

**BLEAKHOLT ANIMAL
SANCTUARY
BURY**

**PHASE 2
GEO-ENVIRONMENTAL
INVESTIGATION,
RISK ASSESSMENT AND
REMEDATION STRATEGY**



Prepared for:

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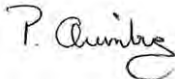
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EXECUTIVE SUMMARY

Site Details

Site Location:	Bleakholt Farm, Bury Old Road, Edenfield, Bury. Centred at National Grid Reference 380540E 418270N.
Site Area:	11,300m ² .
Current Land Use:	Animal sanctuary open to the public comprising 9 buildings and kennels. Mainly hardstood ground with areas of grassland.
Proposed Development:	Extension to existing café. Redevelopment of existing farm house. Redevelopment of dog training area. Relocation of liquefied petroleum gas tanks.
Purpose of Report:	Contamination and Geotechnical Assessment.

Preliminary Risk Assessment

PRA Details:	Undertaken by LKC in September 2017. Ref: LKC 17 1207 01 (R0).
History:	Bleakholt Farm 1851 – present. Bleakholt Animal Sanctuary 1976-present.
Geology / Hydrogeology:	Glacial Till (Secondary Undifferentiated aquifer) overlying Brooksbottoms Grit (Sandstone) (Secondary A Aquifer).
Mining:	No recorded mining. Not within Development High Risk Area.
Relevant Environmental Setting:	Brook Bottom Brook 161m north. Nearest pollution incident 394m south (category 3 minor incident). No surface abstractions within 500m. Nearest groundwater abstraction 440m east. Not within Source Protection Zone.
Preliminary Conceptual Model: PL=Pollutant Linkage	PL1 Direct Contact (Human Health): Moderate Risk (asbestos), Moderate Risk (metals, PAHs), Low Risk (Petroleum Hydrocarbons). PL2 Inhalation of Vapours: Low Risk (volatile contaminants). PL3 Gas: Low Risk (hazardous and ground gas). PL4 Controlled waters: Low Risk (mobile contaminants). PL5 Sulphate Attack: Moderate Risk (sulphate). PL6 Water Pipelines: Moderate Risk (organic contaminants). PL7 Phytotoxic: Very low Risk (metals).
Recommendations:	Site Investigation was recommended to further assess all the above pollutant linkages.

Ground Investigation Work Undertaken

Date of Investigation:	28 th February and 14 th March 2018.
Intrusive Investigation Work Undertaken:	6no. window sample boreholes (WS101-WS106). 4no. mechanically excavated trial pits (TP101-TP104).
Monitoring Wells:	Installed in WS101, WS104 and WS105.
Soil Sampling:	12no. samples tested for metals, speciated PAHs, pH, sulphate, asbestos and SOM.
Groundwater Sampling:	None undertaken.
Monitoring:	None undertaken.
Insitu and Laboratory Geotechnical Testing:	SPTs, shear vanes, plasticity.

Ground Conditions and Geotechnical Assessment

General Ground conditions / Geotechnical Testing	- Maximum investigation depth 4.25mbgl. - Made Ground generally was recorded between 0.4 to 2.0mbgl. However natural ground existed at the surface (or under a thin layer of concrete) in four of the holes. - SPTs in made ground N=3 at 1.2mbgl. - Sandy gravelly CLAY to >4.25mbgl. SPTs N=5-11 at 1mbgl, N=8-22 at 2m, N=19-50 at 3-5mbgl. - Possible weathered sandstone bedrock encountered between 1.00 and 4.25mbgl. - Groundwater at 0.42-1.5mbgl. Artesian groundwater encountered in WS103B at 3.45mbgl
Allowable Bearing Pressure	55-75kN/m ² at 1.0-3.0mbgl, 140kn/m2 at 3.0mbgl in the very sandy gravelly clay
Anticipated Foundation Type	Traditional shallow foundations recommended from approximately 3mbgl or where weathered sandstone bedrock is encountered shallower. If soft ground is encountered, foundations may need to be deepened / widened or ground replaced with compacted granular material.
Concrete Requirements	- Based on BRE Digest 2005– DS-1 AC-1 recommended.
Services	- Services – consideration to the presence of services running through the site. Services may need to re-routed.
Temporary support of excavation	May be required; however, trial pits were generally recorded as stable.
Plasticity	Consideration will need to be given to the shrink / swell of the clay strata if it is to be used as a founding strata, particularly where trees/hedges are present. Foundations may need to be deepened. A low to medium volume change potential has been calculated for the site.

