Fate and Transport of Selected Contaminants in the Soil Environment." Draft technical report P5- 079/TR1.

³⁶ CL:AIRE (2013). "SP1010: Development of Category 4 Screening Levels and Assessment of Land Affected by Contamination – Final project Report."

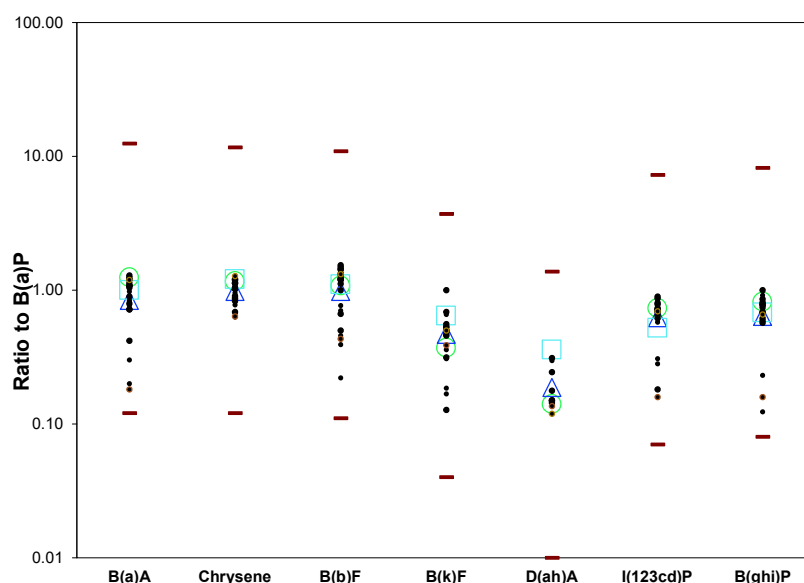
³⁷ HPA (2010). "HPA Contaminated Land Information Sheet: Risk Assessment Approaches for Polycyclic Aromatic Hydrocarbons (PAHs)." Version 3.

³⁸ EA (2008). "CLEA Software (Version 1.05) Handbook." Science Report – SC050021/SR4.

B(a)P as Surrogate Marker

Based on the above assumption for PAHs, LKC undertook an assessment of the data for the site with regards to using B(a)P as a surrogate marker for carcinogenic PAHs as per HPA and CL:AIRE guidelines. The primary toxicological study related to Culp *et al.*³⁹, which was based on coal tar mixtures (>80,000mg/kg of total PAHs) fed in food to mice over a two-year carcinogenicity study.

Graph 6-1 summarises the study site data with respect to how the ratios of carcinogenic PAHs relate to B(a)P, within the confidence limits provided in the HPA document.



Graph 6-1: The ratio of PAH to B(a)P in soil for all available data at the site based on 31 samples (where values were >LOD to allow the calculation of a ratio).

Notes:
 B(a)P = Benzo(a)pyrene; D(ah)A = Dibenzo(ah)anthracene; B(a)A = Benzo(a)anthracene; B(b)F = Benzo(b)fluoranthene; B(k)F = benzo(k)fluoranthene; I(123cd)P = Indeno(123cd)pyrene; B(ghi)P = Benzo(ghi)perylene
 ● = Ratio to B(a)P for all data ○ = Mean ratio to B(a)P for Culp data △ = Mean ratio to B(a)P from all data at the site
 □ = Mean ratio to B(a)P for UK data presented by HPA ■ = Upper and Lower limits (order of magnitude from Culp data)

All sample data points fall inside the upper and lower limits, with the exception of WS106 0.0-0.2m. This sample is to be analysed separately, with all PAH values to be compared separately to LQM GAC.

Based on this distribution of the remaining data, LKC considers B(a)P can be used as a surrogate marker for carcinogenic PAHs and the C4SL criteria is suitable.

6.2.2 Soil Results Comparison against Assessment Criteria

Results have been compared to the relevant assessment criteria and no elevated contaminants were identified.

No asbestos was identified in any soil samples analysed.

³⁹ Culp, S; Gaylor, D; Sheldon, W; Goldstein, L and Beland, F (1998). "A Comparison of Tumours Induced by Coal Tar and Benzo-a-pyrene in a 2-Year Bioassay." *Carcinogenesis*. Vol 19, no. 1, pp. 117-124.

6.2.4 *Direct Contact Risk – Pollutant Linkage 1*

No asbestos was identified in any of the samples; therefore, the probability of asbestos affected site users is considered to be unlikely. With a medium consequence, the risk is low and remediation is not required. However, as a precaution, construction workers should be and vigilant for any suspected ACM during groundworks (discussed further in Section 8.2).

No Metals or PAHs were identified, therefore the probability of these contaminants posing a risk to site users is considered unlikely. With a medium consequence, the risk is considered to be low, and no remediation is required.

6.2.5 *Risk from Inhalation of Vapours – Pollutant Linkage 2*

Olfactory evidence of potentially volatile contaminants identified in 1no. location (WS103) during the investigation within the existing carpark (slight PAH odour). However, the PID did not detect any TVOCs, and confirmatory soil analysis did not identify any elevated results. It was likely related to tarmacadam fragments within the sample.

No visual / olfactory evidence of volatile contaminants was identified in any other locations during the investigation. The PID did not detect any TVOCs.

LKC therefore consider the probability of volatile contaminants affecting site users as unlikely. The consequence is expected to be medium, giving a low risk and no remediation is required.

6.3 **Gas Risk Assessment**

6no. gas monitoring visits have been undertaken on the study site. Gas monitoring results in full are presented in Appendix F. Following guidance set out in CIRIA C665⁴⁰ and BS8485⁴¹ peak methane and carbon dioxide concentrations have been used in the gas risk assessment. In addition, and as per guidance, flow rates were measured first.

All gas concentrations, flow, pressure, and groundwater levels are shown on Table 6-1.

It should be noted base on the PRA and subsequent limited made ground onsite gas monitoring would not have been required under CL:AIRE RB17⁴².

⁴⁰ CIRIA (2007). "Assessing Risks Posed by Hazardous Ground Gases to Buildings." CIRIA C665.

⁴¹ BSI (2015). "Code of Practice for the Characterisation and Remediation from Ground Gas in Affected Developments." BS8485:2015.

⁴² CL:AIRE Research Bulletin 17. "A Pragmatic Approach to Ground Gas Risk Assessment". November 2012.

Boreholes	Visit	CH ₄ (%v/v)	CO ₂ (%v/v)	O ₂ (%v/v)	H ₂ S (ppm)	CO (ppm)	Flow (l/h)	Groundwater (mbgl)	Pressure (mb)
WS101	1	<0.1	1.2	19.8	<1.0	2.0	<0.1	1.12	1012(s)
	2	<0.1	1.7	17.8	<1.0	2.0	0.1	1.17	1016(v)
	3	<0.1	2.6	17.9	<1.0	2	0.1	1.12	1004(r)
	4	<0.1	2.7	17.2	<1.0	1.0	<0.1	0.95	1000(f)
	5	<0.1	4.0	17.7	<1.0	3.0	<0.1	1.29	1020(f)
	6	<0.1	3.4	18.5	<1.0	5.0	<0.1	1.37	1002(v)
WS102	1	<0.1	1.5	20.5	<1.0	60	1.4	0.76	1015(s)
	2	<0.1	2.9	18.1	<1.0	4.0	4.0	0.85	1015(v)
	3	<0.1	4.6	16.8	<1.0	2.0	5.2	0.85	1004(r)
	4	<0.1	2.2	19.6	<1.0	2.0	2.4	0.70	1000(f)
	5	<0.1	5.7	12.6	<1.0	2.0	0.1	1.08	1020(f)
	6	<0.1	5.9	16.7	<1.0	<1.0	<0.1	1.25	996(v)
WS103	1	<0.1	0.9	19.4	<1.0	6.0	<0.1	1.14	1015(s)
	2	<0.1	0.8	17.7	<1.0	4.0	<0.1	1.15	1015(v)
	3	<0.1	1.0	17.5	<1.0	4.0	<0.1*	0.97	1004(r)
	4	<0.1	0.6	19.6	<1.0	5.0	3.7	0.68	1000(f)
	5	<0.1	2.5	17.8	<1.0	9.0	<0.1	1.22	1020(f)
	6	<0.1	3.2	12.8	<1.0	1.0	7.1	0.66	1002(v)
WS104	1	<0.1	UR	UR	UR	UR	UR	UR	UR
	2	<0.1	UR	UR	UR	UR	UR	UR	UR
	3	<0.1	0.2	15.0	<1.0	3.0	0.1	0.80	1004(r)
	4	<0.1	1.4	14.7	<1.0	1.0	<0.1	0.65	998(f)
	5	<0.1	2.4	14.5	<1.0	2.0	<0.1	0.92	1018(f)
	6	<0.1	3.3	16.4	<1.0	<1.0	<0.1	1.07	1001(v)
WS105	1	<0.1	1.2 (1.3)	20.5	<1.0	5.0	0.1	0.73	1015(s)
	2	<0.1	UR	UR	UR	UR	UR	UR	UR
	3	<0.1	3.2	16.5	<1.0	4.0	4.5	0.70	1004(r)
	4	<0.1	1.5 (1.6)	19.3	1.0	2.0	5.2	0.64	997(f)
	5	0.1	5.4 (5.5)	11.2	<1.0	3.0	0.1	0.88	1019(f)
	6	<0.1	4.6	16.6	<1.0	<1.0	<0.1	1.03	1000(v)
WS106	1	<0.1	0.2 (1.2)	21.5	<1.0	3.0	<0.1	0.90	1015(s)
	2	<0.1	0.1 (0.7)	20.4	<1.0	1.0	0.1	1.00	1016(v)
	3	<0.1	0.8 (1.1)	20.0	<1.0	3.0	<0.1	0.95	1004(r)
	4	<0.1	0.5 (2.7)	20.5	<1.0	1.0	<0.1	0.80	999(f)
	5	<0.1	0.7 (0.9)	20.7	<1.0	3.0	<0.1	1.06	1020(f)
	6	<0.1	1.3	19.8	<1.0	<1.0	<0.1	1.15	1002(v)
WS107	1	<0.1	1.1	19.8	<1.0	1.0	<0.1	0.75	1013(s)
	2	<0.1	0.4	20.8	<1.0	3.0	4.4	0.80	1016(v)
	3	<0.1	0.4 (0.5)	20.3	<1.0	4.0	3.2	0.80	1004(r)
	4	<0.1	0.4 (0.6)	20.9	<1.0	3.0	1.5	0.79	999(f)
	5	<0.1	0.6	20.5	<1.0	4.0	3.8	0.88	1019(f)
	6	<0.1	0.9	20.5	<1.0	2.0	2.9	1.08	1002(v)

Table 6-1: Summary of gas monitoring.

Notes:

If concentrations / flow is zero, then equipment detection limits are assumed.

Table shows peak concentrations of CH₄, CO₂, O₂, H₂S and CO.

Where peak CO₂ differs significantly to the steady, steady is shown in brackets.

Bold where CO₂ exceeds 5%v/v and CH₄ exceeds 1%v/v.

Atmospheric pressure (over past 24hrs): r=rising, f=falling, s=steady

*assumed flow less than 0.1l/hr

Boreholes	Visit	CH ₄ (%v/v)	CO ₂ (%v/v)	O ₂ (%v/v)	H ₂ S (ppm)	CO (ppm)	Flow (l/h)	Groundwater (mbgl)	Pressure (mb)
WS108	1	<0.1	1.9 (2.1)	20.1	<1.0	1.0	<0.1	0.48	1013(s)
	2	<0.1	1.7 (1.9)	19.9	<1.0	1.0	<0.1	0.95	1016(v)
	3	<0.1	1.8 (2.0)	18.0	<1.0	2.0	0.1	1.03	1004(r)
	4	<0.1	4.1	16.9	<1.0	1.0	<0.1	1.00	999(f)
	5	<0.1	1.0 (1.1)	20.5	<1.0	1.0	<0.1	1.13	1019(f)
	6	<0.1	1.2	20.2	<1.0	<1.0	<0.1	1.25	1002(v)
WS109	1	<0.1	3.3	19.1	<1.0	6.0	0.2	0.91	1013(s)
	2	<0.1	3.4	19.0	<1.0	1.0	0.1	1.01	1016(v)
	3	<0.1	2.5	16.5	<1.0	2.0	<0.1	0.95	1004(r)
	4	<0.1	5.1	13.7	<1.0	<1.0	<0.1	0.87	999(f)
	5	<0.1	2.4 (2.5)	19.6	<1.0	1.0	<0.1	1.04	1020(f)
	6	<0.1	1.4	19.8	<1.0	1.0	<0.1	1.12	1002(v)
WS110	1	<0.1	3.1	19.3	<1.0	1.0	<0.1	1.25	1013(s)
	2	<0.1	2.4	19.7	<1.0	3.0	<0.1	1.25	1016(v)
	3	<0.1	2.2	18.8	<1.0	3.0	<0.1	1.30	1004(r)
	4	<0.1	4.8	14.9	<1.0	<0.1	0.1	1.23	999(f)
	5	<0.1	1.6	20.1	<1.0	5.0	<0.1	1.34	1020(f)
	6	<0.1	1.2	20.0	<1.0	<1.0	<0.1	1.48	1001(v)

Table 6-1 (continued): Summary of gas monitoring.

Notes:

If concentrations / flow is zero, then equipment detection limits are assumed.

Table shows peak concentrations of CH₄, CO₂, O₂, H₂S and CO.Where peak CO₂ differs significantly to the steady, steady is shown in brackets.**Bold** where CO₂ exceeds 5%v/v and CH₄ exceeds 1%v/v.

Atmospheric pressure (over past 24hrs): r=rising, f=falling, s=steady

*assumed flow less than 0.1l/hr

Elevated flow rates were recorded in boreholes WS102, WS103, WS105, WS107 and WS109 (max 5.2 l/hr). High groundwater levels, where water levels were recorded above the slotted standpipe sections, were recorded coinciding with the elevated flow rates in each of these boreholes, which is also described in CL:AIRE RB17⁴³. During periods where groundwater was recorded at lower levels (i.e within the slotted sections of each standpipe) the flow rates were recorded at <0.1l/hr. It is therefore considered likely that barometric / groundwater pumping and pressure differentials (within reduced headspace) are responsible for the flow rates generated rather than them being a true representation of gas flow rate. As such only flow rates where the slotted sections of the standpipe are above water level have been used as part of the assessment.

Carbon monoxide was >1ppm in all boreholes (WS101-WS110). The maximum concentration recorded of 60ppm in WS103 was only detected during the first monitoring visit with levels dropping away to a maximum of 4ppm on subsequent visits. LKC considers this initial high result was likely from a small volume of gas trapped into the borehole from the drilling and well formation process. It is known, for example, that the bentonite could produce low concentrations of hazardous gas.

Only workplace exposure limits defined by the HSE are available for carbon monoxide and are not fully applicable to a residential setting. A Short-Term Exposure Limit of 200ppm (15-minute period) and Long-Term Exposure Limit of 30ppm have been

⁴³ CL:AIRE Research Bulletin 17. "A Pragmatic Approach to Ground Gas Risk Assessment". November 2012.

defined (8-hour period). Only the first visit from 1no. location (WS110) had carbon monoxide above 30ppm with all other visits below that level.

Based on the above exposure limits, carbon monoxide is not expected to pose a significant risk to the proposed site receptors.

Gas Screening Value

In accordance with CIRIA C665⁴⁴, a Gas Screening Value (GSV) may be calculated. Assuming worst-case scenario maximum gas concentrations and flow for each borehole have been used to calculate the GSV. The GSV can be used to determine the characteristic situation (CS).

As discussed above, high groundwater was recorded across site. In order to calculate a representative maximum GSV file, all high flow readings recorded due to high groundwater have been discounted from the assessment.

Table 6-2 shows the maximum GSV for each borehole and the appropriate characteristic situation (based on GSV only). An overall site assessment (WS101-WS110) has also been included (worst case values across the site).

Proposed Development	Boreholes	Max GSV (l/hr)	CS
Extension Area	WS101	0.004	CS1
Extension Area	WS102	0.0059	CS1
Car Park Extension	WS103	0.0032	CS1
Car Park Extension	WS104	0.0033	CS1
Car Park Extension	WS105	0.0055	CS1
Sports Pitches	WS106	0.0013	CS1
Sports Pitches	WS107	0.0041	CS1
Sports Pitches	WS108	0.0041	CS1
Sports Pitches	WS109	0.0051	CS1
Car Park Extension	WS110	0.0048	CS1

Table 6-2: Summary of worst-case Gas Screening Values (GSV).

Notes:

CS – Characteristic Situation; TL= Traffic Light.

In addition, in accordance with CIRIA C665, if carbon dioxide and methane are recorded above 5%v/v and 1%v/v respectively, you should consider upgrading the characteristic situation from CS1 to CS2.

Carbon dioxide was recorded above 5% respectively in WS102 (5th visit and 6th visit), WS105 (5th visit only) and WS109 (4th visit only). WS102 is the only location that is within the proposed extension area of the current leisure centre, with the other two locations (WS105 and WS109) falling within the proposed car parking and sports pitches area.

LKC considers these concentrations are not a true representative of ground gas conditions due to the high groundwater levels allowing small concentrations of gas to be trapped in the artificial hole between the water and surface headspace.

Even if these gas concentrations are real, for added comfort It should be noted that CL:AIRE RB17⁴⁵ states that with regards to carbon dioxide glacial deposits '*can often*

⁴⁴ CIRIA (2007). "Assessing Risks Posed by Hazardous Ground Gases to Buildings." CIRIA C665.

⁴⁵ CL:AIRE Research Bulletin 17. "A Pragmatic Approach to Ground Gas Risk Assessment". November 2012.

be recorded up to 15% in monitoring wells. But this does not pose a risk to development’.

Additionally, following RB17 protocol with no other gas source <1m of made ground over natural low generating deposits would not require gas monitoring. The site in the reduced boundary is underlain by sand and gravel and clay, which fits this scenario.

Based on the above LKC do not consider there to be a reason to increase the characteristic situation from CS1 to CS2.

The gas can potentially migrate into buildings, accumulate in confined spaces and cause explosions (methane) and asphyxiation. The gas risk is principally from carbon dioxide. Given the above data and the proposed end use, LKC consider the probability of carbon dioxide affecting site users as unlikely. Assuming a severe consequence, there is a moderate/low risk associated with Pollutant Linkage 3. Given the minimal gas concentrations and flow a low risk is considered the most appropriate and no remediation is required.

No elevated methane was recorded; therefore, LKC consider the probability of methane gas affecting site users and buildings as unlikely. Assuming a severe consequence, there is a moderate/low risk. Given the minimal gas concentrations and flow a low risk is considered the most appropriate and no remediation is required.

6.4 Controlled Water Assessment

The PRA identified a low risk with respect to controlled waters as no significant source of mobile contamination was anticipated. Furthermore, although a Principal Aquifer is present below the site, no abstractions have been identified within influencing distance. The surface water is not considered to be a significant receptor, based on identified site conditions and has not been sampled

A total of 6no. groundwater samples were collected from installed boreholes across the site as groundwater sampling was required by the scope set out by ISG.

LKC have compared results above Limits of Detection (LOD). Where relevant the review of priority substances takes precedence considering threshold values for groundwater cannot be used ‘*as part of site-specific investigations*’. The hierarchy is as follows:

- River Basin District Standards⁴⁶ and updated Water Framework Directive⁴⁷ for Annual Average / Maximum Allowable Concentration Environmental Quality Standards (AA-MAC-EQS) for priority substances (surface water risk).
- 2016 private water supply standards (UKDWS potable)⁴⁸.
- 2001 Environment Agency Values for Environmental Quality Standards (EQS) and UK Drinking Water Standard (UKDWS)⁴⁹.

Elevated contaminants above limits of detection are presented in Table 6-3 below and all analysis sheets are presented in Appendix C.

⁴⁶ Defra (2010). “The River Basin Districts Typology, Standards and Groundwater Threshold Values”. Water Framework Directive (England and Wales) Directions 2010.

⁴⁷ Defra (2015). “Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015”.

⁴⁸ Statutory Instruments (2016). “The Private Water Supplies Regulation 2016.” No. 614

⁴⁹ EA (2002). “Environment Agency technical advice to third parties on Pollution of Controlled Waters for Part IIA of the Environment Protection Act 1990.”

Contaminant	Units	No. of samples	Elevated Result	Location	Assessment Criteria	Source of Criteria
Metals						
Arsenic	µg/l	6	51	WS104	50	EQS
Selenium	µg/l	6	29		10	EQS
Vanadium	µg/l	6	110		60	EQS
General						
pH	pH	6	Range 6.8 to 8.5			
Hardness	mg/l CaCO ₃	6	56-340			

Table 6-3: Summary of elevated groundwater results.

Notes:

² = Based on hardness

EQS (2001)=Groundwater criteria (potable supply).

Results above LOD's presented.

Source Criteria values for some determinands presented as X (X) relate to permissible annual (peak) concentrations.

Elevated results have been identified for arsenic, selenium and vanadium in WS104.

No free product was noted in any water samples

None of the other five groundwater sample results were reported above the EQS limit. In this case, the exceedances of the criteria are not considered significant within the environmental setting and source-pathway-receptor relationship at the site, and indeed is most likely due to a colloidal component (silt) within the sample taken from WS104.

The clay present below the site should significantly reduce any sub-surface migration and processes include dilution, attenuation and biodegradation will reduce the concentration of contamination.

Based on the above, LKC considers the probability of contaminants on site affecting the Principal Aquifer and surface water receptors as unlikely. Given the medium consequence, a low risk is anticipated (Pollutant Linkage 4) and no remediation is required.

6.5 Additional Risk Assessments

6.5.1 Concrete (Pollutant Linkage 5)

As stated in Section 5, sulphate resistant concrete will not be required at the site. The soils within the proposed extension were used to determine the concrete requirements on site and were classified as DS-1 AC-1. Groundwater results will be analysed with regards to sulphate

Based on the above, the probability of sulphate concentrations affecting buildings is unlikely. Given the consequence is considered to be mild, the risk (pollutant linkage 5) is anticipated to be very low, and no remediation is required. This should be confirmed with the structural engineer.

6.5.2 Potable Water Supply (Pollutant Linkage 6)

Soil results were compared to United Utilities (UU) guidelines for the selection of potable water pipes in land potentially affected by contamination⁵⁰. Only contaminants

⁵⁰ UU(2011). "United Utilities Water Supplementary Guidance for the Selection of Water Pipes in Land Potentially Affected by Contamination."

of concern, based on the preliminary conceptual model and ground conditions encountered, were analysed. The following contaminants were not considered to be a risk and therefore not included in the analysis suites: speciated petroleum hydrocarbons, cresols, ethers, nitrobenzene, ketones, aldehydes and amines.

No elevated contaminants were identified when compared to UU assessment criteria.

The probability of organic contaminants affecting potable water pipes is unlikely. Given the consequence is considered to be medium, the risk (Pollutant Linkage 6) is anticipated to be low and no remediation (i.e. barrier pipe) is likely to be required.

UU may require a Potable Waters Risk Assessment to be carried out prior to the connection of any new water supply. This should be carried out once details of the pipeline location and depths are known.

6.5.3 *Phytotoxicity (Pollutant Linkage 7)*

Soil results were compared to phytotoxic guideline values as outlined in BS3882⁵¹.

No elevated contaminants were identified therefore the probability of phytotoxic contaminants affecting vegetation is considered to be unlikely. With a minor consequence, the risk (pollutant linkage 7) is anticipated to be very low.

6.6 **Revised Contamination Conceptual Model**

The preliminary contamination conceptual model (Table 2-6) has been revised following the risk assessments undertaken in Sections 6.1-6.5. The revised contamination conceptual model follows the same methodology and guidance used in the preliminary contamination conceptual model. The risk matrix is provided in Appendix A.

The revised contamination conceptual model is presented in Table 6-4.

Where a very low risk is identified no specific remediation is required.

Where a low risk is identified, some form of remediation may be required depending on the pollutant linkage, the type and concentration of contaminants present and the proposed development.

Where there is a moderate/low risk is identified, an assessment will be undertaken to establish what category the pollutant linkage will fall into.

Where LKC identifies a moderate or higher risk, remediation or further investigation work is recommended.

Further details of the remedial proposals and a remedial option appraisal are given in Section 7.

⁵¹ BS (2015). "Specifications for Topsoil and Requirements for Use." BS3882:2015.

ISG Hough End
Phase 2 Geo-Environmental Investigation, Risk Assessment and Remediation Strategy

PL	Pathway	Receptor	Contaminants of Concern (CoC)	Probability	Consequence	Risk	Recommendations
1	- Dermal contact. - Inhalation of soil, fibres and dust. - Ingestion of soils, dust. - Windblown dust.	- Future site users. - Offsite receptors.	- Heavy metals. - PAHs. - Petroleum hydrocarbons - ACM	Unlikely (No elevated contaminants)	Medium	Low	No elevated contaminants identified. Recommendation: No remediation required.
2	- Inhalation of vapours. - Migration via permeable strata and preferential pathways.	- Future site users. - Offsite receptors.	- Volatile contaminants (TPHCWG, SVOC, VOCs).	Unlikely (No elevated contaminants)	Medium	Low	No elevated PID readings and no elevated contaminants identified from soil analysis. Recommendation: No remediation required.
3	- Inhalation of gas. - Migration via permeable strata and preferential pathways. - Explosion in confined spaces. - Exposure to radon.	- Future site users. - Buildings. - Offsite land users.	- Ground / hazardous gas (carbon dioxide, methane).	Unlikely	Severe	Moderate / low	GSV values classified site as CS1. Elevated CO ₂ recorded in WS102, WS105 and WS109, however given low flow rates (when groundwater is below slotted pipe) and proposed end use CS1 classification justified. Recommendations: CS1 classification, no gas protection measures required.
			- Radon	Unlikely (<1% of homes above action level)	Medium	Low (Extension)	(<1%) No protective measures are necessary in the construction of new dwellings or extensions.
4	- Surface run-off. - Migration via permeable strata and preferential pathways. - Perched waters migration.	- Groundwater (Principal Aquifer, Secondary A Aquifer). - Surface water (Red Lion/Chorlton Brook).	- Mobile contaminants such as metals and PAHs.	Unlikely	Medium	Low	Marginally elevated metals/metalloids when compared to EQS criteria (WS104). Not considered a significant risk to controlled water receptors. Recommendation: No remediation required.
5	- Sulphate attack on concrete.	- Building structure.	- Sulphate.	Unlikely	Mild	Low	Classified as DS-1 AC-1 upon analysis of soil and groundwater results across site. Recommendation: No remedial measures required.
6	- Ingestion of tainted water supply.	- Future site users. - Water pipes.	- Organic contaminants such as petroleum hydrocarbons, naphthalene, volatile compounds.	Unlikely (No elevated contaminants)	Medium	Low	No elevations when compared with UU risk assessment criteria. Given proposed plans, a new pipeline is unlikely, however if this changes a UU risk assessment will need to be undertaken.

							Recommendations: if potable pipework requires installing likely standard alkathene pipework will be suitable.
7	- Direct contact (plant uptake).	- Flora.	- Phytotoxic contaminants such as Cu, Ni, Zn.	Unlikely (No elevated contaminants)	Minor	Low	No elevated contaminants. Recommendations: No remediation required.

Table 6-4: Revised Contamination Conceptual Model.

7 Waste Disposal Assessment

The soil contamination results as presented in Appendix C have been used to help determine the waste classification of material for off-site disposal.

As an initial screen the soil results were inputted into Hazwaste Online™. This is a web-based facility that allows an assessment waste as either hazardous or non-hazardous waste based on relevant guidance and legislation^{52, 53, 54, 55, 56, 57, 58, 59, 60}.

Hazwaste Online™. has been designed to cover, amongst other waste types, the European Waste List of Waste (LoW) code number 17 "Construction and Demolition Waste (Including Excavated Soil from Contaminated Sites)".

Where less than limits of detection (LOD) were recorded, the value of the LOD was inputted.

Where applicable, appropriate metal species based on hazard statements/ molecular weight, site history, ground conditions and likely species present in soils were used (e.g. metal oxides relating to an ash based source).

The results show that all the samples tested are classified as NON-HAZARDOUS WASTE and LoW code "17-05-04 - soil and stones other than those mentioned in 17 05 03" is suitable. The Hazwaste Online™ output sheets are provided in Appendix I.

7.1 Waste Acceptance Criteria (WAC) Testing

Waste Acceptance Criteria (WAC) testing was also undertaken on 3no. samples representative of material likely to be earmarked for off-site disposal. WAC test results are included in Appendix C.

The WAC limits cannot be used to make an assessment of whether a waste is hazardous. Landfills are classified according to whether they can accept hazardous or non-hazardous wastes. Wastes can only be accepted at a landfill if they meet the WAC for that class of landfill.

With regards to non-hazardous waste, material can only be designated to an inert cell of a non-hazardous landfill based on WAC testing. With regards to hazardous waste, material can only be designated as SNRH cell within a non-hazardous landfill or hazardous landfill from WAC testing.

The above potential designation if disposed to a licenced landfill are summarised in Table 7-1. It should be noted that the licenced landfill operator would determine the designation, which may differ to this assessment.

⁵² EA (2018). "Guidance on the Classification and Assessment of Waste (1st Edition v1.1)". Technical Guidance WM3.

⁵³ CLP Regulation - Regulation 1272/2008/EC of 16 December 2008.

⁵⁴ 1st ATP - Regulation 790/2009/EC of 10 August 2009

⁵⁵ Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013

⁵⁶ WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014

⁵⁷ Revised List of Wastes 2014 - Decision 2014/955/EU of 18 December 2014

⁵⁸ 13th ATP - Regulation (EU) 2018/1480 of 4 October 2018

⁵⁹ POPs Regulation 2004 - Regulation 850/2004/EC of 29 April 2004

⁶⁰ 2nd ATP to POPs Regulation - Regulation 757/2010/EU of 24 August 2010

Sampling Location	Soil Designation		Potential Landfill Designation			Designation
	Non-haz.	Haz.	Inert	SNRH	Haz.	
WS101 0.00-0.20	X	-	X	-	-	Inert Non-hazardous
WS103 0.20-0.70	X	-	X	-	-	Inert Non-hazardous
HD114/HD119/HD120	X	-	X	-	-	Inert Non-hazardous

Table 7-1: Summary of Waste Acceptance Criteria classification.

8 Conclusions

8.1 Geotechnical

Proposed Development	- Proposed Development comprises a two-storey development to the existing leisure centre, demolition of existing changing rooms and additional car parking. Playing fields within the planning boundary will remain and be maintained.
General Ground conditions / Geotechnical Testing	- Topsoil or minimum Made Ground over variably silty gravelly SAND over typically firm to stiff sandy gravelly CLAY. Very dense SAND (weathered sandstone bedrock) was encountered at the base of the holes at depths of between 2.90m and 4.41mbgl. - Based on WS101-WS103 (location of extension). - Maximum investigation depth 3.37mbgl. - Made Ground to 0.70m-0.8mbgl (WS103 and WS101 respectively). - Loose to medium dense variably gravelly silty SAND. SPT N=5 - 14 at 1.2mbgl. - Firm to stiff sandy gravelly CLAY to depths of between 2.90-3.20m. SPTs N=5-10 at 2mbgl. - Refusal on very dense silty SAND (weathered bedrock) at depths of between 3.27-3.37 N=>50 at 3mbgl. - Perched groundwater at 2.40m within WS101 at the location of the proposed extension. Across rest of site perched water encountered at depths of between 1.10m and 2.30mbgl.
Exposed Existing Foundations	- FP101 and FP102: Concrete footings were recorded between 0.35 and 0.45bgl. The thickness of the footings ranged between 0.30m and 0.35m and are recorded bearing onto gravelly silty SAND. - FP103 and FP104: concrete slab (not footing) identified at 0.28-0.35mbgl. The pit was excavated to 1.00m from the brickwork, extent of concrete slab unknown.
Allowable Bearing Pressure	50kN/m ² within cohesive strata. 49-137kN/m ² within the granular strata. In excess of 300kN/m ² on the unweathered sandstone.
Anticipated Foundation Type	- Ground conditions below the proposed extension consist of granular over cohesive strata before encountering weathered rock at around 2.90-3.20mbgl. - Traditional shallow foundations recommended from approximately 1mbgl. If soft ground is encountered, foundations may need to be deepened / widened or ground replaced with compacted granular material.
Shallow Groundwater	- Shallow groundwater considered to be representative of perched pockets within the CLAY and SAND encountered across the site at depths of between 1.10m and 2.30mbgl. - Perched groundwater within granular deposits may present a constraint to the development through running sands and instability. - Suitable drainage should be considered in the proposed development layout.
Concrete Requirements	- DS-1 AC-1 classification.
Services	- Services – consideration to the presence of services running through the site. Services may need to be re-routed.
Temporary support of excavation	- May be required; however, exploratory holes were generally recorded as stable.
Plasticity	The modified plasticity index is between 18.20% and 21.60%. This characterises the clay as having a low to medium volume change potential.
Road / Pavement Design	- A design CBR of 5% should be adopted for the natural SAND beneath the Made Ground at depths of between 0.20-0.50mbgl.

Table 8-1: Geotechnical Observation/Conclusions Table.

8.2 Contamination Assessment

A revised contamination conceptual model has been produced by LKC which is summarised in Table 8-2 below (more detailed model provided in Section 5).

Pollutant Linkage		Risk	Recommendations
1	Contaminants posing a risk to site users future site users and offsite receptors via dermal contact, ingestion and inhalation (of soil, dust, fibres).	Low (PAH, ACM, metals, petroleum hydrocarbons)	- No elevated contaminants identified. No ACM identified. - Recommendation: No remediation required.
2	Volatile contaminants posing a risk to site users future site users and offsite receptors via the inhalation of vapours.	Low	- No elevated PID readings and no elevated contaminants identified from soil analysis. - Recommendation: No remediation required.
3	Gas posing a risk to buildings and site users future site users, offsite receptors and buildings via the migration of gas into building causing explosion and asphyxiation.	Moderate / Low	- GSV values classified site as CS1. Elevated CO ₂ recorded in WS102, WS105 and WS109, however given low flow rates (when groundwater is below slotted pipe) and proposed end use CS1 classification justified. - Recommendations: CS1 classification, no gas protection measures required.
		Low (Extension)	- (<1%) No protective measures are necessary in the construction of new dwellings or extensions.
4	Mobile contamination posing a risk to controlled waters via the migration through permeable strata.	Low	- Marginally elevated metals/metalloids when compared to EQS criteria (WS104). Not considered a significant risk to controlled water receptors. - Recommendations: No remediation required.
5	Sulphate posing a risk to building via direct contact (sulphate attack).	Low	- Extension area classified as DS-1 AC-1 upon analysis of soil and water samples. - Recommendations: No remediation (sulphate resistant concrete) required.
6	Organic contaminants posing a risk to water pipes.	Low	- No elevations when compared with UU risk assessment criteria. Given proposed plans, a new pipeline is unlikely, however if this changes a UU risk assessment will need to be undertaken. - Recommendations: if potable pipework requires installing likely standard alkathene pipework will be suitable.
7	Phytotoxic metals posing a risk to flora via root uptake.	Low	- No elevated contaminants. - Recommendations: No remediation required.

Table 8-2: Summary Risk Table.

The results show that all the samples tested are classified as NON-HAZARDOUS WASTE and potentially maybe accepted as inert waste by the tips.

Remedial recommendations are presented in Section 9.

9 Recommendations and Remedial Strategy

The recommendations provided below are considered appropriate for the site based on the site investigation work undertaken. LKC should stress that no remediation, enabling works or designing works should take place until Regulatory approval has been obtained.

9.1 Remediation and Validation Recommendations

Table 9-1 details the further works and remedial recommendations / requirements. The table shows work required post-demolition of building(s), pre-construction (i.e., during earthworks) and during / post construction.

Phase	PL	Remediation Requirements	Validation Requirements
Pre-Construction	ALL	No remediation is anticipated for the site.	
	ALL	<u>Earthworks Inspections / Unexpected Contamination</u> The relevant contractors should be briefed that during development works at the site should any unusual ground conditions and / or visual or olfactory evidence of contamination (including asbestos containing material) be encountered at the site, LKC and the Local Authority should be informed, and further assessment of the material may be required. Should asbestos be identified during groundworks, precautions should be taken to ensure the safety of the construction workers and nearby land users. It would be advisable to introduce an asbestos management strategy in line with CIRIA C733 ⁶¹ .	Log of work undertaken including photographs. Details of any sampling undertaken and validation of any potential additional remedial work.
Other Considerations		<u>Grubbing Out of In-Ground Structures</u> It is recommended that in-ground structures are grubbed out as part of the groundworks. In-ground structures expected in the south of site, associated with the onsite former changing rooms building.	
		<u>Re-use of site won material</u> To ensure material is compliant with appropriate waste regulations, any site won material re-used onsite should be in recourse to appropriate exemptions. A U1 and T5 exemption should be registered. This will allow the following to be used onsite or brought in for use onsite (refer to guidance for types of waste that can be used ⁶²): 5,000 tonnes (c. 2,500m ³) <u>treatment</u> of crushed concrete / stone. 1,000 tonnes (c. 500 ³) <u>use of</u> non-hazardous soil 5,000 tonnes (c. 2,500m ³) <u>use of</u> clays, sand, gravel, brick, concrete, stone etc. 50,000 tonnes (c. 25,000m ³) <u>use of</u> bituminous material to be used in roadways. A Materials Management Plan (MMP) with recourse to the CL:AIRE Code of Practice may be required if volumes exceed exemption limits. This must be registered before material movement starts onsite. If an MMP is required, this needs to be registered by a Qualified Person (QP) and there must be 'certainty of use' for any material re-used onsite or exported to site to ensure there is no 'sham recovery'.	

⁶¹ CIRIA (2014). "Asbestos in Soil and Made Ground: A Guide to Understanding and Managing Risks". C733.

⁶² <https://www.gov.uk/guidance/waste-exemptions-using-waste>

	For all the above material will need to be tested at the rate and analytical suites presented in Table 9-2.
	Health and Safety Considerations In working with, removing or treating any contaminating material it is important that any potential risks associated with the actual site works are mitigated by good environmental management of the site during the remedial phases. Standard health and safety precautions (as per HSE guidance ⁶³) should be adopted by all workers involved with site enabling and construction works.
	Asbestos Survey A Pre-Demolition and Major Refurbishment Asbestos Survey should be undertaken, and any ACMs removed and properly disposed of, prior to the demolition of the existing buildings, by a suitably qualified professional.

Table 9-1: Further work, remediation and validation requirements

Notes: See Table 6-1 for pollutant linkage (PL) details.

9.2 Validation of Subsoil / Topsoil

There is no requirement for an environmental clean cover system, but if soil is imported to site then it will need to be tested to ensure it is 'suitable for use'.

Any Imported soils should be accompanied by a certificate of analysis and source details.

A summary of the required imported material sampling requirements is presented in Table 9-2, based on MCC 'Guidelines to Developer' (2016). However, LKC consider no testing, but proof of provenance is sufficient for natural, virgin, quarried material. Ideally, the material should be sampled at source to prevent double handling if soil fails, with confirmatory sampling undertaken on importation to site. However, where this is not possible then material imported should be segregated based on source and soil type. Validation samples should be taken prior to placement in gardens / soft landscaping to ensure suitability for use.

Material Type	Source	Suite of Analysis	Sampling Rate (min. 3 per source) *		
			Garden	Landscape	Other **
Topsoil / subsoil / Fill material	Greenfield	Suite A	200m ³	200m ³	200m ³
	Remediated	Suite A / B dependent upon original SI	100m ³	150m ³	200m ³
	Brownfield / Unknown	Suite B	50m ³	150m ³	200m ³
Quarried Fill	First Generation i.e. quarried sand (subsoil) or stone (break layer)	No testing is required. Certification of material provenance is required.			

Table 9-2: Sampling requirements for imported soils.

Notes:

Suite A - Heavy metals, pH, water soluble sulphate, speciated PAH, soil organic matter and asbestos screen.

Suite B - Heavy metals, pH, water soluble sulphate, speciated PAH, phenol, total and free cyanide, soil organic matter, asbestos screen, banded petroleum hydrocarbons (TPH CWG), BTEX, MTBE.

** Other assumed to be stone / 6F2 etc.

Any soil with visual or olfactory evidence of hydrocarbons should be rejected.

⁶³ HSE (1991). "Protection of Workers and the General Public During Development of Contaminated Land" London HMSO.

In addition, it should be ensured that the matrix of the topsoil is suitable as a growing medium and no undesirable material is present (in line with BS3882⁶⁴). LKC advise this information is provided by the supplier before material is imported onto site.

Depending on the location requiring clean soil, soil results would be compared to POS_{park} or commercial end use.

9.3 Site Completion Report

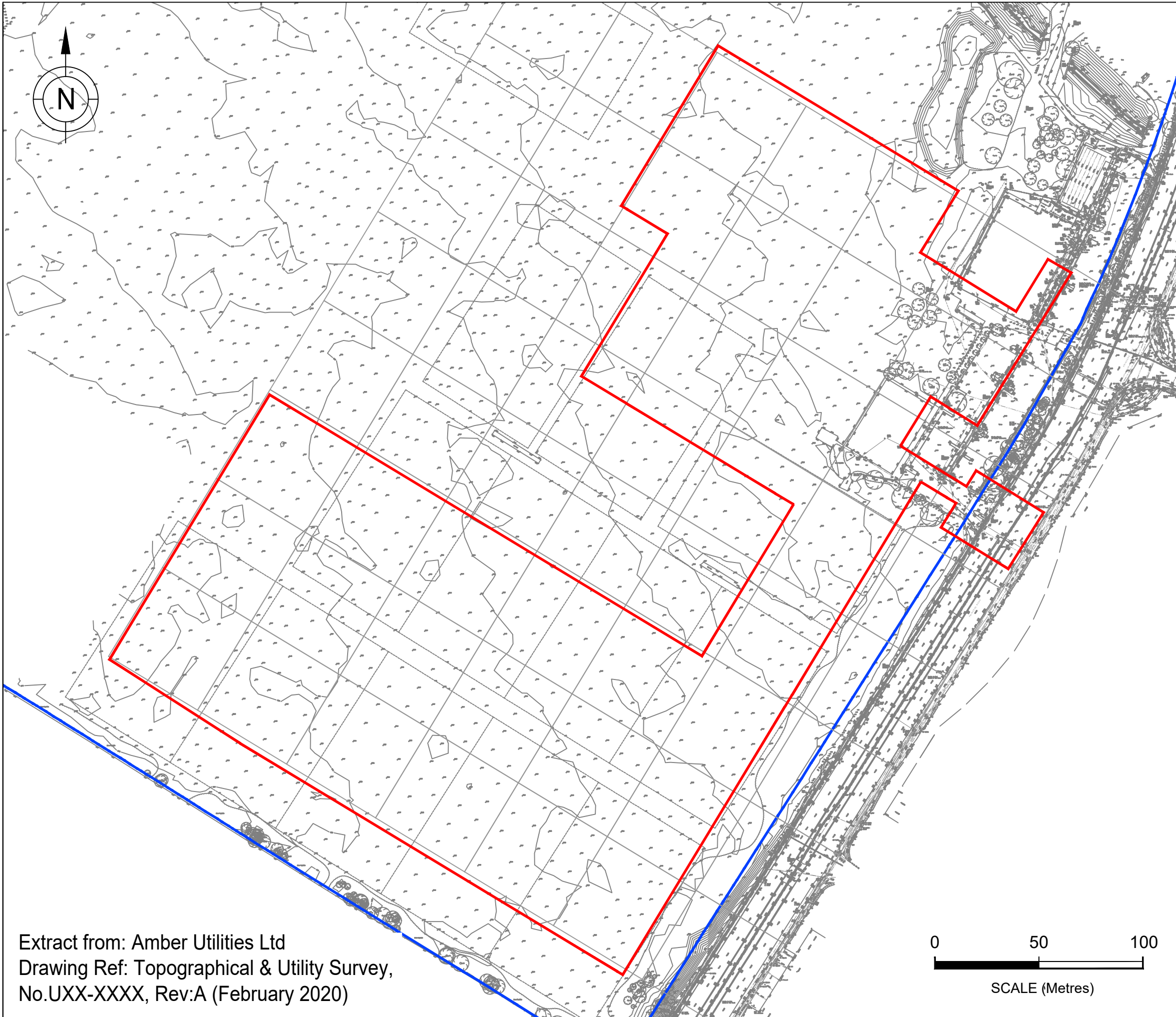
It is recommended that any remediation carried out on the site is validated by a third party and suitable documentary evidence provided in a Site Completion Report, such as photographs, consignment documents and analytical results. This should include as a minimum:

- » Provision of waste transfer documents, if material is to be disposed offsite.
- » If required, verification testing of all imported soil.
- » Details of any unexpected contamination identified onsite, suitably risk assessed and / or validated.

The Site Completion Report will assist the Local Authority in the discharge of any future relevant planning condition and will also be of use to solicitors acting on behalf of any prospective conveyancer who may have concerns over the former use of the site.

⁶⁴ BS (2015). "Specifications for Topsoil and Requirements for use." BS3882:2015.

Figures



KEY

-  Site Boundary
-  Ownership Boundary
-  Proposed Site Grid (50m)

Sampling Locations and features annotated by LK Consult Ltd are approximate and are based upon observed measurements unless otherwise stated. Do not scale from this drawing and work from marked dimensions only. All dimensions and features should be confirmed on site by the Contractor. Where this drawing includes information provided to LK Consult Ltd by others, LK Consult Ltd gives no warranty, representation or assurance as to the accuracy of such information.



Client: ISG

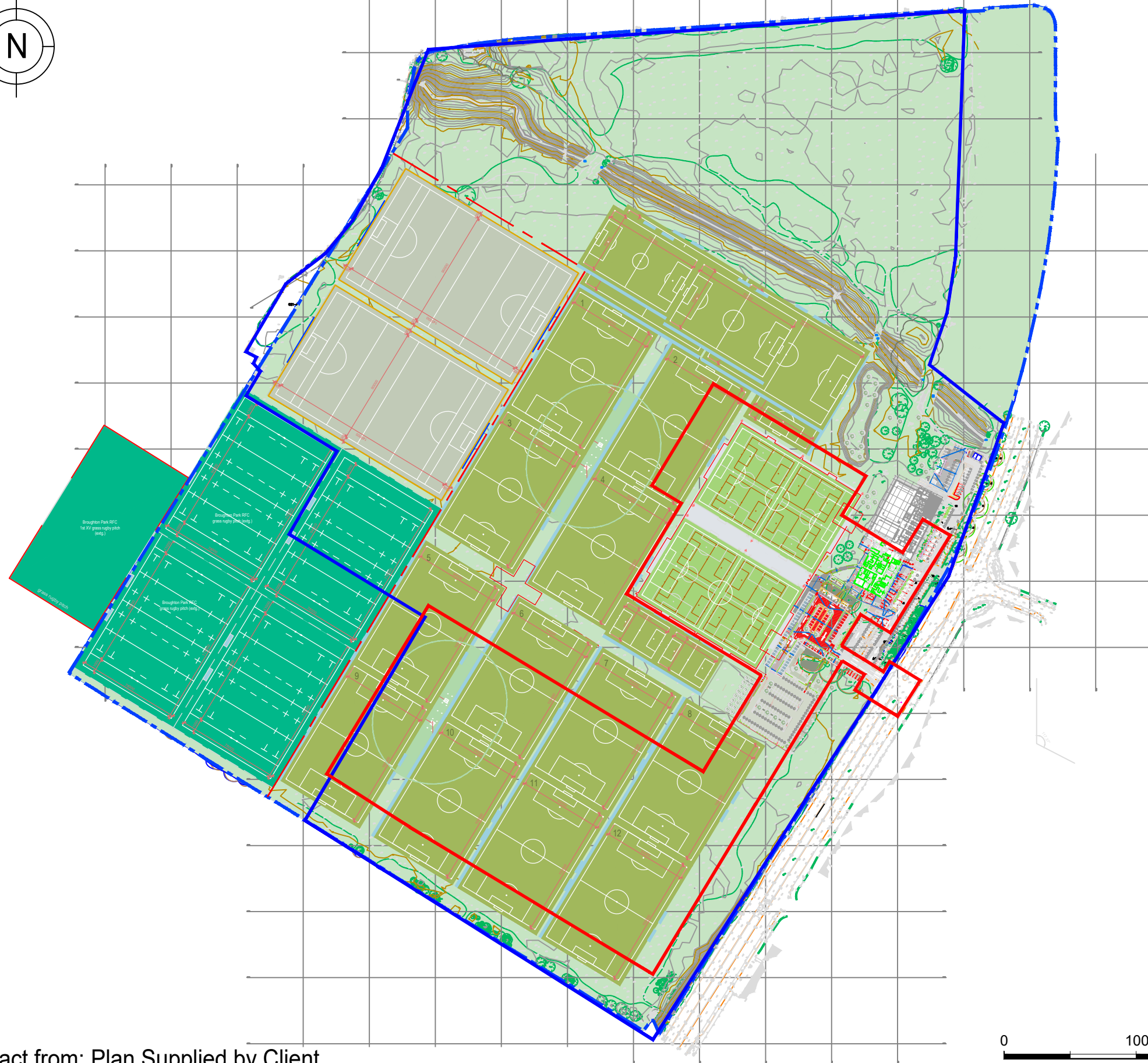
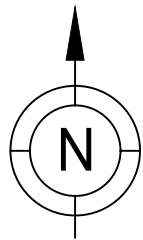
Site: Hough End Leisure Centre, Manchester

Title: Site Boundary Plan

Job No.:	Scale (See Scale Bar):	Figure:	Revision:
LKC 20 1488	See Scale Bar	1	7
Drawn By:	Checked By:	Drawn:	
AC	BS	Feb 2022	

Extract from: Amber Utilities Ltd
Drawing Ref: Topographical & Utility Survey,
No.UXX-XXXX, Rev:A (February 2020)

0 50 100
SCALE (Metres)



KEY

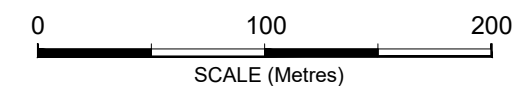
 Site Boundary

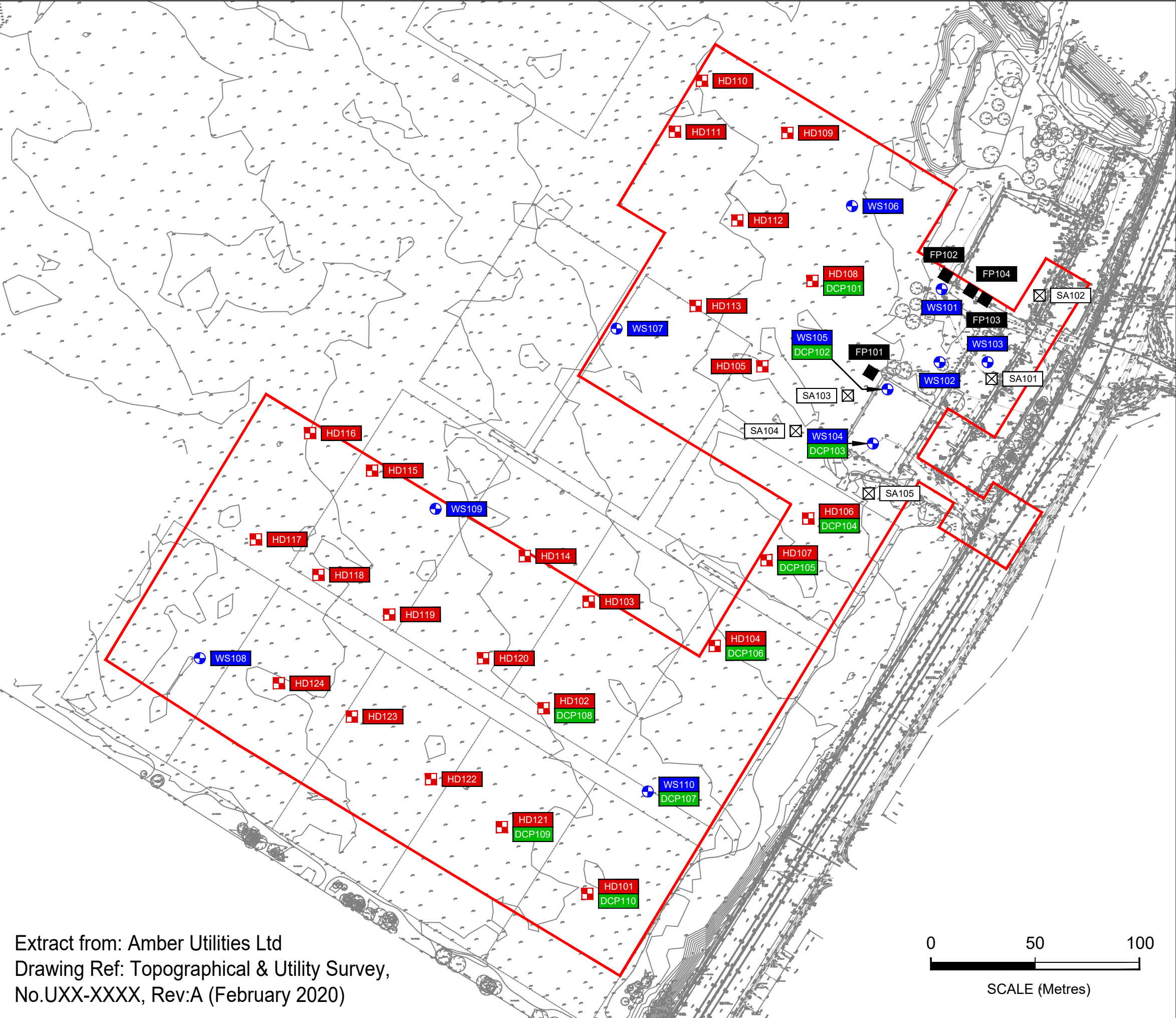
Sampling Locations and features annotated by LK Consult Ltd are approximate and are based upon observed measurements unless otherwise stated. Do not scale from this drawing and work from marked dimensions only. All dimensions and features should be confirmed on site by the Contractor. Where this drawing includes information provided to LK Consult Ltd by others, LK Consult Ltd gives no warranty, representation or assurance as to the accuracy of such information.



Client:				ISG			
Site:				Hough End Leisure Centre, Manchester			
Title:				Proposed Site Use			
Job No.:		Scale (See Scale Bar):		Figure:		Revision:	
LKC 20 1488		See Scale Bar		3		7	
Drawn By:		Checked By:		Drawn:			
AC		BS		Feb 2022			

Extract from: Plan Supplied by Client
Drawing Ref: Site Masterplan, 2638-X(90)-Site.dwg (10/02/2022)





KEY

- Investigation Area Boundary
- Window Sample Borehole (WS)
- Hand Dug Trial Pit (HD)
- Foundation Pit (FP)
- Soakaway Test (SA)
- Dynamic Cone Penetrometer Hole (DCP)

Sampling Locations and features annotated by LK Consult Ltd are approximate and are based upon observed measurements unless otherwise stated. Do not scale from this drawing and work from marked dimensions only. All dimensions and features should be confirmed on site by the Contractor. Where this drawing includes information provided to LK Consult Ltd by others, LK Consult Ltd gives no warranty, representation or assurance as to the accuracy of such information.

LK
CONSULT LIMITED

Client:				ISG	
Site:				Hough End Leisure Centre, Manchester	
Title:				Site Investigation Location Plan	
Job No.:	LKC 20 1488	Scale (See Scale Bar):	See Scale Bar	Figure:	3
Drawn By:	AC	Checked By:	BS	Drawn:	Feb 2022
				Revision:	7

Extract from: Amber Utilities Ltd
Drawing Ref: Topographical & Utility Survey,
No.UXX-XXXX, Rev:A (February 2020)

Appendix A

Risk Matrix

Risk Evaluation

The method for risk evaluation is a qualitative method of interpreting the output from the risk estimation stage of the assessment, based on CIRIA 552⁶⁵. It involves the classification of the:

- » Magnitude of the potential consequence (severity) of the risk occurring (Table A).
- » Magnitude of the probability (likelihood) of the risk occurring (Table B).

Consequence (Severity)		
Classification	Definition	Example
Severe	- Short term (acute) risk to human health likely to results in 'significant harm' as defined by the Environment Protection Act 1990, Part IIA. - Short term risk of pollution (note: water Resources Act contains no scope for considering significance of pollution) of sensitive water resource. - Catastrophic damage to buildings/properties. - A short-term risk to a particular ecosystem, or organism forming part of such ecosystem (note: the definition of ecological systems within the Draft Circular on Contaminated Land, DETR, 2000).	- High Concentrations of cyanide on the surface of an informal recreation area. - Major spillage of contaminants from site into controlled waters. - Explosion, causing building collapse (can also equate to short term human health risk if buildings are occupied).
Medium	- Chronic damage to Human Health ('significant harm' as defined in DETR, 2000). - Pollution of sensitive water resources (note Water Resources Act contains no scope for considering significance of pollution). - A significant change in a particular ecosystem, or organism forming part of such ecosystem.	- Concentrations of a contaminant from site exceed generic, or site-specific assessment criteria. - Leaching of contaminants from a site to a major or minor aquifer (Principal and Secondary). - Death of a species within a designated nature reserve.
Mild	- Pollution of non-sensitive water resources. - Significant damage to crops, buildings, structures and services ('significant harm' as defined in DETR, 2000). - Damage to sensitive buildings/structures/services or the environment.	- Pollution of non-classified groundwater. - Damage to building rendering it unsafe to occupy (e.g. foundation damage resulting in instability).
Minor	- Harm, although not necessarily significant harm, which may result in a financial loss, or expenditure to resolve. - Non-permanent health effects to human health (easily prevented by means such as personal protective clothing etc). - Easily repairable damage to buildings, structures and services.	- The presence of contaminants at such concentrations that protective equipment is required during site works. - The loss of plants in a landscaping scheme. - Discoloration of concrete.

Table A. Classification of Consequence

Probability (Likelihood)	
Classification	Definition
High Likelihood	- There is a pollutant 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 pollutant linkage and all the elements are present and in the right place, which means that it is probable that an event will occur. - Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.
Low Likelihood	- There is a pollutant linkage and circumstances are possible under which an event could occur. - However, it is by no means certain that even over a longer period such event would take place and is less likely in the shorter term.
Unlikely	- There is a pollutant linkage, but circumstances are such that it is improbable that an event would occur in the very long term.

Table B. Classification of Probability.

⁶⁵ CIRIA C552 (2001) Contaminated Land Risk Assessment - A Guide to Good Practice.

These classifications are then compared to indicate the risk presented by each pollutant linkage (Table C). It is important that this classification is only applied where there is a possibility (which can range from high likelihood to unlikely) of a pollutant linkage existing.

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

Table C. Comparison of Consequence against Probability

Once the risk has been determined the corresponding action can be assessed (Table D).

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

Table D. Description of the Classification and Likely Action Required.

Where a very low risk is identified no specific remediation is required.

Where a low risk is identified, some form of remediation may be required depending on the pollutant linkage, the type and concentration of contaminants present and the proposed development.

Where there is a moderate/low risk identified, an assessment will be undertaken to establish what category the pollutant linkage will fall into.

Where LKC identifies a moderate or higher risk, remediation or further investigation work is recommended.

Appendix B

Profile Logs

Window Sample Logs

Hand Excavated Trial Pit Logs

DCP Output Sheets

Excavation Method

Trial Pit

Dimensions

0.2m x 0.2m x 1.0m

Ground Level (mOD)

33.00

Client

ISG PLC

**Job
Number**

LKC 20 1488

Location (Handheld GPS)

383549 E 392992 N

Dates

23/03/2021-
24/03/2021

Engineer

LKC

Sheet

1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.20	ES1 PID=<0.1ppm				(0.40)	TOPSOIL: Dark brown very silty SAND with frequent rootlets. Sand is fine to coarse.		
0.50-1.00	DB2			32.60	0.40	Grey gravelly silty SAND. Sand is fine to coarse. Gravel is fine to medium, subangular comprising mudstone and quartz.		
				32.00	1.00	Complete at 1.00m		

No image available

Remarks

Location and elevation from handheld GPS.
Trial pit dry and stable.
Trial pit complete at 1.00mbgl.
DCP tst undertaken adjacent to pit (ref. DCP110).

Scale (approx)

1:50

Logged By

BR

Figure No.

LKC 20 1488.HD101

Excavation Method

Trial Pit

Dimensions

0.2m x 0.2m x 1.0m

Ground Level (mOD)

33.00

Client

ISG PLC

**Job
Number**

LKC 20 1488

Location (Handheld GPS)

383528 E 393081 N

Dates

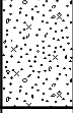
23/03/2021-
24/03/2021

Engineer

LKC

Sheet

1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.20	ES1 PID=<0.1ppm			32.80	(0.20) 0.20	TOPSOIL: Dark brown very silty SAND with frequent rootlets. Sand is fine to coarse.		
0.50-1.00	DB2			32.00	(0.80) 1.00	Grey gravelly silty SAND. Sand is fine to coarse. Gravel is fine to medium, subangular comprising mudstone and quartz.		
						Complete at 1.00m		

No image available

Remarks

Location and elevation from handheld GPS.
Trial pit dry and stable.
Trial pit complete at 1.00mbgl.
DCP tst undertaken adjacent to pit (ref. DCP102).

Scale (approx)

1:50

Logged By

BR

Figure No.

LKC 20 1488.HD102



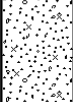
LK CONSULT LTD

Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS
Tel: 0161 763 7200 web: www.thelkgroup.com

Site
ISG Hough End

Trial Pit Number
HD103

Excavation Method Trial Pit	Dimensions 0.2m x 0.2m x 1.0m	Ground Level (mOD) 33.00	Client ISG PLC	Job Number LKC 20 1488
	Location (Handheld GPS) 383555 E 393141 N	Dates 23/03/2021- 24/03/2021	Engineer LKC	Sheet 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.20	ES1 PID=<0.1ppm			32.80	(0.20) 0.20	TOPSOIL: Dark brown very silty SAND with frequent rootlets. Sand is fine to coarse.		
0.50-1.00	DB2			32.00	(0.80) 1.00	Grey gravelly silty SAND. Sand is fine to coarse. Gravel is fine to medium, subangular comprising mudstone and quartz.		
						Complete at 1.00m		

No image available

Remarks Location and elevation from handheld GPS. Trial pit dry and stable. Trial pit complete at 1.00mbgl.		
Scale (approx) 1:50	Logged By BR	Figure No. LKC 20 1488.HD103

Excavation Method Trial Pit	Dimensions 0.2m x 0.2m x 1.0m	Ground Level (mOD) 33.00	Client ISG PLC	Job Number LKC 20 1488
	Location (Handheld GPS) 383605 E 393114 N	Dates 23/03/2021- 24/03/2021	Engineer LKC	Sheet 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.40	ES1 PID=<0.1ppm			32.80	(0.20) 0.20	TOPSOIL: Dark brown very silty SAND with frequent rootlets. Sand is fine to coarse.		
				32.00	(0.80) 1.00	Grey gravelly silty SAND. Sand is fine to coarse. Gravel is fine to medium, subangular comprising mudstone and quartz.		
						Complete at 1.00m		

No image available

Remarks

Location and elevation from handheld GPS.
Trial pit dry and stable.
Trial pit complete at 1.00mbgl.
DCP tst undertaken adjacent to pit (ref. DCP106).

Scale (approx) 1:50	Logged By BR	Figure No. LKC 20 1488.HD104
-------------------------------	------------------------	--

**LK CONSULT LTD**Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS
Tel: 0161 763 7200 web: www.thelkgroup.com**Site**

ISG Hough End

**Trial Pit
Number****HD105****Excavation Method**

Trial Pit

Dimensions

0.2m x 0.2m x 1.0m

Ground Level (mOD)

33.00

Client

ISG PLC

**Job
Number**

LKC 20 1488

Location (Handheld GPS)

383633 E 393245 N

Dates23/03/2021-
24/03/2021**Engineer**

LKC

Sheet

1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.40	ES1 PID=<0.1ppm				(0.40)	MADE GROUND: Dark brown very silty SAND with frequent rootlets, occasional ash and clinker. Sand is fine to coarse.		
0.50-0.80	DB2			32.60	0.40	Yellow slightly gravelly silty SAND. Sand is fine to coarse. Gravel is fine to medium, subangular comprising mudstone and coal.		
				32.00	1.00	Complete at 1.00m		

No image available

RemarksLocation and elevation from handheld GPS.
Trial pit dry and stable.
Trial pit complete at 1.00mbgl.**Scale (approx)**

1:50

Logged By

BR

Figure No.

LKC 20 1488.HD105

Excavation Method

Trial Pit

Dimensions

0.2m x 0.2m x 1.0m

Ground Level (mOD)

33.00

Client

ISG PLC

**Job
Number**

LKC 20 1488

Location (Handheld GPS)

383528 E 393081 N

Dates

23/03/2021-
24/03/2021

Engineer

LKC

Sheet

1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.40	ES1 PID=<0.1ppm				(0.40)	TOPSOIL: Dark brown very silty SAND with frequent rootlets. Sand is fine to coarse.		
0.50-1.00	DB2			32.60	0.40	Yellow slightly gravelly silty SAND. Sand is fine to coarse. Gravel is fine to medium, subangular comprising mudstone and coal.		
				32.00	1.00	Complete at 1.00m		

No image available

Remarks

Location and elevation from handheld GPS.
Trial pit dry and stable.
Trial pit complete at 1.00mbgl.
DCP tst undertaken adjacent to pit (ref. DCP104).

Scale (approx)

1:50

Logged By

BR

Figure No.

LKC 20 1488.HD106

Excavation Method

Trial Pit

Dimensions

0.2m x 0.2m x 0.95m

Ground Level (mOD)

33.00

Client

ISG PLC

**Job
Number**

LKC 20 1488

Location (Handheld GPS)

383528 E 393081 N

Dates

23/03/2021-
24/03/2021

Engineer

LKC

Sheet

1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.50	ES1 PID=<0.1ppm				(0.50)	TOPSOIL: Dark brown very silty SAND with frequent rootlets. Sand is fine to coarse.		
0.50-0.60	ES2 PID=<0.1ppm			32.50	0.50	Yellow slightly gravelly silty SAND. Sand is fine to coarse.		
0.60-0.90	DB3			32.05	0.95	Gravel is fine to medium, subangular comprising mudstone and coal.		
						Complete at 0.95m		

No image available

Remarks

Location and elevation from handheld GPS.
Trial pit dry and stable.
Trial pit complete at 1.00mbgl.
DCP tst undertaken adjacent to pit (ref. DCP105).

Scale (approx)

1:50

Logged By

BR

Figure No.

LKC 20 1488.HD107

Excavation Method

Trial Pit

Dimensions

0.2m x 0.2m x 0.90m

Ground Level (mOD)

33.00

Client

ISG PLC

**Job
Number**

LKC 20 1488

Location (Handheld GPS)

383657 E 393286 N

Dates

23/03/2021-
24/03/2021

Engineer

LKC

Sheet

1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.40	ES1 PID=<0.1ppm				(0.50)	MADE GROUND: Dark brown very silty SAND with frequent rootlets and occasional plastic pieces. Sand is fine to coarse.		
0.50-0.80	DB3			32.50	0.50	Yellow slightly gravelly silty SAND. Sand is fine to coarse.		
				32.10	0.40	Gravel is fine to medium, subangular comprising mudstone and coal.		
					0.90	Complete at 0.90m		

No image available

Remarks

Location and elevation from handheld GPS.
Trial pit stable.
Trial pit complete at 0.9mbgl.
DCP tst undertaken adjacent to pit (ref. DCP101).
Groundwater at 0.90mbgl, slow seepage.

Scale (approx)

1:50

Logged By

BR

Figure No.

LKC 20 1488.HD108

**LK CONSULT LTD**Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS
Tel: 0161 763 7200 web: www.thelkgroup.com**Site**

ISG Hough End

**Trial Pit
Number****HD109****Excavation Method**

Trial Pit

Dimensions

0.2m x 0.2m x 0.80m

Ground Level (mOD)

33.00

Client

ISG PLC

**Job
Number**

LKC 20 1488

Location (Handheld GPS)

383645 E 393357 N

Dates23/03/2021-
24/03/2021**Engineer**

LKC

Sheet

1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.50	ES1 PID=<0.1ppm				(0.50)	MADE GROUND: Dark brown very silty SAND with frequent rootlets and occasional brick fragments and ash. Sand is fine to coarse.		
0.50-0.70	DB2			32.50 32.20	0.50 (0.30) 0.80	Yellowish grey slightly gravelly silty SAND. Sand is fine to coarse. Gravel is fine to medium, subangular comprising sandstone and quartz. Complete at 0.80m		

No image available

RemarksLocation and elevation from handheld GPS.
Trial pit dry and stable.
Trial pit complete at 0.80mbgl.**Scale (approx)**

1:50

Logged By

BR

Figure No.

LKC 20 1488.HD109

**LK CONSULT LTD**Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS
Tel: 0161 763 7200 web: www.thelkgroup.com**Site**

ISG Hough End

**Trial Pit
Number****HD110****Excavation Method**

Trial Pit

Dimensions

0.2m x 0.2m x 0.60m

Ground Level (mOD)

33.00

Client

ISG PLC

**Job
Number**

LKC 20 1488

Location (Handheld GPS)

383604 E 393382 N

Dates23/03/2021-
24/03/2021**Engineer**

LKC

Sheet

1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.40	ES1 PID=<0.1ppm				(0.40)	MADE GROUND: Dark brown very silty SAND with frequent rootlets and occasional pottery. Sand is fine to coarse.		
0.40-0.60	ES2 PID=<0.1ppm			32.60 32.50	0.40 0.50	Yellowish grey slightly gravelly silty SAND. Sand is fine to coarse. Gravel is fine to medium, subangular comprising sandstone and quartz. Complete at 0.60m		

No image available

RemarksLocation and elevation from handheld GPS.
Trial pit dry and stable.
Trial pit complete at 0.60mbgl.**Scale (approx)**

1:50

Logged By

BR

Figure No.

LKC 20 1488.HD110

**LK CONSULT LTD**Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS
Tel: 0161 763 7200 web: www.thelkgroup.com**Site**

ISG Hough End

**Trial Pit
Number
HD111****Excavation Method**

Trial Pit

Dimensions

0.2m x 0.2m x 0.50m

Ground Level (mOD)

33.00

Client

ISG PLC

**Job
Number
LKC 20 1488****Location (Handheld GPS)**

383519 E 393154 N

Dates23/03/2021-
24/03/2021**Engineer**

LKC

**Sheet
1/1**

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.30	ES1 PID=<0.1ppm			32.70 32.50	(0.30) 0.30 (0.20) 0.50	TOPSOIL: Dark brown very silty SAND with frequent rootlets and occasional clinker. Sand is fine to coarse. Yellow slightly gravelly silty SAND. Sand is fine to coarse. Gravel is fine to medium, subangular comprising sandstone and quartz. Complete at 0.50m	 	

No image available

RemarksLocation and elevation from handheld GPS.
Trial pit dry and stable.
Trial pit complete at 0.50mbgl.**Scale (approx)**

1:50

Logged By

BR

Figure No.

LKC 20 1488.HD111

**LK CONSULT LTD**Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS
Tel: 0161 763 7200 web: www.thelkgroup.com**Site**

ISG Hough End

**Trial Pit
Number****HD112****Excavation Method**

Trial Pit

Dimensions

0.2m x 0.2m x 0.50m

Ground Level (mOD)

33.00

Client

ISG PLC

**Job
Number**

LKC 20 1488

Location (Handheld GPS)

383519 E 393154 N

Dates23/03/2021-
24/03/2021**Engineer**

LKC

Sheet

1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.40	ES1 PID=0.1ppm					TOPSOIL: Dark brown very sandy SILT with frequent rootlets. Sand is fine to coarse.		
0.30-0.50	DB2			32.70 32.50	(0.30) 0.30 (0.20) 0.50	Yellow slightly gravelly silty SAND. Sand is fine to coarse. Gravel is fine to medium, subangular comprising sandstone and quartz. Complete at 0.50m		

No image available

RemarksLocation and elevation from handheld GPS.
Trial pit dry and stable.
Trial pit complete at 0.50mbgl.**Scale (approx)**

1:50

Logged By

BR

Figure No.

LKC 20 1488.HD112

Excavation Method

Trial Pit

Dimensions

0.2m x 0.2m x 0.60m

Ground Level (mOD)

33.00

Client

ISG PLC

**Job
Number**

LKC 20 1488

Location (Handheld GPS)

383601 E 393274 N

Dates

23/03/2021-
24/03/2021

Engineer

LKC

Sheet

1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.30	ES1 PID=<0.1ppm				(0.30)	TOPSOIL: Dark brown very sandy SILT with frequent rootlets. Sand is fine to coarse.		
0.30-0.50	DB2			32.70	0.30			
				32.40	(0.30)	Brown sandy gravelly CLAY with occasional rootlets. Sand is fine to coarse. Gravel is fine to medium, subangular to subrounded comprising mudstone and sandstone.		
					0.60	Complete at 0.60m		

No image available

Remarks

Location and elevation from handheld GPS.
Trial pit dry and stable.
Trial pit complete at 0.60mbgl.

Scale (approx)

1:50

Logged By

BR

Figure No.

LKC 20 1488.HD113

**LK CONSULT LTD**Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS
Tel: 0161 763 7200 web: www.thelkgroup.com**Site**

ISG Hough End

**Trial Pit
Number****HD114****Excavation Method**

Trial Pit

Dimensions

0.2m x 0.2m x 0.50m

Ground Level (mOD)

33.00

Client

ISG PLC

**Job
Number**

LKC 20 1488

Location (Handheld GPS)

383519 E 393154 N

Dates23/03/2021-
24/03/2021**Engineer**

LKC

Sheet

1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.30	ES1 PID=<0.1ppm				(0.30)	TOPSOIL: Dark brown very sandy SILT with frequent rootlets. Sand is fine to coarse.		
0.30-0.50	DB2			32.70 32.50	0.30 (0.20) 0.50	Yellow slightly gravelly silty SAND. Sand is fine to coarse. Gravel is fine to medium, subangular comprising sandstone and quartz. Complete at 0.50m		

No image available

RemarksLocation and elevation from handheld GPS.
Trial pit dry and stable.
Trial pit complete at 0.50mbgl.**Scale (approx)**

1:50

Logged By

BR

Figure No.

LKC 20 1488.HD114

Excavation Method

Trial Pit

Dimensions

0.2m x 0.2m x 0.60m

Ground Level (mOD)

33.00

Client

ISG PLC

**Job
Number**

LKC 20 1488

Location (Handheld GPS)

383390 E 393162 N

Dates

23/03/2021-
24/03/2021

Engineer

LKC

Sheet

1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.30	ES1 PID=<0.1ppm				(0.30)	TOPSOIL: Dark brown very sandy SILT with frequent rootlets. Sand is fine to coarse.		
0.30-0.60	DB2			32.70	0.30	Yellow slightly gravelly silty SAND. Sand is fine to coarse.		
				32.40	0.30	Gravel is fine to medium, subangular comprising sandstone and quartz.		
					0.60	Complete at 0.60m		

No image available

Remarks

Location and elevation from handheld GPS.
Trial pit dry and stable.
Trial pit complete at 0.60mbgl.

Scale (approx)

1:50

Logged By

BR

Figure No.

LKC 20 1488.HD115



LK CONSULT LTD

Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS
Tel: 0161 763 7200 web: www.thelkgroup.com

Site
ISG Hough End

Trial Pit Number
HD116

Excavation Method Trial Pit	Dimensions 0.2m x 0.2m x 1.0m	Ground Level (mOD) 33.00	Client ISG PLC	Job Number LKC 20 1488
	Location (Handheld GPS) 383416 E 393213 N	Dates 23/03/2021- 24/03/2021	Engineer LKC	Sheet 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.40	ES1 PID=<0.1ppm			32.60	(0.40)	TOPSOIL: Dark brown very sandy SILT with frequent rootlets. Sand is fine to coarse.		
0.90-1.00	ES2 PID=<0.1ppm			32.10 32.00	(0.50) 0.90 1.00	MADE GROUND: Soft consistency brown sandy gravelly CLAY with occasional rootlets. Sand is fine to coarse. Gravel is fine to medium, angular to subrounded comprising coal and quartz. Probable reworked natural. Yellow slightly gravelly silty SAND. Sand is fine to coarse. Gravel is fine to medium, subangular comprising sandstone and quartz. Complete at 1.00m		

No image available

Remarks Location and elevation from handheld GPS. Trial pit dry and stable. Trial pit complete at 1.00mbgl.		
Scale (approx) 1:50	Logged By BR	Figure No. LKC 20 1488.HD116

**LK CONSULT LTD**Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS
Tel: 0161 763 7200 web: www.thelkgroup.com**Site**

ISG Hough End

**Trial Pit
Number****HD117****Excavation Method**

Trial Pit

Dimensions

0.2m x 0.2m x 0.60m

Ground Level (mOD)

33.00

Client

ISG PLC

**Job
Number**

LKC 20 1488

Location (Handheld GPS)

383390 E 393162 N

Dates23/03/2021-
24/03/2021**Engineer**

LKC

Sheet

1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.30	ES1 PID=<0.1ppm				(0.40)	TOPSOIL: Dark brown very sandy SILT with frequent rootlets. Sand is fine to coarse.		
0.30-0.50	ES2 PID=<0.1ppm			32.60 32.40	0.40 (0.20) 0.60	Yellow slightly gravelly silty SAND. Sand is fine to coarse. Gravel is fine to medium, subangular comprising sandstone and quartz. Complete at 0.60m		

No image available

RemarksLocation and elevation from handheld GPS.
Trial pit dry and stable.
Trial pit complete at 0.60mbgl.**Scale (approx)**

1:50

Logged By

BR

Figure No.

LKC 20 1488.HD117

**LK CONSULT LTD**Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS
Tel: 0161 763 7200 web: www.thelkgroup.com**Site**

ISG Hough End

**Trial Pit
Number****HD118****Excavation Method**

Trial Pit

Dimensions

0.2m x 0.2m x 0.60m

Ground Level (mOD)

33.00

Client

ISG PLC

**Job
Number**

LKC 20 1488

Location (Handheld GPS)

383420 E 393145 N

Dates23/03/2021-
24/03/2021**Engineer**

LKC

Sheet

1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.30	ES1 PID=<0.1ppm				(0.30)	TOPSOIL: Dark brown very silty SAND with frequent rootlets. Sand is fine to coarse.		
0.30-0.50	ES2 PID=<0.1ppm			32.70	0.30			
				32.40	(0.30) 0.60	Yellow slightly gravelly silty SAND. Sand is fine to coarse. Gravel is fine to medium, subangular comprising mudstone and quartz. Complete at 0.60m		

No image available

RemarksLocation and elevation from handheld GPS.
Trial pit dry and stable.
Trial pit complete at 0.60mbgl.**Scale (approx)**

1:50

Logged By

BR

Figure No.

LKC 20 1488.HD118

Excavation Method

Trial Pit

Dimensions

0.2m x 0.2m x 0.55m

Ground Level (mOD)

33.00

Client

ISG PLC

**Job
Number**

LKC 20 1488

Location (Handheld GPS)

383454 E 393126 N

Dates

23/03/2021-
24/03/2021

Engineer

LKC

Sheet

1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.40	ES1 PID=<0.1ppm				(0.40)	TOPSOIL: Dark brown very silty SAND with frequent rootlets. Sand is fine to coarse.		
0.40-0.55	DB2			32.60 32.45	(0.40) (0.15) 0.55	Yellow slightly gravelly silty SAND. Sand is fine to coarse. Gravel is fine to medium, subangular comprising mudstone and quartz. Complete at 0.55m		

No image available

Remarks

Location and elevation from handheld GPS.
Trial pit dry and stable.
Trial pit complete at 0.55mbgl.

Scale (approx)

1:50

Logged By

BR

Figure No.

LKC 20 1488.HD119

**LK CONSULT LTD**Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS
Tel: 0161 763 7200 web: www.thelkgroup.com**Site**

ISG Hough End

**Trial Pit
Number****HD120****Excavation Method**

Trial Pit

Dimensions

0.2m x 0.2m x 0.55m

Ground Level (mOD)

33.00

Client

ISG PLC

**Job
Number**

LKC 20 1488

Location (Handheld GPS)

383508 E 393024 N

Dates23/03/2021-
24/03/2021**Engineer**

LKC

Sheet

1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.40	ES1 PID=<0.1ppm				(0.30)	TOPSOIL: Dark brown very silty SAND with frequent rootlets. Sand is fine to coarse.		
0.40-0.55	ES2			32.70 32.45	0.30 (0.25) 0.55	Yellow slightly gravelly silty SAND. Sand is fine to coarse. Gravel is fine to medium, subangular comprising mudstone and quartz. Complete at 0.55m		

No image available

RemarksLocation and elevation from handheld GPS.
Trial pit dry and stable.
Trial pit complete at 0.55mbgl.**Scale (approx)**

1:50

Logged By

BR

Figure No.

LKC 20 1488.HD120

**LK CONSULT LTD**Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS
Tel: 0161 763 7200 web: www.thelkgroup.com**Site**

ISG Hough End

**Trial Pit
Number****HD121****Excavation Method**

Trial Pit

Dimensions

0.2m x 0.2m x 0.55m

Ground Level (mOD)

33.00

Client

ISG PLC

**Job
Number**

LKC 20 1488

Location (Handheld GPS)

383508 E 393024 N

Dates23/03/2021-
24/03/2021**Engineer**

LKC

Sheet

1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.30	ES1 PID=<0.1ppm				(0.30)	TOPSOIL: Dark brown very silty SAND with frequent rootlets. Sand is fine to coarse.		
0.30-0.50	DB2			32.70	0.30	Yellow slightly gravelly silty SAND. Sand is fine to coarse.		
				32.45	(0.25) 0.55	Gravel is fine to medium, subangular comprising mudstone and quartz.		
						Complete at 0.55m		

No image available

RemarksLocation and elevation from handheld GPS.
Trial pit dry and stable.
Trial pit complete at 0.55mbgl.
DCP tst undertaken adjacent to pit (ref. DCP109).**Scale (approx)**

1:50

Logged By

BR

Figure No.

LKC 20 1488.HD121



LK CONSULT LTD

Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS
Tel: 0161 763 7200 web: www.thelkgroup.com

Site
ISG Hough End

Trial Pit Number
HD122

Excavation Method Trial Pit	Dimensions 0.2m x 0.2m x 0.55m	Ground Level (mOD) 33.00	Client ISG PLC	Job Number LKC 20 1488
	Location (Handheld GPS) 383474 E 393047 N	Dates 23/03/2021- 24/03/2021	Engineer LKC	Sheet 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.40	ES1 PID=<0.1ppm				(0.40)	TOPSOIL: Dark brown very silty SAND with frequent rootlets. Sand is fine to coarse.		
0.40-0.55	DB2 PID=<0.1ppm			32.60 32.45	(0.40) (0.15) 0.55	Yellow slightly gravelly silty SAND. Sand is fine to coarse. Gravel is fine to medium, subangular comprising mudstone and quartz. Complete at 0.55m		

No image available

Remarks

Location and elevation from handheld GPS.
Trial pit dry and stable.
Trial pit complete at 0.55mbgl.

Scale (approx) 1:50	Logged By BR	Figure No. LKC 20 1488.HD122
-------------------------------	------------------------	--



LK CONSULT LTD

Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS
Tel: 0161 763 7200 web: www.thelkgroup.com

Site
ISG Hough End

Trial Pit Number
HD123

Excavation Method Trial Pit	Dimensions 0.2m x 0.2m x 0.60m	Ground Level (mOD) 33.00	Client ISG PLC	Job Number LKC 20 1488
	Location (Handheld GPS) 383401 E 393093 N	Dates 23/03/2021- 24/03/2021	Engineer LKC	Sheet 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.30 0.30-0.50	ES1 PID=<0.1ppm ES3 PID=<0.1ppm			32.50 32.40	(0.50) 0.50 0.60	TOPSOIL: Dark brown very silty SAND with frequent rootlets. Sand is fine to coarse. Yellow slightly gravelly silty SAND. Sand is fine to coarse. Gravel is fine to medium, subangular comprising mudstone and quartz. Complete at 0.60m	 	

No image available	Remarks Location and elevation from handheld GPS. Trial pit dry and stable. Trial pit complete at 0.6mbgl.		
	Scale (approx) 1:50	Logged By BR	Figure No. LKC 20 1488.HD123

**LK CONSULT LTD**Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS
Tel: 0161 763 7200 web: www.thelkgroup.com**Site**

ISG Hough End

**Trial Pit
Number****HD124****Excavation Method**

Trial Pit

Dimensions

0.2m x 0.2m x 0.60m

Ground Level (mOD)

33.00

Client

ISG PLC

**Job
Number**

LKC 20 1488

Location (Handheld GPS)

383401 E 393093 N

Dates23/03/2021-
24/03/2021**Engineer**

LKC

Sheet

1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.50	ES1 PID=<0.1ppm				(0.50)	TOPSOIL: Dark brown very silty SAND with frequent rootlets. Sand is fine to coarse.		
0.50-0.80	DB3			32.50 32.40	0.50 0.60	Yellow slightly gravelly silty SAND. Sand is fine to coarse. Gravel is fine to medium, subangular comprising mudstone and quartz. Complete at 0.60m		

No image available

RemarksLocation and elevation from handheld GPS.
Trial pit dry and stable.
Trial pit complete at 0.6mbgl.**Scale (approx)**

1:50

Logged By

BR

Figure No.

LKC 20 1488.HD124

Excavation Method

Drive-in Windowless Sampler

Dimensions

101mm to 2.00m

Ground Level (mOD)

33.00

Client

ISG PLC

Job
Number
LKC 20 1488

Location (Handheld GPS)

383719 E 393282 N

Dates

23/03/2021-
26/03/2021

Engineer

LKC

Sheet
1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.00-0.20	ES1 PID=0.1ppm			32.80	(0.20)	MADE GROUND: Dark brown sandy SILT with frequent rootlets and occasional clinker and ash. Sand is fine to coarse.			
0.20-0.80	ES2 PID=0.1ppm				0.20				
					(0.60)	MADE GROUND: Brown gravelly silty SAND with occasional brick, ash and clinker. Sand is fine to coarse. Gravel is fine to coarse, angular comprising sandstone.			
				32.20	0.80				
1.20-1.65	SPT N=14		2,2/3,3,4,4		(0.90)	Medium dense yellowish grey SAND and GRAVEL. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded comprising quartz, sandstone and mudstone.			
1.70-2.00	DB3			31.30	1.70	Firm to stiff consistency medium to high strength brown gravelly sandy CLAY. Sand is fine to coarse. Gravel is fine to medium, subangular comprising mudstone.			
2.00-2.45	SPT N=10 X4		1,2/2,2,3,3		(1.20)				
2.50-2.90	U5		Water strike(1) at 2.40m.			High strength below 2.50mbgl.			
3.00-3.27	SPT 50/120 X6		10,15/31,19	30.10	2.90	Very dense reddish orange silty SAND. Sand is fine to medium.			
3.00-3.27				29.73	(0.37)				
					3.27	Complete at 3.27m			

Remarks

Location and elevation from handheld GPS.
Groundwater encountered at 2.40mbgl.
Sampler refusal at 3.00mbgl, SPT driven to 3.27mbgl. Refusal in very dense sand.
Borehole stable.
Monitoring well installed to 3.00mbgl.

Scale
(approx)

1:50

Logged
By

BR

Figure No.

LKC 20 1488.WS101

Excavation Method

Drive-in Windowless Sampler

Dimensions

101mm to 2.00m

Ground Level (mOD)

33.00

Client

ISG PLC

Job
Number

LKC 20 1488

Location (Handheld GPS)

383718 E 393247 N

Dates

23/03/2021-
26/03/2021

Engineer

LKC

Sheet

1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.00-0.60	ES1 PID=0.1ppm				(0.60)	TOPSOIL: Dark brown sandy SILT with frequent rootlets. Sand is fine to coarse.			
1.00-1.20	ES2 PID=0.1ppm			32.40	0.60	Medium dense yellowish grey slightly gravelly silty SAND. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded comprising quartz and mudstone.			
1.20-1.65	SPT N=10		2,3/3,3,2,2		(0.95)				
1.55-2.00	DB3			31.45	1.55	Firm consistency medium strength brown gravelly sandy CLAY with occasional rootlets. Sand is fine to coarse. Gravel is fine to medium, subangular comprising mudstone and coal.			
1.55-2.00	PP 49.05kPa								
2.00-2.45	SPT N=9		2,2/2,2,2,3		(1.55)				
2.50-3.00	PP 49.05kPa								
2.50-3.00	U4								
3.00-3.37	SPT 50/220		5,6/10,15,25	29.90	3.10	Very dense reddish orange silty SAND. Sand is fine to medium.			
3.00-3.45	X5			29.63	(0.27) 3.37	Complete at 3.37m			

Remarks

Location and elevation from handheld GPS.
Groundwater encountered at 1.80mbgl.
Sampler refusal at 3.00mbgl, SPT driven to 3.37mbgl. Refusal in very dense sand.
Borehole stable.
Monitoring well installed to 3.00mbgl.