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 via dermal contact, ingestion and inhalation (of soil, dust and fibres).	Low	-None volatile contamination Recommendations: Remediation not required.
2	Volatile contaminants posing a risk to site users via the inhalation of vapours.	Low	-No evidence of volatile contamination identified. Recommendations: No remediation required.
3	Gas posing a risk to buildings and site users via the migration of gas into building causing explosion and asphyxiation.	Moderate / Low	-No gas monitoring undertaken as no significant depth of organic or putrescible material identified. -Low risk assumed. Recommendations: No remediation required.
4	Mobile contamination posing a risk to controlled waters via migration through permeable strata.	Low	-No elevated soil contaminants; therefore, unlikely probability of mobile contamination and no groundwater sampling was required. Recommendations: No remediation required.
5	Sulphate posing a risk to building via direct contact (sulphate attack).	Very Low	-No elevated sulphate identified (DS-1 AC-1). Recommendations: Sulphate resistant concrete not required.
6	Organic contaminants posing a risk to water pipes.	Low	-No organic contamination identified. Recommendations: UU risk assessment to be completed. The site will <u>not</u> likely require barrier piping.
7	Phytotoxic metals posing a risk to flora via root uptake.	Very Low	-No phytotoxic metals above generic criteria. Recommendations: No remediation required.

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	<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.
Build-Phase Construction	6	<u>Potable Water Pipes</u> It is recommended that a Water Pipeline Assessment is undertaken once the location and depth of potable water pipes are known. Unlikely that barrier pipe will be required.	Complete UURA.
Other Considerations		<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: 1,000 tonnes (c. 600³) of non-hazardous soil 5,000 tonnes (c. 3,000m³) of natural sand and gravels. 50,000 tonnes (c. 25,000m³) of bituminous material to be used in roadways. 5,000 tonnes (c. 3,000m³) of crushed concrete / stone. 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 a 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.	

The remediation recommended in the table above should be validated to ensure it has been carried out appropriately. This should be documented in a Completion/Validation Report and submitted to the local authority for completion.

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FIGURES

Figure 1: Site Location Plan

Figure 2: Site Boundary Plan

Figure 3: Proposed Development Plan

Figure 4: Site Investigation Location Plan

APPENDICES

Appendix A: Risk Matrix

Appendix B: Profile Logs

Appendix C: Certificate of Analysis - Soil

Appendix D: Certificate of Analysis - Geotechnical

Appendix E: Generic Assessment Criteria Values

Appendix F: HazWaste Online Assessment

1 INTRODUCTION

1.1 Background

LK Consult Ltd (LKC) has been commissioned by Bleakholt Animal Sanctuary to carry out a Phase 2 Geo-Environmental Investigation, Risk Assessment and Remediation Strategy for Bleakholt Animal Sanctuary, Bury. The investigation was undertaken in support of a future planning application to renovate the site for continued commercial end use.

The following work has previously been undertaken:

- Preliminary Risk Assessment (PRA) report, undertaken by LKC (Ref: LKC 17 1207, dated September 2017).

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 and 2 indicate the site location and boundary. Figure 3 indicates the proposed development.

Location	Bleakholt Animal Sanctuary, Bleakholt Farm, Bury Old Road, Ramsbottom, Bury, BL0 0RX. Centred at approximate National Grid Reference 380540E 418270N.
Area	Approximately 11,300m ² .
Topography	220 metres above ordnance datum (AOD). Site gently slopes to the east.
Current Land Use	<u>Site</u> The site currently comprises of 9 buildings and kennels. Majority of the site comprises hardstood ground with small areas of grassed land. <u>Surrounding Area</u> North: Agricultural land. East: Agricultural land. South: Agricultural land. West: Agricultural land.
Proposed Development	An extension to the existing café to create a visitor information centre. The demolition of existing buildings for the use of open space. Remodel and redevelopment of the existing farm house. The development of a new roof over the existing dog training area. Relocation of liquefied petroleum gas (LPG) tanks.

Table 1-1. Summary of site details.

2 PREVIOUS WORK

2.1 Summary of Existing Information

A PRA report (Ref: LKC 17 1207, dated September 2017) has previously been undertaken by LKC and is summarised in Section 2.1-2.6.

2.2 Site History

The site history is summarised in Table 2-1.