Scale
(approx)

1:50

Logged
By

BR

Figure No.

LKC 20 1488.WS102

Excavation Method

Drive-in Windowless Sampler

Dimensions

101mm to 2.00m

Ground Level (mOD)

33.00

Client

ISG PLC

Job
Number

LKC 20 1488

Location (Handheld GPS)

383741 E 393247 N

Dates

23/03/2021-
26/03/2021

Engineer

LKC

Sheet

1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.20-0.70	ES1 PID=0.3ppm			32.90 32.80	0.10 0.20 (0.50)	MADE GROUND: Tarmacadam. MADE GROUND: Pale yellow sandy GRAVEL. Sand is fine to coarse. Gravel is fine to coarse, subangular comprising limestone.	 		 
				32.30	0.70 (0.80)	MADE GROUND: Black sandy GRAVEL with frequent ash and clinker. Sand is fine to coarse. Gravel is fine to coarse, angular to subangular, comprising coal, limestone and sandstone. Slight PAH odour, possible tarmac fragments.			
1.20-1.65 1.20-1.50 1.50-2.00 1.50-2.00	SPT N=5 ES2 PID=0.1ppm DB3 PP 85.84kPa		3,3/2,1,1,1	31.50	1.50	Loose yellowish grey gravelly silty SAND. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded comprising quartz, sandstone and mudstone.			
2.00-2.45 2.00-2.45	SPT N=5 X4		3,2/2,1,1,1		(1.70)	Firm to stiff consistency medium to high strength brown gravelly sandy CLAY. Sand is fine to coarse. Gravel is fine to medium, subangular comprising mudstone and coal. High strength at 1.50mbgl. Medium strength at 2.50mbgl.			
2.50-2.70 2.50-3.00	DB5 PP 61.31kPa								
3.00-3.33	SPT 50/180		5,10/19,20,11	29.80 29.67	3.20 (0.53)	Very dense reddish orange silty SAND. Sand is fine to medium. Complete at 3.33m			

Remarks

No SPT recovery at 1.20mbgl.
Monitoring well installed to 3.00mbgl.
Borehole stable.
Slight PAH odour noted, possible tarmac fragments at 0.2-0.7mbgl.
Borehole undertaken in car park area.
Location and elevation from handheld GPS.
Groundwater encountered at 2.3mbgl.
Sampler refusal at 3.00mbgl, SPT driven to 3.27mbgl. Refusal in very dense sand.

Scale
(approx)

1:50

Logged
By

BR

Figure No.

LKC 20 1488.WS103

Excavation Method

Drive-in Windowless Sampler

Dimensions

101mm to 2.00m

Ground Level (mOD)

33.00

Client

ISG PLC

Job
Number

LKC 20 1488

Location (Handheld GPS)

383686 E 393208 N

Dates

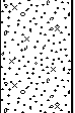
23/03/2021-
26/03/2021

Engineer

LKC

Sheet

1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.05-0.50	ES1 PID=0.2ppm			32.95	0.05	MADE GROUND: Tarmacadam.			
0.50-1.00	ES2 PID=<0.1ppm			32.50	0.50	MADE GROUND: Reddish brown gravelly silty SAND with occasional brick fragments and ash. Sand is fine to coarse, angular to subangular comprising limestone and sandstone.			
1.20-1.65	SPT N=10		1,1/1,3,3,3		(1.30)	Loose to medium dense yellowish grey gravelly silty SAND. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded comprising quartz, sandstone and mudstone.			
1.50-2.00	PP 36.79kPa								
1.80-2.00	DB3			31.20	1.80				
2.00-2.45	SPT N=10		1,4/2,2,3,3			Firm to stiff consistency low strength brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is fine to medium, subangular comprising mudstone and sandstone.			
2.50-3.00	U4		Water strike(1) at 2.30m.		(1.40)				
3.00-3.45	SPT N=13		2,3/3,3,3,4						
3.50-4.00	DB5			29.80	3.20	Stiff consistency medium strength gravelly CLAY. Gravel is fine to medium, subangular to subrounded comprising mudstone.			
3.50-4.00	PP 49.05kPa				(0.87)	Medium strength below 3.50mbgl.			
3.80-4.07	SPT 50/115		12,13/29,21	28.93	4.07	Complete at 4.07m			

Remarks

Location and elevation from handheld GPS.
Groundwater encountered at 2.3mbgl.
Sampler refusal at 3.80mbgl, SPT driven to 4.065mbgl. Refusal in very stiff clay.
Monitoring well installed to 3.80mbgl.
Borehole stable.
DCP test undertaken adjacent to pit (ref. DCP103).

Scale
(approx)

1:50

Logged
By

BR

Figure No.

LKC 20 1488.WS104

Excavation Method

Drive-in Windowless Sampler

Dimensions

101mm to 2.00m

Ground Level (mOD)

33.00

Client

ISG PLC

Job
Number

LKC 20 1488

Location (Handheld GPS)

383693 E 393234 N

Dates

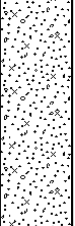
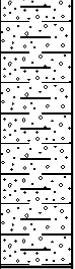
23/03/2021-
26/03/2021

Engineer

LKC

Sheet

1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.05-0.40	ES1 PID=0.3ppm			32.95	0.05 (0.35)	MADE GROUND: Tarmacadam.			
				32.60	0.40	MADE GROUND: Blackish brown gravelly silty SAND with occasional brick fragments and ash. Sand is fine to coarse, angular to subangular comprising limestone and sandstone.			
1.20-1.65 1.20-1.30 1.50-2.00	SPT N=12 ES2 PID=<0.1ppm DB3		3,3/3,3,3,3		(2.00)	Very loose to medium dense yellowish grey gravelly silty SAND. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded comprising quartz, sandstone and mudstone. Medium strength at 1.20mbgl.			
2.00-2.45	SPT N=2		Water strike(1) at 2.00m. 1,0/0,1,0,1			Very loose at 2.00mbgl.			
2.50-3.00 2.50-3.00	DB5 PP 24.53kPa			30.60	2.40	Firm to stiff consistency low strength brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is fine to medium, subangular comprising mudstone and sandstone.			
3.00-3.45	SPT N=5		1,1/1,1,1,2		(2.01)				
4.00-4.41	SPT 50/255		6,6/6,10,24,10						
				28.59	4.41	Complete at 4.41m			

Remarks

Location and elevation from handheld GPS.
Groundwater encountered at 2.00mbgl.
Sampler refusal at 4.00mbgl, SPT driven to 4.405mbgl. Refusal in very stiff clay.
Casing driven to 2.00mbgl. Borehole collapsed to 2.30mbgl.
Monitoring well installed to 2.30mbgl.
DCP test undertaken adjacent to pit (ref. DCP102).

Scale
(approx)

1:50

Logged
By

BR

Figure No.

LKC 20 1488.WS105

Excavation Method

Drive-in Windowless Sampler

Dimensions

101mm to 2.00m

Ground Level (mOD)

33.00

Client

ISG PLC

Job
Number

LKC 20 1488

Location (Handheld GPS)

383676 E 393322 N

Dates

23/03/2021-
26/03/2021

Engineer

LKC

Sheet

1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.00-0.20	ES1 PID=<0.1ppm				(0.20)	TOPSOIL: Dark brown very silty SAND with frequent rootlets. Sand is fine to coarse.			
0.20-0.70	ES2 PID=<0.1ppm			32.80	0.20				
					(0.50)	Orange slightly gravelly silty SAND. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded comprising quartz and mudstone.			
				32.30	0.70				
					(0.70)	Loose grey gravelly silty SAND. Sand is fine to coarse. Gravel is fine to medium, subangular comprising mudstone and quartz.			
1.20-1.65	SPT N=9		3,3/3,2,2,2	31.60	1.40				
1.40-2.00	PP 36.79kPa								
1.50-2.00	DB3								
2.00-2.45	SPT N=18		3,4/4,4,5,5		(1.30)				
2.00-2.45	X4								
				30.30	2.70				
					(0.62)	Very dense reddish brown gravelly SAND. Sand is fine to coarse. Gravel is fine to coarse, subangular comprising sandstone.			
3.00-3.32	SPT 50/170		10,11/17,23,10	29.68	3.32				
						Complete at 3.32m			

Remarks

Location and elevation from handheld GPS.
Groundwater encountered at 0.80mbgl.
Sampler refusal at 3.00mbgl, SPT driven to 3.32mbgl. Refusal in very dense sand.
Borehole stable.
Monitoring well installed to 3.00mbgl.

Scale
(approx)

1:50

Logged
By

BR

Figure No.

LKC 20 1488.WS106

Excavation Method

Drive-in Windowless Sampler

Dimensions

101mm to 3.00m

Ground Level (mOD)

33.00

Client

ISG PLC

Job
Number
LKC 20 1488

Location (Handheld GPS)

383563 E 393288 N

Dates

23/03/2021-
26/03/2021

Engineer

LKC

Sheet
1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.00-0.20	ES1 PID=<0.1ppm			32.80	(0.20)	TOPSOIL: Dark brown very silty SAND with frequent rootlets. Sand is fine to coarse.			
0.20-1.00	ES2 PID=<0.1ppm				0.20				
0.50-1.00	DB3				(0.80)	Orange slightly gravelly silty SAND. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded comprising quartz, sandstone and mudstone.			
				32.00	1.00				
1.20-1.65	SPT N=15		Water strike(1) at 1.10m. 3,3/3,4,4,4	31.60	(0.40)	Loose to medium dense grey gravelly silty SAND. Sand is fine to coarse. Gravel is fine to medium, subangular comprising mudstone and quartz.			
1.50-2.00	DB4				1.40	Very dense reddish brown gravelly SAND. Sand is fine to coarse. Gravel is fine to coarse, subangular comprising sandstone.			
2.00-2.45	SPT N=11		2,2/2,3,3,3		(1.92)				
3.00-3.45	SPT N=9		1,2/2,2,2,3	29.68	3.45	Complete at 3.45m			

Remarks

Location and elevation from handheld GPS.
Groundwater encountered at 1.10mbgl.
Borehole complete at 3.45mbgl.
Borehole stable.
Monitoring well installed to 3.00mbgl.

Scale
(approx)

1:50

Logged
By

BR

Figure No.

LKC 20 1488.WS106

Excavation Method

Drive-in Windowless Sampler

Dimensions

101mm to 2.00m

Ground Level (mOD)

33.00

Client

ISG PLC

Job
Number

LKC 20 1488

Location (Handheld GPS)

383363 E 393105 N

Dates

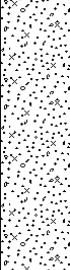
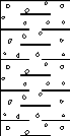
23/03/2021-
26/03/2021

Engineer

LKC

Sheet

1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.00-0.40	ES1 PID=0.1ppm				(0.40)	TOPSOIL: Dark brown very silty SAND with frequent rootlets. Sand is fine to coarse.			
0.40-1.00	ES2 PID=<0.1ppm			32.60	0.40	Loose to medium dense grey gravelly silty SAND. Sand is fine to coarse. Gravel is fine to medium, subangular comprising mudstone and quartz.			
1.20-1.65	SPT N=11		1,2/2,3,3,3		(2.10)	Medium dense at 1.20mbgl.			
1.50-2.00	DB3		Water strike(1) at 1.50m.						
2.00-2.45	SPT N=4		1,1/1,1,1,1			Loose at 2.00mbgl.			
2.00-2.45	X4								
2.50-3.00	PP 49.05kPa			30.50	2.50	Firm consistency medium strength grey gravelly CLAY with occasional rootlets. Sand is fine to coarse. Gravel is fine to medium, subangular comprising mudstone and coal			
2.80-3.00	DB5				(0.95)				
3.00-3.45	SPT N=9		1,1/1,2,3,3						
				29.55	3.45	Complete at 3.45m			

Remarks

Location and elevation from handheld GPS.
Groundwater encountered at 1.50mbgl.
Borehole complete at 3.45mbgl.
Borehole collapsed to 2.20mbgl.
Monitoring well installed to 2.20mbgl.

Scale (approx)

1:50

Logged By

BR

Figure No.

LKC 20 1488.WS108

Excavation Method

Drive-in Windowless Sampler

Dimensions

101mm to 2.00m

Ground Level (mOD)

33.00

Client

ISG PLC

Job
Number

LKC 20 1488

Location (Handheld GPS)

383480 E 393183 N

Dates

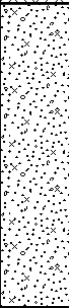
23/03/2021-
26/03/2021

Engineer

LKC

Sheet

1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.00-0.40	ES1 PID=0.1ppm				(0.40)	TOPSOIL: Dark brown very silty SAND with frequent rootlets. Sand is fine to coarse.			
0.40-1.00	ES2 PID=0.1ppm			32.60	0.40	Loose to medium dense greyish orange gravelly silty SAND. Sand is fine to coarse. Gravel is fine to medium, subangular comprising mudstone and quartz.			
1.20-1.65	SPT N=11		2,2/2,3,3,3		(2.00)	Medium dense at 1.20mbgl.			
1.50-2.00	DB3								
2.00-2.45	SPT N=6		1,1/1,1,2,2			Loose at 2.00mbgl.			
2.40-2.60	DB5			30.60	2.40				
2.40-2.60	PP 49.05kPa			30.40	(0.20) 2.60	Firm consistency medium strength grey gravelly CLAY with occasional rootlets. Sand is fine to coarse. Gravel is fine to medium, subangular comprising mudstone and coal			
3.00-3.45	SPT N=9		1,1/1,2,3,3		(0.85)	Loose reddish brown silty SAND. Sand is fine to coarse.			
				29.55	3.45	Complete at 3.45m			

Remarks
Scale
(approx)

1:50

Logged
By

BR

Figure No.

LKC 20 1488.WS109

Excavation Method

Drive-in Windowless Sampler

Dimensions

101mm to 2.00m

Ground Level (mOD)

33.00

Client

ISG PLC

Job
Number

LKC 20 1488

Location (Handheld GPS)

383578 E 393041 N

Dates

23/03/2021-
26/03/2021

Engineer

LKC

Sheet

1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.00-0.40	ES1 PID=0.1ppm				(0.40)	TOPSOIL: Dark brown very silty SAND with frequent rootlets. Sand is fine to coarse.			
0.40-1.00	ES2 PID=0.1ppm			32.60	0.40	Loose to medium dense greyish yellow gravelly silty SAND. Sand is fine to coarse. Gravel is fine to medium, subangular comprising mudstone and quartz.			
1.00-1.50	DB3								
1.20-1.65	SPT N=16		4,4/4,4,4,4		(2.20)	Medium dense at 1.20mbgl.			
			Water strike(1) at 1.60m.						
2.00-2.45	SPT N=5		1,1/1,1,1,2			Loose at 2.00mbgl.			
2.50-3.00	DB5			30.40	2.60	Firm consistency medium strength grey gravelly CLAY with occasional rootlets. Sand is fine to coarse. Gravel is fine to medium, subangular comprising mudstone and coal			
2.60-2.80	PP 49.05kPa				(0.85)				
2.80-3.00	PP 73.58kPa								
3.00-3.45	SPT N=12		4,4/3,3,3,3						
				29.55	3.45	Complete at 3.45m			

Remarks

Borehole stable.
Monitoring well installed to 3.00mbgl.
Location and elevation from handheld GPS.
Groundwater encountered at 1.60mbgl.
Borehole complete at 3.45mbgl.
DCP test undertaken adjacent to pit (ref. DCP107).

Scale
(approx)

1:50

Logged
By

BR

Figure No.

LKC 20 1488.WS110



LK CONSULT LTD
Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS
Tel: 0161 763 7200 web: www.thelkgroup.com

Site
ISG Hough End

Trial Pit Number
SA102

Excavation Method Trial Pit	Dimensions 1.5m x 0.5m x 0.7m	Ground Level (mOD) 33.00	Client ISG PLC	Job Number LKC 20 1488
	Location (Handheld GPS) 383764 E 393275 N	Dates 23/03/2021- 26/03/2021	Engineer LKC	Sheet 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
				32.90	0.10	MADE GROUND: Brown very sandy SILT with frequent rootlets and plant matter. Sand is fine to coarse.		
					(0.60)			
				32.30	0.70	MADE GROUND: Brown gravelly clayey SAND. Sand is fine to coarse. Gravel is fine to coarse, subangular comprising limestone and sandstone. Underground services encountered at 0.70mbgl. Pit backfilled.		
						Complete at 0.70m		

Plan	Remarks Location and elevation from handheld GPS. Trial pit dry and stable. Trial pit terminated due to presence of underground services Unable to reposition due to current infrastructure.							
Scale (approx) 1:50						Logged By BR	Figure No. LKC 20 1488.SA102	

Excavation Method

Trial Pit

Dimensions

0.5m x 0.5m x 0.8m

Ground Level (mOD)

33.00

Client

ISG PLC

**Job
Number**
LKC 20 1488

Location (Handheld GPS)

383685 E 393242 N

Dates

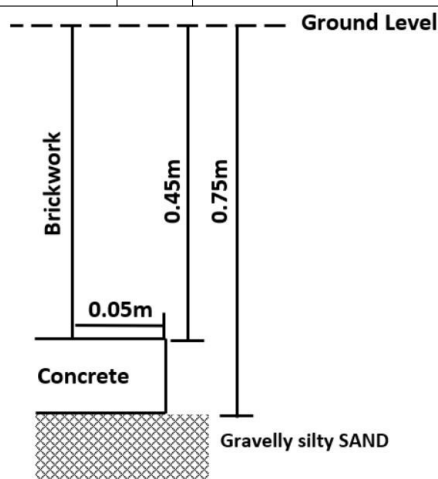
23/03/2021-
26/03/2021

Engineer

LKC

Sheet
1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
				32.95	0.05	CONCRETE		
					(0.20)	MADE GROUND: Yellowish grey SAND and GRAVEL. Sand is fine to coarse. Gravel is fine to coarse, angular to subangular comprising limestone.		
				32.75	0.25	MADE GROUND: Brownish yellow gravelly silty SAND with occasional brick, ash, clinker, plastic pieces and geotextile fabric pieces. Sand is fine to coarse. Gravel is fine to coarse, subangular comprising limestone.		
					(0.50)			
			Water strike(1) at 0.70m.	32.25	0.75	Yellowish brown silty SAND. Sand is fine to coarse.		▽1
				32.20	0.80	Complete at 0.80m		


Remarks

Location and elevation from handheld GPS.
Perched water entering pit at 0.70mbgl. Slow seepage,
Footing noted at 0.45mbgl, extending 50mm, to a depth of 0.75mbgl.
Pit unstable, granular made ground collapsed and pit backfilled.
Foundation footing founded on gravelly silty SAND.

Scale (approx)

1:20

Logged By

BR

Figure No.

LKC 20 1488.FP101

Excavation Method

Trial Pit

Dimensions

0.50m x 0.50m x 0.75m

Ground Level (mOD)

33.00

Client

ISG PLC

**Job
Number**
LKC 20 1488

Location (Handheld GPS)

383723 E 393292 N

Dates

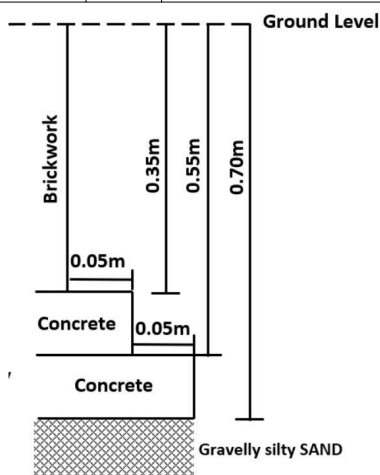
23/03/2021-
26/03/2021

Engineer

LKC

Sheet
1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
				32.95	0.05	MADE GROUND: Tarmacadam.		
				32.90	0.10	MADE GROUND: Yellowish grey SAND and GRAVEL. Sand is fine to coarse. Gravel is fine to coarse, angular to subangular comprising limestone.		
					(0.60)	MADE GROUND: Black sandy silty GRAVEL with occasional ash and clinker. Sand is fine to coarse. Gravel is fine to coarse, subangular comprising limestone, mudstone and quartz.		
				32.30	0.70	Yellowish brown silty SAND. Sand is fine to coarse.		
				32.20	(0.10) 0.80	Complete at 0.80m		


Remarks

Location and elevation from handheld GPS.
Trial pit was dry.
Pit unstable, granular made ground collapsed and pit backfilled.
Foundation footing founded on gravelly silty SAND.
Weathering was noted on the base of the concrete footing between 0.55-0.70mbgl.
First footing noted at 0.35mbgl, extending 50mm, to a depth of 0.55mbgl.
Second footing noted at 0.55mbgl, extending 50mm, to a depth of 0.70mbgl.

Scale (approx)

1:20

Logged By

BR

Figure No.

LKC 20 1488.FP102

Excavation Method

Hand dug foundation pit

Dimensions

0.5x1.0m

Ground Level (mOD)
Client

ISG PLC

**Job
Number**

LKC 20 1488

Location (Observed measurements)

Dates

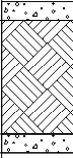
10/04/2021

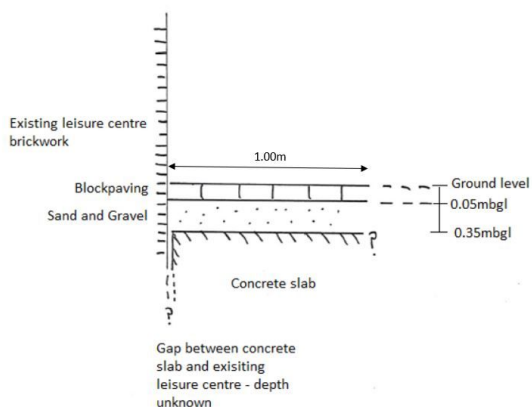
Engineer

LKC

Sheet

1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					0.05	BLOCK PAVING: Sandstone block paving.		
					(0.30)	MADE GROUND: Sandy slightly clayey GRAVEL sub base. Sand is medium to coarse. Gravel is fine to medium comprising sandstone.		
					0.35 0.40	CONCRETE: Concrete slab. Extends out from the currently building >1.0m. Thickness could not be ascertained.		
						Complete at 0.60m		


Remarks
Scale (approx)

1:20

Logged By

BS

Figure No.

LKC 20 1488.FP103

Excavation Method

Hand dug foundation pit

Dimensions

0.5x1.0m

Ground Level (mOD)
Client

ISG PLC

**Job
Number**
LKC 20 1488

Location (Observed measurements)

Dates

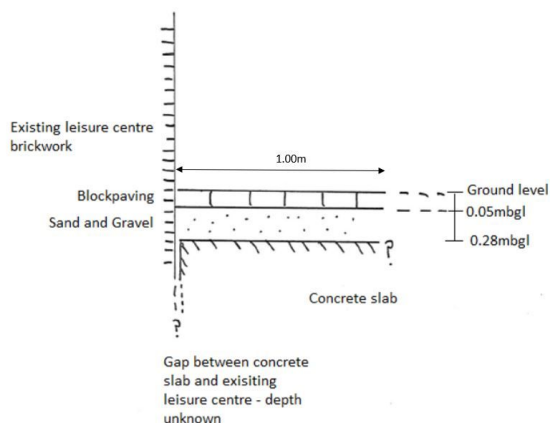
10/04/2021

Engineer

LKC

Sheet
1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					0.05	BLOCK PAVING: Sandstone block paving.		
					(0.23)	MADE GROUND: Sandy slightly clayey GRAVEL sub base. Sand is medium to coarse. Gravel is fine to medium comprising sandstone.		
					0.28	CONCRETE: Concrete slab. Extends out from the currently building >1.0m. Thickness could not be ascertained.		
					(0.12)			
					0.40	Complete at 0.60m		


Remarks
Scale (approx)

1:20

Logged By

BS

Figure No.

LKC 20 1488.FP104

Appendix C

Certificates of Analysis – Soil



Final Report

Report No.:	21-09885-1		
Initial Date of Issue:	12-Apr-2021		
Client	LK Consult		
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS		
Contact(s):	Ben Smith Contaminated Land		
Project	LKC 20 1488 Hough End ISG		
Quotation No.:		Date Received:	29-Mar-2021
Order No.:		Date Instructed:	01-Apr-2021
No. of Samples:	21		
Turnaround (Wkdays):	5	Results Due:	09-Apr-2021
Date Approved:	12-Apr-2021		
Approved By:			
Details:	Glynn Harvey, Technical Manager		

Results - Soil

Project: LKC 20 1488 Hough End ISG

Client: LK Consult	Chemtest Job No.:				21-09885	21-09885	21-09885	21-09885	21-09885	21-09885	21-09885	21-09885	21-09885
Quotation No.:	Chemtest Sample ID.:				1168250	1168251	1168252	1168253	1168254	1168255	1168256	1168258	1168259
Order No.:	Client Sample Ref.:				ES1	ES1	ES2	ES1	ES1	ES1	ES1	ES1	ES1
	Client Sample ID.:				HD108	HD107	HD107	HD106	HD105	HD124	HD123	HD122	HD121
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):				0	0	0.5	0	0	0	0	0	0
	Bottom Depth (m):				0.4	0.5	0.6	0.4	0.4	0.5	0.3	0.4	0.3
	Date Sampled:				25-Mar-2021	25-Mar-2021	25-Mar-2021	25-Mar-2021	25-Mar-2021	26-Mar-2021	26-Mar-2021	26-Mar-2021	26-Mar-2021
Determinand	Accred.	SOP	Units	LOD									
ACM Type	U	2192		N/A	-	-		-	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected		No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-		-	-	-	-	-	-
Moisture	N	2030	%	0.020	54	13	14	15	16	15	17	13	16
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones and Roots	Stones	Stones	Stones	Stones	Stones	Stones and Roots	Stones	Stones and Roots
Soil Texture	N	2040		N/A	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand
pH	M	2010		4.0	6.3	6.9	7.1	5.9	7.0	8.0	6.6	6.8	6.1
Magnesium (Water Soluble)	N	2120	g/l	0.010			< 0.010						
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Chloride (Water Soluble)	M	2220	g/l	0.010			0.035						
Nitrate (Water Soluble)	N	2220	g/l	0.010			< 0.010						
Arsenic	M	2450	mg/kg	1.0	7.7	11		11	15	7.2	17	11	12
Cadmium	M	2450	mg/kg	0.10	0.11	0.14		0.13	0.24	0.11	0.21	0.24	0.18
Chromium	M	2450	mg/kg	1.0	13	11		7.7	16	12	18	23	16
Copper	M	2450	mg/kg	0.50	19	29		22	44	19	38	46	33
Mercury	M	2450	mg/kg	0.10	0.29	0.33		0.22	0.53	0.14	0.41	0.49	0.34
Nickel	M	2450	mg/kg	0.50	12	12		7.1	16	12	15	14	15
Lead	M	2450	mg/kg	0.50	48	77		67	100	39	110	110	91
Selenium	M	2450	mg/kg	0.20	0.34	0.40		0.45	0.60	0.32	0.60	0.39	0.49
Vanadium	U	2450	mg/kg	5.0	17	15		13	22	14	28	20	22
Zinc	M	2450	mg/kg	0.50	35	35		25	46	25	51	59	49
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50		< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	M	2625	%	0.40	2.2	3.1		4.3	6.0	2.8	5.3	4.0	4.1
Naphthalene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	0.11	< 0.10	< 0.10	< 0.10	0.38
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	0.13	< 0.10	< 0.10	< 0.10	0.17
Acenaphthene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	0.15	< 0.10	< 0.10	< 0.10	1.3
Fluorene	M	2800	mg/kg	0.10	< 0.10	< 0.10		< 0.10	0.11	< 0.10	< 0.10	< 0.10	1.1
Phenanthrene	M	2800	mg/kg	0.10	0.38	0.99		0.51	1.4	0.47	0.66	1.6	9.5
Anthracene	M	2800	mg/kg	0.10	< 0.10	0.27		0.12	0.36	0.10	0.18	0.26	2.1
Fluoranthene	M	2800	mg/kg	0.10	0.56	1.5		0.85	1.8	0.73	1.0	2.0	10
Pyrene	M	2800	mg/kg	0.10	0.58	1.5		0.86	1.9	0.70	1.1	1.9	8.9
Benzo[a]anthracene	M	2800	mg/kg	0.10	0.31	0.74		0.46	0.88	0.31	0.55	0.95	4.1
Chrysene	M	2800	mg/kg	0.10	0.40	0.82		0.49	0.91	0.41	0.54	0.90	4.0
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	0.43	0.97		0.66	1.2	0.40	0.80	1.3	4.2
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	0.14	0.26		0.21	0.33	0.19	0.23	0.40	1.7

Results - Soil

Project: LKC 20 1488 Hough End ISG

Client: LK Consult	Chemtest Job No.:					21-09885	21-09885	21-09885	21-09885	21-09885	21-09885	21-09885	21-09885
Quotation No.:	Chemtest Sample ID.:					1168250	1168251	1168252	1168253	1168254	1168255	1168256	1168258
Order No.:	Client Sample Ref.:					ES1	ES1	ES2	ES1	ES1	ES1	ES1	ES1
	Client Sample ID.:					HD108	HD107	HD107	HD106	HD105	HD124	HD123	HD122
	Sample Type:					SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):					0	0	0.5	0	0	0	0	0
	Bottom Depth (m):					0.4	0.5	0.6	0.4	0.4	0.5	0.3	0.4
	Date Sampled:					25-Mar-2021	25-Mar-2021	25-Mar-2021	25-Mar-2021	25-Mar-2021	26-Mar-2021	26-Mar-2021	26-Mar-2021
Determinand	Accred.	SOP	Units	LOD									
Benzo[a]pyrene	M	2800	mg/kg	0.10	0.36	0.84		0.53	0.92	0.35	0.54	0.88	3.4
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	0.20	0.60		0.40	0.67	0.22	0.43	0.63	2.2
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	0.12		0.15	0.22	< 0.10	< 0.10	0.13	0.51
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	0.24	0.49		0.31	0.60	0.23	0.37	0.65	2.0
Total Of 16 PAH's	N	2800	mg/kg	2.0	3.6	9.1		5.6	12	4.1	6.4	12	56

Results - Soil

Project: LKC 20 1488 Hough End ISG

Client: LK Consult	Chemtest Job No.:				21-09885	21-09885	21-09885	21-09885	21-09885	21-09885	21-09885	21-09885	21-09885
Quotation No.:	Chemtest Sample ID.:				1168261	1168262	1168263	1168264	1168265	1168268	1168269	1168270	1168271
Order No.:	Client Sample Ref.:				ES2	ES1	ES1	ES2	ES1				
	Client Sample ID.:				HD120	HD111	HD110	HD110	HD109	HD118	HD117	HD116	HD116
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):				0.4	0	0	0.4	0	0	0	0	0.9
	Bottom Depth (m):				0.55	0.3	0.4	0.6	0.5	0.3	0.4	0.4	1.0
	Date Sampled:				26-Mar-2021	26-Mar-2021	26-Mar-2021	26-Mar-2021	26-Mar-2021	26-Mar-2021	26-Mar-2021	26-Mar-2021	26-Mar-2021
Determinand	Accred.	SOP	Units	LOD									
ACM Type	U	2192		N/A		-	-		-	-	-	-	
Asbestos Identification	U	2192		N/A		No Asbestos Detected	No Asbestos Detected		No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	
ACM Detection Stage	U	2192		N/A		-	-		-	-	-	-	
Moisture	N	2030	%	0.020	13	14	14	13	30	17	15	20	19
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones and Roots	Roots and Stones	Stones	Stones	Stones and Roots	Stones and Roots	Stones and Roots	Stones
Soil Texture	N	2040		N/A	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand
pH	M	2010		4.0	6.7	6.2	7.2	7.1	7.0	6.1	7.7	6.3	6.7
Magnesium (Water Soluble)	N	2120	g/l	0.010	< 0.010			< 0.010					< 0.010
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Chloride (Water Soluble)	M	2220	g/l	0.010	0.012			< 0.010					< 0.010
Nitrate (Water Soluble)	N	2220	g/l	0.010	< 0.010			< 0.010					< 0.010
Arsenic	M	2450	mg/kg	1.0		8.4	9.7		12	15	9.4	6.2	
Cadmium	M	2450	mg/kg	0.10		< 0.10	0.11		0.18	0.17	0.17	0.11	
Chromium	M	2450	mg/kg	1.0		10	13		15	17	11	15	
Copper	M	2450	mg/kg	0.50		19	24		36	31	28	24	
Mercury	M	2450	mg/kg	0.10		0.17	0.24		0.35	0.29	0.22	0.12	
Nickel	M	2450	mg/kg	0.50		8.5	12		16	15	12	13	
Lead	M	2450	mg/kg	0.50		56	68		80	73	64	30	
Selenium	M	2450	mg/kg	0.20		0.35	0.30		0.39	0.42	0.37	0.27	
Vanadium	U	2450	mg/kg	5.0		15	17		21	25	15	17	
Zinc	M	2450	mg/kg	0.50		24	32		58	46	34	29	
Chromium (Hexavalent)	N	2490	mg/kg	0.50		< 0.50	< 0.50		< 0.50	< 0.50	< 0.50	< 0.50	
Organic Matter	M	2625	%	0.40		2.8	1.9		2.6	< 0.40	2.8	1.6	
Naphthalene	M	2800	mg/kg	0.10		< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	
Acenaphthylene	N	2800	mg/kg	0.10		< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	
Acenaphthene	M	2800	mg/kg	0.10		< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	
Fluorene	M	2800	mg/kg	0.10		< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	< 0.10	
Phenanthrene	M	2800	mg/kg	0.10		0.18	0.54		1.4	1.1	0.79	0.17	
Anthracene	M	2800	mg/kg	0.10		< 0.10	< 0.10		0.38	0.20	0.18	< 0.10	
Fluoranthene	M	2800	mg/kg	0.10		0.29	0.87		2.4	1.5	1.3	0.27	
Pyrene	M	2800	mg/kg	0.10		0.32	0.84		2.2	1.4	1.2	0.26	
Benzo[a]anthracene	M	2800	mg/kg	0.10		0.18	0.43		1.1	0.70	0.52	0.15	
Chrysene	M	2800	mg/kg	0.10		0.18	0.41		1.1	0.59	0.65	0.18	
Benzo[b]fluoranthene	M	2800	mg/kg	0.10		0.23	0.53		1.4	0.65	0.75	0.14	
Benzo[k]fluoranthene	M	2800	mg/kg	0.10		< 0.10	0.21		0.52	0.36	0.27	< 0.10	

Results - Soil

Project: LKC 20 1488 Hough End ISG

Client: LK Consult	Chemtest Job No.:				21-09885	21-09885	21-09885	21-09885	21-09885	21-09885	21-09885	21-09885	21-09885
Quotation No.:	Chemtest Sample ID.:				1168261	1168262	1168263	1168264	1168265	1168268	1168269	1168270	1168271
Order No.:	Client Sample Ref.:				ES2	ES1	ES1	ES2	ES1				
	Client Sample ID.:				HD120	HD111	HD110	HD110	HD109	HD118	HD117	HD116	HD116
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):				0.4	0	0	0.4	0	0	0	0	0.9
	Bottom Depth (m):				0.55	0.3	0.4	0.6	0.5	0.3	0.4	0.4	1.0
	Date Sampled:				26-Mar-2021	26-Mar-2021	26-Mar-2021	26-Mar-2021	26-Mar-2021	26-Mar-2021	26-Mar-2021	26-Mar-2021	26-Mar-2021
Determinand	Accred.	SOP	Units	LOD									
Benzo[a]pyrene	M	2800	mg/kg	0.10		0.15	0.40		0.98	0.65	0.58	0.21	
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10		0.13	0.32		0.68	0.51	0.41	< 0.10	
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10		< 0.10	< 0.10		0.24	< 0.10	0.18	< 0.10	
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10		0.15	0.31		0.79	0.40	0.46	< 0.10	
Total Of 16 PAH's	N	2800	mg/kg	2.0		< 2.0	4.9		13	8.1	7.3	< 2.0	

Results - Soil

Project: LKC 20 1488 Hough End ISG

Client: LK Consult	Chemtest Job No.:				21-09885	21-09885	21-09885
Quotation No.:	Chemtest Sample ID.:				1168272	1168275	1168276
Order No.:	Client Sample Ref.:						
	Client Sample ID.:				HD115	HD113	HD112
	Sample Type:				SOIL	SOIL	SOIL
	Top Depth (m):				0	0	0
	Bottom Depth (m):				0.3	0.3	0.4
	Date Sampled:				26-Mar-2021	26-Mar-2021	26-Mar-2021
Determinand	Accred.	SOP	Units	LOD			
ACM Type	U	2192		N/A	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-	-
Moisture	N	2030	%	0.020	12	15	17
Soil Colour	N	2040		N/A	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones and Roots	Stones and Roots	Stones and Roots
Soil Texture	N	2040		N/A	Sand	Sand	Sand
pH	M	2010		4.0	8.5	6.3	6.7
Magnesium (Water Soluble)	N	2120	g/l	0.010			
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	0.26	< 0.010	< 0.010
Chloride (Water Soluble)	M	2220	g/l	0.010			
Nitrate (Water Soluble)	N	2220	g/l	0.010			
Arsenic	M	2450	mg/kg	1.0	8.2	13	15
Cadmium	M	2450	mg/kg	0.10	0.46	0.14	0.21
Chromium	M	2450	mg/kg	1.0	35	13	14
Copper	M	2450	mg/kg	0.50	27	28	37
Mercury	M	2450	mg/kg	0.10	0.36	0.36	0.45
Nickel	M	2450	mg/kg	0.50	9.0	14	13
Lead	M	2450	mg/kg	0.50	110	75	110
Selenium	M	2450	mg/kg	0.20	< 0.20	0.41	0.42
Vanadium	U	2450	mg/kg	5.0	10	18	21
Zinc	M	2450	mg/kg	0.50	52	37	54
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50
Organic Matter	M	2625	%	0.40	1.9	3.8	4.0
Naphthalene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Fluorene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	M	2800	mg/kg	0.10	0.24	0.69	1.0
Anthracene	M	2800	mg/kg	0.10	< 0.10	0.14	0.25
Fluoranthene	M	2800	mg/kg	0.10	0.49	1.2	1.8
Pyrene	M	2800	mg/kg	0.10	0.54	1.1	1.9
Benzo[a]anthracene	M	2800	mg/kg	0.10	0.25	0.62	0.94
Chrysene	M	2800	mg/kg	0.10	0.24	0.54	0.94
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	0.42	0.68	1.0
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	0.11	0.24	0.44

Results - Soil

Project: LKC 20 1488 Hough End ISG

Client: LK Consult	Chemtest Job No.:				21-09885	21-09885	21-09885
Quotation No.:	Chemtest Sample ID.:				1168272	1168275	1168276
Order No.:	Client Sample Ref.:						
	Client Sample ID.:				HD115	HD113	HD112
	Sample Type:				SOIL	SOIL	SOIL
	Top Depth (m):				0	0	0
	Bottom Depth (m):				0.3	0.3	0.4
	Date Sampled:				26-Mar-2021	26-Mar-2021	26-Mar-2021
Determinand	Accred.	SOP	Units	LOD			
Benzo[a]pyrene	M	2800	mg/kg	0.10	0.35	0.48	0.90
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	0.25	0.43	0.66
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	< 0.10	0.16
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	0.27	0.41	0.61
Total Of 16 PAH's	N	2800	mg/kg	2.0	3.2	6.5	11

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2220	Water soluble Chloride in Soils	Chloride	Aqueous extraction and measurement by 'Aquakem 600' Discrete Analyser using ferric nitrate / mercuric thiocyanate.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenzo[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.com



Final Report

Report No.:	21-10470-1		
Initial Date of Issue:	12-Apr-2021		
Client	LK Consult		
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS		
Contact(s):	Ben Smith Contaminated Land		
Project	LKC 20 1488 Hough End ISG		
Quotation No.:		Date Received:	01-Apr-2021
Order No.:		Date Instructed:	01-Apr-2021
No. of Samples:	1		
Turnaround (Wkdays):	5	Results Due:	09-Apr-2021
Date Approved:	12-Apr-2021		
Approved By:			
Details:	Glynn Harvey, Technical Manager		

Results - Soil

Project: LKC 20 1488 Hough End ISG

Client: LK Consult	Chemtest Job No.:		21-10470		
Quotation No.:	Chemtest Sample ID.:		1170799		
	Sample Location:		HD114/HD119/ HD120		
	Sample Type:		SOIL		
	Top Depth (m):		0.00		
	Bottom Depth (m):		0.40		
	Date Sampled:		26-Mar-2021		
Determinand	Accred.	SOP	Units	LOD	
ACM Type	U	2192		N/A	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-
Moisture	N	2030	%	0.020	14
Soil Colour	N	2040		N/A	Brown
Other Material	N	2040		N/A	Stones
Soil Texture	N	2040		N/A	Sand
Chromatogram (TPH)	N			N/A	See Attached
pH	M	2010		4.0	7.1
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	< 0.40
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	< 0.010
Cyanide (Free)	M	2300	mg/kg	0.50	< 0.50
Cyanide (Total)	M	2300	mg/kg	0.50	< 0.50
Arsenic	M	2450	mg/kg	1.0	17
Cadmium	M	2450	mg/kg	0.10	0.13
Chromium	M	2450	mg/kg	1.0	13
Copper	M	2450	mg/kg	0.50	25
Mercury	M	2450	mg/kg	0.10	0.21
Nickel	M	2450	mg/kg	0.50	12
Lead	M	2450	mg/kg	0.50	58
Selenium	M	2450	mg/kg	0.20	0.40
Vanadium	U	2450	mg/kg	5.0	16
Zinc	M	2450	mg/kg	0.50	32
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50
Organic Matter	M	2625	%	0.40	2.4
Diesel Present	N	2670		N/A	False
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0	< 1.0
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	64
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	64
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0

Results - Soil

Project: LKC 20 1488 Hough End ISG

Client: LK Consult	Chemtest Job No.:		21-10470		
Quotation No.:	Chemtest Sample ID.:		1170799		
	Sample Location:		HD114/HD119/ HD120		
	Sample Type:		SOIL		
	Top Depth (m):		0.00		
	Bottom Depth (m):		0.40		
	Date Sampled:		26-Mar-2021		
Determinand	Accred.	SOP	Units	LOD	
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	< 1.0
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	64
Benzene	M	2760	µg/kg	1.0	< 1.0
Toluene	M	2760	µg/kg	1.0	< 1.0
Ethylbenzene	M	2760	µg/kg	1.0	< 1.0
m & p-Xylene	M	2760	µg/kg	1.0	< 1.0
o-Xylene	M	2760	µg/kg	1.0	< 1.0
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0	< 1.0
Naphthalene	M	2800	mg/kg	0.10	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10
Acenaphthene	M	2800	mg/kg	0.10	< 0.10
Fluorene	M	2800	mg/kg	0.10	< 0.10
Phenanthrene	M	2800	mg/kg	0.10	0.94
Anthracene	M	2800	mg/kg	0.10	0.15
Fluoranthene	M	2800	mg/kg	0.10	1.7
Pyrene	M	2800	mg/kg	0.10	1.5
Benzo[a]anthracene	M	2800	mg/kg	0.10	0.58
Chrysene	M	2800	mg/kg	0.10	0.64
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	0.87
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	0.50
Benzo[a]pyrene	M	2800	mg/kg	0.10	0.73
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	0.50
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	0.11
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	0.50
Total Of 16 PAH's	N	2800	mg/kg	2.0	8.7
Total Phenols	M	2920	mg/kg	0.30	< 0.30

TPH Chromatogram on Soil Sample: 1170799

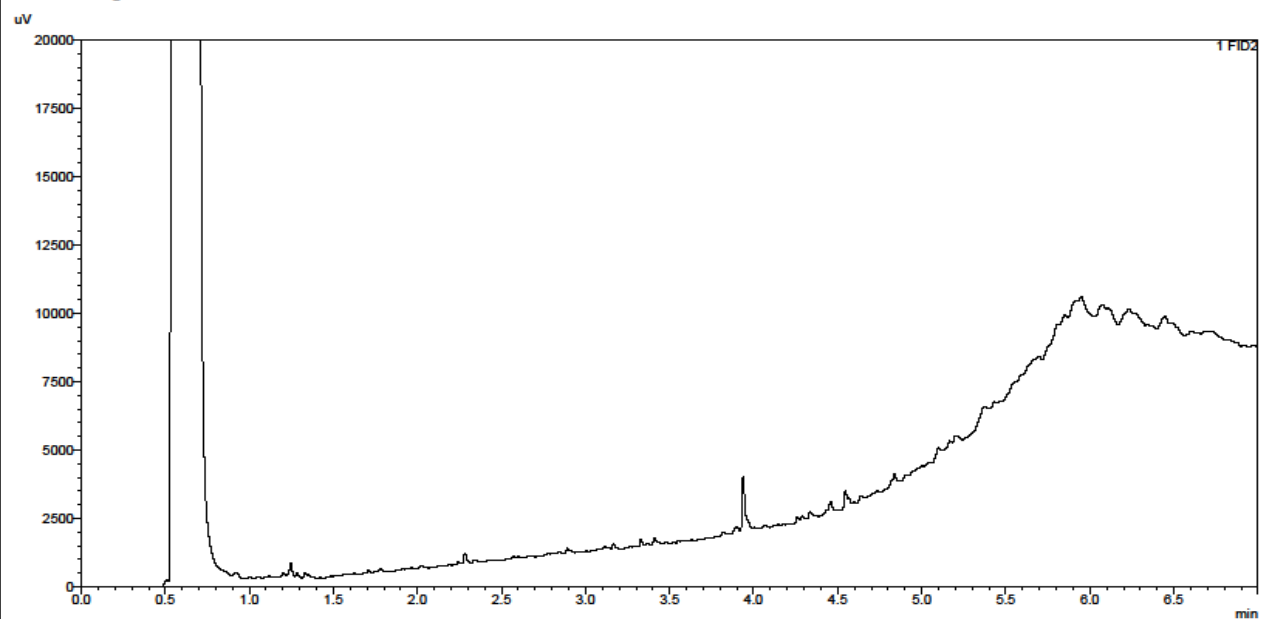
<Sample Information>

Sample Name : 1170799 21-10470
Data Filename : 08 April 2021_08042021_1170799 21-10470_026.gcd
Method Filename : TPH 12m Fast OSv2.gcm
Sample # : 88
Date Acquired : 08/04/2021 17:56:28
Date Processed : 08/04/2021



Chemtest

<Chromatogram>



TPH Interpretation

Job	Sample	Matrix	Location	Sample Ref	Sample ID	Sample Depth (m)	Gasoline / Diesel Present	TPH Interpretation
21-10470	1170799	S	HD114/HD119/HD120			0.00	No	PAH and Heavy Oil

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8,>C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenzo[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.com



Final Report

Report No.:	21-17621-1		
Initial Date of Issue:	09-Jun-2021		
Client	LK Consult		
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS		
Contact(s):	Ben Smith Contaminated Land		
Project	LKC 20 1488 Hough End ISG		
Quotation No.:		Date Received:	26-May-2021
Order No.:		Date Instructed:	28-May-2021
No. of Samples:	16		
Turnaround (Wkdays):	7	Results Due:	08-Jun-2021
Date Approved:	09-Jun-2021		
Approved By:			
Details:	Glynn Harvey, Technical Manager		

Results - Soil

Project: LKC 20 1488 Hough End ISG

Client: LK Consult	Chemtest Job No.:				21-17621	21-17621	21-17621	21-17621	21-17621	21-17621	21-17621	21-17621
Quotation No.:	Chemtest Sample ID.:				1208224	1208225	1208226	1208227	1208228	1208229	1208230	1208231
Order No.:	Client Sample Ref.:				ES1	ES2	ES1	ES1	ES1	ES1	ES2	ES1
	Sample Location:				WS101	WS101	WS103	WS104	WS105	WS106	WS106	WS107
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):				0.00	0.20	0.20	0.05	0.05	0.00	0.20	0.00
	Bottom Depth (m):				0.20	0.80	0.70	0.50	0.40	0.20	1.00	0.20
	Date Sampled:				24-May-2021	24-May-2021	24-May-2021	24-May-2021	24-May-2021	24-May-2021	24-May-2021	24-May-2021
	Asbestos Lab:				DURHAM		DURHAM	DURHAM	DURHAM	DURHAM		DURHAM
Determinand	Accred.	SOP	Units	LOD								
ACM Type	U	2192		N/A	-		-	-	-	-		-
Asbestos Identification	U	2192		N/A	No Asbestos Detected		No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected		No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-		-	-	-	-		-
Moisture	N	2030	%	0.020	17	14	14	20	20	19	12	15
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
Soil Texture	N	2040		N/A	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand
Chromatogram (TPH)	N			N/A	See Attached		See Attached					
pH	M	2010		4.0	8.1	9.0	8.8	8.1	8.3	7.4	7.4	6.7
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	0.49		0.49					
Magnesium (Water Soluble)	N	2120	g/l	0.010		< 0.010					< 0.010	
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	< 0.010	0.018	< 0.010	0.014	0.015	0.024	< 0.010	0.010
Chloride (Water Soluble)	M	2220	g/l	0.010		< 0.010					< 0.010	
Nitrate (Water Soluble)	N	2220	g/l	0.010		< 0.010					< 0.010	
Cyanide (Free)	M	2300	mg/kg	0.50	< 0.50		< 0.50					
Cyanide (Total)	M	2300	mg/kg	0.50	< 0.50		< 0.50					
Arsenic	M	2450	mg/kg	1.0	51		6.5	14	26	13		16
Cadmium	M	2450	mg/kg	0.10	1.5		0.18	0.32	0.47	0.27		0.21
Chromium	M	2450	mg/kg	1.0	76		23	13	23	14		14
Copper	M	2450	mg/kg	0.50	140		19	33	95	51		43
Mercury	M	2450	mg/kg	0.10	2.7		< 0.10	0.29	0.37	0.28		0.56
Nickel	M	2450	mg/kg	0.50	72		20	13	33	13		14
Lead	M	2450	mg/kg	0.50	270		26	140	160	130		160
Selenium	M	2450	mg/kg	0.20	0.95		0.28	0.58	0.63	0.37		0.54
Vanadium	U	2450	mg/kg	5.0	98		22	17	49	20		19
Zinc	M	2450	mg/kg	0.50	200		41	56	120	110		49
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50		< 0.50	< 0.50	< 0.50	< 0.50		< 0.50
Organic Matter	M	2625	%	0.40	4.3		1.6	4.1	14	3.5		3.5
Diesel Present	N	2670		N/A	False		False					
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0	< 1.0		< 1.0					
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0	< 1.0		< 1.0					
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0		< 1.0					
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0		< 1.0					
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0		< 1.0					
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0	< 1.0		< 1.0					
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0	< 1.0		< 1.0					

Results - Soil

Project: LKC 20 1488 Hough End ISG

Client: LK Consult	Chemtest Job No.:		21-17621	21-17621	21-17621	21-17621	21-17621	21-17621	21-17621	21-17621
Quotation No.:	Chemtest Sample ID.:		1208224	1208225	1208226	1208227	1208228	1208229	1208230	1208231
Order No.:	Client Sample Ref.:		ES1	ES2	ES1	ES1	ES1	ES1	ES2	ES1
	Sample Location:		WS101	WS101	WS103	WS104	WS105	WS106	WS106	WS107
	Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):		0.00	0.20	0.20	0.05	0.05	0.00	0.20	0.00
	Bottom Depth (m):		0.20	0.80	0.70	0.50	0.40	0.20	1.00	0.20
	Date Sampled:		24-May-2021	24-May-2021	24-May-2021	24-May-2021	24-May-2021	24-May-2021	24-May-2021	24-May-2021
	Asbestos Lab:		DURHAM		DURHAM	DURHAM	DURHAM	DURHAM		DURHAM
Determinand	Accred.	SOP	Units	LOD						
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0		< 1.0			
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0	< 5.0		< 5.0			
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0	< 1.0		< 1.0			
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0	< 1.0		< 1.0			
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0	< 1.0		< 1.0			
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0	< 1.0		< 1.0			
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0	< 1.0		< 1.0			
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0	< 1.0		< 1.0			
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0	86		130			
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0	< 1.0		< 1.0			
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0	86		130			
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0	86		130			
Benzene	M	2760	µg/kg	1.0	< 1.0		< 1.0			
Toluene	M	2760	µg/kg	1.0	< 1.0		< 1.0			
Ethylbenzene	M	2760	µg/kg	1.0	< 1.0		< 1.0			
m & p-Xylene	M	2760	µg/kg	1.0	< 1.0		< 1.0			
o-Xylene	M	2760	µg/kg	1.0	< 1.0		< 1.0			
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0	< 1.0		< 1.0			
Naphthalene	M	2800	mg/kg	0.10	0.11		< 0.10	< 0.10	0.32	0.44
Acenaphthylene	N	2800	mg/kg	0.10	0.12		< 0.10	0.12	< 0.10	0.21
Acenaphthene	M	2800	mg/kg	0.10	0.44		< 0.10	0.16	< 0.10	0.39
Fluorene	M	2800	mg/kg	0.10	0.39		< 0.10	< 0.10	< 0.10	0.49
Phenanthrene	M	2800	mg/kg	0.10	5.9		< 0.10	0.98	0.62	2.7
Anthracene	M	2800	mg/kg	0.10	2.8		< 0.10	0.30	0.17	0.70
Fluoranthene	M	2800	mg/kg	0.10	14		< 0.10	1.9	1.1	3.2
Pyrene	M	2800	mg/kg	0.10	12		< 0.10	1.7	1.1	3.0
Benzo[a]anthracene	M	2800	mg/kg	0.10	6.1		< 0.10	0.46	< 0.10	0.10
Chrysene	M	2800	mg/kg	0.10	5.9		< 0.10	0.91	< 0.10	1.4
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	5.9		< 0.10	0.55	< 0.10	0.35
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	2.4		0.11	0.14	0.19	0.76
Benzo[a]pyrene	M	2800	mg/kg	0.10	4.9		< 0.10	1.1	0.19	1.5
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	3.0		0.28	0.20	< 0.10	0.57
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	0.70		< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	2.8		0.17	< 0.10	< 0.10	0.23
Total Of 16 PAH's	N	2800	mg/kg	2.0	68		< 2.0	8.5	3.7	16
Total Phenols	M	2920	mg/kg	0.10	< 0.10		< 0.10			

Results - Soil

Project: LKC 20 1488 Hough End ISG

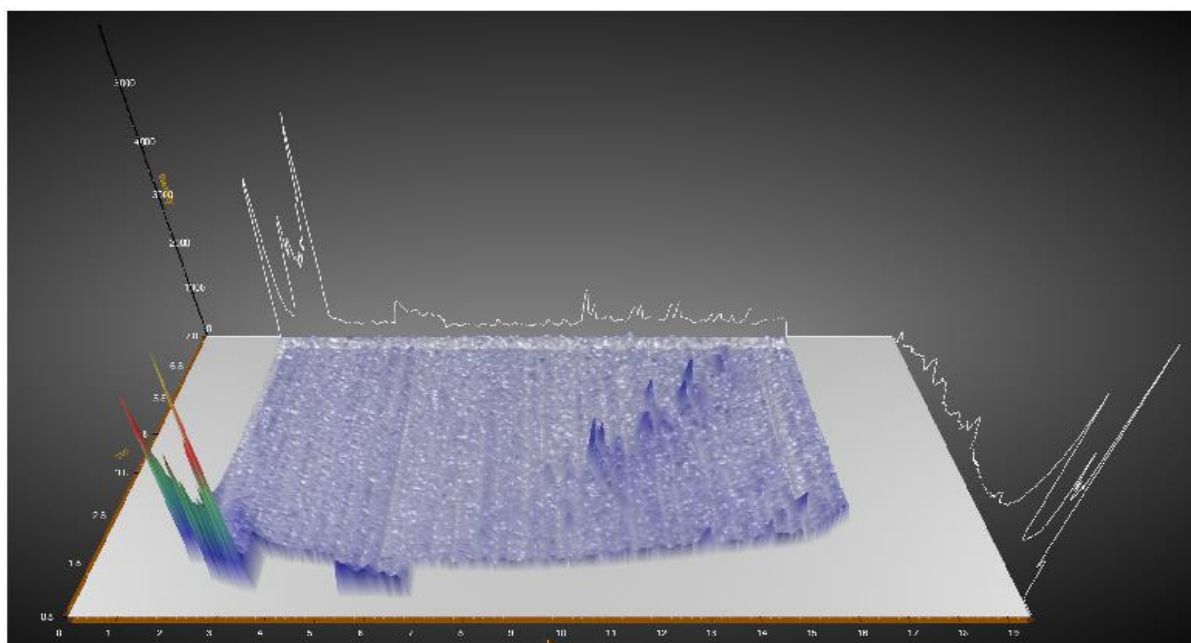
Client: LK Consult	Chemtest Job No.:				21-17621	21-17621	21-17621	21-17621	21-17621	21-17621	21-17621	21-17621
Quotation No.:	Chemtest Sample ID.:				1208232	1208233	1208234	1208235	1208236	1208237	1208238	1208239
Order No.:	Client Sample Ref.:				ES1	ES1	ES1	ES2	ES1	ES1	ES1	ES1
	Sample Location:				WS108	WS109	WS110	WS110	HD101	HD102	HD103	HD104
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):				0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
	Bottom Depth (m):				0.40	0.40	0.20	1.00	0.20	0.20	0.20	0.40
	Date Sampled:				24-May-2021	24-May-2021	24-May-2021	24-May-2021	24-May-2021	24-May-2021	24-May-2021	24-May-2021
	Asbestos Lab:				DURHAM	DURHAM	DURHAM		DURHAM	DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD								
ACM Type	U	2192		N/A	-	-	-		-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected		No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
ACM Detection Stage	U	2192		N/A	-	-	-		-	-	-	-
Moisture	N	2030	%	0.020	19	24	21	13	20	21	22	21
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones	Stones	Stones	Stones	Stones	Stones	Stones
Soil Texture	N	2040		N/A	Sand	Sand	Sand	Sand	Sand	Sand	Sand	Sand
Chromatogram (TPH)	N			N/A								
pH	M	2010		4.0	6.9	8.0	6.4	6.5	7.1	7.0	6.8	6.9
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40								
Magnesium (Water Soluble)	N	2120	g/l	0.010				< 0.010				
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	< 0.010	0.017	0.012	< 0.010	0.019	0.014	0.017	0.012
Chloride (Water Soluble)	M	2220	g/l	0.010				< 0.010				
Nitrate (Water Soluble)	N	2220	g/l	0.010				< 0.010				
Cyanide (Free)	M	2300	mg/kg	0.50								
Cyanide (Total)	M	2300	mg/kg	0.50								
Arsenic	M	2450	mg/kg	1.0	14	20	16		16	18	12	16
Cadmium	M	2450	mg/kg	0.10	0.18	0.31	0.20		0.28	0.32	0.21	0.35
Chromium	M	2450	mg/kg	1.0	18	17	14		14	20	11	21
Copper	M	2450	mg/kg	0.50	31	56	40		42	41	36	45
Mercury	M	2450	mg/kg	0.10	0.28	0.33	0.53		0.50	0.48	0.35	0.49
Nickel	M	2450	mg/kg	0.50	16	24	14		12	20	11	18
Lead	M	2450	mg/kg	0.50	93	150	120		140	130	99	160
Selenium	M	2450	mg/kg	0.20	0.50	0.44	0.54		0.61	0.64	0.45	0.55
Vanadium	U	2450	mg/kg	5.0	27	25	22		20	27	16	25
Zinc	M	2450	mg/kg	0.50	48	71	52		51	65	48	82
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50		< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	M	2625	%	0.40	3.5	6.9	5.3		5.5	4.5	6.2	4.7
Diesel Present	N	2670		N/A								
Aliphatic TPH >C5-C6	N	2680	mg/kg	1.0								
Aliphatic TPH >C6-C8	N	2680	mg/kg	1.0								
Aliphatic TPH >C8-C10	M	2680	mg/kg	1.0								
Aliphatic TPH >C10-C12	M	2680	mg/kg	1.0								
Aliphatic TPH >C12-C16	M	2680	mg/kg	1.0								
Aliphatic TPH >C16-C21	M	2680	mg/kg	1.0								
Aliphatic TPH >C21-C35	M	2680	mg/kg	1.0								

Results - Soil

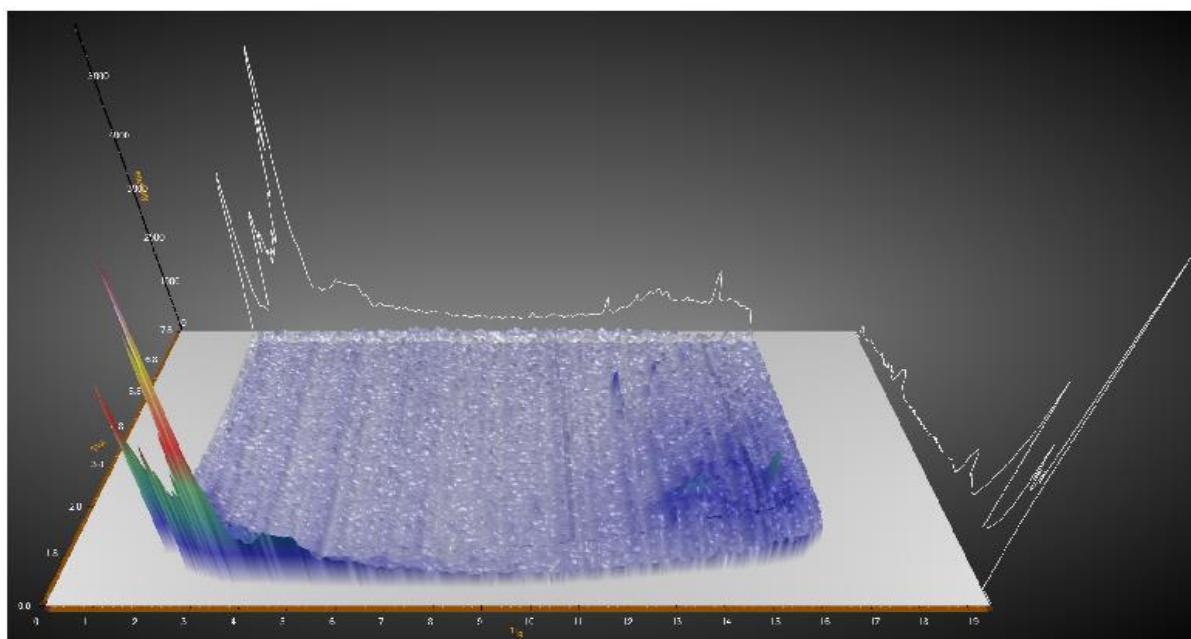
Project: LKC 20 1488 Hough End ISG

Client: LK Consult	Chemtest Job No.:				21-17621	21-17621	21-17621	21-17621	21-17621	21-17621	21-17621	21-17621
Quotation No.:	Chemtest Sample ID.:				1208232	1208233	1208234	1208235	1208236	1208237	1208238	1208239
Order No.:	Client Sample Ref.:				ES1	ES1	ES1	ES2	ES1	ES1	ES1	ES1
	Sample Location:				WS108	WS109	WS110	WS110	HD101	HD102	HD103	HD104
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):				0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
	Bottom Depth (m):				0.40	0.40	0.20	1.00	0.20	0.20	0.20	0.40
	Date Sampled:				24-May-2021	24-May-2021	24-May-2021	24-May-2021	24-May-2021	24-May-2021	24-May-2021	24-May-2021
	Asbestos Lab:				DURHAM	DURHAM	DURHAM		DURHAM	DURHAM	DURHAM	DURHAM
Determinand	Accred.	SOP	Units	LOD								
Aliphatic TPH >C35-C44	N	2680	mg/kg	1.0								
Total Aliphatic Hydrocarbons	N	2680	mg/kg	5.0								
Aromatic TPH >C5-C7	N	2680	mg/kg	1.0								
Aromatic TPH >C7-C8	N	2680	mg/kg	1.0								
Aromatic TPH >C8-C10	M	2680	mg/kg	1.0								
Aromatic TPH >C10-C12	M	2680	mg/kg	1.0								
Aromatic TPH >C12-C16	M	2680	mg/kg	1.0								
Aromatic TPH >C16-C21	U	2680	mg/kg	1.0								
Aromatic TPH >C21-C35	M	2680	mg/kg	1.0								
Aromatic TPH >C35-C44	N	2680	mg/kg	1.0								
Total Aromatic Hydrocarbons	N	2680	mg/kg	5.0								
Total Petroleum Hydrocarbons	N	2680	mg/kg	10.0								
Benzene	M	2760	µg/kg	1.0								
Toluene	M	2760	µg/kg	1.0								
Ethylbenzene	M	2760	µg/kg	1.0								
m & p-Xylene	M	2760	µg/kg	1.0								
o-Xylene	M	2760	µg/kg	1.0								
Methyl Tert-Butyl Ether	M	2760	µg/kg	1.0								
Naphthalene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	0.27
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	0.10
Acenaphthene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	1.3
Fluorene	M	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10		< 0.10	< 0.10	< 0.10	1.0
Phenanthrene	M	2800	mg/kg	0.10	0.87	0.44	1.2		1.0	0.84	0.53	9.0
Anthracene	M	2800	mg/kg	0.10	0.27	< 0.10	0.21		0.30	0.21	0.16	2.8
Fluoranthene	M	2800	mg/kg	0.10	1.5	0.75	1.9		1.8	1.5	0.93	8.9
Pyrene	M	2800	mg/kg	0.10	1.3	0.62	1.9		1.8	1.4	0.92	7.3
Benzo[a]anthracene	M	2800	mg/kg	0.10	0.13	0.36	0.30		1.0	0.16	0.46	3.1
Chrysene	M	2800	mg/kg	0.10	0.62	0.48	0.63		0.93	0.56	0.56	3.3
Benzo[b]fluoranthene	M	2800	mg/kg	0.10	0.50	0.31	0.22		0.55	0.38	0.63	3.4
Benzo[k]fluoranthene	M	2800	mg/kg	0.10	0.12	0.29	0.36		0.20	0.34	0.24	1.3
Benzo[a]pyrene	M	2800	mg/kg	0.10	0.65	0.44	1.0		1.2	0.88	0.47	2.6
Indeno(1,2,3-c,d)Pyrene	M	2800	mg/kg	0.10	0.20	0.36	0.28		0.69	0.14	0.37	1.8
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10		< 0.10	0.12	0.14	0.31
Benzo[g,h,i]perylene	M	2800	mg/kg	0.10	0.15	0.38	0.67		0.75	0.14	0.43	1.7
Total Of 16 PAH's	N	2800	mg/kg	2.0	6.3	4.4	8.6		10	6.7	5.8	48
Total Phenols	M	2920	mg/kg	0.10								

TPH Chromatogram on Soil Sample: 1208224



TPH Chromatogram on Soil Sample: 1208226



TPH Interpretation

Job	Sample	Matrix	Location	Sample Ref	Sample ID	Sample Depth (m)	Gasoline / Diesel Present	TPH Interpretation
21-17621	1208224	S	WS101	ES1		0.00	No	Indiscernible
21-17621	1208226	S	WS103	ES1		0.20	No	Indiscernible

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2220	Water soluble Chloride in Soils	Chloride	Aqueous extraction and measurement by 'Aquakem 600' Discrete Analyser using ferric nitrate / mercuric thiocyanate.
2300	Cyanides & Thiocyanate in Soils	Free (or easily liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2680	TPH A/A Split	Aliphatics: >C5–C6, >C6–C8, >C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35–C44 Aromatics: >C5–C7, >C7–C8, >C8–C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35–C44	Dichloromethane extraction / GCxGC FID detection
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenzo[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and Trimethylphenols Note: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.com

Appendix D

Certificates of Analysis - Water



2183

Final Report

Report No.:	21-20381-1		
Initial Date of Issue:	24-Jun-2021		
Client	LK Consult		
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS		
Contact(s):	Ben Smith Contaminated Land		
Project	LKC 20 1488 Hough End		
Quotation No.:		Date Received:	16-Jun-2021
Order No.:	738745	Date Instructed:	16-Jun-2021
No. of Samples:	6		
Turnaround (Wkdays):	6	Results Due:	23-Jun-2021
Date Approved:	24-Jun-2021		
Approved By:			
Details:	Glynn Harvey, Technical Manager		

Results - Water

Project: LKC 20 1488 Hough End

Client: LK Consult	Chemtest Job No.:					21-20381	21-20381	21-20381	21-20381	21-20381	21-20381
Quotation No.:	Chemtest Sample ID.:					1221954	1221955	1221956	1221957	1221958	1221959
	Sample Location:					WS110	WS109	WS108	WS106	WS104	WS103
	Sample Type:					WATER	WATER	WATER	WATER	WATER	WATER
	Date Sampled:					14-Jun-2021	14-Jun-2021	14-Jun-2021	14-Jun-2021	14-Jun-2021	14-Jun-2021
Determinand	Accred.	SOP	Units	LOD							
Diesel Present	N	1670		N/A	False	False	False	False	False	False	False
pH	U	1010		N/A	6.8	7.3	7.2	7.3	8.5	8.3	
Sulphate	U	1220	mg/l	1.0	9.8	10	8.4	4.3	78	34	
Cyanide (Total)	U	1300	mg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Cyanide (Free)	U	1300	mg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Calcium	U	1455	mg/l	2.00	38	20	78	29	110	72	
Total Hardness as CaCO3	U	1270	mg/l	15	120	56	210	82	340	200	
Arsenic (Dissolved)	U	1455	µg/l	0.20	15	2.3	10	13	51	1.3	
Boron (Dissolved)	U	1455	µg/l	10.0	43	14	< 10	< 10	< 10	34	
Cadmium (Dissolved)	U	1455	µg/l	0.11	0.70	0.16	0.71	0.70	0.83	0.15	
Chromium (Dissolved)	U	1455	µg/l	0.50	25	2.7	19	14	64	8.5	
Copper (Dissolved)	U	1455	µg/l	0.50	45	19	34	69	460	23	
Nickel (Dissolved)	U	1455	µg/l	0.50	32	7.8	16	18	120	7.4	
Lead (Dissolved)	U	1455	µg/l	0.50	31	1.1	18	36	160	0.92	
Selenium (Dissolved)	U	1455	µg/l	0.50	3.9	0.74	2.9	4.1	29	1.2	
Vanadium (Dissolved)	U	1455	µg/l	0.50	31	3.3	21	11	110	5.4	
Zinc (Dissolved)	U	1455	µg/l	2.5	86	11	61	68	510	6.1	
Mercury Low Level	U	1460	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Chromium (Hexavalent)	U	1490	µg/l	20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Dissolved Organic Carbon	U	1610	mg/l	2.0	13	17	13	9.9	13	5.3	
Aliphatic TPH >C5-C6	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C6-C8	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C8-C10	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C10-C12	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C12-C16	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C16-C21	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C21-C35	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C35-C44	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aliphatic Hydrocarbons	N	1675	µg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C7-C8	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C8-C10	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C10-C12	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C12-C16	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C16-C21	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C21-C35	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C35-C44	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aromatic Hydrocarbons	N	1675	µg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	1675	µg/l	10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Benzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Results - Water

Project: LKC 20 1488 Hough End

Client: LK Consult	Chemtest Job No.:					21-20381	21-20381	21-20381	21-20381	21-20381	21-20381
Quotation No.:	Chemtest Sample ID.:					1221954	1221955	1221956	1221957	1221958	1221959
	Sample Location:					WS110	WS109	WS108	WS106	WS104	WS103
	Sample Type:					WATER	WATER	WATER	WATER	WATER	WATER
	Date Sampled:					14-Jun-2021	14-Jun-2021	14-Jun-2021	14-Jun-2021	14-Jun-2021	14-Jun-2021
Determinand	Accred.	SOP	Units	LOD							
Ethylbenzene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
m & p-Xylene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-Xylene	U	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methyl Tert-Butyl Ether	N	1760	µg/l	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Naphthalene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Acenaphthylene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Acenaphthene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluorene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Phenanthrene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Anthracene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluoranthene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Pyrene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[a]anthracene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Chrysene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[b]fluoranthene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[k]fluoranthene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[a]pyrene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Indeno(1,2,3-c,d)Pyrene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Dibenz(a,h)Anthracene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[g,h,i]perylene	N	1800	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Of 16 PAH's	N	1800	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Total Phenols	U	1920	mg/l	0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030	< 0.030

TPH Interpretation

Job	Sample	Matrix	Location	Sample Ref	Sample ID	Sample Depth (m)	Gasoline / Diesel Present	TPH Interpretation
21-20381	1221954	W	WS110				No	N/A
21-20381	1221955	W	WS109				No	N/A
21-20381	1221956	W	WS108				No	N/A
21-20381	1221957	W	WS106				No	N/A
21-20381	1221958	W	WS104				No	N/A
21-20381	1221959	W	WS103				No	N/A

Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1270	Total Hardness of Waters	Total hardness	Calculation applied to calcium and magnesium results, expressed as mg l-1 CaCO3 equivalent.
1300	Cyanides & Thiocyanate in Waters	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Continuous Flow Analysis.
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1460	Mercury low-level in Waters by AFS	Mercury	Atomic Fluorescence Spectrometry, with collimated UV source, wavelength 253.7 nm.
1490	Hexavalent Chromium in Waters	Chromium [VI]	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazine.
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1670	Total Petroleum Hydrocarbons (TPH) in Waters by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO	Pentane extraction / GC FID detection
1675	TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG)	Aliphatics: >C5–C6, >C6–C8, >C8– C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Pentane extraction / GCxGC FID detection
1760	Volatile Organic Compounds (VOCs) in Waters by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics. (cf. USEPA Method 8260)	Automated headspace gas chromatographic (GC) analysis of water samples with mass spectrometric (MS) detection of volatile organic compounds.
1800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-MS	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenzo[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Pentane extraction / GCMS detection
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.com

Appendix E

Certificate of Analysis - Geotechnical



TEST REPORT

Client LK Consult Ltd

Address Unit 29 Eton Business Park
Eton Hill Road
Radcliffe
Greater Manchester
M26 2ZS

Contract LKC 20 1488 -
ISG Hough End

Job Number MRN 4066/79
Date of Issue 26 April 2021
Page 1 of 14

Approved Signatories

S J Hutchings, O P Davies

Notes

- 1 All remaining samples and remnants from this contract will be disposed 28 days from the date of this report unless you notify us to the contrary.
- 2 Result certificates, in this report, not bearing a UKAS mark, are not included in our UKAS accreditation schedule.
- 3 Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation
- 4 Certified that the samples have been examined and tested in accordance with the terms of the contract/order and unless otherwise stated conform to the standards/specifications quoted. This does not, however, guarantee the balance of the materials from which the tested samples have been taken to be of equal quality.



Andrew House, Hadfield Street, Dukinfield, Cheshire SK16 4QX Tel: 0161 475 0870
Email: enquiries@murrayrix.com Website: www.murrayrix.com

Also at: London: 020 8523 1999

Murray Rix is the trading name of Murray Rix (Northern) Limited. Registered in England 2878361

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

LIQUID AND PLASTIC LIMIT

BS 1377: PART 2: 1990 Clause 4.4 ONE POINT METHOD & Clause 5.3

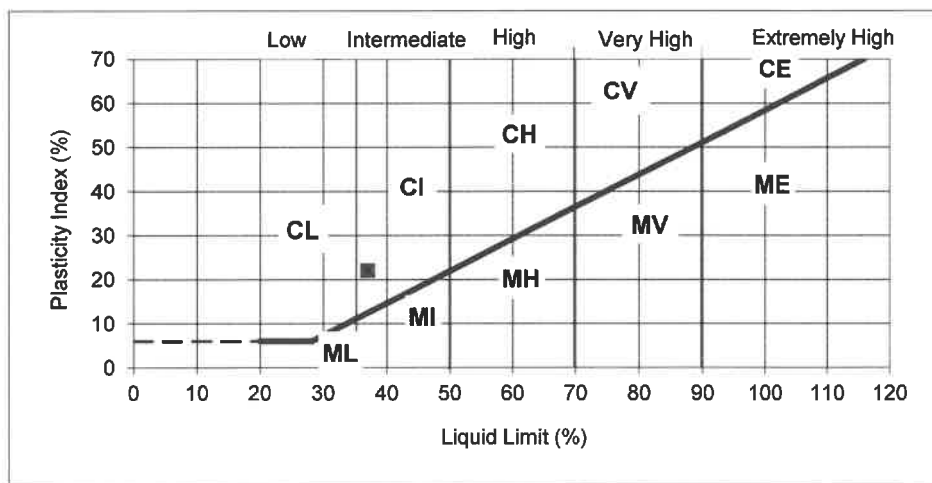
MOISTURE CONTENT METHOD BS 1377: PART 2: 1990 Clause 3.2

CLIENT	LK Consult Ltd
SITE	LKC 20 1488 - ISG Hough End
JOB NUMBER	MRN 4066/79

SAMPLE LABEL	WS101 1.70-2.0	DATE SAMPLED	Not advised
SAMPLE No.	97634	DATE RECEIVED	06-Apr-21
DATE TESTED	12-Apr-21	SAMPLED BY	Client

MATERIAL	Stiff brown silty sandy CLAY with rare gravel
ADVISED SOURCE	Site Investigation Sample

Moisture Content (Natural) (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
20	37	15	22	88



REMARKS

Sample tested in natural condition

SIGNED

NAME
Page 2 of 14

O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 26-Apr-21

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

LIQUID AND PLASTIC LIMIT

BS 1377: PART 2: 1990 Clause 4.4 ONE POINT METHOD & Clause 5.3

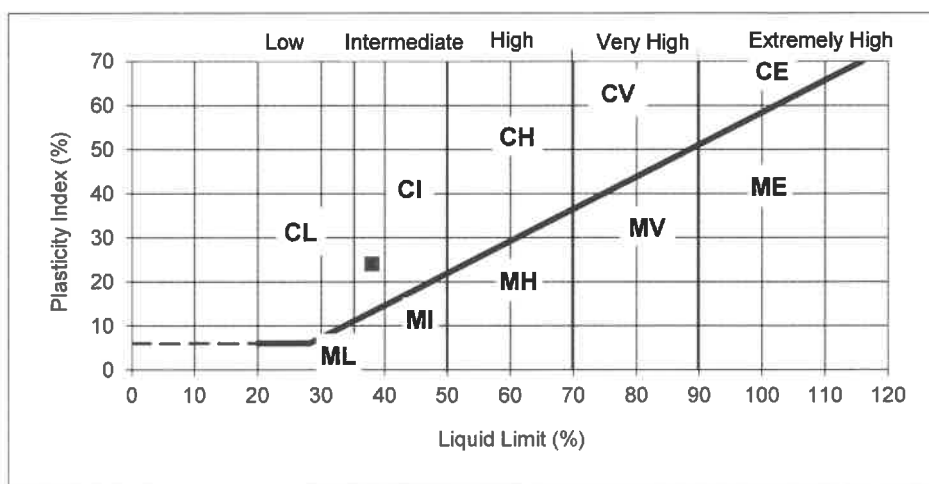
MOISTURE CONTENT METHOD BS 1377: PART 2: 1990 Clause 3.2

CLIENT	LK Consult Ltd
SITE	LKC 20 1488 - ISG Hough End
JOB NUMBER	MRN 4066/79

SAMPLE LABEL	WS102 1.55-2.0	DATE SAMPLED	Not advised
SAMPLE No.	97635	DATE RECEIVED	06-Apr-21
DATE TESTED	12-Apr-21	SAMPLED BY	Client

MATERIAL	Stiff brown silty sandy CLAY with rare gravel
ADVISED SOURCE	Site Investigation Sample

Moisture Content (Natural) (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
20	38	14	24	90



REMARKS

Sample tested in natural condition

SIGNED

NAME
Page 3 of 14

O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 26-Apr-21

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

LIQUID AND PLASTIC LIMIT

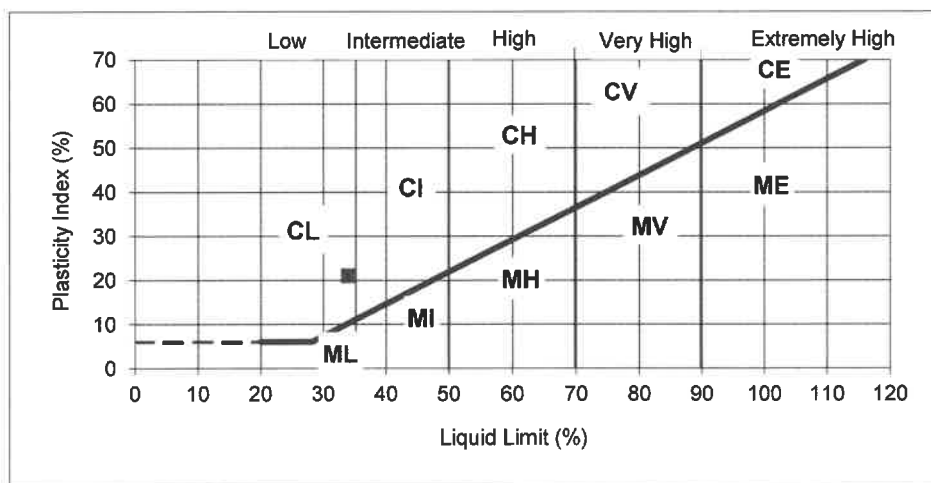
BS 1377: PART 2: 1990 Clause 4.4 ONE POINT METHOD & Clause 5.3
MOISTURE CONTENT METHOD BS 1377: PART 2: 1990 Clause 3.2

CLIENT	LK Consult Ltd
SITE	LKC 20 1488 - ISG Hough End
JOB NUMBER	MRN 4066/79

SAMPLE LABEL	WS103 1.5-2.0	DATE SAMPLED	Not advised
SAMPLE No.	97636	DATE RECEIVED	06-Apr-21
DATE TESTED	12-Apr-21	SAMPLED BY	Client

MATERIAL	Stiff brown silty sandy CLAY with rare gravel
ADVISED SOURCE	Site Investigation Sample

Moisture Content (Natural) (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
14	34	13	21	94



REMARKS

Sample tested in natural condition

SIGNED

NAME
Page 4 of 14

O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 26-Apr-21

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

LIQUID AND PLASTIC LIMIT

BS 1377: PART 2: 1990 Clause 4.4 ONE POINT METHOD & Clause 5.3

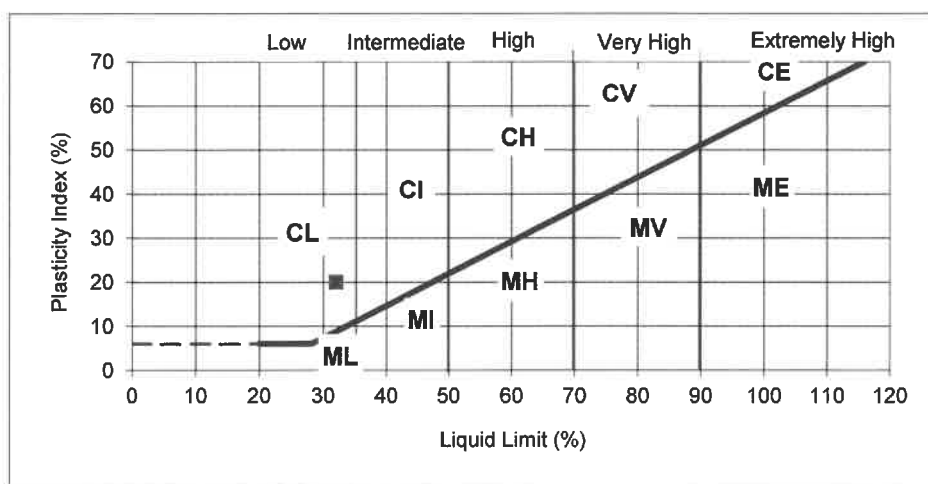
MOISTURE CONTENT METHOD BS 1377: PART 2: 1990 Clause 3.2

CLIENT	LK Consult Ltd
SITE	LKC 20 1488 - ISG Hough End
JOB NUMBER	MRN 4066/79

SAMPLE LABEL	WS104 1.8-2.0	DATE SAMPLED	Not advised
SAMPLE No.	97637	DATE RECEIVED	06-Apr-21
DATE TESTED	12-Apr-21	SAMPLED BY	Client

MATERIAL	Stiff brown silty sandy CLAY with rare gravel
ADVISED SOURCE	Site Investigation Sample

Moisture Content (Natural) (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
15	32	12	20	91



REMARKS

Sample tested in natural condition

SIGNED

NAME O.P. Davies BA (Hons)
Page 5 of 14 (Laboratory Manager)

DATE 26-Apr-21

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS 1377: PART 2: Clause 9.2: 1990

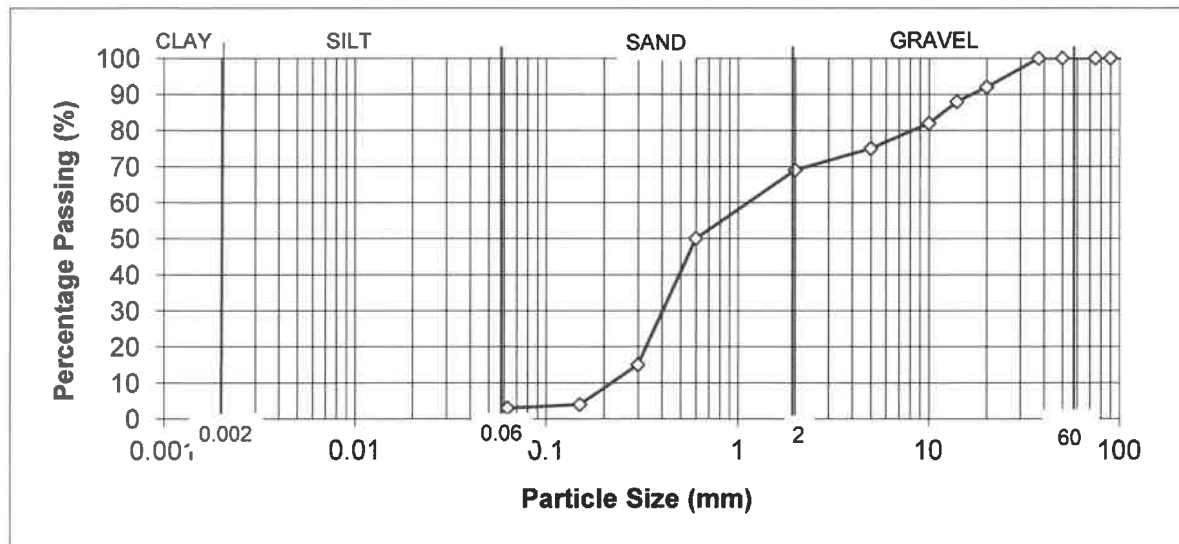
Determination of Moisture Content in accordance with BS 1377: PART 2: Clause 3: 1990 (Oven Dry)

CLIENT	LK Consult Ltd
SITE	LKC 20 1488 - ISG Hough End
JOB NUMBER	MRN 4066/79

SAMPLE LABEL	WS105 1.5-2.0	DATE SAMPLED	Not advised
LAB SAMPLE No	97638	DATE RECEIVED	06-Apr-21
DATE TESTED	12-Apr-21	SAMPLED BY	Client

MATERIAL	Brown slightly silty SAND with frequent gravel
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		10	82	
90	100		5	75	
75	100		2	69	
50	100		0.6	50	
37.5	100		0.3	15	
20	92		0.15	4	
14	88		0.063	3	



REMARKS

As received moisture content = 11%

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 26-Apr-21

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

LIQUID AND PLASTIC LIMIT

BS 1377: PART 2: 1990 Clause 4.4 ONE POINT METHOD & Clause 5.3

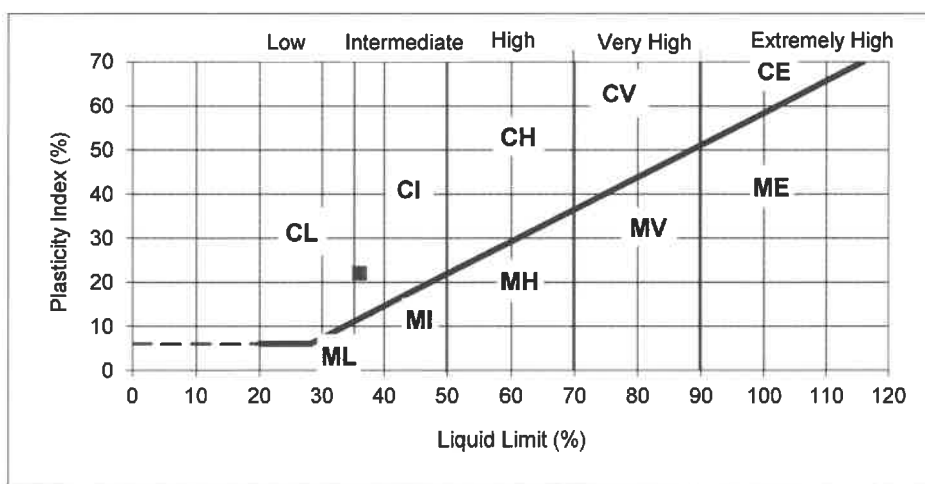
MOISTURE CONTENT METHOD BS 1377: PART 2: 1990 Clause 3.2