Site Features	Location	Map Dates Present	Comments
Bleakholt Farm	Centre	1851 – Present	- Buildings expanded S and E by 1976 mapping. - Buildings associated with Bleakholt Farm present in the centre of the site.
Track	South	1894 – 1963	- Running from N to S. - No longer present by 1976 mapping.
Bleakholt Animal Sanctuary	Centre	1976 – Present	- Numerous unreferenced buildings and structures annotated across the site.
Surrounding Area Features	Distance/ Location	Map Dates Present	Comments
Hollins Sandstone Quarry	145m N	1851 – 1993	- Annotated as disused by 1893 mapping. - Appears to be infilled on 2000 aerial photography. - No longer annotated by 1999 mapping.
Pond	178m NE	1893 – 1912	- No longer present by 1929 mapping.
Pond	219m S	1893 – 1956	- No longer present by 1963 mapping.
Pond	175m N	1910 – 1956	- No longer present by 1963 mapping.
Pond	62m NW	1929 – 1963	- No longer present by 1967 mapping.
Gravel Pit / Refuse Tip	230m N	1929 – 1963	- No longer present by 1976 mapping.
Marshland	215m N	1963 – 1987	- No longer present by 1993 mapping.
Cutting / Embankment	187m N	1963 – 1993	- No longer present by 1999 mapping.
Covered Reservoir	187m N	1999 – Present	- Previously cutting / embankment.

Table 2-1: Summary of significant historical features.

2.3 Environmental Setting

The environmental setting is summarised in Table 2-2.

Categories			Details
Geology	Artificial		- 273m N - Landslide Deposit.
	Superficial		- Till – Devensian.
	Bedrock		- Brooksbottoms Grit – Sandstone.
	BGS logs		- No available boreholes within 500m of the site.
Hydro-geology	Aquifer	Superficial	- Secondary Undifferentiated.
	Designation	Bedrock	- Secondary A.
	Source Protection Zone (SPZ)		- Site is not within an SPZ.
	Groundwater Abstractions		- 1 within 500m: 440m E, Licensed to B&J Ovenden, for general agriculture - General use (Medium Loss).
Hydrology	Nearest Surface Water		- Brook Bottom Brook 161m N, flowing SW towards the River Irwell, 1,100m SW.
	Water Quality Data		- 586m NW, Dearden Brook – River Quality B.
	Flooding		- No risk from rivers or sea. - Limited potential for groundwater flooding to occur.
	Surface Water Abstractions		- None within 500m. Nearest 673m S, registered to Marshall Mono Ltd for other industrial/commercial public services: Process water.
	Discharge Consent		- None within 500m. Nearest 547m N, registered to Mr Varley for the discharge of final/treated effluent to Darwen Brook.
	Pollution Incidents		- None within 250m. Nearest 394m S, 24 th August 1999, Category 3 – minor incident, mixed construction/demolition waste affecting a river stretch (freshwater).
Minerals / Mining	Coal Mining Development High Risk Area (DHRA)		- Not within DHRA.
	Coal Report		- The property is not within a surface area that could be affected by past or present underground mining. - The property is not in an area where the Coal Authority has plans to grant a licence to remove coal using underground methods. However, reserves of coal exist in the local area which could be worked at some time in the future. - There are no known coal mine entries within, or within 20m of the boundary of the property.
	Surface Extractions		- 215m N, Hollin's Quarry, opencast quarrying of sandstone, operation now ceased.
	Cheshire Brine Compensation District		- Not within site area.
Ground Stability (on-site)	Collapsible Ground		- Very low hazard.
	Compressible Ground		- No hazard.
	Landslide		- Very low hazard.
	Running Sand		- Very low hazard.
	Shrinking / Swelling Clay		- Very low hazard.
	Ground Dissolution		- No hazard.

Table 2-2: Summary of the environmental setting.

2.4 Site Reconnaissance

A site reconnaissance was carried out on 27th July 2017. Hand dug trial holes were undertaken in accessible areas to confirm the shallow ground conditions.

Relevant features identified on site are summarised below:

- Hardstood ground is present across with the majority of the site, with small parcels of grassed land with rare trees.
- The site is generally flat, gently sloping to the west.
- The site comprises of nine buildings, used for offices, visitors centre, shops and kennels to store various animals.
- A car park is present in the northern area of the site (rough ground).
- The dog kennels in the southern area of the site are tarmac (good condition).
- Drains were noted across the site.
- Two above ground propane tanks observed in the west of the site. No spillages or leakages observed.
- Made ground was observed, which contained rootlets, brick fragments, ash, clinker to >0.2-0.6mg/l over natural gravelly sand clay >1.0mbgl.
- No access restrictions.
- No evidence of significant contamination identified.