CLIENT	LK Consult Ltd
SITE	LKC 20 1488 - ISG Hough End
JOB NUMBER	MRN 4066/79

SAMPLE LABEL	WS106 1.5-2.0	DATE SAMPLED	Not advised
SAMPLE No.	97639	DATE RECEIVED	06-Apr-21
DATE TESTED	12-Apr-21	SAMPLED BY	Client

MATERIAL	Stiff brown silty sandy CLAY with rare gravel
ADVISED SOURCE	Site Investigation Sample

Moisture Content (Natural) (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
19	36	14	22	93



REMARKS

Sample tested in natural condition

SIGNED

NAME
Page 7 of 14

O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 26-Apr-21

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS 1377: PART 2: Clause 9.2: 1990

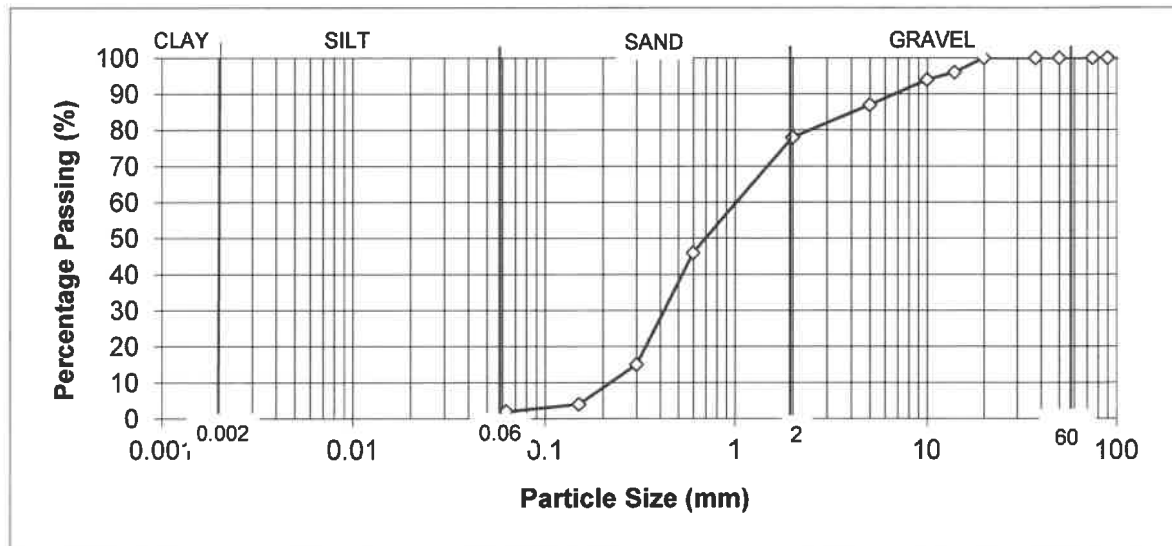
Determination of Moisture Content in accordance with BS 1377: PART 2: Clause 3: 1990 (Oven Dry)

CLIENT	LK Consult Ltd
SITE	LKC 20 1488 - ISG Hough End
JOB NUMBER	MRN 4066/79

SAMPLE LABEL	WS107 1.5-2.0	DATE SAMPLED	Not advised
LAB SAMPLE No	97640	DATE RECEIVED	06-Apr-21
DATE TESTED	12-Apr-21	SAMPLED BY	Client

MATERIAL	Brown slightly silty SAND with occasional gravel
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		10	94	
90	100		5	87	
75	100		2	78	
50	100		0.6	46	
37.5	100		0.3	15	
20	100		0.15	4	
14	96		0.063	2	



REMARKS

As received moisture content = 18%

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 26-Apr-21

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

LIQUID AND PLASTIC LIMIT

BS 1377: PART 2: 1990 Clause 4.4 ONE POINT METHOD & Clause 5.3

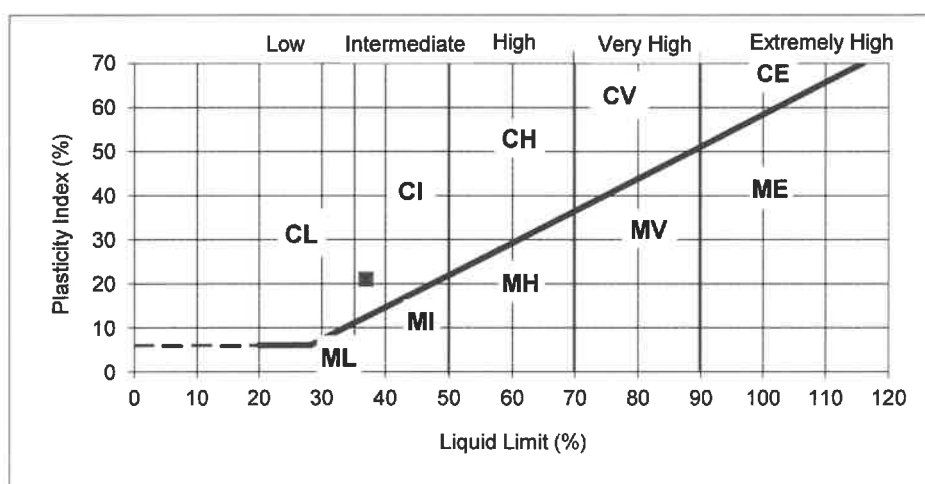
MOISTURE CONTENT METHOD BS 1377: PART 2: 1990 Clause 3.2

CLIENT	LK Consult Ltd
SITE	LKC 20 1488 - ISG Hough End
JOB NUMBER	MRN 4066/79

SAMPLE LABEL	WS108 2.8-3.0	DATE SAMPLED	Not advised
SAMPLE No.	97641	DATE RECEIVED	06-Apr-21
DATE TESTED	12-Apr-21	SAMPLED BY	Client

MATERIAL	Firm brown silty sandy CLAY with rare gravel
ADVISED SOURCE	Site Investigation Sample

Moisture Content (Natural) (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 micron (%)
23	37	16	21	90



REMARKS

Sample tested in natural condition

SIGNED

NAME
Page 9 of 14

O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 26-Apr-21

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS 1377: PART 2: Clause 9.2: 1990

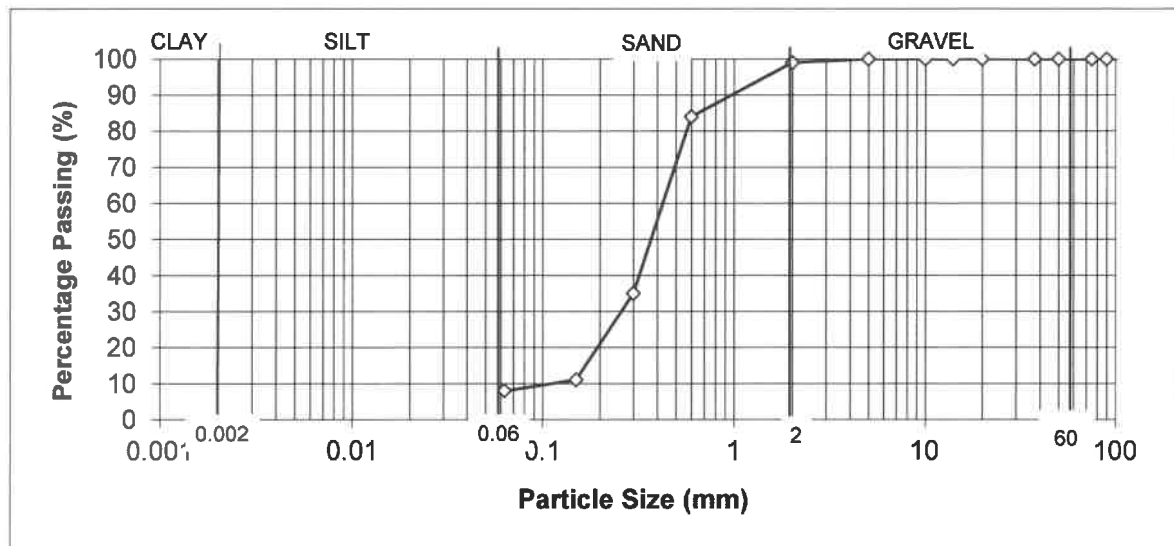
Determination of Moisture Content in accordance with BS 1377: PART 2: Clause 3: 1990 (Oven Dry)

CLIENT	LK Consult Ltd
SITE	LKC 20 1488 - ISG Hough End
JOB NUMBER	MRN 4066/79

SAMPLE LABEL	HD101 0.50-1.00	DATE SAMPLED	Not advised
LAB SAMPLE No	97642	DATE RECEIVED	06-Apr-21
DATE TESTED	12-Apr-21	SAMPLED BY	Client

MATERIAL	Brown silty SAND with rare gravel
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		10	100	
90	100		5	100	
75	100		2	99	
50	100		0.6	84	
37.5	100		0.3	35	
20	100		0.15	11	
14	100		0.063	8	



REMARKS

As received moisture content = 8.7%

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 26-Apr-21

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS 1377: PART 2: Clause 9.2: 1990

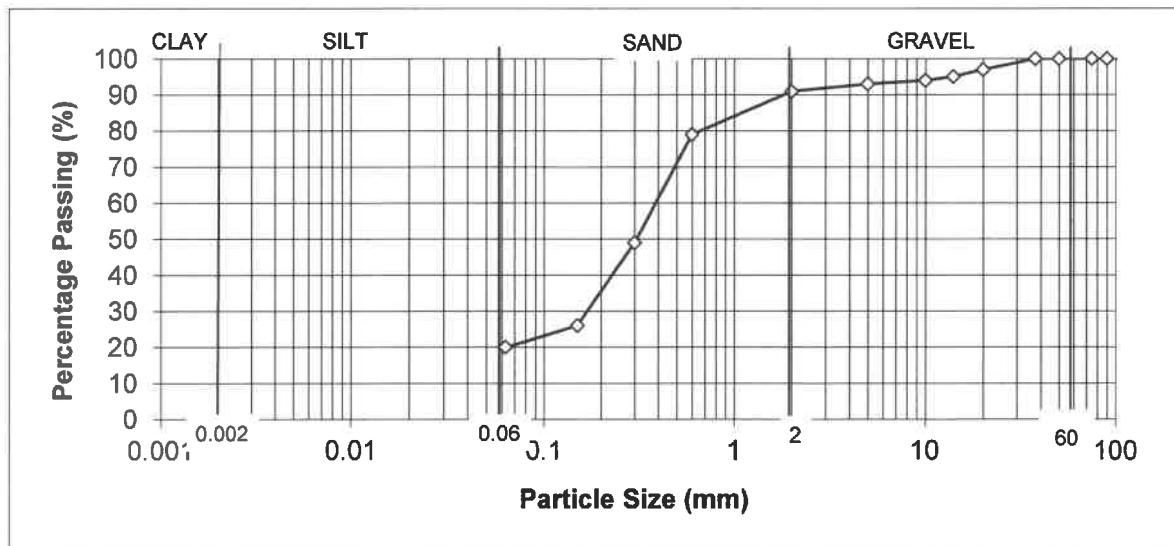
Determination of Moisture Content in accordance with BS 1377: PART 2: Clause 3: 1990 (Oven Dry)

CLIENT	LK Consult Ltd
SITE	LKC 20 1488 - ISG Hough End
JOB NUMBER	MRN 4066/79

SAMPLE LABEL	HD105 0.5-0.8	DATE SAMPLED	Not advised
LAB SAMPLE No	97643	DATE RECEIVED	06-Apr-21
DATE TESTED	12-Apr-21	SAMPLED BY	Client

MATERIAL	Brown silty SAND with rare gravel
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		10	94	
90	100		5	93	
75	100		2	91	
50	100		0.6	79	
37.5	100		0.3	49	
20	97		0.15	26	
14	95		0.063	20	



REMARKS

As received moisture content = 18%

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 26-Apr-21

TEST CERTIFICATE
PARTICLE SIZE DISTRIBUTION
BS 1377: PART 2: Clause 9.2: 1990

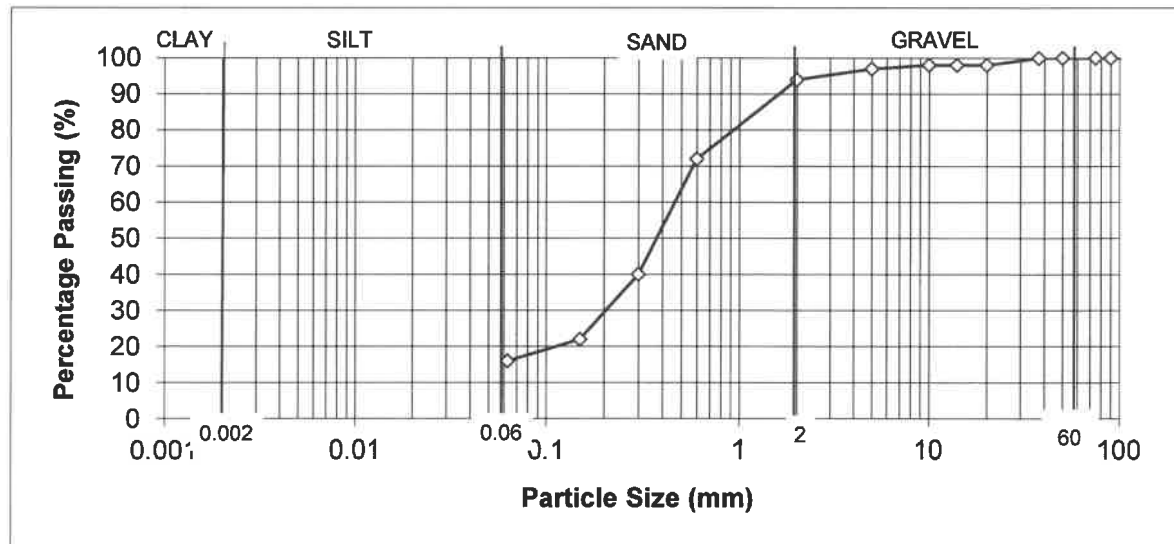
Determination of Moisture Content in accordance with BS 1377: PART 2: Clause 3: 1990 (Oven Dry)

CLIENT	LK Consult Ltd
SITE	LKC 20 1488 - ISG Hough End
JOB NUMBER	MRN 4066/79

SAMPLE LABEL	HD108 0.5-0.8	DATE SAMPLED	Not advised
LAB SAMPLE No	97644	DATE RECEIVED	06-Apr-21
DATE TESTED	12-Apr-21	SAMPLED BY	Client

MATERIAL	Brown silty SAND with rare gravel
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		10	98	
90	100		5	97	
75	100		2	94	
50	100		0.6	72	
37.5	100		0.3	40	
20	98		0.15	22	
14	98		0.063	16	



REMARKS

As received moisture content = 15%

SIGNED 

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 26-Apr-21

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS 1377: PART 2: Clause 9.2: 1990

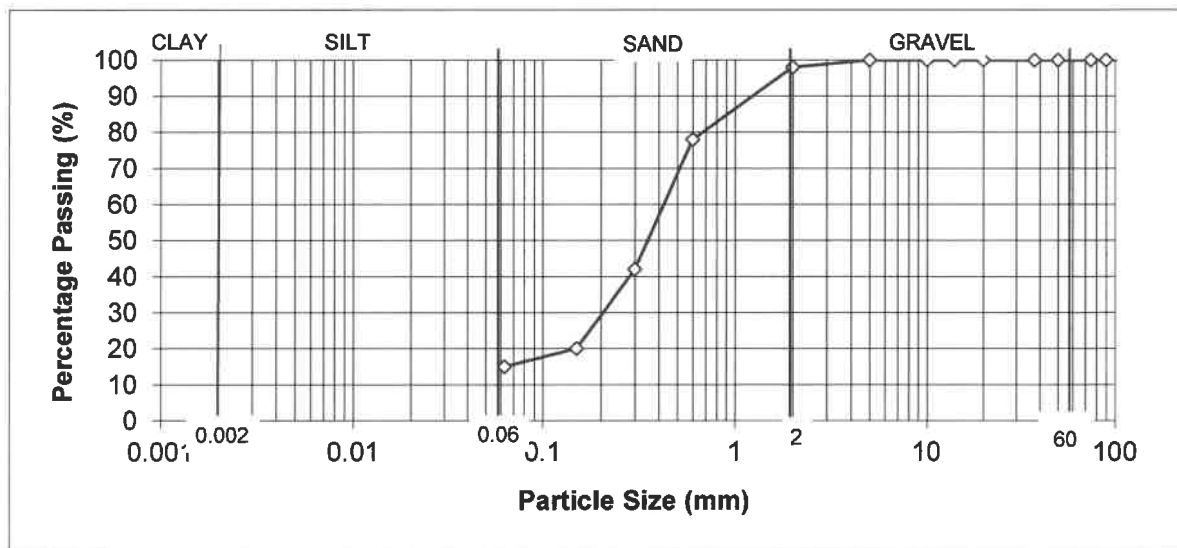
Determination of Moisture Content in accordance with BS 1377: PART 2: Clause 3: 1990 (Oven Dry)

CLIENT	LK Consult Ltd
SITE	LKC 20 1488 - ISG Hough End
JOB NUMBER	MRN 4066/79

SAMPLE LABEL	HD119 0.4-0.55	DATE SAMPLED	Not advised
LAB SAMPLE No	97645	DATE RECEIVED	06-Apr-21
DATE TESTED	12-Apr-21	SAMPLED BY	Client

MATERIAL	Brown silty SAND with rare gravel
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		10	100	
90	100		5	100	
75	100		2	98	
50	100		0.6	78	
37.5	100		0.3	42	
20	100		0.15	20	
14	100		0.063	15	



REMARKS

As received moisture content = 14%

SIGNED

NAME O.P. Davies BA (Hons)
(Laboratory Manager)

DATE 26-Apr-21

MURRAY RIX

ANDREW HOUSE, HADFIELD STREET,
DUKINFIELD, CHESHIRE SK16 4QX
TEL 0161 475 0870



TEST CERTIFICATE

PARTICLE SIZE DISTRIBUTION

BS 1377: PART 2: Clause 9.2: 1990

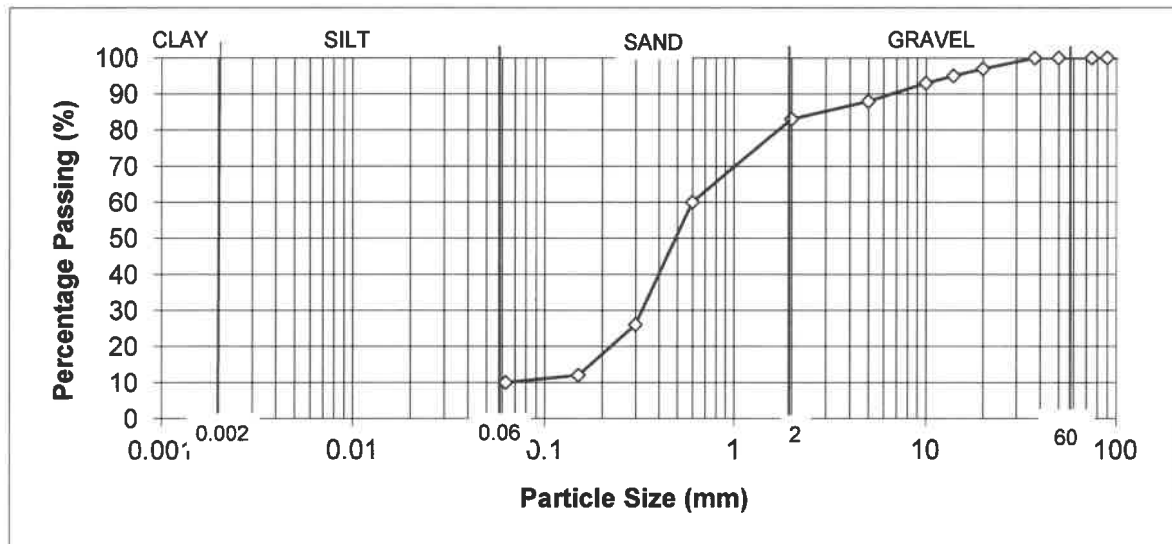
Determination of Moisture Content in accordance with BS 1377: PART 2: Clause 3: 1990 (Oven Dry)

CLIENT	LK Consult Ltd
SITE	LKC 20 1488 - ISG Hough End
JOB NUMBER	MRN 4066/79

SAMPLE LABEL	HD124 0.5-0.8	DATE SAMPLED	Not advised
LAB SAMPLE No	97646	DATE RECEIVED	06-Apr-21
DATE TESTED	12-Apr-21	SAMPLED BY	Client

MATERIAL	Brown silty SAND with rare gravel
ADVISED SOURCE	Site Investigation Sample

Sieve Size (mm)	% Passing (%)	Specification (%)	Sieve Size (mm)	% Passing (%)	Specification (%)
125	100		10	93	
90	100		5	88	
75	100		2	83	
50	100		0.6	60	
37.5	100		0.3	26	
20	97		0.15	12	
14	95		0.063	10	



REMARKS

As received moisture content = 12%

SIGNED

NAME

O.P. Davies BA (Hons)
(Laboratory Manager)

DATE

26-Apr-21

Appendix F

Gas Monitoring Results



Atmospheric / Ground Conditions	
Atmospheric pressure trend onsite	Variable
Atmospheric pressure (prev 24hrs)	Steady
Weather Conditions	Cloudy, breezy, cold
Ground Conditions	Dry

Equipment ¹		
Instrument	Serial Number	Comments
Gas Analyser GA5000	G502417	Serviced, calibrated, gas checked.
Geotech Dipmeter	79864	Operating normally.
Photoionsiation Detector	Tiger PID	Serviced and operating normally.

[illegible]

ABBREVIATIONS	
ND	Not detected
NR	Not recorded
UR	Unable to record
OS	Off recordable scale
N/A	Not applicable
ppm	Parts per million
mb	Millibars
l/hr	Litres per hour
mbgl	Metres below ground level
LEL	Lower explosive limit in air

NOTES	
All monitoring is carried out in line with LK Consult Ltd procedures, with reference to CIRIA C665.	
¹ Equipment is serviced and checked as recommended by the manufacturer. Refer to calibration records and service certificates.	
² CH4 is explosive between the range of 5-15%v/v. 100% lower explosive limit is equal to 5%v/v CH4.	
³ Flow readings are based on a 1 minute average value where flow is detected (equipment range of +/- 12 ltr/hr).	



LK CONSULT LTD
GAS MONITORING RECORD

Site	Hough End Leisure Centre, Manchester
Job Number	LKC 20 1488
Date	20.04.2021
Engineer	FP
Visit	2 of 6

Equipment ¹		
Instrument	Serial Number	Comments
Gas Analyser GA5000	G502417	Serviced, calibrated, gas checked.
0	0	Operating normally.

Atmospheric / Ground Conditions	
Atmospheric pressure trend onsite	Rising
Atmospheric pressure (prev 24hrs)	Variable
Weather Conditions	sunny, breezey, hot
Ground Conditions	Dry

Borehole ID	Date & Time	CH ₄ (%v/v)	CO ₂ (%v/v)	O ₂ (%v/v)	Peak CH ₄ (%v/v)	Peak CO ₂ (%v/v)	% LEL ²	CO Pod (ppm)	H ₂ S Pod (ppm)	Balance (%)	Barometric Pressure (mb)	Internal Flow ³ (l/hr)	Standing water level (mbgl)	Installation base depth (mbgl)	Notes
WS101	20/04/2021 00:00	0	1.7	17.8	0	1.7	0	2	0	80.5	1016	0.1	1.17	2.81	CO Steady = 0
WS102	20/04/2021 00:00	0	2.9	18.1	0	2.9	0	4	2	79	1015	4	0.85	2.84	Initial flow -5.3l/hr slowly decreased to -2.9 at 2 minutes
WS103	20/04/2021 00:00	0	0.8	17.7	0	0.8	0	4	0	81.4	1015	0	1.15	2.92	CO Steady = 1
WS104	UR														Unable to open borehole lid
WS105	UR														Plug loose and came out during measurements
WS106	20/04/2021 00:00	0	0.1	20.4	0	0.7	0	1	0	78.9	1016	0.1	1	2.75	CO Steady = 1
WS107	20/04/2021 00:00	0	0.4	20.8	0	0.4	0	3	0	78.8	1016	4.4	0.8	1.4	Initial flow -5.9l/hr slowly decreased to -3.4 at 2 minutes
WS108	20/04/2021 00:00	0	1.7	19.9	0	1.9	0	1	0	78.1	1016	0	0.95	1.97	CO Steady = 1
WS109	20/04/2021 00:00	0	3.4	19	0	3.4	0	1	0	77.6	1016	0.1	1.01	2.3	
WS110	20/04/2021 00:00	0	2.4	19.7	0	2.4	0	3	0	77.9	1016	0	1.25	2.12	CO Steady = 1

ABBREVIATIONS	
ND	Not detected
NR	Not recorded
UR	Unable to record
OS	Off recordable scale
N/A	Not applicable
ppm	Parts per million
mb	Millibars
l/hr	Litres per hour
mbgl	Metres below ground level
LEL	Lower explosive limit in air

NOTES
All monitoring is carried out in line with LK Consult Ltd procedures, with reference to CIRIA C665.
¹ Equipment is serviced and checked as recommended by the manufacturer. Refer to calibration records and service certificates.
² CH ₄ is explosive between the range of 5-15%v/v. 100% lower explosive limit is equal to 5%v/v CH ₄ .
³ Flow readings are based on a 1 minute average value where flow is detected (equipment range of +/- 12 ltr/hr).



LK CONSULT LTD

GAS MONITORING RECORD

Site	Hough End Leisure Centre, Manchester
Job Number	LKC 20 1488
Date	12.05.2021
Engineer	FP
Visit	3 of 6

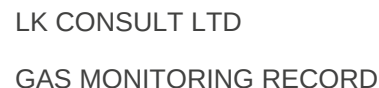
Equipment ¹		
Instrument	Serial Number	Comments
Gas Analyser GA5000	G502417	Serviced, calibrated, gas checked.
Blue Geotech Dipmeter	1	Operating normally.

Atmospheric / Ground Conditions	
Atmospheric pressure trend onsite	Steady
Atmospheric pressure (prev 24hrs)	Rising
Weather Conditions	Sunny, Breezy, Cool, Cloudy
Ground Conditions	Damp

Borehole ID	Date & Time	CH ₄ (%v/v)	CO ₂ (%v/v)	O ₂ (%v/v)	Peak CH ₄ (%v/v)	Peak CO ₂ (%v/v)	% LEL ²	CO Pod (ppm)	H ₂ S Pod (ppm)	Balance (%)	Barometric Pressure (mb)	Internal Flow ³ (l/hr)	Standing water level (mbgl)	Installation base depth (mbgl)	Notes
WS101	12.05.2021	0	2.6	18.1	0	2.6	0	2	0	79.3	1004	0.1	1.12	2.81	
WS102	12.05.2021	0	4.6	16.8	0	4.6	0	2	0	78.7	1004	5.2	0.85	2.81	
WS103	12.05.2021	0	1	17.5	0	1	0	4	0	81.5	1004	18	0.97	2.92	High flow reading due to equipment error.
WS104	12.05.2021	0	0.2	15.2	0	0.2	0	3	0	85.4	1004	0.1	0.8	1.8	
WS105	12.05.2021	0	3.2	16.5	0	3.2	0	4	1	80.4	1004	4.5	0.7	3.44	
WS106	12.05.2021	0	0.8	20.7	0	1.1	0	3	0	78.9	1004	0	0.95	2.75	
WS107	12.05.2021	0	0.4	20.4	0	0.5	0	4	0	79.2	1004	3.2	0.8	1.4	
WS108	12.05.2021	0	1.8	18.3	0	2	0	2	0	79.8	1004	0.1	1.03	1.97	
WS109	12.05.2021	0	2.5	16.5	0	2.5	0	2	0	81	1004	0	0.95	2.32	
WS110	12.05.2021	0	2.2	18.8	0	2.2	0	3	0	79	1004	0	1.3	2.1	

ABBREVIATIONS	
ND	Not detected
NR	Not recorded
UR	Unable to record
OS	Off recordable scale
N/A	Not applicable
ppm	Parts per million
mb	Millibars
l/hr	Litres per hour
mbgl	Metres below ground level
LEL	Lower explosive limit in air

NOTES
All monitoring is carried out in line with LK Consult Ltd procedures, with reference to CIRIA C665.
¹ Equipment is serviced and checked as recommended by the manufacturer. Refer to calibration records and service certificates.
² CH ₄ is explosive between the range of 5-15%v/v. 100% lower explosive limit is equal to 5%v/v CH ₄ .
³ Flow readings are based on a 1 minute average value where flow is detected (equipment range of +/- 12 ltr/hr).



Atmospheric / Ground Conditions	
Atmospheric pressure trend onsite	Rising
Atmospheric pressure (prev 24hrs)	Falling
Weather Conditions	Sunny, Breezey, Warm, Cloudy turning Overcast
Ground Conditions	Damp

[illegible]

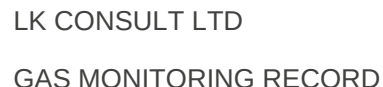
NOTES
All monitoring is carried out in line with LK Consult Ltd procedures, with reference to CIRIA C665.
¹ Equipment is serviced and checked as recommended by the manufacturer. Refer to calibration records and service certificates.
² CH4 is explosive between the range of 5-15%v/v. 100% lower explosive limit is equal to 5%v/v CH4.
³ Flow readings are based on a 1 minute average value where flow is detected (equipment range of +/- 12 ltr/hr).



Atmospheric / Ground Conditions	
Atmospheric pressure trend onsite	Steady
Atmospheric pressure (prev 24hrs)	Falling
Weather Conditions	Intermittent spitting rain, windy, muggy
Ground Conditions	Dry

[illegible]

NOTES	
All monitoring is carried out in line with LK Consult Ltd procedures, with reference to CIRIA C665.	
¹ Equipment is serviced and checked as recommended by the manufacturer. Refer to calibration records and service certificates.	
² CH4 is explosive between the range of 5-15%v/v. 100% lower explosive limit is equal to 5%v/v CH4.	
³ Flow readings are based on a 1 minute average value where flow is detected (equipment range of +/- 12 ltr/hr).	



Atmospheric / Ground Conditions	
Atmospheric pressure trend onsite	Rising
Atmospheric pressure (prev 24hrs)	Variable
Weather Conditions	Raining, windy, muggy
Ground Conditions	Wet

[illegible]

NOTES
All monitoring is carried out in line with LK Consult Ltd procedures, with reference to CIRIA C665.
¹ Equipment is serviced and checked as recommended by the manufacturer. Refer to calibration records and service certificates.
² CH4 is explosive between the range of 5-15%v/v. 100% lower explosive limit is equal to 5%v/v CH4.
³ Flow readings are based on a 1 minute average value where flow is detected (equipment range of +/- 12 ltr/hr).

Appendix G

Soakaway Test Results

Site : ISG Hough End

Client : ISG PLC

Engineer: LKC

Job Number

LKC 20 1488

Sheet

1 / 1

Location	Date	Level	Location
SA101	25/03/2021	33.00 mOD	E: 383725 N: 393209

Pit Width (m)	0.50
Pit Depth (m)	1.50
Pit Length (m)	1.00

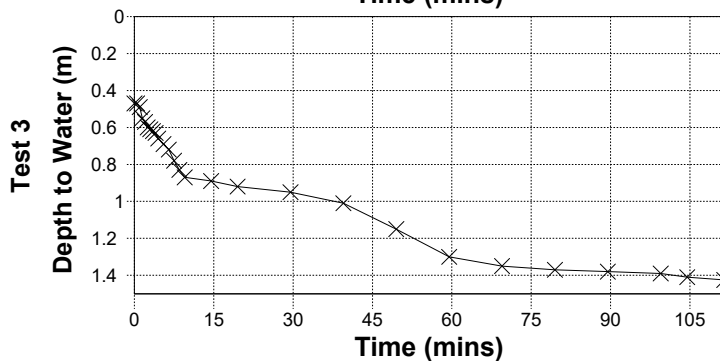
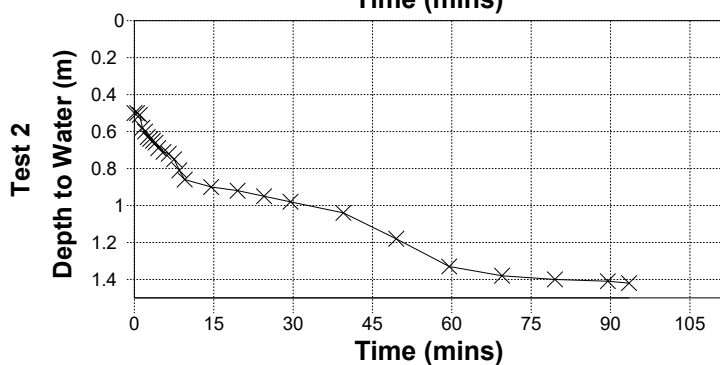
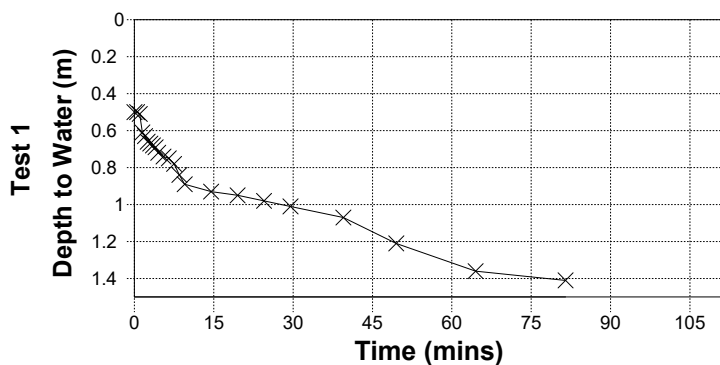
Soil type at test level	slightly gravelly very silty SAND
Groundwater	1.50 m
Drain discharge depth	1.50
Sidewall stability	Unstable
Stone filled or open pit	Stone filled

	1	2	3
Effective depth (m)	1.00	1.00	1.03
Volume outflowing between 75% & 25% (m3)*	0.08	0.08	0.08
Mean surface area through which outflow occurs (m2)	2.00	2.00	2.05
Time for outflow between 75% & 25% (min)	47.00	46.67	49.04
SOIL INFILTRATION RATE (ms-1), f	1.33E-5	1.34E-5	1.28E-5

Remarks

* Volume outflowing reduced to account for granular backfill used during testing (30 % of free volume assumed).

Elapsed time (mins)	Depth to Water Test 1	Depth to Water Test 2	Depth to Water Test 3
0	0.50	0.50	0.47
0.5	0.50	0.50	0.47
1	0.51	0.51	0.49
1.5	0.61	0.58	0.55
2	0.63	0.60	0.57
2.5	0.66	0.63	0.60
3	0.67	0.64	0.61
3.5	0.68	0.65	0.62
4	0.69	0.66	0.63
4.5	0.72	0.69	0.66
5.5	0.74	0.71	0.69
6.5	0.75	0.72	0.72
7.5	0.78	0.75	0.78
8.5	0.84	0.81	0.83
9.5	0.89	0.86	0.87
14.5	0.93	0.90	0.89
19.5	0.95	0.92	0.92
24.5	0.98	0.95	
29.5	1.01	0.98	0.95
39.5	1.07	1.04	1.01
49.5	1.21	1.18	1.15
59.5		1.33	1.30
64.5	1.36		
69.5		1.38	1.35
79.5		1.40	1.37
81.5	1.41		
89.5		1.41	1.38
93.5		1.42	
99.5			1.39
104.5			1.41
111.5			1.425



Appendix H

Generic Assessment Criteria Values

Summary of Category 4 Screening Levels: 2015

Substance	Residential (with home- grown produce)	Residential (without home- grown produce)	Allotments	Commercial	Public Open Space 1	Public Open Space 2
Arsenic	37 mg/kg	40 mg/kg	49 mg/kg	640 mg/kg	79 mg/kg	170 mg/kg
Benzene	0.87 mg/kg	3.3 mg/kg	0.18 mg/kg	98 mg/kg	140 mg/kg	230 mg/kg
Benzo(a)pyrene	5.0 mg/kg	5.3 mg/kg	5.7 mg/kg	77 mg/kg	10 mg/kg	21 mg/kg
Cadmium	22 mg/kg	150 mg/kg	3.9 mg/kg	410 mg/kg	220 mg/kg	880 mg/kg
Chromium VI	21 mg/kg	21 mg/kg	170 mg/kg	49 mg/kg	21 mg/kg	250 mg/kg
Lead	200 mg/kg	310 mg/kg	80 mg/kg	2300 mg/kg	630 mg/kg	1300 mg/kg

Summary Table for the Generic Assessment Criteria for Human Health Risk Assessment Land Quality Management (LQM) S4ULs.

All GAC are based on sandy loam soils with a pH 7.

		LQM Generic Assessment Criteria (mg/kg) Dry weight soil						
Contaminant		SOM	Res +	Res -	Allot.	Comm.	POS _{resi}	POS _{park}
Metals	Inorganic Arsenic	6%	37	40	43	640	79	170
	Beryllium	6%	1.7	1.7	35	12	2.2	63
	Boron	6%	290	11,000	45	240,000	21,000	46,000
	Cadmium	6%	11	85	1.9	190	120	532
	Chromium (III)	6%	910	910	18,000	8,600	1,500	33,000
	Chromium (VI)	6%	6.0	6.0	1.8	33	7.7	220
	Copper	6%	2,400	7,100	520	68,000	12,000	44,000
	Elemental Mercury	6%	1.2	1.2	21	58 (25.8) ^{vap}	16	30 (25.8) ^{vap}
	Inorganic Mercury	6%	40	56	19	1,100	120	240
	Methylmercury	6%	11	15	6.0	320	40	68
	Nickel	6%	180	180	230	980	230	3,400
	Selenium	6%	250	430	88	12,000	1,100	1,800
	Vanadium	6%	410	1,200	91	9,000	2,000	5,000
	Zinc	6%	3,700	40,000	620	730,000	81,000	170,000
BTEX Compounds	Benzene	1%	0.087	0.38	0.017	27	72	90
		2.5%	0.17	0.70	0.034	47	72	100
		6%	0.37	1.4	0.075	90	73	110
	Toluene	1%	130	880 (869) ^{vap}	22	56,000 (869) ^{vap}	56,000	87,000 (869) ^{vap}
		2.5%	290	1,900	51	110,000 (1,920) ^{vap}	56,000	95,000 (1,920) ^{vap}
		6%	660	3,900	120	180,000 (4,360) ^{vap}	56,000	100,000 (4,360) ^{vap}
	Ethylbenzene	1%	47	83	16	5,700 (518) ^{vap}	24,000	17,000 (518) ^{vap}
		2.5%	110	190	39	13,000 (1,220) ^{vap}	24,000	22,000 (1,220) ^{vap}
		6%	260	440	91	27,000 (2,840) ^{vap}	25,000	27,000 (2,840) ^{vap}
	o-xylene	1%	60	88	28	6,600 (478) ^{sol}	41,000	17,000 (478) ^{sol}
		2.5%	140	210	67	15,000 (1,120) ^{sol}	42,000	24,000 (1,120) ^{sol}
		6%	330	480	160	33,000 (2,620) ^{sol}	43,000	33,000 (2,620) ^{sol}
	m-xylene	1%	59	82	31	6,200 (625) ^{vap}	41,000	17,000 (625) ^{vap}
		2.5%	140	190	74	14,000 (1,470) ^{vap}	42,000	24,000 (1,470) ^{vap}
		6%	320	450	170	31,000 (3,460) ^{vap}	43,000	32,000 (3,460) ^{vap}
	p-xylene	1%	56	79	29	5,900 (576) ^{sol}	41,000	17,000 (576) ^{sol}
		2.5%	130	180	69	14,000 (1,350) ^{sol}	42,000	23,000 (1,350) ^{sol}
		6%	310	430	160	30,000 (3,170) ^{sol}	43,000	31,000 (3,170) ^{sol}

NOTES

^{sol/vap} = solubility / vapour limit (potentially use if free product identified, although highly conservative).

f = oral, dermal and inhalation exposures compared to oral HCV.

All GAC are based on sandy loam soils with a pH 7.

All GAC are based on sandy loam soils with a pH 7.			LQM Generic Assessment Criteria (mg/kg) Dry weight soil					
Contaminant		SOM	Res +	Res -	Allot.	Comm.	POS _{resi}	POS _{park}
Polycyclic Aromatic Hydrocarbons (PAHs)	Acenaphthene	1%	210	3,000 (57.1) ^{sol}	34	84,000 (57.0) ^{sol}	15,000	29,000
		2.5%	510	4,700 (141) ^{sol}	85	97,000 (141) ^{sol}	15,000	30,000
		6%	1,100	6,000 (336) ^{sol}	200	100,000	15,000	30,000
	Acenaphthylene	1%	170	2,900 (86.1) ^{sol}	28	83,000 (86.1) ^{sol}	15,000	29,000
		2.5%	420	4,600 (212) ^{sol}	69	97,000 (212) ^{sol}	15,000	30,000
		6%	920	6,000 (506) ^{sol}	160	100,000	15,000	30,000
	Anthracene	1%	2,400	31,000 (1.17) ^{vap}	380	520,000	74,000	150,000
		2.5%	5,400	35,000	950	540,000	74,000	150,000
		6%	11,000	37,000	2,200	540,000	74,000	150,000
	Benz(a)anthracene	1%	7.2	11	2.9	170	29	49
		2.5%	11	14	6.5	170	29	56
		6%	13	15	13	180	29	62
	Benzo(a)pyrene (only)	1%	2.2	3.2	0.97	35	5.7	11
		2.5%	2.7	3.2	2.0	35	5.7	12
		6%	3.0	3.2	3.5	36	5.7	13
	Benzo(b)fluoranthene	1%	2.6	3.9	0.99	44	7.1	13
		2.5%	3.3	4.0	2.1	44	7.2	15
		6%	3.7	4.0	3.9	45	7.2	16
	Benzo(ghi)perylene	1%	320	360	290	3,900	640	1,400
		2.5%	340	360	470	4,000	640	1,500
		6%	350	360	640	4,000	640	1,600
	Benzo(k)fluoranthene	1%	77	110	37	1,200	190	370
		2.5%	93	110	75	1,200	190	410
		6%	100	110	130	1,200	190	440
	Chrysene	1%	15	30	4.1	350	57	93
		2.5%	22	31	9.4	350	57	110
		6%	27	32	19	350	57	120
	Dibenzo(ah)anthracene	1%	0.24	0.31	0.14	3.5	0.57	1.1
		2.5%	0.28	0.32	0.27	3.6	0.58	1.3
		6%	0.3	0.32	0.43	3.6	0.58	1.4
	Fluoranthene	1%	280	1,500	52	23,000	3,100	6,300
		2.5%	560	1,600	130	23,000	3,100	6,300
		6%	890	1,600	290	23,000	3,100	6,400
	Fluorene	1%	170	2,800 (36.0) ^{sol}	27	63,000 (30.9) ^{sol}	9,900	20,000
		2.5%	400	3,800 (76.5) ^{sol}	67	68,000	9,900	20,000
		6%	860	4,500 (183) ^{sol}	160	71,000	9,900	20,000
	Indeno(123-cd)pyrene	1%	27	45	9.5	500	82	150
		2.5%	36	46	21	510	82	170
		6%	41	46	39	510	82	180
	Naphthalene	1%	2.3 ^f	2.3 ^f	4.1 ^f	190 ^f (76.4) ^{sol}	4,900 ^f	1,200 ^f (76.4) ^{sol}
		2.5%	5.6 ^f	5.6 ^f	10 ^f	460 ^f (183) ^{sol}	4,900 ^f	1,900 ^f (183) ^{sol}
		6%	13 ^f	13 ^f	24 ^f	1,100 ^f (432) ^{sol}	4,900 ^f	3,000
	Phenanthrene	1%	95	1,300 (36.0) ^{sol}	15	22,000	3,100	6,200
		2.5%	220	1,500	38	22,000	3,100	6,200
		6%	440	1,500	90	22,000	3,100	6,300
	Pyrene	1%	620	3,700	110	54,000	7,400	15,000
		2.5%	1,200	3,800	270	54,000	7,400	15,000
		6%	2,000	3,800	620	54,000	7,400	15,000
Coal Tar (B(a)P as surrogate marker)	1%	0.79	1.2	0.32	15	2.2	4.4	
	2.5%	0.98	1.2	0.67	15	2.2	4.7	
	6%	1.1	1.2	1.2	15	2.2	4.8	

NOTES

^{sol} / ^{vap} = solubility / vapour limit (potentially use if free product identified, although highly conservative).

^f = naphthalene is based on comparison of inhalation exposure with TDI_{inhal} for localised effect.

All GAC are based on sandy loam soils with a pH 7.

LQM Generic Assessment Criteria (mg/kg) Dry weight soil

Contaminant	SOM	Res +	Res -	Allot.	Comm.	POS _{resi}	POS _{park}
Aliphatic							
EC 5-6	1%	42	42	730	3,200 (304) ^{sol}	570,000(304) ^{sol}	95,000 (304) ^{sol}
EC>6-8	1%	100	100	2,300	7,800 (144) ^{sol}	600,000	150,000 (144) ^{sol}
EC>8-10	1%	27	27	320	2,000 (78) ^{sol}	13,000	14,000 (78) ^{vap}
EC>10-12	1%	130 (48) ^{vap}	130 (48) ^{vap}	2,200	9,700 (48) ^{sol}	13,000	21,000 (48) ^{vap}
EC>12-16	1%	1,100 (24) ^{sol}	1,100 (24) ^{sol}	11,000	59,000 (24) ^{sol}	13,000	25,000 (24) ^{sol}
EC>16-35	1%	65,000 (8.48) ^{f, sol}	65,000 (8.48) ^{f, sol}	260,000 ^f	160,000 ^f	250,000 ^f	450,000 ^f
EC>35-44	1%	65,000 (8.48) ^{f, sol}	65,000 (8.48) ^{f, sol}	260,000 ^f	160,000 ^f	250,000 ^f	450,000 ^f
Aliphatic							
EC 5-6	2.5%	78	78	1,700	5,900 (558) ^{sol}	590,000	130,000 (558) ^{sol}
EC>6-8	2.5%	230	230	5,600	17,000 (322) ^{sol}	610,000	220,000 (322) ^{sol}
EC>8-10	2.5%	65	65	770	4,800 (190) ^{vap}	13,000	18,000 (190) ^{vap}
EC>10-12	2.5%	330 (118) ^{vap}	330 (118) ^{vap}	4,400	23,000 (118) ^{vap}	13,000	23,000 (118) ^{vap}
EC>12-16	2.5%	2,400 (59) ^{sol}	2,400 (59) ^{sol}	13,000	82,000 (59) ^{sol}	13,000	25,000 (59) ^{sol}
EC>16-35	2.5%	92,000 (21) ^{f, sol}	92,000 (21) ^{f, sol}	270,000 ^f	1,700,000 ^f	250,000 ^f	480,000 ^f
EC>35-44	2.5%	92,000 (21) ^{f, sol}	92,000 (21) ^{f, sol}	270,000 ^f	1,700,000 ^f	250,000 ^f	480,000 ^f
Aliphatic							
EC 5-6	6%	160	160	3,900	12,000 (1,150) ^{sol}	600,000	180,000 (1,150) ^{sol}
EC>6-8	6%	530	530	13,000	40,000 (736) ^{sol}	620,000	320,000 (736) ^{sol}
EC>8-10	6%	150	150	1,700	11,000 (451) ^{vap}	13,000	21,000 (451) ^{vap}
EC>10-12	6%	760 (283) ^{vap}	760 (283) ^{vap}	7,300	47,000 (283) ^{vap}	13,000	24,000 (283) ^{vap}
EC>12-16	6%	4,300 (142) ^{sol}	4,400 (142) ^{sol}	13,000	90,000 (142) ^{sol}	13,000	26,000 (142) ^{sol}
EC>16-35	6%	110,000 ^f	110,000 ^f	270,000 ^f	1,800,000 ^f	250,000 ^f	490,000 ^f
EC>35-44	6%	110,000 ^f	110,000 ^f	270,000 ^f	1,800,000 ^f	250,000 ^f	490,000 ^f
Aromatic							
EC5-7(benzene as non-threshold)	1%	70	370	13	26,000 (1,220) ^{sol}	56,000	76,000 (1,220) ^{sol}
EC>7-8(toluene)	1%	130	860	22	56,000 (869) ^{vap}	56,000	87,000 (869) ^{vap}
EC>8-10	1%	34	47	8.6	3,500 (613) ^{vap}	5,000	7,200 (613) ^{vap}
EC>10-12	1%	74	250	13	16,000 (364) ^{sol}	5,000	9,200 (364) ^{sol}
EC>12-16	1%	140	1,800	23	36,000 (169) ^{sol}	5,100	10,000
EC>16-21	1%	260 ^f	1,900 ^f	46 ^f	28,000 ^f	3,800 ^f	7,600 ^f
EC>21-35	1%	1,100 ^f	1,900 ^f	370 ^f	28,000 ^f	3,800 ^f	7,800 ^f
EC>35-44	1%	1,100 ^f	1,900 ^f	370 ^f	28,000 ^f	3,800 ^f	7,800 ^f
Aromatic							
EC5-7(benzene as non-threshold)	2.5%	140	690	27	46,000 (2,260) ^{sol}	56,000	84,000 (2,260) ^{sol}
EC>7-8(toluene)	2.5%	290	1,800	51	110,000 (1,920) ^{sol}	56,000	95,000 (1,920) ^{sol}
EC>8-10	2.5%	83	110	21	8,100 (1,500) ^{vap}	5,000	8,500 (1,500) ^{vap}
EC>10-12	2.5%	180	590	31	28,000 (899) ^{sol}	5,000	9,700 (899) ^{sol}
EC>12-16	2.5%	330	2,300 (419) ^{sol}	57	37,000	5,100	10,000
EC>16-21	2.5%	540 ^f	1,900 ^f	110 ^f	28,000 ^f	3,800 ^f	7,700 ^f
EC>21-35	2.5%	1,500 ^f	1,900 ^f	820 ^f	28,000 ^f	3,800 ^f	7,800 ^f
EC>35-44	2.5%	1,500 ^f	1,900 ^f	820 ^f	28,000 ^f	3,800 ^f	7,800 ^f
Aromatic							
EC5-7(benzene as non-threshold)	6%	300	1,400	57	86,000 (4,710) ^{sol}	56,000	92,000 (4,710) ^{sol}
EC>7-8(toluene)	6%	660	3,900	120	180,000 (4,360) ^{vap}	56,000	100,000 (4,360) ^{vap}
EC>8-10	6%	190	270	51	17,000 (3,580) ^{vap}	5,000	9,300 (3,580) ^{vap}
EC>10-12	6%	380	1,200	4	34,000 (2,150) ^{sol}	5,000	10,000
EC>12-16	6%	660	2,500	130	38,000	5,100	10,000
EC>16-21	6%	930 ^f	1,900 ^f	260 ^f	28,000 ^f	3,800 ^f	7,800 ^f
EC>21-35	6%	1,700 ^f	1,900 ^f	1,600 ^f	28,000 ^f	3,800 ^f	7,900 ^f
EC>35-44	6%	1,700 ^f	1,900 ^f	1,600 ^f	28,000 ^f	3,800 ^f	7,900 ^f
Aliphatic	1%	1,600 ^f	1,900 ^f	1,200 ^f	28,000 ^f	3,800 ^f	7,800 ^f
+Aromatic	2.5%	1,800 ^f	1,900 ^f	2,100 ^f	28,000 ^f	3,800 ^f	7,800 ^f
>EC44	6%	1,900 ^f	1,900 ^f	3,000 ^f	28,000 ^f	3,800 ^f	7,900 ^f

NOTES

^{sol}/^{vap} = solubility / vapour limit (potentially use if free product identified, although highly conservative).

^f = oral, dermal and inhalation exposures compared to oral HCV.

All GAC are based on sandy loam soils with a pH 7.

		LQM Generic Assessment Criteria (mg/kg) Dry weight soil						
Contaminant		SOM	Res +	Res -	Allot.	Comm.	POS _{resi}	POS _{park}
Chloalkanes and Alkenes & Explosives	1,2 Dichloroethane (DCA)	1%	7.1E-03	9.2E-03	4.6E-03	0.67	29	21
		2.5%	1.1E-02	1.3E-02	8.3E-03	0.97	29	24
		6%	1.9E-02	2.3E-02	1.6E-02	1.7	29	28
	1,1,1 Trichloroethane (TCA)	1%	8.8	9.0	48	660	140,000	57,000 (1,425) ^{vap}
		2.5%	18	18	110	1,300	140,000	76,000 (2,915) ^{vap}
		6%	39	40	240	3,000	140,000	100,000 (6,392) ^{vap}
	1,1,2,2-Tetrachloroethanes (PCA)	1%	1.6	3.9	0.41	270	1,400	1,800
		2.5%	3.4	8.0	0.89	550	1,400	2,100
		6%	7.5	17	2.0	1,100	1,400	2,300
	1,1,1,2-Tetrachloroethanes (PCA)	1%	1.2	1.5	0.79	110	1,400	1,500
		2.5%	2.8	3.5	1.9	250	1,400	1,800
		6%	6.4	8.2	4.4	560	1,400	2,100
	Tetrachloroethene (PCE)	1%	0.18	0.18	0.65	19	1,400	810 (424) ^{sol}
		2.5%	0.39	0.40	1.5	42	1,400	1,100 (951) ^{sol}
		6%	0.90	0.92	3.6	95	1,400	1,500
	Tetrachloromethane (carbon tetrachloride)	1%	2.6E-02	2.6E-02	0.45	2.9	890	190
		2.5%	5.6E-02	5.6E-02	1.0	6.3	920	270
		6%	0.13	0.13	2.4	14	950	400
	Trichloroethene (TCE)	1%	1.6E-02	1.7E-02	4.1E-02	1.2	120	70
		2.5%	3.4E-02	3.6E-02	9.1E-02	2.6	120	91
		6%	7.5E-02	8.0E-02	0.21	5.7	120	120
	Trichloromethane (chloroform)	1%	0.91	1.2	0.42	99	2,500	2,600
		2.5%	1.7	2.1	0.83	170	2,500	2,800
		6%	3.4	4.2	1.7	350	2,500	3,100
	Chloroethene (vinyl chloride)	1%	6.4E-04	7.7E-04	5.5E-04	5.9E-02	3.5	4.8
		2.5%	8.7E-04	1.0E-03	1.0E-03	7.7E-02	3.5	5.0
		6%	1.4E-03	1.5E-03	1.8E-03	0.12	3.5	5.4
	2,4,6-Trinitrotoluene (TNT)	1%	1.6	65	0.24	1,000	130	260
		2.5%	3.7	66	0.58	1,000	130	270
		6%	8.1	66	1.4	1,000	130	270
	RDX	1%	120	13,000	17	210,000	26,000	49,000 (18.7) ^{sol}
		2.5%	250	13,000	38	210,000	26,000	51,000
		6%	540	13,000	85	210,000	27,000	53,000
	HMX	1%	5.7	6,700	0.86	110,000	13,000	23,000 (0.35) ^{vap}
		2.5%	13	6,700	1.9	110,000	13,000	23,000 (0.39) ^{vap}
		6%	26	6,700	3.9	110,000	13,000	24,000 (0.48) ^{vap}
Pesticides	Aldrin	1%	5.7	7.3	3.2	170	18	30
		2.5%	6.6	7.4	6.1	170	18	31
		6%	7.1	7.5	9.8	170	18	31
	Dieldrin	1%	0.97	7.0	0.17	170	18	30
		2.5%	2.0	7.3	0.41	170	18	30
		6%	3.5	7.4	0.96	170	18	31
	Atrazine	1%	3.3	610	0.5	9,300	1,200	2,300
		2.5%	7.8	620	1.2	9,400	1,200	2,400
		6%	17.4	620	2.7	9,400	1,200	2,400
	Dichlorvos	1%	3.2E-02	6.4	4.9E-03	140	16	26
		2.5%	6.6E-02	6.5	1.0E-02	140	16	26
		6%	0.14	6.6	2.2E-02	140	16	27
	Endosulfans (2 isomers)	1%	7.4	160 (3.0E-03) ^{vap}	1.2	5,600 (3.0E-03) ^{vap}	1,200	2,300
		2.5%	18	280 (7.0E-03) ^{vap}	2.9	7,400 (7.0E-03) ^{vap}	1,200	2,400
		6%	41	410 (1.6E-02) ^{vap}	6.8	8,400 (1.6E-02) ^{vap}	1,200	2,500
	Hexachlorocyclohexane (3 isomers), inc Lindane	1%	8.5E-02	3.7	1.3E-02	65	8.1	15
		2.5%	0.2	3.8	3.2E-02	65	8.1	15
		6%	0.46	3.8	7.7E-02	65	8.1	16

NOTES

^{sol} / ^{vap} = solubility / vapour limit (potentially use if free product identified, although highly conservative).

All GAC are based on
sandy loam soils with a pH
7.

All GAC are based on sandy loam soils with a pH 7.			LQM Generic Assessment Criteria (mg/kg) Dry weight soil					
Contaminant		SOM	Res +	Res -	Allot.	Comm.	POS _{resi}	POS _{park}
Chlorobenzenes	Chlorobenzene	1%	0.46	0.46	5.9	56	11,000	1,300 (675) ^{sol}
		2.5%	1.0	1.0	14	130	13,000	2,000 (1,520) ^{sol}
		6%	2.4	2.4	32	290	14,000	2,900
	Dichlorobenzenes (3 isomers)	1%	23	24	94	2,000 (571) ^{sol}	90,000	24,000 (571) ^{sol}
		2.5%	55	57	230	4,800 (1,370) ^{sol}	95,000	36,000 (1,370) ^{sol}
		6%	130	130	540	11,000 (3,240) ^{sol}	98,000	51,000 (3,270) ^{sol}
	Trichlorobenzenes (3 isomers)	1%	2.6	2.6	55	220	15,000	1,700 (318) ^{vap}
		2.5%	6.4	6.4	140	530	17,000	2,600 (786) ^{vap}
		6%	15	15	320	1,300	19,000	4,000 (1,880) ^{vap}
	Tetrachlorobenzenes (3 isomers)	1%	0.66	0.75	0.38	49 (39.4) ^{vap}	78	110 (39) ^{vap}
		2.5%	1.6	1.9	0.90	120 (98.1) ^{vap}	79	120
		6%	3.7	4.3	2.2	240 (235) ^{vap}	79	130
	Pentachlorobenzene	1%	5.8	19	1.2	640 (43.0) ^{sol}	100	190
		2.5%	12	30	3.1	770 (107) ^{sol}	100	190
		6%	22	38	7.0	830	100	190
	Hexachlorobenzene	1%	1.8 (0.20) ^{vap}	4.1 (0.20) ^{vap}	0.47	110 (0.20) ^{vap}	16	30
		2.5%	3.3 (0.50) ^{vap}	5.7 (0.50) ^{vap}	1.1	120	16	30
		6%	4.9	6.7 (1.2) ^{vap}	2.5	120	16	30
Chlorophenol	Chlorophenols (4 congeners)	1%	0.87 ^g	94	0.13 ^g	3,500	620	1,100
		2.5%	2.0	150	0.30	4,000	620	1,100
		6%	4.5	210	0.70	4,300	620	1,100
	Pentachlorophenol	1%	0.22	27 (16.4) ^{vap}	3.0E-02	400	60	110
		2.5%	0.52	29	8.0E-02	400	60	120
		6%	1.2	31	0.19	400	60	120
Others	Carbon Disulphide	1%	0.14	0.14	4.8	11	11,000	1,300
		2.5%	0.29	0.29	10	22	11,000	1,900
		6%	0.62	0.62	23	47	11,000	2,700
	Hexachlorobutadiene	1%	0.29	0.32	0.25	31	25	48
		2.5%	0.7	0.78	0.61	66	25	50
		6%	1.6	1.8	1.4	120	25	51
	Phenol	1%	280	750	66	760 ^{dir} (31,000)	760 ^{dir} (11,000)	760 ^{dir} (8,600)
		2.5%	550	1,300	140	1,500 ^{dir} (35,000)	1,500 ^{dir} (11,000)	1,500 ^{dir} (9,700)
		6%	1,100	2,300	280	3,200 ^{dir} (37,000)	3,200 ^{dir} (11,000)	3,200 ^{dir} (11,000)

NOTES

^{sol / vap} = solubility / vapour limit (potentially use if free product identified, although highly conservative).

^{dir} = S4uls based on threshold protective of direct skin contact with phenol (brackets long term exposure for illustration purposes).

^g = derived based on 2,3,4,6-tetrachlorophenol.

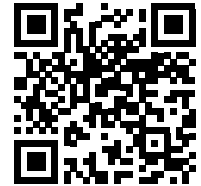
Appendix I

HazWaste Online Output Sheets

Waste Classification Report

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

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



XFVLB-W3ZR5-WWM4W

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

Job name

LKC 20 1488

Description/Comments

Project

LKC 20 1488

Site

Hough End

Classified by

Name: **Colin Crompton**
 Date: **10 Jun 2021 13:37 GMT**
 Telephone: **0161 763 7200**
 Company: **LK Group**
Unit 29, Eton Business Park
Eton Hill Rd, Radcliffe
Greater Manchester
M26 2ZS

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
 Hazardous Waste Classification

Date
 08 Oct 2020

Next 3 year Refresher due by Oct 2023

Job summary

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
1	WS101-ES1-24/05/2021-0.00	0.00-0.20	Non Hazardous		3
2	WS101-ES2-24/05/2021-0.20	0.20-0.80	Non Hazardous		6
3	WS103-ES1-24/05/2021-0.20	0.20-0.70	Non Hazardous		7
4	WS104-ES1-24/05/2021-0.05	0.05-0.50	Non Hazardous		10
5	WS105-ES1-24/05/2021-0.05	0.05-0.40	Non Hazardous		12
6	WS106-ES1-24/05/2021-0.00	0.00-0.20	Non Hazardous		14
7	WS106-ES2-24/05/2021-0.20	0.20-1.00	Non Hazardous		16
8	WS107-ES1-24/05/2021-0.00	0.00-0.20	Non Hazardous		17
9	WS108-ES1-24/05/2021-0.00	0.00-0.40	Non Hazardous		19
10	WS109-ES1-24/05/2021-0.00	0.00-0.40	Non Hazardous		21
11	WS110-ES1-24/05/2021-0.00	0.00-0.20	Non Hazardous		23
12	WS110-ES2-24/05/2021-0.20	0.20-1.00	Non Hazardous		25
13	HD101-ES1-24/05/2021-0.00	0.00-0.20	Non Hazardous		26
14	HD102-ES1-24/05/2021-0.00	0.00-0.20	Non Hazardous		28
15	HD103-ES1-24/05/2021-0.00	0.00-0.20	Non Hazardous		30
16	HD104-ES1-24/05/2021-0.00	0.00-0.40	Non Hazardous		32
17	HD114/HD119/HD120-26/03/2021-0.00	0.00-0.40	Non Hazardous		34
18	HD108-25/03/2021-0	0-0.4	Non Hazardous		37
19	HD107-25/03/2021-0	0-0.5	Non Hazardous		39
20	HD107-25/03/2021-0.5	0.5-0.6	Non Hazardous		41
21	HD106-25/03/2021-0	0-0.4	Non Hazardous		42
22	HD105-25/03/2021-0	0-0.4	Non Hazardous		44
23	HD124-26/03/2021-0	0-0.5	Non Hazardous		46
24	HD123-26/03/2021-0	0-0.3	Non Hazardous		48
25	HD122-26/03/2021-0	0-0.4	Non Hazardous		50
26	HD121-26/03/2021-0	0-0.3	Non Hazardous		52
27	HD120-26/03/2021-0.4	0.4-0.55	Non Hazardous		54
28	HD111-26/03/2021-0	0-0.3	Non Hazardous		55

#	Sample name	Depth [m]	Classification Result	Hazard properties	Page
29	HD110-26/03/2021-0	0-0.4	Non Hazardous		57
30	HD110-26/03/2021-0.4	0.4-0.6	Non Hazardous		59
31	HD109-26/03/2021-0	0-0.5	Non Hazardous		60
32	HD118-26/03/2021-0	0-0.3	Non Hazardous		62
33	HD117-26/03/2021-0	0-0.4	Non Hazardous		64
34	HD116-26/03/2021-0	0-0.4	Non Hazardous		66
35	HD116-26/03/2021-0.9	0.9-1.0	Non Hazardous		68
36	HD115-26/03/2021-0	0-0.3	Non Hazardous		69
37	HD113-26/03/2021-0	0-0.3	Non Hazardous		71
38	HD112-26/03/2021-0	0-0.4	Non Hazardous		73

Related documents

#	Name	Description
1	HWOL_21-17621-20210609 144419.hwol	.hwol file used to create the Job
2	HWOL_21-10470-20210412 075012.hwol	.hwol file used to create the Job
3	HWOL_21-09885-20210412 192826.hwol	.hwol file used to create the Job
4	Example waste stream template for contaminated soils	waste stream template used to create this Job

Report

Created by: Colin Crompton

Created date: 10 Jun 2021 13:37 GMT

Appendices	Page
Appendix A: Classifier defined and non CLP determinands	75
Appendix B: Rationale for selection of metal species	76
Appendix C: Version	77

Classification of sample: WS101-ES1-24/05/2021-0.00

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

Sample details

Sample name:	LoW Code:
WS101-ES1-24/05/2021-0.00	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.00-0.20 m	
Moisture content:	
17%	
(wet weight correction)	

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
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				51 mg/kg	1.32	55.889 mg/kg	0.00559 %	✓	
	033-003-00-0	215-481-4	1327-53-3							
2	boron { diboron trioxide; boric oxide }				0.49 mg/kg	3.22	1.31 mg/kg	0.000131 %	✓	
	005-008-00-8	215-125-8	1303-86-2							
3	cadmium { cadmium oxide }				1.5 mg/kg	1.142	1.422 mg/kg	0.000142 %	✓	
	048-002-00-0	215-146-2	1306-19-0							
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				76 mg/kg	1.462	92.195 mg/kg	0.00922 %	✓	
		215-160-9	1308-38-9							
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.5 mg/kg	2.27	<1.135 mg/kg	<0.000113 %		<LOD
	024-017-00-8									
6	copper { dicopper oxide; copper (I) oxide }				140 mg/kg	1.126	130.828 mg/kg	0.0131 %	✓	
	029-002-00-X	215-270-7	1317-39-1							
7	lead { lead chromate }			1	270 mg/kg	1.56	349.555 mg/kg	0.0224 %	✓	
	082-004-00-2	231-846-0	7758-97-6							
8	mercury { mercury dichloride }				2.7 mg/kg	1.353	3.033 mg/kg	0.000303 %	✓	
	080-010-00-X	231-299-8	7487-94-7							
9	nickel { nickel chromate }				72 mg/kg	2.976	177.862 mg/kg	0.0178 %	✓	
	028-035-00-7	238-766-5	14721-18-7							
10	selenium { nickel selenate }				0.95 mg/kg	2.554	2.014 mg/kg	0.000201 %	✓	
	028-031-00-5	239-125-2	15060-62-5							
11	zinc { zinc chromate }				200 mg/kg	2.774	460.508 mg/kg	0.0461 %	✓	
	024-007-00-3	236-878-9	13530-65-9							
12	TPH (C6 to C40) petroleum group				86 mg/kg		71.38 mg/kg	0.00714 %	✓	
			TPH							
13	confirm TPH has NOT arisen from diesel or petrol				☑					
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	603-181-00-X	216-653-1	1634-04-4							
15	benzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	601-020-00-8	200-753-7	71-43-2							
16	toluene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %		<LOD
	601-021-00-3	203-625-9	108-88-3							

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
17	ethylbenzene 601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
18	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]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
19	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } 006-007-00-5				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<LOD
20	pH		PH		8.1	pH		8.1	pH	8.1 pH		
21	naphthalene 601-052-00-2	202-049-5	91-20-3		0.11	mg/kg		0.0913	mg/kg	0.00000913 %	✓	
22	acenaphthylene 205-917-1	208-96-8			0.12	mg/kg		0.0996	mg/kg	0.00000996 %	✓	
23	acenaphthene 201-469-6	83-32-9			0.44	mg/kg		0.365	mg/kg	0.0000365 %	✓	
24	fluorene 201-695-5	86-73-7			0.39	mg/kg		0.324	mg/kg	0.0000324 %	✓	
25	phenanthrene 201-581-5	85-01-8			5.9	mg/kg		4.897	mg/kg	0.00049 %	✓	
26	anthracene 204-371-1	120-12-7			2.8	mg/kg		2.324	mg/kg	0.000232 %	✓	
27	fluoranthene 205-912-4	206-44-0			14	mg/kg		11.62	mg/kg	0.00116 %	✓	
28	pyrene 204-927-3	129-00-0			12	mg/kg		9.96	mg/kg	0.000996 %	✓	
29	benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		6.1	mg/kg		5.063	mg/kg	0.000506 %	✓	
30	chrysene 601-048-00-0	205-923-4	218-01-9		5.9	mg/kg		4.897	mg/kg	0.00049 %	✓	
31	benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		5.9	mg/kg		4.897	mg/kg	0.00049 %	✓	
32	benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		2.4	mg/kg		1.992	mg/kg	0.000199 %	✓	
33	benzo[a]pyrene; benzo[def]chrysene 601-032-00-3	200-028-5	50-32-8		4.9	mg/kg		4.067	mg/kg	0.000407 %	✓	
34	indeno[123-cd]pyrene 205-893-2	193-39-5			3	mg/kg		2.49	mg/kg	0.000249 %	✓	
35	dibenz[a,h]anthracene 601-041-00-2	200-181-8	53-70-3		0.7	mg/kg		0.581	mg/kg	0.0000581 %	✓	
36	benzo[ghi]perylene 205-883-8	191-24-2			2.8	mg/kg		2.324	mg/kg	0.000232 %	✓	
37	vanadium { divanadium pentaoxide; vanadium pentoxide } 023-001-00-8	215-239-8	1314-62-1		98	mg/kg	1.785	145.207	mg/kg	0.0145 %	✓	
38	monohydric phenols P1186				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
Total:										0.142 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Concentrations at less than 1.0% are "unlikely to be flammable". Flammability of soils is unlikely to result in a hazardous classification in soils (AGS Waste Classification – A Practitioner's Guide).

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.00714%)

Classification of sample: WS101-ES2-24/05/2021-0.20



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

Sample details

Sample name:	LoW Code:	
WS101-ES2-24/05/2021-0.20	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.20-0.80 m		
Moisture content:		
14%		
(wet weight correction)		

Hazard properties

None identified

Determinands

Moisture content: 14% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	pH				9 pH		9 pH	9pH		
Total:									0%	

Key

- User supplied data
- Determinand defined or amended by HazWasteOnline (see Appendix A)

Classification of sample: WS103-ES1-24/05/2021-0.20

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

Sample details

Sample name:	LoW Code:
WS103-ES1-24/05/2021-0.20	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.20-0.70 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
14%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 14% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				6.5	mg/kg	1.32	7.381	mg/kg	0.000738 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	boron { diboron trioxide; boric oxide }				0.49	mg/kg	3.22	1.357	mg/kg	0.000136 %	✓	
	005-008-00-8	215-125-8	1303-86-2									
3	cadmium { cadmium oxide }				0.18	mg/kg	1.142	0.177	mg/kg	0.0000177 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				23	mg/kg	1.462	28.91	mg/kg	0.00289 %	✓	
		215-160-9	1308-38-9									
5	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		<LOD
	024-017-00-8											
6	copper { dicopper oxide; copper (I) oxide }				19	mg/kg	1.126	18.397	mg/kg	0.00184 %	✓	
	029-002-00-X	215-270-7	1317-39-1									
7	lead { lead chromate }			1	26	mg/kg	1.56	34.877	mg/kg	0.00224 %	✓	
	082-004-00-2	231-846-0	7758-97-6									
8	mercury { mercury dichloride }				<0.1	mg/kg	1.353	<0.135	mg/kg	<0.0000135 %		<LOD
	080-010-00-X	231-299-8	7487-94-7									
9	nickel { nickel chromate }				20	mg/kg	2.976	51.192	mg/kg	0.00512 %	✓	
	028-035-00-7	238-766-5	14721-18-7									
10	selenium { nickel selenate }				0.28	mg/kg	2.554	0.615	mg/kg	0.0000615 %	✓	
	028-031-00-5	239-125-2	15060-62-5									
11	zinc { zinc chromate }				41	mg/kg	2.774	97.816	mg/kg	0.00978 %	✓	
	024-007-00-3	236-878-9	13530-65-9									
12	TPH (C6 to C40) petroleum group				130	mg/kg		111.8	mg/kg	0.0112 %	✓	
			TPH									
13	confirm TPH has NOT arisen from diesel or petrol				☒							
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
	603-181-00-X	216-653-1	1634-04-4									
15	benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
	601-020-00-8	200-753-7	71-43-2									
16	toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
	601-021-00-3	203-625-9	108-88-3									

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
17	ethylbenzene 601-023-00-4	202-849-4	100-41-4		<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
18	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]		<0.002	mg/kg		<0.002	mg/kg	<0.0000002 %		<LOD
19	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex } 006-007-00-5				<0.5	mg/kg	1.884	<0.942	mg/kg	<0.0000942 %		<LOD
20	pH		PH		8.8	pH		8.8	pH	8.8 pH		
21	naphthalene 601-052-00-2	202-049-5	91-20-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
22	acenaphthylene 205-917-1	208-96-8			<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
23	acenaphthene 201-469-6	83-32-9			<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
24	fluorene 201-695-5	86-73-7			<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
25	phenanthrene 201-581-5	85-01-8			<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
26	anthracene 204-371-1	120-12-7			<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
27	fluoranthene 205-912-4	206-44-0			<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
28	pyrene 204-927-3	129-00-0			<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
29	benzo[a]anthracene 601-033-00-9	200-280-6	56-55-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
30	chrysene 601-048-00-0	205-923-4	218-01-9		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
31	benzo[b]fluoranthene 601-034-00-4	205-911-9	205-99-2		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
32	benzo[k]fluoranthene 601-036-00-5	205-916-6	207-08-9		0.11	mg/kg		0.0946	mg/kg	0.00000946 %	✓	
33	benzo[a]pyrene; benzo[def]chrysene 601-032-00-3	200-028-5	50-32-8		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
34	indeno[123-cd]pyrene 205-893-2	193-39-5			0.28	mg/kg		0.241	mg/kg	0.0000241 %	✓	
35	dibenz[a,h]anthracene 601-041-00-2	200-181-8	53-70-3		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
36	benzo[ghi]perylene 205-883-8	191-24-2			0.17	mg/kg		0.146	mg/kg	0.0000146 %	✓	
37	vanadium { divanadium pentaoxide; vanadium pentoxide } 023-001-00-8	215-239-8	1314-62-1		22	mg/kg	1.785	33.776	mg/kg	0.00338 %	✓	
38	monohydric phenols P1186				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
Total:										0.0378 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Concentrations at less than 1.0% are "unlikely to be flammable". Flammability of soils is unlikely to result in a hazardous classification in soils (AGS Waste Classification – A Practitioner's Guide).

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0112%)

Classification of sample: WS104-ES1-24/05/2021-0.05

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

Sample details

Sample name:	LoW Code:
WS104-ES1-24/05/2021-0.05	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.05-0.50 m	
Moisture content:	
20%	
(wet weight correction)	

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
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				14	mg/kg	1.32	14.788	mg/kg	0.00148 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				0.32	mg/kg	1.142	0.292	mg/kg	0.0000292 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				13	mg/kg	1.462	15.2	mg/kg	0.00152 %	✓	
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		<LOD
		024-017-00-8										
5	copper { dicopper oxide; copper (I) oxide }				33	mg/kg	1.126	29.723	mg/kg	0.00297 %	✓	
		029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	140	mg/kg	1.56	174.699	mg/kg	0.0112 %	✓	
		082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury dichloride }				0.29	mg/kg	1.353	0.314	mg/kg	0.0000314 %	✓	
		080-010-00-X	231-299-8	7487-94-7								
8	nickel { nickel chromate }				13	mg/kg	2.976	30.953	mg/kg	0.0031 %	✓	
		028-035-00-7	238-766-5	14721-18-7								
9	selenium { nickel selenate }				0.58	mg/kg	2.554	1.185	mg/kg	0.000118 %	✓	
		028-031-00-5	239-125-2	15060-62-5								
10	zinc { zinc chromate }				56	mg/kg	2.774	124.282	mg/kg	0.0124 %	✓	
		024-007-00-3	236-878-9	13530-65-9								
11	pH				8.1	pH		8.1	pH	8.1 pH		
12	naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3								
13	acenaphthylene				0.12	mg/kg		0.096	mg/kg	0.0000096 %	✓	
			205-917-1	208-96-8								
14	acenaphthene				0.16	mg/kg		0.128	mg/kg	0.0000128 %	✓	
			201-469-6	83-32-9								
15	fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7								
16	phenanthrene				0.98	mg/kg		0.784	mg/kg	0.0000784 %	✓	
			201-581-5	85-01-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
17	anthracene	204-371-1	120-12-7		0.3 mg/kg		0.24 mg/kg	0.000024 %	✓	
18	fluoranthene	205-912-4	206-44-0		1.9 mg/kg		1.52 mg/kg	0.000152 %	✓	
19	pyrene	204-927-3	129-00-0		1.7 mg/kg		1.36 mg/kg	0.000136 %	✓	
20	benzo[a]anthracene	601-033-00-9	200-280-6		0.46 mg/kg		0.368 mg/kg	0.0000368 %	✓	
21	chrysene	601-048-00-0	205-923-4		0.91 mg/kg		0.728 mg/kg	0.0000728 %	✓	
22	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.55 mg/kg		0.44 mg/kg	0.000044 %	✓	
23	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.14 mg/kg		0.112 mg/kg	0.0000112 %	✓	
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		1.1 mg/kg		0.88 mg/kg	0.000088 %	✓	
25	indeno[123-cd]pyrene	205-893-2	193-39-5		0.2 mg/kg		0.16 mg/kg	0.000016 %	✓	
26	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	benzo[ghi]perylene	205-883-8	191-24-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
28	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8		17 mg/kg	1.785	24.279 mg/kg	0.00243 %	✓	
Total:								0.0361 %		

Key

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

Classification of sample: WS105-ES1-24/05/2021-0.05

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

Sample details

Sample name:	LoW Code:
WS105-ES1-24/05/2021-0.05	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.05-0.40 m	
Moisture content:	
20%	
(wet weight correction)	

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
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				26	mg/kg	1.32	27.463	mg/kg	0.00275 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				0.47	mg/kg	1.142	0.43	mg/kg	0.000043 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				23	mg/kg	1.462	26.893	mg/kg	0.00269 %	✓	
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		<LOD
		024-017-00-8										
5	copper { dicopper oxide; copper (I) oxide }				95	mg/kg	1.126	85.568	mg/kg	0.00856 %	✓	
		029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	160	mg/kg	1.56	199.656	mg/kg	0.0128 %	✓	
		082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury dichloride }				0.37	mg/kg	1.353	0.401	mg/kg	0.0000401 %	✓	
		080-010-00-X	231-299-8	7487-94-7								
8	nickel { nickel chromate }				33	mg/kg	2.976	78.573	mg/kg	0.00786 %	✓	
		028-035-00-7	238-766-5	14721-18-7								
9	selenium { nickel selenate }				0.63	mg/kg	2.554	1.287	mg/kg	0.000129 %	✓	
		028-031-00-5	239-125-2	15060-62-5								
10	zinc { zinc chromate }				120	mg/kg	2.774	266.318	mg/kg	0.0266 %	✓	
		024-007-00-3	236-878-9	13530-65-9								
11	pH				8.3	pH		8.3	pH	8.3 pH		
12	naphthalene				0.32	mg/kg		0.256	mg/kg	0.0000256 %	✓	
		601-052-00-2	202-049-5	91-20-3								
13	acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8								
14	acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9								
15	fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7								
16	phenanthrene				0.62	mg/kg		0.496	mg/kg	0.0000496 %	✓	
			201-581-5	85-01-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
17	anthracene	204-371-1	120-12-7		0.17 mg/kg		0.136 mg/kg	0.0000136 %	✓	
18	fluoranthene	205-912-4	206-44-0		1.1 mg/kg		0.88 mg/kg	0.000088 %	✓	
19	pyrene	204-927-3	129-00-0		1.1 mg/kg		0.88 mg/kg	0.000088 %	✓	
20	benzo[a]anthracene	601-033-00-9	200-280-6		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
21	chrysene	601-048-00-0	205-923-4		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
22	benzo[b]fluoranthene	601-034-00-4	205-911-9		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
23	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.19 mg/kg		0.152 mg/kg	0.0000152 %	✓	
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.19 mg/kg		0.152 mg/kg	0.0000152 %	✓	
25	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
26	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	benzo[ghi]perylene	205-883-8	191-24-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
28	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8		49 mg/kg	1.785	69.979 mg/kg	0.007 %	✓	
Total:								0.069 %		

Key

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

Classification of sample: WS106-ES1-24/05/2021-0.00

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

Sample details

Sample name:	LoW Code:
WS106-ES1-24/05/2021-0.00	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.00-0.20 m	
Moisture content:	
19%	
(wet weight correction)	

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
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				13	mg/kg	1.32	13.903	mg/kg	0.00139 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				0.27	mg/kg	1.142	0.25	mg/kg	0.000025 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				14	mg/kg	1.462	16.574	mg/kg	0.00166 %	✓	
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		<LOD
		024-017-00-8										
5	copper { dicopper oxide; copper (I) oxide }				51	mg/kg	1.126	46.51	mg/kg	0.00465 %	✓	
		029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	130	mg/kg	1.56	164.249	mg/kg	0.0105 %	✓	
		082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury dichloride }				0.28	mg/kg	1.353	0.307	mg/kg	0.0000307 %	✓	
		080-010-00-X	231-299-8	7487-94-7								
8	nickel { nickel chromate }				13	mg/kg	2.976	31.34	mg/kg	0.00313 %	✓	
		028-035-00-7	238-766-5	14721-18-7								
9	selenium { nickel selenate }				0.37	mg/kg	2.554	0.765	mg/kg	0.0000765 %	✓	
		028-031-00-5	239-125-2	15060-62-5								
10	zinc { zinc chromate }				110	mg/kg	2.774	247.176	mg/kg	0.0247 %	✓	
		024-007-00-3	236-878-9	13530-65-9								
11	pH				7.4	pH		7.4	pH	7.4 pH		
12	naphthalene				0.44	mg/kg		0.356	mg/kg	0.0000356 %	✓	
		601-052-00-2	202-049-5	91-20-3								
13	acenaphthylene				0.21	mg/kg		0.17	mg/kg	0.000017 %	✓	
			205-917-1	208-96-8								
14	acenaphthene				0.39	mg/kg		0.316	mg/kg	0.0000316 %	✓	
			201-469-6	83-32-9								
15	fluorene				0.49	mg/kg		0.397	mg/kg	0.0000397 %	✓	
			201-695-5	86-73-7								
16	phenanthrene				2.7	mg/kg		2.187	mg/kg	0.000219 %	✓	
			201-581-5	85-01-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
17	anthracene	204-371-1	120-12-7		0.7 mg/kg		0.567 mg/kg	0.0000567 %	✓	
18	fluoranthene	205-912-4	206-44-0		3.2 mg/kg		2.592 mg/kg	0.000259 %	✓	
19	pyrene	204-927-3	129-00-0		3 mg/kg		2.43 mg/kg	0.000243 %	✓	
20	benzo[a]anthracene	601-033-00-9	200-280-6		0.1 mg/kg		0.081 mg/kg	0.0000081 %	✓	
21	chrysene	601-048-00-0	205-923-4		1.4 mg/kg		1.134 mg/kg	0.000113 %	✓	
22	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.35 mg/kg		0.284 mg/kg	0.0000284 %	✓	
23	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.76 mg/kg		0.616 mg/kg	0.0000616 %	✓	
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		1.5 mg/kg		1.215 mg/kg	0.000122 %	✓	
25	indeno[123-cd]pyrene	205-893-2	193-39-5		0.57 mg/kg		0.462 mg/kg	0.0000462 %	✓	
26	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	benzo[ghi]perylene	205-883-8	191-24-2		0.23 mg/kg		0.186 mg/kg	0.0000186 %	✓	
28	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8		20 mg/kg	1.785	28.92 mg/kg	0.00289 %	✓	
Total:								0.0505 %		

Key

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

Classification of sample: WS106-ES2-24/05/2021-0.20



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

Sample details

Sample name:	LoW Code:	
WS106-ES2-24/05/2021-0.20	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.20-1.00 m		
Moisture content:		
12%		
(wet weight correction)		

Hazard properties

None identified

Determinands

Moisture content: 12% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	pH		PH		7.4 pH		7.4 pH	7.4 pH		
Total:								0%		

Key

- User supplied data
- Determinand defined or amended by HazWasteOnline (see Appendix A)

Classification of sample: WS107-ES1-24/05/2021-0.00

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

Sample details

Sample name:	LoW Code:
WS107-ES1-24/05/2021-0.00	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.00-0.20 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
15%	
(wet weight correction)	

Hazard properties

None identified

Determinands

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

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				16	mg/kg	1.32	17.956	mg/kg	0.0018 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				0.21	mg/kg	1.142	0.204	mg/kg	0.0000204 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				14	mg/kg	1.462	17.393	mg/kg	0.00174 %	✓	
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		<LOD
	024-017-00-8											
5	copper { dicopper oxide; copper (I) oxide }				43	mg/kg	1.126	41.151	mg/kg	0.00412 %	✓	
	029-002-00-X	215-270-7	1317-39-1									
6	lead { lead chromate }			1	160	mg/kg	1.56	212.135	mg/kg	0.0136 %	✓	
	082-004-00-2	231-846-0	7758-97-6									
7	mercury { mercury dichloride }				0.56	mg/kg	1.353	0.644	mg/kg	0.0000644 %	✓	
	080-010-00-X	231-299-8	7487-94-7									
8	nickel { nickel chromate }				14	mg/kg	2.976	35.418	mg/kg	0.00354 %	✓	
	028-035-00-7	238-766-5	14721-18-7									
9	selenium { nickel selenate }				0.54	mg/kg	2.554	1.172	mg/kg	0.000117 %	✓	
	028-031-00-5	239-125-2	15060-62-5									
10	zinc { zinc chromate }				49	mg/kg	2.774	115.543	mg/kg	0.0116 %	✓	
	024-007-00-3	236-878-9	13530-65-9									
11	pH				6.7	pH		6.7	pH	6.7 pH		
			PH									
12	naphthalene				0.2	mg/kg		0.17	mg/kg	0.000017 %	✓	
	601-052-00-2	202-049-5	91-20-3									
13	acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8									
14	acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9									
15	fluorene				0.28	mg/kg		0.238	mg/kg	0.0000238 %	✓	
		201-695-5	86-73-7									
16	phenanthrene				1.5	mg/kg		1.275	mg/kg	0.000127 %	✓	
		201-581-5	85-01-8									

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
17	anthracene	204-371-1	120-12-7		0.36 mg/kg		0.306 mg/kg	0.0000306 %	✓	
18	fluoranthene	205-912-4	206-44-0		2.2 mg/kg		1.87 mg/kg	0.000187 %	✓	
19	pyrene	204-927-3	129-00-0		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
20	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	1 mg/kg		0.85 mg/kg	0.000085 %	✓	
21	chrysene	601-048-00-0	205-923-4	218-01-9	0.87 mg/kg		0.74 mg/kg	0.000074 %	✓	
22	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	0.51 mg/kg		0.434 mg/kg	0.0000433 %	✓	
23	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	0.4 mg/kg		0.34 mg/kg	0.000034 %	✓	
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	1.3 mg/kg		1.105 mg/kg	0.000111 %	✓	
25	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
26	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	benzo[ghi]perylene	205-883-8	191-24-2		0.16 mg/kg		0.136 mg/kg	0.0000136 %	✓	
28	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1	19 mg/kg	1.785	28.831 mg/kg	0.00288 %	✓	
Total:								0.0403 %		

Key

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

Classification of sample: WS108-ES1-24/05/2021-0.00

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

Sample details

Sample name:	LoW Code:
WS108-ES1-24/05/2021-0.00	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.00-0.40 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
19%	
(wet weight correction)	