The surrounding area comprises:

- North: Agricultural Land.
- East: Agricultural Land.
- South: Agricultural Land.
- West: Agricultural Land.

2.5 Contamination Sources / Pathways and Receptors

Potential contamination sources are detailed in Table 2-3.

Source	Contaminants
Onsite Buildings (still present)	- No significant contamination source.
Onsite Made Ground	- Ash and clinker (e.g. from hearths and boilers, often historically used for site raising / levelling, noted in the site walkover): Heavy metals, sulphates and PAHs ¹ . - Other unknown inorganic / organic contaminants (dependant on fill material source). - If significant depth of organic / putrescible material: Hazardous gas (principally carbon dioxide and methane).
Onsite Car Park	- Spillages / leakages: petroleum hydrocarbons, oils (source expected to be minimal and localised)
Offsite Potentially Infilled Ground	- Hazardous gas (principally carbon dioxide and methane). - Given the age, location, likely minimal degree of infilling and intervening impermeable clays not considered to be a significant source of hazardous gas.
Surrounding Area	- No significant contamination sources within influencing distance of the site.

Table 2-3: Potential contamination sources.

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

Potential receptors are detailed in Table 2-4.

Receptors	
Human Health	- Future site users (including visitors and site workers). - Offsite land users. - As the proposed development is for commercial use, there will only be adults present on site over a long period of time. Therefore the most sensitive receptors (children) will not be affected.
Controlled Waters	- Brook Bottom Brook 161m north. - Secondary A Aquifer.
Buildings and structures.	
Potable water pipes.	
Flora within future landscaping.	

Table 2-4: Potential receptors.

Potential pathways are detailed in Table 2-5.

Pathways		
Soil	Human Health ² (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. - Omitted: ingestion of contaminated vegetables and ingestion of soil attached to vegetables.
		- Windblown dust / fibres to adjacent receptors.
		- Direct contact with receptors (building foundations, services).
Water		- Surface run-off over impermeable surface.
		- Infiltration into the ground, through potentially contaminated material (contamination possibly going into solution). - Site is predominantly hardstood; therefore, infiltration is likely to be limited. - Migration through potentially permeable strata and preferential pathways. - Superficial (Till) likely to be low permeability. - Bedrock (sandstone) likely to be relatively permeable. - Preferential pathways: services.
Gas		- Migration through potentially permeable strata and preferential pathways. - Superficial (Till) likely to be low permeability. - Bedrock (sandstone) likely to be relatively permeable. - Preferential pathways: services.
		- 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.

2.6 LKC Preliminary Contamination Conceptual Model

The preliminary contamination conceptual model using contaminant-pathway-receptor linkages based on guidance in CLR11³ 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.

² EA (2008). "Updated Technical Background to the CLEA Model." Science Report – SC050021/SR3.

³ EA (2004). "Model Procedures for the Management of Land Contamination." R&D Publication CLR 11.

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 C552⁴.

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 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 guidance⁵) should be adopted by all workers involved with site enabling and construction works. Therefore, this receptor is not considered in the contamination conceptual model.

2.7 Recommendations

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

⁴ CIRIA (2001). "Contaminated land risk assessment: A guide to good practice". C552.

⁵ HSE (1991). "Protection of Workers and the General Public During Development of Contaminated Land" London HMSO.