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
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				14	mg/kg	1.32	14.972	mg/kg	0.0015 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				0.18	mg/kg	1.142	0.167	mg/kg	0.0000167 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				18	mg/kg	1.462	21.309	mg/kg	0.00213 %	✓	
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		<LOD
	024-017-00-8											
5	copper { dicopper oxide; copper (I) oxide }				31	mg/kg	1.126	28.271	mg/kg	0.00283 %	✓	
	029-002-00-X	215-270-7	1317-39-1									
6	lead { lead chromate }			1	93	mg/kg	1.56	117.501	mg/kg	0.00753 %	✓	
	082-004-00-2	231-846-0	7758-97-6									
7	mercury { mercury dichloride }				0.28	mg/kg	1.353	0.307	mg/kg	0.0000307 %	✓	
	080-010-00-X	231-299-8	7487-94-7									
8	nickel { nickel chromate }				16	mg/kg	2.976	38.572	mg/kg	0.00386 %	✓	
	028-035-00-7	238-766-5	14721-18-7									
9	selenium { nickel selenate }				0.5	mg/kg	2.554	1.034	mg/kg	0.000103 %	✓	
	028-031-00-5	239-125-2	15060-62-5									
10	zinc { zinc chromate }				48	mg/kg	2.774	107.859	mg/kg	0.0108 %	✓	
	024-007-00-3	236-878-9	13530-65-9									
11	pH				6.9	pH		6.9	pH	6.9 pH		
			PH									
12	naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
13	acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8									
14	acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9									
15	fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7									
16	phenanthrene				0.87	mg/kg		0.705	mg/kg	0.0000705 %	✓	
		201-581-5	85-01-8									

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
17	anthracene	204-371-1	120-12-7		0.27 mg/kg		0.219 mg/kg	0.0000219 %	✓	
18	fluoranthene	205-912-4	206-44-0		1.5 mg/kg		1.215 mg/kg	0.000122 %	✓	
19	pyrene	204-927-3	129-00-0		1.3 mg/kg		1.053 mg/kg	0.000105 %	✓	
20	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	0.13 mg/kg		0.105 mg/kg	0.0000105 %	✓	
21	chrysene	601-048-00-0	205-923-4	218-01-9	0.62 mg/kg		0.502 mg/kg	0.0000502 %	✓	
22	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	0.5 mg/kg		0.405 mg/kg	0.0000405 %	✓	
23	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	0.12 mg/kg		0.0972 mg/kg	0.00000972 %	✓	
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	0.65 mg/kg		0.527 mg/kg	0.0000527 %	✓	
25	indeno[123-cd]pyrene	205-893-2	193-39-5		0.2 mg/kg		0.162 mg/kg	0.0000162 %	✓	
26	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	benzo[ghi]perylene	205-883-8	191-24-2		0.15 mg/kg		0.122 mg/kg	0.0000121 %	✓	
28	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1	27 mg/kg	1.785	39.042 mg/kg	0.0039 %	✓	
Total:								0.0334 %		

Key

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

Classification of sample: WS109-ES1-24/05/2021-0.00

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

Sample details

Sample name:	LoW Code:
WS109-ES1-24/05/2021-0.00	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.00-0.40 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
24%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 24% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				20	mg/kg	1.32	20.069	mg/kg	0.00201 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				0.31	mg/kg	1.142	0.269	mg/kg	0.0000269 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				17	mg/kg	1.462	18.883	mg/kg	0.00189 %	✓	
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		<LOD
	024-017-00-8											
5	copper { dicopper oxide; copper (I) oxide }				56	mg/kg	1.126	47.918	mg/kg	0.00479 %	✓	
	029-002-00-X	215-270-7	1317-39-1									
6	lead { lead chromate }			1	150	mg/kg	1.56	177.819	mg/kg	0.0114 %	✓	
	082-004-00-2	231-846-0	7758-97-6									
7	mercury { mercury dichloride }				0.33	mg/kg	1.353	0.339	mg/kg	0.0000339 %	✓	
	080-010-00-X	231-299-8	7487-94-7									
8	nickel { nickel chromate }				24	mg/kg	2.976	54.287	mg/kg	0.00543 %	✓	
	028-035-00-7	238-766-5	14721-18-7									
9	selenium { nickel selenate }				0.44	mg/kg	2.554	0.854	mg/kg	0.0000854 %	✓	
	028-031-00-5	239-125-2	15060-62-5									
10	zinc { zinc chromate }				71	mg/kg	2.774	149.693	mg/kg	0.015 %	✓	
	024-007-00-3	236-878-9	13530-65-9									
11	pH				8	pH		8	pH	8pH		
			PH									
12	naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
13	acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8									
14	acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9									
15	fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7									
16	phenanthrene				0.44	mg/kg		0.334	mg/kg	0.0000334 %	✓	
		201-581-5	85-01-8									

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
17	anthracene	204-371-1	120-12-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
18	fluoranthene	205-912-4	206-44-0		0.75	mg/kg		0.57	mg/kg	0.000057 %	✓	
19	pyrene	204-927-3	129-00-0		0.62	mg/kg		0.471	mg/kg	0.0000471 %	✓	
20	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	0.36	mg/kg		0.274	mg/kg	0.0000274 %	✓	
21	chrysene	601-048-00-0	205-923-4	218-01-9	0.48	mg/kg		0.365	mg/kg	0.0000365 %	✓	
22	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	0.31	mg/kg		0.236	mg/kg	0.0000236 %	✓	
23	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	0.29	mg/kg		0.22	mg/kg	0.000022 %	✓	
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	0.44	mg/kg		0.334	mg/kg	0.0000334 %	✓	
25	indeno[123-cd]pyrene	205-893-2	193-39-5		0.36	mg/kg		0.274	mg/kg	0.0000274 %	✓	
26	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
27	benzo[ghi]perylene	205-883-8	191-24-2		0.38	mg/kg		0.289	mg/kg	0.0000289 %	✓	
28	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1	25	mg/kg	1.785	33.919	mg/kg	0.00339 %	✓	
Total:										0.0445 %		

Key

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

Classification of sample: WS110-ES1-24/05/2021-0.00

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

Sample details

Sample name:	LoW Code:
WS110-ES1-24/05/2021-0.00	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.00-0.20 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
21%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 21% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				16	mg/kg	1.32	16.689	mg/kg	0.00167 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				0.2	mg/kg	1.142	0.18	mg/kg	0.000018 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				14	mg/kg	1.462	16.165	mg/kg	0.00162 %	✓	
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		<LOD
	024-017-00-8											
5	copper { dicopper oxide; copper (I) oxide }				40	mg/kg	1.126	35.578	mg/kg	0.00356 %	✓	
	029-002-00-X	215-270-7	1317-39-1									
6	lead { lead chromate }			1	120	mg/kg	1.56	147.87	mg/kg	0.00948 %	✓	
	082-004-00-2	231-846-0	7758-97-6									
7	mercury { mercury dichloride }				0.53	mg/kg	1.353	0.567	mg/kg	0.0000567 %	✓	
	080-010-00-X	231-299-8	7487-94-7									
8	nickel { nickel chromate }				14	mg/kg	2.976	32.917	mg/kg	0.00329 %	✓	
	028-035-00-7	238-766-5	14721-18-7									
9	selenium { nickel selenate }				0.54	mg/kg	2.554	1.089	mg/kg	0.000109 %	✓	
	028-031-00-5	239-125-2	15060-62-5									
10	zinc { zinc chromate }				52	mg/kg	2.774	113.962	mg/kg	0.0114 %	✓	
	024-007-00-3	236-878-9	13530-65-9									
11	pH				6.4	pH		6.4	pH	6.4 pH		
			PH									
12	naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
13	acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8									
14	acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9									
15	fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7									
16	phenanthrene				1.2	mg/kg		0.948	mg/kg	0.0000948 %	✓	
		201-581-5	85-01-8									

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
17	anthracene	204-371-1	120-12-7		0.21 mg/kg		0.166 mg/kg	0.0000166 %	✓	
18	fluoranthene	205-912-4	206-44-0		1.9 mg/kg		1.501 mg/kg	0.00015 %	✓	
19	pyrene	204-927-3	129-00-0		1.9 mg/kg		1.501 mg/kg	0.00015 %	✓	
20	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	0.3 mg/kg		0.237 mg/kg	0.0000237 %	✓	
21	chrysene	601-048-00-0	205-923-4	218-01-9	0.63 mg/kg		0.498 mg/kg	0.0000498 %	✓	
22	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	0.22 mg/kg		0.174 mg/kg	0.0000174 %	✓	
23	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	0.36 mg/kg		0.284 mg/kg	0.0000284 %	✓	
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	1 mg/kg		0.79 mg/kg	0.000079 %	✓	
25	indeno[123-cd]pyrene	205-893-2	193-39-5		0.28 mg/kg		0.221 mg/kg	0.0000221 %	✓	
26	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	benzo[ghi]perylene	205-883-8	191-24-2		0.67 mg/kg		0.529 mg/kg	0.0000529 %	✓	
28	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1	22 mg/kg	1.785	31.027 mg/kg	0.0031 %	✓	
Total:								0.0351 %		

Key

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

Classification of sample: WS110-ES2-24/05/2021-0.20

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

Sample details

Sample name:	LoW Code:	
WS110-ES2-24/05/2021-0.20	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.20-1.00 m		
Moisture content:		
13%		
(wet weight correction)		

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
	CLP index number	EC Number	CAS Number							
1	• pH				6.5 pH		6.5 pH	6.5 pH		
			PH							
Total:								0%		

Key

- User supplied data
- Determinand defined or amended by HazWasteOnline (see Appendix A)

Classification of sample: HD101-ES1-24/05/2021-0.00

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

Sample details

Sample name:	LoW Code:
HD101-ES1-24/05/2021-0.00	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.00-0.20 m	
Moisture content:	
20%	
(wet weight correction)	

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
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				16	mg/kg	1.32	16.9	mg/kg	0.00169 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				0.28	mg/kg	1.142	0.256	mg/kg	0.0000256 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				14	mg/kg	1.462	16.369	mg/kg	0.00164 %	✓	
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		<LOD
		024-017-00-8										
5	copper { dicopper oxide; copper (I) oxide }				42	mg/kg	1.126	37.83	mg/kg	0.00378 %	✓	
		029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	140	mg/kg	1.56	174.699	mg/kg	0.0112 %	✓	
		082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury dichloride }				0.5	mg/kg	1.353	0.541	mg/kg	0.0000541 %	✓	
		080-010-00-X	231-299-8	7487-94-7								
8	nickel { nickel chromate }				12	mg/kg	2.976	28.572	mg/kg	0.00286 %	✓	
		028-035-00-7	238-766-5	14721-18-7								
9	selenium { nickel selenate }				0.61	mg/kg	2.554	1.246	mg/kg	0.000125 %	✓	
		028-031-00-5	239-125-2	15060-62-5								
10	zinc { zinc chromate }				51	mg/kg	2.774	113.185	mg/kg	0.0113 %	✓	
		024-007-00-3	236-878-9	13530-65-9								
11	pH				7.1	pH		7.1	pH	7.1 pH		
12	naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3								
13	acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8								
14	acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9								
15	fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7								
16	phenanthrene				1	mg/kg		0.8	mg/kg	0.00008 %	✓	
			201-581-5	85-01-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
17	anthracene	204-371-1	120-12-7		0.3 mg/kg		0.24 mg/kg	0.000024 %	✓	
18	fluoranthene	205-912-4	206-44-0		1.8 mg/kg		1.44 mg/kg	0.000144 %	✓	
19	pyrene	204-927-3	129-00-0		1.8 mg/kg		1.44 mg/kg	0.000144 %	✓	
20	benzo[a]anthracene	601-033-00-9	200-280-6		1 mg/kg		0.8 mg/kg	0.00008 %	✓	
21	chrysene	601-048-00-0	205-923-4		0.93 mg/kg		0.744 mg/kg	0.0000744 %	✓	
22	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.55 mg/kg		0.44 mg/kg	0.000044 %	✓	
23	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.2 mg/kg		0.16 mg/kg	0.000016 %	✓	
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		1.2 mg/kg		0.96 mg/kg	0.000096 %	✓	
25	indeno[123-cd]pyrene	205-893-2	193-39-5		0.69 mg/kg		0.552 mg/kg	0.0000552 %	✓	
26	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	benzo[ghi]perylene	205-883-8	191-24-2		0.75 mg/kg		0.6 mg/kg	0.00006 %	✓	
28	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8		20 mg/kg	1.785	28.563 mg/kg	0.00286 %	✓	
Total:								0.0365 %		

Key

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

Classification of sample: HD102-ES1-24/05/2021-0.00

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

Sample details

Sample name:	LoW Code:
HD102-ES1-24/05/2021-0.00	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.00-0.20 m	
Moisture content:	
21%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 21% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				18	mg/kg	1.32	18.775	mg/kg	0.00188 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				0.32	mg/kg	1.142	0.289	mg/kg	0.0000289 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				20	mg/kg	1.462	23.093	mg/kg	0.00231 %	✓	
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		<LOD
		024-017-00-8										
5	copper { dicopper oxide; copper (I) oxide }				41	mg/kg	1.126	36.468	mg/kg	0.00365 %	✓	
		029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	130	mg/kg	1.56	160.193	mg/kg	0.0103 %	✓	
		082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury dichloride }				0.48	mg/kg	1.353	0.513	mg/kg	0.0000513 %	✓	
		080-010-00-X	231-299-8	7487-94-7								
8	nickel { nickel chromate }				20	mg/kg	2.976	47.025	mg/kg	0.0047 %	✓	
		028-035-00-7	238-766-5	14721-18-7								
9	selenium { nickel selenate }				0.64	mg/kg	2.554	1.291	mg/kg	0.000129 %	✓	
		028-031-00-5	239-125-2	15060-62-5								
10	zinc { zinc chromate }				65	mg/kg	2.774	142.452	mg/kg	0.0142 %	✓	
		024-007-00-3	236-878-9	13530-65-9								
11	pH				7	pH		7	pH	7pH		
12	naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3								
13	acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8								
14	acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9								
15	fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7								
16	phenanthrene				0.84	mg/kg		0.664	mg/kg	0.0000664 %	✓	
			201-581-5	85-01-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
17	anthracene	204-371-1	120-12-7		0.21 mg/kg		0.166 mg/kg	0.0000166 %	✓	
18	fluoranthene	205-912-4	206-44-0		1.5 mg/kg		1.185 mg/kg	0.000119 %	✓	
19	pyrene	204-927-3	129-00-0		1.4 mg/kg		1.106 mg/kg	0.000111 %	✓	
20	benzo[a]anthracene	601-033-00-9	200-280-6		0.16 mg/kg		0.126 mg/kg	0.0000126 %	✓	
21	chrysene	601-048-00-0	205-923-4		0.56 mg/kg		0.442 mg/kg	0.0000442 %	✓	
22	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.38 mg/kg		0.3 mg/kg	0.00003 %	✓	
23	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.34 mg/kg		0.269 mg/kg	0.0000269 %	✓	
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.88 mg/kg		0.695 mg/kg	0.0000695 %	✓	
25	indeno[123-cd]pyrene	205-893-2	193-39-5		0.14 mg/kg		0.111 mg/kg	0.0000111 %	✓	
26	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.12 mg/kg		0.0948 mg/kg	0.00000948 %	✓	
27	benzo[ghi]perylene	205-883-8	191-24-2		0.14 mg/kg		0.111 mg/kg	0.0000111 %	✓	
28	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8		27 mg/kg	1.785	38.078 mg/kg	0.00381 %	✓	
Total:								0.0417 %		

Key

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

Classification of sample: HD103-ES1-24/05/2021-0.00

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

Sample details

Sample name:	LoW Code:
HD103-ES1-24/05/2021-0.00	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.00-0.20 m	
Moisture content:	
22%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 22% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				12	mg/kg	1.32	12.358	mg/kg	0.00124 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				0.21	mg/kg	1.142	0.187	mg/kg	0.0000187 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				11	mg/kg	1.462	12.54	mg/kg	0.00125 %	✓	
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		<LOD
		024-017-00-8										
5	copper { dicopper oxide; copper (I) oxide }				36	mg/kg	1.126	31.615	mg/kg	0.00316 %	✓	
		029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	99	mg/kg	1.56	120.449	mg/kg	0.00772 %	✓	
		082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury dichloride }				0.35	mg/kg	1.353	0.37	mg/kg	0.000037 %	✓	
		080-010-00-X	231-299-8	7487-94-7								
8	nickel { nickel chromate }				11	mg/kg	2.976	25.536	mg/kg	0.00255 %	✓	
		028-035-00-7	238-766-5	14721-18-7								
9	selenium { nickel selenate }				0.45	mg/kg	2.554	0.896	mg/kg	0.0000896 %	✓	
		028-031-00-5	239-125-2	15060-62-5								
10	zinc { zinc chromate }				48	mg/kg	2.774	103.864	mg/kg	0.0104 %	✓	
		024-007-00-3	236-878-9	13530-65-9								
11	pH				6.8	pH		6.8	pH	6.8 pH		
12	naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3								
13	acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8								
14	acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9								
15	fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7								
16	phenanthrene				0.53	mg/kg		0.413	mg/kg	0.0000413 %	✓	
			201-581-5	85-01-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
17	anthracene	204-371-1	120-12-7		0.16 mg/kg		0.125 mg/kg	0.0000125 %	✓	
18	fluoranthene	205-912-4	206-44-0		0.93 mg/kg		0.725 mg/kg	0.0000725 %	✓	
19	pyrene	204-927-3	129-00-0		0.92 mg/kg		0.718 mg/kg	0.0000718 %	✓	
20	benzo[a]anthracene	601-033-00-9	200-280-6		0.46 mg/kg		0.359 mg/kg	0.0000359 %	✓	
21	chrysene	601-048-00-0	205-923-4		0.56 mg/kg		0.437 mg/kg	0.0000437 %	✓	
22	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.63 mg/kg		0.491 mg/kg	0.0000491 %	✓	
23	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.24 mg/kg		0.187 mg/kg	0.0000187 %	✓	
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.47 mg/kg		0.367 mg/kg	0.0000367 %	✓	
25	indeno[123-cd]pyrene	205-893-2	193-39-5		0.37 mg/kg		0.289 mg/kg	0.0000289 %	✓	
26	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.14 mg/kg		0.109 mg/kg	0.0000109 %	✓	
27	benzo[ghi]perylene	205-883-8	191-24-2		0.43 mg/kg		0.335 mg/kg	0.0000335 %	✓	
28	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8		16 mg/kg	1.785	22.279 mg/kg	0.00223 %	✓	
Total:								0.0293 %		

Key

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

Classification of sample: HD104-ES1-24/05/2021-0.00

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

Sample details

Sample name:	LoW Code:
HD104-ES1-24/05/2021-0.00	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.00-0.40 m	
Moisture content:	
21%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 21% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				16	mg/kg	1.32	16.689	mg/kg	0.00167 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				0.35	mg/kg	1.142	0.316	mg/kg	0.0000316 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				21	mg/kg	1.462	24.247	mg/kg	0.00242 %	✓	
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		<LOD
		024-017-00-8										
5	copper { dicopper oxide; copper (I) oxide }				45	mg/kg	1.126	40.025	mg/kg	0.004 %	✓	
		029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	160	mg/kg	1.56	197.161	mg/kg	0.0126 %	✓	
		082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury dichloride }				0.49	mg/kg	1.353	0.524	mg/kg	0.0000524 %	✓	
		080-010-00-X	231-299-8	7487-94-7								
8	nickel { nickel chromate }				18	mg/kg	2.976	42.322	mg/kg	0.00423 %	✓	
		028-035-00-7	238-766-5	14721-18-7								
9	selenium { nickel selenate }				0.55	mg/kg	2.554	1.11	mg/kg	0.000111 %	✓	
		028-031-00-5	239-125-2	15060-62-5								
10	zinc { zinc chromate }				82	mg/kg	2.774	179.709	mg/kg	0.018 %	✓	
		024-007-00-3	236-878-9	13530-65-9								
11	pH				6.9	pH		6.9	pH	6.9 pH		
12	naphthalene				0.27	mg/kg		0.213	mg/kg	0.0000213 %	✓	
		601-052-00-2	202-049-5	91-20-3								
13	acenaphthylene				0.1	mg/kg		0.079	mg/kg	0.0000079 %	✓	
			205-917-1	208-96-8								
14	acenaphthene				1.3	mg/kg		1.027	mg/kg	0.000103 %	✓	
			201-469-6	83-32-9								
15	fluorene				1	mg/kg		0.79	mg/kg	0.000079 %	✓	
			201-695-5	86-73-7								
16	phenanthrene				9	mg/kg		7.11	mg/kg	0.000711 %	✓	
			201-581-5	85-01-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
17	anthracene	204-371-1	120-12-7		2.8 mg/kg		2.212 mg/kg	0.000221 %	✓	
18	fluoranthene	205-912-4	206-44-0		8.9 mg/kg		7.031 mg/kg	0.000703 %	✓	
19	pyrene	204-927-3	129-00-0		7.3 mg/kg		5.767 mg/kg	0.000577 %	✓	
20	benzo[a]anthracene	601-033-00-9	200-280-6		3.1 mg/kg		2.449 mg/kg	0.000245 %	✓	
21	chrysene	601-048-00-0	205-923-4		3.3 mg/kg		2.607 mg/kg	0.000261 %	✓	
22	benzo[b]fluoranthene	601-034-00-4	205-911-9		3.4 mg/kg		2.686 mg/kg	0.000269 %	✓	
23	benzo[k]fluoranthene	601-036-00-5	205-916-6		1.3 mg/kg		1.027 mg/kg	0.000103 %	✓	
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		2.6 mg/kg		2.054 mg/kg	0.000205 %	✓	
25	indeno[123-cd]pyrene	205-893-2	193-39-5		1.8 mg/kg		1.422 mg/kg	0.000142 %	✓	
26	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.31 mg/kg		0.245 mg/kg	0.0000245 %	✓	
27	benzo[ghi]perylene	205-883-8	191-24-2		1.7 mg/kg		1.343 mg/kg	0.000134 %	✓	
28	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8		25 mg/kg	1.785	35.257 mg/kg	0.00353 %	✓	
Total:								0.0506 %		

Key

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

Classification of sample: HD114/HD119/HD120-26/03/2021-0.00

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

Sample details

Sample name:	LoW Code:
HD114/HD119/HD120-26/03/2021-0.00	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.00-0.40 m	
Moisture content:	
14%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 14% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				17	mg/kg	1.32	19.303	mg/kg	0.00193 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	boron { diboron trioxide; boric oxide }				<0.4	mg/kg	3.22	<1.288	mg/kg	<0.000129 %		<LOD
	005-008-00-8	215-125-8	1303-86-2									
3	cadmium { cadmium oxide }				0.13	mg/kg	1.142	0.128	mg/kg	0.0000128 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
4	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				13	mg/kg	1.462	16.34	mg/kg	0.00163 %	✓	
		215-160-9	1308-38-9									
5	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		<LOD
	024-017-00-8											
6	copper { dicopper oxide; copper (I) oxide }				25	mg/kg	1.126	24.207	mg/kg	0.00242 %	✓	
	029-002-00-X	215-270-7	1317-39-1									
7	lead { lead chromate }			1	58	mg/kg	1.56	77.804	mg/kg	0.00499 %	✓	
	082-004-00-2	231-846-0	7758-97-6									
8	mercury { mercury dichloride }				0.21	mg/kg	1.353	0.244	mg/kg	0.0000244 %	✓	
	080-010-00-X	231-299-8	7487-94-7									
9	nickel { nickel chromate }				12	mg/kg	2.976	30.715	mg/kg	0.00307 %	✓	
	028-035-00-7	238-766-5	14721-18-7									
10	selenium { nickel selenate }				0.4	mg/kg	2.554	0.879	mg/kg	0.0000879 %	✓	
	028-031-00-5	239-125-2	15060-62-5									
11	zinc { zinc chromate }				32	mg/kg	2.774	76.345	mg/kg	0.00763 %	✓	
	024-007-00-3	236-878-9	13530-65-9									
12	TPH (C6 to C40) petroleum group				64	mg/kg		55.04	mg/kg	0.0055 %	✓	
			TPH									
13	confirm TPH has NOT arisen from diesel or petrol				☒							
14	tert-butyl methyl ether; MTBE; 2-methoxy-2-methylpropane				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
	603-181-00-X	216-653-1	1634-04-4									
15	benzene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
	601-020-00-8	200-753-7	71-43-2									
16	toluene				<0.001	mg/kg		<0.001	mg/kg	<0.0000001 %		<LOD
	601-021-00-3	203-625-9	108-88-3									

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
17	ethylbenzene				<0.001 mg/kg		<0.001 mg/kg	<0.0000001 %			<LOD
	601-023-00-4	202-849-4	100-41-4								
18	xylene				<0.002 mg/kg		<0.002 mg/kg	<0.0000002 %			<LOD
	601-022-00-9	202-422-2 [1] 203-396-5 [2] 203-576-3 [3] 215-535-7 [4]	95-47-6 [1] 106-42-3 [2] 108-38-3 [3] 1330-20-7 [4]								
19	cyanides { salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex }				<0.5 mg/kg	1.884	<0.942 mg/kg	<0.0000942 %			<LOD
	006-007-00-5										
20	pH		PH		7.1 pH		7.1 pH	7.1 pH			
21	naphthalene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-052-00-2	202-049-5	91-20-3								
22	acenaphthylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-917-1	208-96-8								
23	acenaphthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-469-6	83-32-9								
24	fluorene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-695-5	86-73-7								
25	phenanthrene				0.94 mg/kg		0.808 mg/kg	0.0000808 %	✓		
		201-581-5	85-01-8								
26	anthracene				0.15 mg/kg		0.129 mg/kg	0.0000129 %	✓		
		204-371-1	120-12-7								
27	fluoranthene				1.7 mg/kg		1.462 mg/kg	0.000146 %	✓		
		205-912-4	206-44-0								
28	pyrene				1.5 mg/kg		1.29 mg/kg	0.000129 %	✓		
		204-927-3	129-00-0								
29	benzo[a]anthracene				0.58 mg/kg		0.499 mg/kg	0.0000499 %	✓		
	601-033-00-9	200-280-6	56-55-3								
30	chrysene				0.64 mg/kg		0.55 mg/kg	0.000055 %	✓		
	601-048-00-0	205-923-4	218-01-9								
31	benzo[b]fluoranthene				0.87 mg/kg		0.748 mg/kg	0.0000748 %	✓		
	601-034-00-4	205-911-9	205-99-2								
32	benzo[k]fluoranthene				0.5 mg/kg		0.43 mg/kg	0.000043 %	✓		
	601-036-00-5	205-916-6	207-08-9								
33	benzo[a]pyrene; benzo[def]chrysene				0.73 mg/kg		0.628 mg/kg	0.0000628 %	✓		
	601-032-00-3	200-028-5	50-32-8								
34	indeno[123-cd]pyrene				0.5 mg/kg		0.43 mg/kg	0.000043 %	✓		
		205-893-2	193-39-5								
35	dibenz[a,h]anthracene				0.11 mg/kg		0.0946 mg/kg	0.00000946 %	✓		
	601-041-00-2	200-181-8	53-70-3								
36	benzo[ghi]perylene				0.5 mg/kg		0.43 mg/kg	0.000043 %	✓		
		205-883-8	191-24-2								
37	vanadium { divanadium pentaoxide; vanadium pentoxide }				16 mg/kg	1.785	24.564 mg/kg	0.00246 %	✓		
	023-001-00-8	215-239-8	1314-62-1								
38	monohydric phenols		P1186		<0.3 mg/kg		<0.3 mg/kg	<0.00003 %			<LOD
Total:									0.0309 %		

Key

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

Supplementary Hazardous Property Information

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

Force this Hazardous property to non hazardous because Concentrations at less than 1.0% are "unlikely to be flammable". Flammability of soils is unlikely to result in a hazardous classification in soils (AGS Waste Classification – A Practitioner's Guide).

Hazard Statements hit:

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

Because of determinand:

TPH (C6 to C40) petroleum group: (conc.: 0.0055%)

Classification of sample: HD108-25/03/2021-0

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

Sample details

Sample name:	LoW Code:
HD108-25/03/2021-0	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0-0.4 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
54%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 54% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				7.7	mg/kg	1.32	4.677	mg/kg	0.000468 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				0.11	mg/kg	1.142	0.0578	mg/kg	0.00000578 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				13	mg/kg	1.462	8.74	mg/kg	0.000874 %	✓	
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		<LOD
		024-017-00-8										
5	copper { dicopper oxide; copper (I) oxide }				19	mg/kg	1.126	9.84	mg/kg	0.000984 %	✓	
	029-002-00-X	215-270-7	1317-39-1									
6	lead { lead chromate }			1	48	mg/kg	1.56	34.441	mg/kg	0.00221 %	✓	
	082-004-00-2	231-846-0	7758-97-6									
7	mercury { mercury dichloride }				0.29	mg/kg	1.353	0.181	mg/kg	0.0000181 %	✓	
	080-010-00-X	231-299-8	7487-94-7									
8	nickel { nickel chromate }				12	mg/kg	2.976	16.429	mg/kg	0.00164 %	✓	
	028-035-00-7	238-766-5	14721-18-7									
9	selenium { nickel selenate }				0.34	mg/kg	2.554	0.399	mg/kg	0.0000399 %	✓	
	028-031-00-5	239-125-2	15060-62-5									
10	zinc { zinc chromate }				35	mg/kg	2.774	44.664	mg/kg	0.00447 %	✓	
	024-007-00-3	236-878-9	13530-65-9									
11	pH				6.3	pH		6.3	pH	6.3 pH		
			PH									
12	naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
13	acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8									
14	acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9									
15	fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7									
16	phenanthrene				0.38	mg/kg		0.175	mg/kg	0.0000175 %	✓	
		201-581-5	85-01-8									

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
17	anthracene	204-371-1	120-12-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
18	fluoranthene	205-912-4	206-44-0		0.56 mg/kg		0.258 mg/kg	0.0000258 %	✓		
19	pyrene	204-927-3	129-00-0		0.58 mg/kg		0.267 mg/kg	0.0000267 %	✓		
20	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	0.31 mg/kg		0.143 mg/kg	0.0000143 %	✓		
21	chrysene	601-048-00-0	205-923-4	218-01-9	0.4 mg/kg		0.184 mg/kg	0.0000184 %	✓		
22	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	0.43 mg/kg		0.198 mg/kg	0.0000198 %	✓		
23	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	0.14 mg/kg		0.0644 mg/kg	0.00000644 %	✓		
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	0.36 mg/kg		0.166 mg/kg	0.0000166 %	✓		
25	indeno[123-cd]pyrene	205-893-2	193-39-5		0.2 mg/kg		0.092 mg/kg	0.0000092 %	✓		
26	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
27	benzo[ghi]perylene	205-883-8	191-24-2		0.24 mg/kg		0.11 mg/kg	0.000011 %	✓		
28	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1	17 mg/kg	1.785	13.96 mg/kg	0.0014 %	✓		
Total:									0.0124 %		

Key

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

Classification of sample: HD107-25/03/2021-0

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

Sample details

Sample name:	LoW Code:
HD107-25/03/2021-0	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0-0.5 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
13%	
(wet weight correction)	

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
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				11	mg/kg	1.32	12.636	mg/kg	0.00126 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				0.14	mg/kg	1.142	0.139	mg/kg	0.0000139 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				11	mg/kg	1.462	13.987	mg/kg	0.0014 %	✓	
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		<LOD
		024-017-00-8										
5	copper { dicopper oxide; copper (I) oxide }				29	mg/kg	1.126	28.406	mg/kg	0.00284 %	✓	
	029-002-00-X	215-270-7	1317-39-1									
6	lead { lead chromate }			1	77	mg/kg	1.56	104.492	mg/kg	0.0067 %	✓	
	082-004-00-2	231-846-0	7758-97-6									
7	mercury { mercury dichloride }				0.33	mg/kg	1.353	0.389	mg/kg	0.0000389 %	✓	
	080-010-00-X	231-299-8	7487-94-7									
8	nickel { nickel chromate }				12	mg/kg	2.976	31.072	mg/kg	0.00311 %	✓	
	028-035-00-7	238-766-5	14721-18-7									
9	selenium { nickel selenate }				0.4	mg/kg	2.554	0.889	mg/kg	0.0000889 %	✓	
	028-031-00-5	239-125-2	15060-62-5									
10	zinc { zinc chromate }				35	mg/kg	2.774	84.473	mg/kg	0.00845 %	✓	
	024-007-00-3	236-878-9	13530-65-9									
11	pH				6.9	pH		6.9	pH	6.9 pH		
			PH									
12	naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
13	acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8									
14	acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9									
15	fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7									
16	phenanthrene				0.99	mg/kg		0.861	mg/kg	0.0000861 %	✓	
		201-581-5	85-01-8									

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
17	anthracene	204-371-1	120-12-7		0.27 mg/kg		0.235 mg/kg	0.0000235 %	✓	
18	fluoranthene	205-912-4	206-44-0		1.5 mg/kg		1.305 mg/kg	0.000131 %	✓	
19	pyrene	204-927-3	129-00-0		1.5 mg/kg		1.305 mg/kg	0.000131 %	✓	
20	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	0.74 mg/kg		0.644 mg/kg	0.0000644 %	✓	
21	chrysene	601-048-00-0	205-923-4	218-01-9	0.82 mg/kg		0.713 mg/kg	0.0000713 %	✓	
22	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	0.97 mg/kg		0.844 mg/kg	0.0000844 %	✓	
23	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	0.26 mg/kg		0.226 mg/kg	0.0000226 %	✓	
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	0.84 mg/kg		0.731 mg/kg	0.0000731 %	✓	
25	indeno[123-cd]pyrene	205-893-2	193-39-5		0.6 mg/kg		0.522 mg/kg	0.0000522 %	✓	
26	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	0.12 mg/kg		0.104 mg/kg	0.0000104 %	✓	
27	benzo[ghi]perylene	205-883-8	191-24-2		0.49 mg/kg		0.426 mg/kg	0.0000426 %	✓	
28	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1	15 mg/kg	1.785	23.297 mg/kg	0.00233 %	✓	
Total:								0.0272 %		

Key

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

Classification of sample: HD107-25/03/2021-0.5

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

Sample details

Sample name:	LoW Code:	
HD107-25/03/2021-0.5	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.5-0.6 m		
Moisture content:		
14%		
(wet weight correction)		

Hazard properties

None identified

Determinands

Moisture content: 14% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	• pH				7.1 pH		7.1 pH	7.1 pH		
			PH							
Total:								0%		

Key

- User supplied data
- Determinand defined or amended by HazWasteOnline (see Appendix A)

Classification of sample: HD106-25/03/2021-0

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

Sample details

Sample name:	LoW Code:
HD106-25/03/2021-0	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0-0.4 m	
Moisture content:	
15%	
(wet weight correction)	

Hazard properties

None identified

Determinands

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

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				11	mg/kg	1.32	12.345	mg/kg	0.00123 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				0.13	mg/kg	1.142	0.126	mg/kg	0.0000126 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				7.7	mg/kg	1.462	9.566	mg/kg	0.000957 %	✓	
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		<LOD
		024-017-00-8										
5	copper { dicopper oxide; copper (I) oxide }				22	mg/kg	1.126	21.054	mg/kg	0.00211 %	✓	
		029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	67	mg/kg	1.56	88.831	mg/kg	0.0057 %	✓	
		082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury dichloride }				0.22	mg/kg	1.353	0.253	mg/kg	0.0000253 %	✓	
		080-010-00-X	231-299-8	7487-94-7								
8	nickel { nickel chromate }				7.1	mg/kg	2.976	17.962	mg/kg	0.0018 %	✓	
		028-035-00-7	238-766-5	14721-18-7								
9	selenium { nickel selenate }				0.45	mg/kg	2.554	0.977	mg/kg	0.0000977 %	✓	
		028-031-00-5	239-125-2	15060-62-5								
10	zinc { zinc chromate }				25	mg/kg	2.774	58.951	mg/kg	0.0059 %	✓	
		024-007-00-3	236-878-9	13530-65-9								
11	pH				5.9	pH		5.9	pH	5.9 pH		
12	naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3								
13	acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8								
14	acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9								
15	fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7								
16	phenanthrene				0.51	mg/kg		0.434	mg/kg	0.0000433 %	✓	
			201-581-5	85-01-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
17	anthracene	204-371-1	120-12-7		0.12 mg/kg		0.102 mg/kg	0.0000102 %	✓	
18	fluoranthene	205-912-4	206-44-0		0.85 mg/kg		0.723 mg/kg	0.0000723 %	✓	
19	pyrene	204-927-3	129-00-0		0.86 mg/kg		0.731 mg/kg	0.0000731 %	✓	
20	benzo[a]anthracene	601-033-00-9	200-280-6		0.46 mg/kg		0.391 mg/kg	0.0000391 %	✓	
21	chrysene	601-048-00-0	205-923-4		0.49 mg/kg		0.417 mg/kg	0.0000416 %	✓	
22	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.66 mg/kg		0.561 mg/kg	0.0000561 %	✓	
23	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.21 mg/kg		0.179 mg/kg	0.0000179 %	✓	
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.53 mg/kg		0.451 mg/kg	0.0000451 %	✓	
25	indeno[123-cd]pyrene	205-893-2	193-39-5		0.4 mg/kg		0.34 mg/kg	0.000034 %	✓	
26	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.15 mg/kg		0.128 mg/kg	0.0000128 %	✓	
27	benzo[ghi]perylene	205-883-8	191-24-2		0.31 mg/kg		0.264 mg/kg	0.0000264 %	✓	
28	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8		13 mg/kg	1.785	19.726 mg/kg	0.00197 %	✓	
Total:								0.0204 %		

Key

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

Classification of sample: HD105-25/03/2021-0

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

Sample details

Sample name:	LoW Code:
HD105-25/03/2021-0	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0-0.4 m	
Moisture content:	
16%	
(wet weight correction)	

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
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				15	mg/kg	1.32	16.636	mg/kg	0.00166 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				0.24	mg/kg	1.142	0.23	mg/kg	0.000023 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				16	mg/kg	1.462	19.643	mg/kg	0.00196 %	✓	
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		<LOD
		024-017-00-8										
5	copper { dicopper oxide; copper (I) oxide }				44	mg/kg	1.126	41.613	mg/kg	0.00416 %	✓	
		029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	100	mg/kg	1.56	131.024	mg/kg	0.0084 %	✓	
		082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury dichloride }				0.53	mg/kg	1.353	0.603	mg/kg	0.0000603 %	✓	
		080-010-00-X	231-299-8	7487-94-7								
8	nickel { nickel chromate }				16	mg/kg	2.976	40.001	mg/kg	0.004 %	✓	
		028-035-00-7	238-766-5	14721-18-7								
9	selenium { nickel selenate }				0.6	mg/kg	2.554	1.287	mg/kg	0.000129 %	✓	
		028-031-00-5	239-125-2	15060-62-5								
10	zinc { zinc chromate }				46	mg/kg	2.774	107.193	mg/kg	0.0107 %	✓	
		024-007-00-3	236-878-9	13530-65-9								
11	pH				7	pH		7	pH	7pH		
12	naphthalene				0.11	mg/kg		0.0924	mg/kg	0.00000924 %	✓	
		601-052-00-2	202-049-5	91-20-3								
13	acenaphthylene				0.13	mg/kg		0.109	mg/kg	0.0000109 %	✓	
			205-917-1	208-96-8								
14	acenaphthene				0.15	mg/kg		0.126	mg/kg	0.0000126 %	✓	
			201-469-6	83-32-9								
15	fluorene				0.11	mg/kg		0.0924	mg/kg	0.00000924 %	✓	
			201-695-5	86-73-7								
16	phenanthrene				1.4	mg/kg		1.176	mg/kg	0.000118 %	✓	
			201-581-5	85-01-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
17	anthracene	204-371-1	120-12-7		0.36 mg/kg		0.302 mg/kg	0.0000302 %	✓	
18	fluoranthene	205-912-4	206-44-0		1.8 mg/kg		1.512 mg/kg	0.000151 %	✓	
19	pyrene	204-927-3	129-00-0		1.9 mg/kg		1.596 mg/kg	0.00016 %	✓	
20	benzo[a]anthracene	601-033-00-9	200-280-6		0.88 mg/kg		0.739 mg/kg	0.0000739 %	✓	
21	chrysene	601-048-00-0	205-923-4		0.91 mg/kg		0.764 mg/kg	0.0000764 %	✓	
22	benzo[b]fluoranthene	601-034-00-4	205-911-9		1.2 mg/kg		1.008 mg/kg	0.000101 %	✓	
23	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.33 mg/kg		0.277 mg/kg	0.0000277 %	✓	
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.92 mg/kg		0.773 mg/kg	0.0000773 %	✓	
25	indeno[123-cd]pyrene	205-893-2	193-39-5		0.67 mg/kg		0.563 mg/kg	0.0000563 %	✓	
26	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.22 mg/kg		0.185 mg/kg	0.0000185 %	✓	
27	benzo[ghi]perylene	205-883-8	191-24-2		0.6 mg/kg		0.504 mg/kg	0.0000504 %	✓	
28	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8		22 mg/kg	1.785	32.99 mg/kg	0.0033 %	✓	
Total:								0.0355 %		

Key

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

Classification of sample: HD124-26/03/2021-0

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

Sample details

Sample name:	LoW Code:
HD124-26/03/2021-0	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0-0.5 m	
Moisture content:	
15%	
(wet weight correction)	

Hazard properties

None identified

Determinands

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

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				7.2	mg/kg	1.32	8.08	mg/kg	0.000808 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				0.11	mg/kg	1.142	0.107	mg/kg	0.0000107 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				12	mg/kg	1.462	14.908	mg/kg	0.00149 %	✓	
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		<LOD
		024-017-00-8										
5	copper { dicopper oxide; copper (I) oxide }				19	mg/kg	1.126	18.183	mg/kg	0.00182 %	✓	
		029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	39	mg/kg	1.56	51.708	mg/kg	0.00331 %	✓	
		082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury dichloride }				0.14	mg/kg	1.353	0.161	mg/kg	0.0000161 %	✓	
		080-010-00-X	231-299-8	7487-94-7								
8	nickel { nickel chromate }				12	mg/kg	2.976	30.358	mg/kg	0.00304 %	✓	
		028-035-00-7	238-766-5	14721-18-7								
9	selenium { nickel selenate }				0.32	mg/kg	2.554	0.695	mg/kg	0.0000695 %	✓	
		028-031-00-5	239-125-2	15060-62-5								
10	zinc { zinc chromate }				25	mg/kg	2.774	58.951	mg/kg	0.0059 %	✓	
		024-007-00-3	236-878-9	13530-65-9								
11	pH				8	pH		8	pH	8pH		
12	naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3								
13	acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8								
14	acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9								
15	fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7								
16	phenanthrene				0.47	mg/kg		0.399	mg/kg	0.0000399 %	✓	
			201-581-5	85-01-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
17	anthracene	204-371-1	120-12-7		0.1 mg/kg		0.085 mg/kg	0.0000085 %	✓	
18	fluoranthene	205-912-4	206-44-0		0.73 mg/kg		0.62 mg/kg	0.000062 %	✓	
19	pyrene	204-927-3	129-00-0		0.7 mg/kg		0.595 mg/kg	0.0000595 %	✓	
20	benzo[a]anthracene	601-033-00-9	200-280-6		0.31 mg/kg		0.264 mg/kg	0.0000264 %	✓	
21	chrysene	601-048-00-0	205-923-4		0.41 mg/kg		0.349 mg/kg	0.0000349 %	✓	
22	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.4 mg/kg		0.34 mg/kg	0.000034 %	✓	
23	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.19 mg/kg		0.161 mg/kg	0.0000161 %	✓	
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.35 mg/kg		0.298 mg/kg	0.0000298 %	✓	
25	indeno[123-cd]pyrene	205-893-2	193-39-5		0.22 mg/kg		0.187 mg/kg	0.0000187 %	✓	
26	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	benzo[ghi]perylene	205-883-8	191-24-2		0.23 mg/kg		0.196 mg/kg	0.0000196 %	✓	
28	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8		14 mg/kg	1.785	21.244 mg/kg	0.00212 %	✓	
Total:								0.0191 %		

Key

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

Classification of sample: HD123-26/03/2021-0

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

Sample details

Sample name:	LoW Code:
HD123-26/03/2021-0	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0-0.3 m	
Moisture content:	
17%	
(wet weight correction)	

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
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				17	mg/kg	1.32	18.63	mg/kg	0.00186 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				0.21	mg/kg	1.142	0.199	mg/kg	0.0000199 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				18	mg/kg	1.462	21.836	mg/kg	0.00218 %	✓	
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		<LOD
		024-017-00-8										
5	copper { dicopper oxide; copper (I) oxide }				38	mg/kg	1.126	35.511	mg/kg	0.00355 %	✓	
		029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	110	mg/kg	1.56	142.411	mg/kg	0.00913 %	✓	
		082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury dichloride }				0.41	mg/kg	1.353	0.461	mg/kg	0.0000461 %	✓	
		080-010-00-X	231-299-8	7487-94-7								
8	nickel { nickel chromate }				15	mg/kg	2.976	37.054	mg/kg	0.00371 %	✓	
		028-035-00-7	238-766-5	14721-18-7								
9	selenium { nickel selenate }				0.6	mg/kg	2.554	1.272	mg/kg	0.000127 %	✓	
		028-031-00-5	239-125-2	15060-62-5								
10	zinc { zinc chromate }				51	mg/kg	2.774	117.43	mg/kg	0.0117 %	✓	
		024-007-00-3	236-878-9	13530-65-9								
11	pH				6.6	pH		6.6	pH	6.6 pH		
12	naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3								
13	acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8								
14	acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9								
15	fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7								
16	phenanthrene				0.66	mg/kg		0.548	mg/kg	0.0000548 %	✓	
			201-581-5	85-01-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
17	anthracene	204-371-1	120-12-7		0.18 mg/kg		0.149 mg/kg	0.0000149 %	✓	
18	fluoranthene	205-912-4	206-44-0		1 mg/kg		0.83 mg/kg	0.000083 %	✓	
19	pyrene	204-927-3	129-00-0		1.1 mg/kg		0.913 mg/kg	0.0000913 %	✓	
20	benzo[a]anthracene	601-033-00-9	200-280-6		0.55 mg/kg		0.457 mg/kg	0.0000457 %	✓	
21	chrysene	601-048-00-0	205-923-4		0.54 mg/kg		0.448 mg/kg	0.0000448 %	✓	
22	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.8 mg/kg		0.664 mg/kg	0.0000664 %	✓	
23	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.23 mg/kg		0.191 mg/kg	0.0000191 %	✓	
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.54 mg/kg		0.448 mg/kg	0.0000448 %	✓	
25	indeno[123-cd]pyrene	205-893-2	193-39-5		0.43 mg/kg		0.357 mg/kg	0.0000357 %	✓	
26	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	benzo[ghi]perylene	205-883-8	191-24-2		0.37 mg/kg		0.307 mg/kg	0.0000307 %	✓	
28	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8		28 mg/kg	1.785	41.488 mg/kg	0.00415 %	✓	
Total:								0.0372 %		

Key

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

Classification of sample: HD122-26/03/2021-0

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

Sample details

Sample name:	LoW Code:
HD122-26/03/2021-0	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0-0.4 m	
Moisture content:	
13%	
(wet weight correction)	

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
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				11	mg/kg	1.32	12.636	mg/kg	0.00126 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				0.24	mg/kg	1.142	0.239	mg/kg	0.0000239 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				23	mg/kg	1.462	29.246	mg/kg	0.00292 %	✓	
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		<LOD
		024-017-00-8										
5	copper { dicopper oxide; copper (I) oxide }				46	mg/kg	1.126	45.058	mg/kg	0.00451 %	✓	
		029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	110	mg/kg	1.56	149.274	mg/kg	0.00957 %	✓	
		082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury dichloride }				0.49	mg/kg	1.353	0.577	mg/kg	0.0000577 %	✓	
		080-010-00-X	231-299-8	7487-94-7								
8	nickel { nickel chromate }				14	mg/kg	2.976	36.251	mg/kg	0.00363 %	✓	
		028-035-00-7	238-766-5	14721-18-7								
9	selenium { nickel selenate }				0.39	mg/kg	2.554	0.867	mg/kg	0.0000867 %	✓	
		028-031-00-5	239-125-2	15060-62-5								
10	zinc { zinc chromate }				59	mg/kg	2.774	142.397	mg/kg	0.0142 %	✓	
		024-007-00-3	236-878-9	13530-65-9								
11	pH				6.8	pH		6.8	pH	6.8 pH		
12	naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3								
13	acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8								
14	acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9								
15	fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7								
16	phenanthrene				1.6	mg/kg		1.392	mg/kg	0.000139 %	✓	
			201-581-5	85-01-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
17	anthracene	204-371-1	120-12-7		0.26 mg/kg		0.226 mg/kg	0.0000226 %	✓	
18	fluoranthene	205-912-4	206-44-0		2 mg/kg		1.74 mg/kg	0.000174 %	✓	
19	pyrene	204-927-3	129-00-0		1.9 mg/kg		1.653 mg/kg	0.000165 %	✓	
20	benzo[a]anthracene	601-033-00-9	200-280-6		0.95 mg/kg		0.826 mg/kg	0.0000826 %	✓	
21	chrysene	601-048-00-0	205-923-4		0.9 mg/kg		0.783 mg/kg	0.0000783 %	✓	
22	benzo[b]fluoranthene	601-034-00-4	205-911-9		1.3 mg/kg		1.131 mg/kg	0.000113 %	✓	
23	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.4 mg/kg		0.348 mg/kg	0.0000348 %	✓	
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.88 mg/kg		0.766 mg/kg	0.0000766 %	✓	
25	indeno[123-cd]pyrene	205-893-2	193-39-5		0.63 mg/kg		0.548 mg/kg	0.0000548 %	✓	
26	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.13 mg/kg		0.113 mg/kg	0.0000113 %	✓	
27	benzo[ghi]perylene	205-883-8	191-24-2		0.65 mg/kg		0.566 mg/kg	0.0000566 %	✓	
28	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8		20 mg/kg	1.785	31.062 mg/kg	0.00311 %	✓	
Total:								0.0406 %		

Key

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

Classification of sample: HD121-26/03/2021-0

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

Sample details

Sample name:	LoW Code:
HD121-26/03/2021-0	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0-0.3 m	
Moisture content:	
16%	
(wet weight correction)	

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
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				12	mg/kg	1.32	13.309	mg/kg	0.00133 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				0.18	mg/kg	1.142	0.173	mg/kg	0.0000173 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				16	mg/kg	1.462	19.643	mg/kg	0.00196 %	✓	
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		<LOD
		024-017-00-8										
5	copper { dicopper oxide; copper (I) oxide }				33	mg/kg	1.126	31.21	mg/kg	0.00312 %	✓	
		029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	91	mg/kg	1.56	119.232	mg/kg	0.00764 %	✓	
		082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury dichloride }				0.34	mg/kg	1.353	0.387	mg/kg	0.0000387 %	✓	
		080-010-00-X	231-299-8	7487-94-7								
8	nickel { nickel chromate }				15	mg/kg	2.976	37.501	mg/kg	0.00375 %	✓	
		028-035-00-7	238-766-5	14721-18-7								
9	selenium { nickel selenate }				0.49	mg/kg	2.554	1.051	mg/kg	0.000105 %	✓	
		028-031-00-5	239-125-2	15060-62-5								
10	zinc { zinc chromate }				49	mg/kg	2.774	114.184	mg/kg	0.0114 %	✓	
		024-007-00-3	236-878-9	13530-65-9								
11	pH				6.1	pH		6.1	pH	6.1 pH		
12	naphthalene				0.38	mg/kg		0.319	mg/kg	0.0000319 %	✓	
		601-052-00-2	202-049-5	91-20-3								
13	acenaphthylene				0.17	mg/kg		0.143	mg/kg	0.0000143 %	✓	
			205-917-1	208-96-8								
14	acenaphthene				1.3	mg/kg		1.092	mg/kg	0.000109 %	✓	
			201-469-6	83-32-9								
15	fluorene				1.1	mg/kg		0.924	mg/kg	0.0000924 %	✓	
			201-695-5	86-73-7								
16	phenanthrene				9.5	mg/kg		7.98	mg/kg	0.000798 %	✓	
			201-581-5	85-01-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
17	anthracene	204-371-1	120-12-7		2.1 mg/kg		1.764 mg/kg	0.000176 %	✓	
18	fluoranthene	205-912-4	206-44-0		10 mg/kg		8.4 mg/kg	0.00084 %	✓	
19	pyrene	204-927-3	129-00-0		8.9 mg/kg		7.476 mg/kg	0.000748 %	✓	
20	benzo[a]anthracene	601-033-00-9	200-280-6		4.1 mg/kg		3.444 mg/kg	0.000344 %	✓	
21	chrysene	601-048-00-0	205-923-4		4 mg/kg		3.36 mg/kg	0.000336 %	✓	
22	benzo[b]fluoranthene	601-034-00-4	205-911-9		4.2 mg/kg		3.528 mg/kg	0.000353 %	✓	
23	benzo[k]fluoranthene	601-036-00-5	205-916-6		1.7 mg/kg		1.428 mg/kg	0.000143 %	✓	
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		3.4 mg/kg		2.856 mg/kg	0.000286 %	✓	
25	indeno[123-cd]pyrene	205-893-2	193-39-5		2.2 mg/kg		1.848 mg/kg	0.000185 %	✓	
26	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.51 mg/kg		0.428 mg/kg	0.0000428 %	✓	
27	benzo[ghi]perylene	205-883-8	191-24-2		2 mg/kg		1.68 mg/kg	0.000168 %	✓	
28	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8		22 mg/kg	1.785	32.99 mg/kg	0.0033 %	✓	
Total:								0.0375 %		

Key

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

Classification of sample: HD120-26/03/2021-0.4



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

Sample details

Sample name:	LoW Code:
HD120-26/03/2021-0.4	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.4-0.55 m	
Moisture content:	
13%	
(wet weight correction)	

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
	CLP index number	EC Number	CAS Number								
1	 pH		PH		6.7 pH		6.7	pH	6.7 pH		
Total:									0%		

Key

	User supplied data
●	Determinand defined or amended by HazWasteOnline (see Appendix A)

Classification of sample: HD111-26/03/2021-0

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

Sample details

Sample name:	LoW Code:
HD111-26/03/2021-0	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0-0.3 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
14%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 14% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				8.4	mg/kg	1.32	9.538	mg/kg	0.000954 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				<0.1	mg/kg	1.142	<0.114	mg/kg	<0.0000114 %		<LOD
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				10	mg/kg	1.462	12.569	mg/kg	0.00126 %	✓	
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		<LOD
	024-017-00-8											
5	copper { dicopper oxide; copper (I) oxide }				19	mg/kg	1.126	18.397	mg/kg	0.00184 %	✓	
	029-002-00-X	215-270-7	1317-39-1									
6	lead { lead chromate }			1	56	mg/kg	1.56	75.121	mg/kg	0.00482 %	✓	
	082-004-00-2	231-846-0	7758-97-6									
7	mercury { mercury dichloride }				0.17	mg/kg	1.353	0.198	mg/kg	0.0000198 %	✓	
	080-010-00-X	231-299-8	7487-94-7									
8	nickel { nickel chromate }				8.5	mg/kg	2.976	21.756	mg/kg	0.00218 %	✓	
	028-035-00-7	238-766-5	14721-18-7									
9	selenium { nickel selenate }				0.35	mg/kg	2.554	0.769	mg/kg	0.0000769 %	✓	
	028-031-00-5	239-125-2	15060-62-5									
10	zinc { zinc chromate }				24	mg/kg	2.774	57.258	mg/kg	0.00573 %	✓	
	024-007-00-3	236-878-9	13530-65-9									
11	pH				6.2	pH		6.2	pH	6.2 pH		
			PH									
12	naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
13	acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8									
14	acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9									
15	fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7									
16	phenanthrene				0.18	mg/kg		0.155	mg/kg	0.0000155 %	✓	
		201-581-5	85-01-8									

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
17	anthracene	204-371-1	120-12-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
18	fluoranthene	205-912-4	206-44-0		0.29 mg/kg		0.249 mg/kg	0.0000249 %	✓		
19	pyrene	204-927-3	129-00-0		0.32 mg/kg		0.275 mg/kg	0.0000275 %	✓		
20	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	0.18 mg/kg		0.155 mg/kg	0.0000155 %	✓		
21	chrysene	601-048-00-0	205-923-4	218-01-9	0.18 mg/kg		0.155 mg/kg	0.0000155 %	✓		
22	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	0.23 mg/kg		0.198 mg/kg	0.0000198 %	✓		
23	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	0.15 mg/kg		0.129 mg/kg	0.0000129 %	✓		
25	indeno[123-cd]pyrene	205-893-2	193-39-5		0.13 mg/kg		0.112 mg/kg	0.0000112 %	✓		
26	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
27	benzo[ghi]perylene	205-883-8	191-24-2		0.15 mg/kg		0.129 mg/kg	0.0000129 %	✓		
28	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1	15 mg/kg	1.785	23.029 mg/kg	0.0023 %	✓		
Total:									0.0195 %		

Key

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

Classification of sample: HD110-26/03/2021-0

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

Sample details

Sample name:	LoW Code:
HD110-26/03/2021-0	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0-0.4 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
14%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 14% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				9.7	mg/kg	1.32	11.014	mg/kg	0.0011 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				0.11	mg/kg	1.142	0.108	mg/kg	0.0000108 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				13	mg/kg	1.462	16.34	mg/kg	0.00163 %	✓	
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		<LOD
	024-017-00-8											
5	copper { dicopper oxide; copper (I) oxide }				24	mg/kg	1.126	23.238	mg/kg	0.00232 %	✓	
	029-002-00-X	215-270-7	1317-39-1									
6	lead { lead chromate }			1	68	mg/kg	1.56	91.218	mg/kg	0.00585 %	✓	
	082-004-00-2	231-846-0	7758-97-6									
7	mercury { mercury dichloride }				0.24	mg/kg	1.353	0.279	mg/kg	0.0000279 %	✓	
	080-010-00-X	231-299-8	7487-94-7									
8	nickel { nickel chromate }				12	mg/kg	2.976	30.715	mg/kg	0.00307 %	✓	
	028-035-00-7	238-766-5	14721-18-7									
9	selenium { nickel selenate }				0.3	mg/kg	2.554	0.659	mg/kg	0.0000659 %	✓	
	028-031-00-5	239-125-2	15060-62-5									
10	zinc { zinc chromate }				32	mg/kg	2.774	76.345	mg/kg	0.00763 %	✓	
	024-007-00-3	236-878-9	13530-65-9									
11	pH				7.2	pH		7.2	pH	7.2 pH		
			PH									
12	naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
13	acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8									
14	acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9									
15	fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7									
16	phenanthrene				0.54	mg/kg		0.464	mg/kg	0.0000464 %	✓	
		201-581-5	85-01-8									

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
17	anthracene	204-371-1	120-12-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
18	fluoranthene	205-912-4	206-44-0		0.87	mg/kg		0.748	mg/kg	0.0000748 %	✓	
19	pyrene	204-927-3	129-00-0		0.84	mg/kg		0.722	mg/kg	0.0000722 %	✓	
20	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	0.43	mg/kg		0.37	mg/kg	0.000037 %	✓	
21	chrysene	601-048-00-0	205-923-4	218-01-9	0.41	mg/kg		0.353	mg/kg	0.0000353 %	✓	
22	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	0.53	mg/kg		0.456	mg/kg	0.0000456 %	✓	
23	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	0.21	mg/kg		0.181	mg/kg	0.0000181 %	✓	
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	0.4	mg/kg		0.344	mg/kg	0.0000344 %	✓	
25	indeno[123-cd]pyrene	205-893-2	193-39-5		0.32	mg/kg		0.275	mg/kg	0.0000275 %	✓	
26	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
27	benzo[ghi]perylene	205-883-8	191-24-2		0.31	mg/kg		0.267	mg/kg	0.0000267 %	✓	
28	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1	17	mg/kg	1.785	26.099	mg/kg	0.00261 %	✓	
Total:										0.0249 %		

Key

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

Classification of sample: HD110-26/03/2021-0.4

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

Sample details

Sample name:	LoW Code:	
HD110-26/03/2021-0.4	Chapter:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.4-0.6 m		
Moisture content:		
13%		
(wet weight correction)		

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
	CLP index number	EC Number	CAS Number							
1	• pH				7.1 pH		7.1 pH	7.1 pH		
			PH							
Total:								0%		

Key

- User supplied data
- Determinand defined or amended by HazWasteOnline (see Appendix A)

Classification of sample: HD109-26/03/2021-0

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

Sample details

Sample name:	LoW Code:
HD109-26/03/2021-0	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0-0.5 m	
Moisture content:	
30%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 30% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				12	mg/kg	1.32	11.091	mg/kg	0.00111 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				0.18	mg/kg	1.142	0.144	mg/kg	0.0000144 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				15	mg/kg	1.462	15.346	mg/kg	0.00153 %	✓	
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		<LOD
		024-017-00-8										
5	copper { dicopper oxide; copper (I) oxide }				36	mg/kg	1.126	28.372	mg/kg	0.00284 %	✓	
		029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	80	mg/kg	1.56	87.35	mg/kg	0.0056 %	✓	
		082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury dichloride }				0.35	mg/kg	1.353	0.332	mg/kg	0.0000332 %	✓	
		080-010-00-X	231-299-8	7487-94-7								
8	nickel { nickel chromate }				16	mg/kg	2.976	33.334	mg/kg	0.00333 %	✓	
		028-035-00-7	238-766-5	14721-18-7								
9	selenium { nickel selenate }				0.39	mg/kg	2.554	0.697	mg/kg	0.0000697 %	✓	
		028-031-00-5	239-125-2	15060-62-5								
10	zinc { zinc chromate }				58	mg/kg	2.774	112.63	mg/kg	0.0113 %	✓	
		024-007-00-3	236-878-9	13530-65-9								
11	pH				7	pH		7	pH	7pH		
12	naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3								
13	acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8								
14	acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9								
15	fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7								
16	phenanthrene				1.4	mg/kg		0.98	mg/kg	0.000098 %	✓	
			201-581-5	85-01-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
17	anthracene	204-371-1	120-12-7		0.38 mg/kg		0.266 mg/kg	0.0000266 %	✓	
18	fluoranthene	205-912-4	206-44-0		2.4 mg/kg		1.68 mg/kg	0.000168 %	✓	
19	pyrene	204-927-3	129-00-0		2.2 mg/kg		1.54 mg/kg	0.000154 %	✓	
20	benzo[a]anthracene	601-033-00-9	200-280-6		1.1 mg/kg		0.77 mg/kg	0.000077 %	✓	
21	chrysene	601-048-00-0	205-923-4		1.1 mg/kg		0.77 mg/kg	0.000077 %	✓	
22	benzo[b]fluoranthene	601-034-00-4	205-911-9		1.4 mg/kg		0.98 mg/kg	0.000098 %	✓	
23	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.52 mg/kg		0.364 mg/kg	0.0000364 %	✓	
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.98 mg/kg		0.686 mg/kg	0.0000686 %	✓	
25	indeno[123-cd]pyrene	205-893-2	193-39-5		0.68 mg/kg		0.476 mg/kg	0.0000476 %	✓	
26	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.24 mg/kg		0.168 mg/kg	0.0000168 %	✓	
27	benzo[ghi]perylene	205-883-8	191-24-2		0.79 mg/kg		0.553 mg/kg	0.0000553 %	✓	
28	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8		21 mg/kg	1.785	26.242 mg/kg	0.00262 %	✓	
Total:								0.0295 %		

Key

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

Classification of sample: HD118-26/03/2021-0

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

Sample details

Sample name:	LoW Code:
HD118-26/03/2021-0	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0-0.3 m	
Moisture content:	
17%	
(wet weight correction)	

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
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				15	mg/kg	1.32	16.438	mg/kg	0.00164 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				0.17	mg/kg	1.142	0.161	mg/kg	0.0000161 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				17	mg/kg	1.462	20.623	mg/kg	0.00206 %	✓	
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		<LOD
		024-017-00-8										
5	copper { dicopper oxide; copper (I) oxide }				31	mg/kg	1.126	28.969	mg/kg	0.0029 %	✓	
		029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	73	mg/kg	1.56	94.509	mg/kg	0.00606 %	✓	
		082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury dichloride }				0.29	mg/kg	1.353	0.326	mg/kg	0.0000326 %	✓	
		080-010-00-X	231-299-8	7487-94-7								
8	nickel { nickel chromate }				15	mg/kg	2.976	37.054	mg/kg	0.00371 %	✓	
		028-035-00-7	238-766-5	14721-18-7								
9	selenium { nickel selenate }				0.42	mg/kg	2.554	0.89	mg/kg	0.000089 %	✓	
		028-031-00-5	239-125-2	15060-62-5								
10	zinc { zinc chromate }				46	mg/kg	2.774	105.917	mg/kg	0.0106 %	✓	
		024-007-00-3	236-878-9	13530-65-9								
11	pH				6.1	pH		6.1	pH	6.1 pH		
12	naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3								
13	acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8								
14	acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9								
15	fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7								
16	phenanthrene				1.1	mg/kg		0.913	mg/kg	0.0000913 %	✓	
			201-581-5	85-01-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
17	anthracene	204-371-1	120-12-7		0.2 mg/kg		0.166 mg/kg	0.0000166 %	✓	
18	fluoranthene	205-912-4	206-44-0		1.5 mg/kg		1.245 mg/kg	0.000125 %	✓	
19	pyrene	204-927-3	129-00-0		1.4 mg/kg		1.162 mg/kg	0.000116 %	✓	
20	benzo[a]anthracene	601-033-00-9	200-280-6		0.7 mg/kg		0.581 mg/kg	0.0000581 %	✓	
21	chrysene	601-048-00-0	205-923-4		0.59 mg/kg		0.49 mg/kg	0.000049 %	✓	
22	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.65 mg/kg		0.54 mg/kg	0.000054 %	✓	
23	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.36 mg/kg		0.299 mg/kg	0.0000299 %	✓	
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.65 mg/kg		0.54 mg/kg	0.000054 %	✓	
25	indeno[123-cd]pyrene	205-893-2	193-39-5		0.51 mg/kg		0.423 mg/kg	0.0000423 %	✓	
26	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	benzo[ghi]perylene	205-883-8	191-24-2		0.4 mg/kg		0.332 mg/kg	0.0000332 %	✓	
28	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8		25 mg/kg	1.785	37.043 mg/kg	0.0037 %	✓	
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 Determinand - Unless the Determinand is Note 1, the Conversion Factor is used to calculate the compound concentration
- <LOD Below limit of detection
- ND Not detected
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: HD117-26/03/2021-0

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

Sample details

Sample name:	LoW Code:
HD117-26/03/2021-0	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0-0.4 m	
Moisture content:	
15%	
(wet weight correction)	

Hazard properties

None identified

Determinands

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

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				9.4	mg/kg	1.32	10.549	mg/kg	0.00105 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				0.17	mg/kg	1.142	0.165	mg/kg	0.0000165 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				11	mg/kg	1.462	13.666	mg/kg	0.00137 %	✓	
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		<LOD
		024-017-00-8										
5	copper { dicopper oxide; copper (I) oxide }				28	mg/kg	1.126	26.796	mg/kg	0.00268 %	✓	
		029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	64	mg/kg	1.56	84.854	mg/kg	0.00544 %	✓	
		082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury dichloride }				0.22	mg/kg	1.353	0.253	mg/kg	0.0000253 %	✓	
		080-010-00-X	231-299-8	7487-94-7								
8	nickel { nickel chromate }				12	mg/kg	2.976	30.358	mg/kg	0.00304 %	✓	
		028-035-00-7	238-766-5	14721-18-7								
9	selenium { nickel selenate }				0.37	mg/kg	2.554	0.803	mg/kg	0.0000803 %	✓	
		028-031-00-5	239-125-2	15060-62-5								
10	zinc { zinc chromate }				34	mg/kg	2.774	80.173	mg/kg	0.00802 %	✓	
		024-007-00-3	236-878-9	13530-65-9								
11	pH				7.7	pH		7.7	pH	7.7 pH		
12	naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3								
13	acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8								
14	acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9								
15	fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7								
16	phenanthrene				0.79	mg/kg		0.672	mg/kg	0.0000672 %	✓	
			201-581-5	85-01-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
17	anthracene	204-371-1	120-12-7		0.18 mg/kg		0.153 mg/kg	0.0000153 %	✓	
18	fluoranthene	205-912-4	206-44-0		1.3 mg/kg		1.105 mg/kg	0.000111 %	✓	
19	pyrene	204-927-3	129-00-0		1.2 mg/kg		1.02 mg/kg	0.000102 %	✓	
20	benzo[a]anthracene	601-033-00-9	200-280-6		0.52 mg/kg		0.442 mg/kg	0.0000442 %	✓	
21	chrysene	601-048-00-0	205-923-4		0.65 mg/kg		0.553 mg/kg	0.0000553 %	✓	
22	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.75 mg/kg		0.638 mg/kg	0.0000637 %	✓	
23	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.27 mg/kg		0.23 mg/kg	0.000023 %	✓	
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.58 mg/kg		0.493 mg/kg	0.0000493 %	✓	
25	indeno[123-cd]pyrene	205-893-2	193-39-5		0.41 mg/kg		0.349 mg/kg	0.0000349 %	✓	
26	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.18 mg/kg		0.153 mg/kg	0.0000153 %	✓	
27	benzo[ghi]perylene	205-883-8	191-24-2		0.46 mg/kg		0.391 mg/kg	0.0000391 %	✓	
28	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8		15 mg/kg	1.785	22.761 mg/kg	0.00228 %	✓	
Total:								0.0248 %		

Key

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

Classification of sample: HD116-26/03/2021-0

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

Sample details

Sample name:	LoW Code:
HD116-26/03/2021-0	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0-0.4 m	
Moisture content:	
20%	
(wet weight correction)	

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
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				6.2	mg/kg	1.32	6.549	mg/kg	0.000655 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				0.11	mg/kg	1.142	0.101	mg/kg	0.0000101 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				15	mg/kg	1.462	17.539	mg/kg	0.00175 %	✓	
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium(VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		<LOD
		024-017-00-8										
5	copper { dicopper oxide; copper (I) oxide }				24	mg/kg	1.126	21.617	mg/kg	0.00216 %	✓	
		029-002-00-X	215-270-7	1317-39-1								
6	lead { lead chromate }			1	30	mg/kg	1.56	37.436	mg/kg	0.0024 %	✓	
		082-004-00-2	231-846-0	7758-97-6								
7	mercury { mercury dichloride }				0.12	mg/kg	1.353	0.13	mg/kg	0.000013 %	✓	
		080-010-00-X	231-299-8	7487-94-7								
8	nickel { nickel chromate }				13	mg/kg	2.976	30.953	mg/kg	0.0031 %	✓	
		028-035-00-7	238-766-5	14721-18-7								
9	selenium { nickel selenate }				0.27	mg/kg	2.554	0.552	mg/kg	0.0000552 %	✓	
		028-031-00-5	239-125-2	15060-62-5								
10	zinc { zinc chromate }				29	mg/kg	2.774	64.36	mg/kg	0.00644 %	✓	
		024-007-00-3	236-878-9	13530-65-9								
11	pH				6.3	pH		6.3	pH	6.3 pH		
12	naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		601-052-00-2	202-049-5	91-20-3								
13	acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			205-917-1	208-96-8								
14	acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-469-6	83-32-9								
15	fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
			201-695-5	86-73-7								
16	phenanthrene				0.17	mg/kg		0.136	mg/kg	0.0000136 %	✓	
			201-581-5	85-01-8								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
17	anthracene	204-371-1	120-12-7		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
18	fluoranthene	205-912-4	206-44-0		0.27 mg/kg		0.216 mg/kg	0.0000216 %	✓	
19	pyrene	204-927-3	129-00-0		0.26 mg/kg		0.208 mg/kg	0.0000208 %	✓	
20	benzo[a]anthracene	601-033-00-9	200-280-6		0.15 mg/kg		0.12 mg/kg	0.000012 %	✓	
21	chrysene	601-048-00-0	205-923-4		0.18 mg/kg		0.144 mg/kg	0.0000144 %	✓	
22	benzo[b]fluoranthene	601-034-00-4	205-911-9		0.14 mg/kg		0.112 mg/kg	0.0000112 %	✓	
23	benzo[k]fluoranthene	601-036-00-5	205-916-6		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		0.21 mg/kg		0.168 mg/kg	0.0000168 %	✓	
25	indeno[123-cd]pyrene	205-893-2	193-39-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
26	dibenz[a,h]anthracene	601-041-00-2	200-181-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	benzo[ghi]perylene	205-883-8	191-24-2		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
28	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8		17 mg/kg	1.785	24.279 mg/kg	0.00243 %	✓	
Total:								0.0193 %		

Key

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

Classification of sample: HD116-26/03/2021-0.9



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

Sample details

Sample name:	LoW Code:
HD116-26/03/2021-0.9	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0.9-1.0 m	
Moisture content:	
19%	
(wet weight correction)	

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
	CLP index number	EC Number	CAS Number								
1	pH		PH		6.7 pH		6.7	pH	6.7 pH		
Total:									0%		

Key

- User supplied data
- Determinand defined or amended by HazWasteOnline (see Appendix A)

Classification of sample: HD115-26/03/2021-0

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

Sample details

Sample name:	LoW Code:
HD115-26/03/2021-0	Chapter: 17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
Sample Depth:	Entry: 17 05 04 (Soil and stones other than those mentioned in 17 05 03)
0-0.3 m	
Moisture content:	
12%	
(wet weight correction)	

Hazard properties

None identified

Determinands

Moisture content: 12% Wet Weight Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				8.2	mg/kg	1.32	9.527	mg/kg	0.000953 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				0.46	mg/kg	1.142	0.462	mg/kg	0.0000462 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				35	mg/kg	1.462	45.016	mg/kg	0.0045 %	✓	
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		<LOD
		024-017-00-8										
5	copper { dicopper oxide; copper (I) oxide }				27	mg/kg	1.126	26.751	mg/kg	0.00268 %	✓	
	029-002-00-X	215-270-7	1317-39-1									
6	lead { lead chromate }			1	110	mg/kg	1.56	150.99	mg/kg	0.00968 %	✓	
	082-004-00-2	231-846-0	7758-97-6									
7	mercury { mercury dichloride }				0.36	mg/kg	1.353	0.429	mg/kg	0.0000429 %	✓	
	080-010-00-X	231-299-8	7487-94-7									
8	nickel { nickel chromate }				9	mg/kg	2.976	23.572	mg/kg	0.00236 %	✓	
	028-035-00-7	238-766-5	14721-18-7									
9	selenium { nickel selenate }				<0.2	mg/kg	2.554	<0.511	mg/kg	<0.0000511 %		<LOD
	028-031-00-5	239-125-2	15060-62-5									
10	zinc { zinc chromate }				52	mg/kg	2.774	126.945	mg/kg	0.0127 %	✓	
	024-007-00-3	236-878-9	13530-65-9									
11	pH				8.5	pH		8.5	pH	8.5 pH		
			PH									
12	naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
13	acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8									
14	acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9									
15	fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7									
16	phenanthrene				0.24	mg/kg		0.211	mg/kg	0.0000211 %	✓	
		201-581-5	85-01-8									

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
17	anthracene	204-371-1	120-12-7		<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
18	fluoranthene	205-912-4	206-44-0		0.49	mg/kg		0.431	mg/kg	0.0000431 %	✓	
19	pyrene	204-927-3	129-00-0		0.54	mg/kg		0.475	mg/kg	0.0000475 %	✓	
20	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	0.25	mg/kg		0.22	mg/kg	0.000022 %	✓	
21	chrysene	601-048-00-0	205-923-4	218-01-9	0.24	mg/kg		0.211	mg/kg	0.0000211 %	✓	
22	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	0.42	mg/kg		0.37	mg/kg	0.000037 %	✓	
23	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	0.11	mg/kg		0.0968	mg/kg	0.00000968 %	✓	
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	0.35	mg/kg		0.308	mg/kg	0.0000308 %	✓	
25	indeno[123-cd]pyrene	205-893-2	193-39-5		0.25	mg/kg		0.22	mg/kg	0.000022 %	✓	
26	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
27	benzo[ghi]perylene	205-883-8	191-24-2		0.27	mg/kg		0.238	mg/kg	0.0000238 %	✓	
28	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1	10	mg/kg	1.785	15.71	mg/kg	0.00157 %	✓	
Total:										0.035 %		

Key

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

Classification of sample: HD113-26/03/2021-0

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

Sample details

Sample name:	LoW Code:
HD113-26/03/2021-0	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0-0.3 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
15%	
(wet weight correction)	

Hazard properties

None identified

Determinands

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

#	Determinand			CLP Note	User entered data		Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				13	mg/kg	1.32	14.59	mg/kg	0.00146 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				0.14	mg/kg	1.142	0.136	mg/kg	0.0000136 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				13	mg/kg	1.462	16.15	mg/kg	0.00162 %	✓	
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		<LOD
	024-017-00-8											
5	copper { dicopper oxide; copper (I) oxide }				28	mg/kg	1.126	26.796	mg/kg	0.00268 %	✓	
	029-002-00-X	215-270-7	1317-39-1									
6	lead { lead chromate }			1	75	mg/kg	1.56	99.438	mg/kg	0.00638 %	✓	
	082-004-00-2	231-846-0	7758-97-6									
7	mercury { mercury dichloride }				0.36	mg/kg	1.353	0.414	mg/kg	0.0000414 %	✓	
	080-010-00-X	231-299-8	7487-94-7									
8	nickel { nickel chromate }				14	mg/kg	2.976	35.418	mg/kg	0.00354 %	✓	
	028-035-00-7	238-766-5	14721-18-7									
9	selenium { nickel selenate }				0.41	mg/kg	2.554	0.89	mg/kg	0.000089 %	✓	
	028-031-00-5	239-125-2	15060-62-5									
10	zinc { zinc chromate }				37	mg/kg	2.774	87.247	mg/kg	0.00872 %	✓	
	024-007-00-3	236-878-9	13530-65-9									
11	pH				6.3	pH		6.3	pH	6.3 pH		
			PH									
12	naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
13	acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8									
14	acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9									
15	fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7									
16	phenanthrene				0.69	mg/kg		0.587	mg/kg	0.0000587 %	✓	
		201-581-5	85-01-8									

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
17	anthracene	204-371-1	120-12-7		0.14 mg/kg		0.119 mg/kg	0.0000119 %	✓	
18	fluoranthene	205-912-4	206-44-0		1.2 mg/kg		1.02 mg/kg	0.000102 %	✓	
19	pyrene	204-927-3	129-00-0		1.1 mg/kg		0.935 mg/kg	0.0000935 %	✓	
20	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	0.62 mg/kg		0.527 mg/kg	0.0000527 %	✓	
21	chrysene	601-048-00-0	205-923-4	218-01-9	0.54 mg/kg		0.459 mg/kg	0.0000459 %	✓	
22	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	0.68 mg/kg		0.578 mg/kg	0.0000578 %	✓	
23	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	0.24 mg/kg		0.204 mg/kg	0.0000204 %	✓	
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	0.48 mg/kg		0.408 mg/kg	0.0000408 %	✓	
25	indeno[123-cd]pyrene	205-893-2	193-39-5		0.43 mg/kg		0.366 mg/kg	0.0000366 %	✓	
26	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
27	benzo[ghi]perylene	205-883-8	191-24-2		0.41 mg/kg		0.349 mg/kg	0.0000349 %	✓	
28	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1	18 mg/kg	1.785	27.313 mg/kg	0.00273 %	✓	
Total:								0.028 %		

Key

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

Classification of sample: HD112-26/03/2021-0

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

Sample details

Sample name:	LoW Code:
HD112-26/03/2021-0	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0-0.4 m	Entry:
Moisture content:	17 05 04 (Soil and stones other than those mentioned in 17 05 03)
17%	
(wet weight correction)	

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
	CLP index number	EC Number	CAS Number									
1	arsenic { arsenic trioxide }				15	mg/kg	1.32	16.438	mg/kg	0.00164 %	✓	
	033-003-00-0	215-481-4	1327-53-3									
2	cadmium { cadmium oxide }				0.21	mg/kg	1.142	0.199	mg/kg	0.0000199 %	✓	
	048-002-00-0	215-146-2	1306-19-0									
3	chromium in chromium(III) compounds { chromium(III) oxide (worst case) }				14	mg/kg	1.462	16.983	mg/kg	0.0017 %	✓	
		215-160-9	1308-38-9									
4	chromium in chromium(VI) compounds { chromium (VI) compounds, with the exception of barium chromate and of compounds specified elsewhere in this Annex }				<0.5	mg/kg	2.27	<1.135	mg/kg	<0.000113 %		<LOD
		024-017-00-8										
5	copper { dicopper oxide; copper (I) oxide }				37	mg/kg	1.126	34.576	mg/kg	0.00346 %	✓	
	029-002-00-X	215-270-7	1317-39-1									
6	lead { lead chromate }			1	110	mg/kg	1.56	142.411	mg/kg	0.00913 %	✓	
	082-004-00-2	231-846-0	7758-97-6									
7	mercury { mercury dichloride }				0.45	mg/kg	1.353	0.506	mg/kg	0.0000506 %	✓	
	080-010-00-X	231-299-8	7487-94-7									
8	nickel { nickel chromate }				13	mg/kg	2.976	32.114	mg/kg	0.00321 %	✓	
	028-035-00-7	238-766-5	14721-18-7									
9	selenium { nickel selenate }				0.42	mg/kg	2.554	0.89	mg/kg	0.000089 %	✓	
	028-031-00-5	239-125-2	15060-62-5									
10	zinc { zinc chromate }				54	mg/kg	2.774	124.337	mg/kg	0.0124 %	✓	
	024-007-00-3	236-878-9	13530-65-9									
11	pH				6.7	pH		6.7	pH	6.7 pH		
			PH									
12	naphthalene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
	601-052-00-2	202-049-5	91-20-3									
13	acenaphthylene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		205-917-1	208-96-8									
14	acenaphthene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		201-469-6	83-32-9									
15	fluorene				<0.1	mg/kg		<0.1	mg/kg	<0.00001 %		<LOD
		201-695-5	86-73-7									
16	phenanthrene				1	mg/kg		0.83	mg/kg	0.000083 %	✓	
		201-581-5	85-01-8									

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
17	anthracene	204-371-1	120-12-7		0.25 mg/kg		0.208 mg/kg	0.0000208 %	✓	
18	fluoranthene	205-912-4	206-44-0		1.8 mg/kg		1.494 mg/kg	0.000149 %	✓	
19	pyrene	204-927-3	129-00-0		1.9 mg/kg		1.577 mg/kg	0.000158 %	✓	
20	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	0.94 mg/kg		0.78 mg/kg	0.000078 %	✓	
21	chrysene	601-048-00-0	205-923-4	218-01-9	0.94 mg/kg		0.78 mg/kg	0.000078 %	✓	
22	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	1 mg/kg		0.83 mg/kg	0.000083 %	✓	
23	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	0.44 mg/kg		0.365 mg/kg	0.0000365 %	✓	
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	0.9 mg/kg		0.747 mg/kg	0.0000747 %	✓	
25	indeno[123-cd]pyrene	205-893-2	193-39-5		0.66 mg/kg		0.548 mg/kg	0.0000548 %	✓	
26	dibenz[a,h]anthracene	601-041-00-2	200-181-8	53-70-3	0.16 mg/kg		0.133 mg/kg	0.0000133 %	✓	
27	benzo[ghi]perylene	205-883-8	191-24-2		0.61 mg/kg		0.506 mg/kg	0.0000506 %	✓	
28	vanadium { divanadium pentaoxide; vanadium pentoxide }	023-001-00-8	215-239-8	1314-62-1	21 mg/kg	1.785	31.116 mg/kg	0.00311 %	✓	
Total:								0.0359 %		

Key

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

Appendix A: Classifier defined and non CLP determinands

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

Description/Comments: Data from C&L Inventory Database

Data source: <https://echa.europa.eu/information-on-chemicals/cl-inventory-database/-/discli/details/33806>

Data source date: 17 Jul 2015

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

• **pH** (CAS Number: PH)

Description/Comments: Appendix C4

Data source: WM3 1st Edition 2015

Data source date: 25 May 2015

Hazard Statements: None.

• **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

• **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.

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

CLP index number: 601-023-00-4
Description/Comments:
Data source: Commission Regulation (EU) No 605/2014 – 6th Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP6)
Additional Hazard Statement(s): Carc. 2 H351
Reason for additional Hazards Statement(s):
03 Jun 2015 - Carc. 2 H351 hazard statement sourced from: IARC Group 2B (77) 2000

• **salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex**

CLP index number: 006-007-00-5
Description/Comments: Conversion factor based on a worst case compound: sodium cyanide
Data source: Commission Regulation (EC) No 790/2009 - 1st Adaptation to Technical Progress for Regulation (EC) No 1272/2008. (ATP1)
Additional Hazard Statement(s): EUH032 >= 0.2 %
Reason for additional Hazards Statement(s):
14 Dec 2015 - EUH032 >= 0.2 % hazard statement sourced from: WM3, Table C12.2

• **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: Acute Tox. 3 H301 , Acute Tox. 3 H311 , Acute Tox. 3 H331 , Skin Corr. 1B H314 , Skin Corr. 1B H314 >= 3 % , Skin Irrit. 2 H315 1 E conc. < 3 % , Eye Irrit. 2 H319 1 E conc. < 3 % , Muta. 2 H341 , STOT RE 2 H373 , Aquatic Chronic 2 H411

Appendix B: Rationale for selection of metal species

arsenic {arsenic trioxide}

Reasonable case CLP species based on hazard statements/molecular weight and most common (stable) oxide of arsenic. Industrial sources include: smelting; main precursor to other arsenic compounds (edit as required)

cadmium {cadmium oxide}

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

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

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

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

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

copper {dicopper oxide; copper (I) oxide}

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

lead {lead chromate}

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

mercury {mercury dichloride}

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

nickel {nickel chromate}

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

selenium {nickel selenate}

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

zinc {zinc chromate}

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

vanadium {divanadium pentaoxide; vanadium pentoxide}

worst case/most likely scenario

boron {diboron trioxide; boric oxide}

Reasonable case CLP species based on hazard statements/ molecular weight, physical form and low solubility. Industrial sources include: fluxing agent for glass/enamels; additive for fibre optics, borosilicate glass (edit as required)

cyanides {salts of hydrogen cyanide with the exception of complex cyanides such as ferrocyanides, ferricyanides and mercuric oxycyanide and those specified elsewhere in this Annex}

Harmonised group entry used as most reasonable case as complex cyanides and those specified elsewhere in the annex are not likely to be present in this soil: [Note conversion factor based on a worst case compound: sodium cyanide] (edit as required)

Appendix C: Version

HazWasteOnline Classification Engine: WM3 1st Edition v1.1, May 2018

HazWasteOnline Classification Engine Version: 2021.155.4797.9144 (05 Jun 2021)

HazWasteOnline Database: 2021.155.4797.9144 (05 Jun 2021)

This classification utilises the following guidance and legislation:

WM3 v1.1 - Waste Classification - 1st Edition v1.1 - May 2018

CLP Regulation - Regulation 1272/2008/EC of 16 December 2008

1st ATP - Regulation 790/2009/EC of 10 August 2009

2nd ATP - Regulation 286/2011/EC of 10 March 2011

3rd ATP - Regulation 618/2012/EU of 10 July 2012

4th ATP - Regulation 487/2013/EU of 8 May 2013

Correction to 1st ATP - Regulation 758/2013/EU of 7 August 2013

5th ATP - Regulation 944/2013/EU of 2 October 2013

6th ATP - Regulation 605/2014/EU of 5 June 2014

WFD Annex III replacement - Regulation 1357/2014/EU of 18 December 2014

Revised List of Waste 2014 - Decision 2014/955/EU of 18 December 2014

7th ATP - Regulation 2015/1221/EU of 24 July 2015

8th ATP - Regulation (EU) 2016/918 of 19 May 2016

9th ATP - Regulation (EU) 2016/1179 of 19 July 2016

10th ATP - Regulation (EU) 2017/776 of 4 May 2017

HP14 amendment - Regulation (EU) 2017/997 of 8 June 2017

13th ATP - Regulation (EU) 2018/1480 of 4 October 2018

14th ATP - Regulation (EU) 2020/217 of 4 October 2019

15th ATP - Regulation (EU) 2020/1182 of 19 May 2020

The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit) Regulations 2019 - UK: 2019 No. 720 of 27th March 2019

The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use)(Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1567 of 16th December 2020

The Waste and Environmental Permitting etc. (Legislative Functions and Amendment etc.) (EU Exit) Regulations 2020 - UK: 2020 No. 1540 of 16th December 2020

POPs Regulation 2019 - Regulation (EU) 2019/1021 of 20 June 2019

Based across the UK with
offices in Manchester,
London, Liverpool and Glasgow.

Manchester (Head Office)

Unit 29,
Eton Business Park
Eton Hill Rd, Radcliffe
M26 2ZS

t: 0161 763 7200
e: info@thelkgroup.com

London

Brooklands Business Park
Wellington Way
Weybridge
KT13 0TT

t: 01932 871872
e: info@thelkgroup.com

Glasgow

Wright Business Centre
1 Lonmay Road
Glasgow
G33 4EL

t: 0141 773 6269
e: info@thelkgroup.com

Liverpool

The Corn Exchange
Fenwick Street
Liverpool
L2 7QL

t: 0151 235 8716
e: info@thelkgroup.com



- » Geotechnical
- » Contaminated Land
- » Flood Risk and Drainage
- » Asbestos
- » Invasive Species
- » Land Remediation
- » Project Management
- » Land Drilling