Pollutant Linkage	Pathway	Receptor	Contaminant (source)	Probability	Consequence	Risk	Assessment and Recommendations
PL1	- Dermal contact. - Inhalation of soil, fibres and dust. - Ingestion of soils - Windblown dust.	- Future site users. - Offsite receptors.	- Heavy metals - PAHs (made ground).	Likely	Medium	Moderate	- Likely due to ashy made ground identified on site and potential pathway to receptors in landscaping. - Recommendation: Intrusive investigation required with soil sampling required.
			- ACM (made ground).	Low Likelihood	Medium	Moderate / Low	- Low likelihood due to age of buildings and limiting potential pathway to receptors in soft landscaping. - Moderate risk assumed at this stage. - Recommendation: Intrusive investigation with soil sampling required.
			- Heavy end hydrocarbons (made ground, onsite car park).	Unlikely	Medium	Low	- Unlikely probability of hydrocarbons within made ground as minimal spills / leakages expected from the onsite carpark. - Recommendation: Intrusive investigation required with soil sampling if evidence of hydrocarbons identified in the ground.
PL2	- Inhalation of vapours. - Migration through permeable strata and preferential pathways.	- Future site users. - Offsite receptors.	- Volatile Contaminants such as hydrocarbons, solvents (made ground, onsite car park).	Unlikely	Medium	Low	- Unlikely probability of volatile contaminants source is only from an onsite carpark and made ground therefore minimal leakages / spillages of volatile contamination considered unlikely. - Recommendation: No testing required unless evidence of volatile contaminants identified in the ground.
PL3	- Inhalation of gas. - Migration through permeable strata and preferential pathways. - Explosion in confined spaces.	- Future site users. - Buildings. - Offsite land users.	- Methane, carbon dioxide. (potentially infilled features 250m of the site, made ground).	Unlikely	Severe	Moderate / Low	- Unlikely probability due to likely minor amount of infilling and intervening impermeable clay, which is likely to mitigate gas migration. - Recommendation: Gas monitoring or precautionary measures required if significant depth of made ground or putrescible material encountered on site.
PL4	- Surface Run-off. - Migration through permeable strata and preferential pathways - Perched waters migration.	- Groundwater (Secondary A Aquifer). - Surface water (Brook Bottom Brook).	- Mobile contaminants such as metals, PAHs, hydrocarbons (made ground, onsite car park).	Unlikely	Medium	Low	- Unlikely probability of hydrocarbons as minimal spills/leakages expected from the onsite carpark. Metals and PAHs associated with ash and clinker relatively immobile. - Recommendation: No testing required unless evidence of significant potentially mobile contamination is identified in the soil.
PL5	- Sulphate attack on concrete.	- Building structure.	- Sulphate (ash identified in made ground).	Likely	Mild	Moderate / Low	- Likely probability as ash was identified in made ground, which may be in contact with concrete used in future buildings. - Moderate risk assumed at this stage. - Recommendation: Intrusive investigation required as part of PL1.
PL6	- Ingestion of tainted water supply.	- Future site users. - Water pipes.	- Organic Contaminants such as hydrocarbons (made ground, onsite carpark).	Low Likelihood	Medium	Moderate / Low	- Low probability as significant contamination not anticipated at pipeline depth (0.75-1.35m). - Risk is considered moderate at this stage due to unknown depth of made ground. - Recommendation: Sampling required if made ground present at pipeline installation depths.
PL7	- Direct Contact (plant uptake).	- Flora.	- Phytotoxic Contaminants (made ground).	Low Likelihood	Minor	Very Low	- Low likelihood as contamination considered possible, which may be taken up by flora in soft landscaping. - Recommendation: Investigation work as part of PL1.

Table 2-6. Preliminary Contamination Conceptual Model.

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.

The investigation was carried out on 28th February and 14th March 2018 and comprised the following:

- 6no. window sample boreholes drilled to 0.60-4.25 metres below ground level (mbgl) (ref. WS101 to WS106).
- 4no. trial pits (using JCB) excavated to 0.90-2.80mbgl (ref. TP101 to TP104).

WS103A had to be re-positioned due to the presence of underground services. The repositioned borehole is referenced WS103B.

The trial pit locations were repositioned due to the provision of additional service plans provided on the day of work.

All site investigation locations are shown in Figure 4.

Most of the locations were specified by Bradshaw Gass and Hope to target areas of the proposed development for foundation design. Further locations were chosen by LKC to allow a good spread across the site. Table 3-1 details the targeted and general coverage (non-targeted) site investigation locations.

Site Investigation Locations	Rationale
TP101 and 104	Footprint of proposed café extension.
TP102, WS101 and WS104	General site coverage.
TP103, WS102, WS103 and WS106	Footprint of proposed extension.
WS105	Footprint of proposed extension and current LPG tank location.

Table 3-1: Summary of sampling locations.

The number of site investigation points corresponds to approximately one location per 25m square centres. This is considered to be a conservative sampling density and is in line with BS10175⁶ for a 'main investigation'.

All profile logs are provided in Appendix B and are in line with BS14688-1⁷ and BS5930⁸.

3.2 Well Installations

3no. (WS101, WS104, WS105) of the boreholes were installed with monitoring wells for groundwater monitoring. Monitoring wells were installed in accordance with BS10175 and CIRIA C665⁹ and generally comprised approximately 0.5-1m plain pipe over a length of slotted pipe surrounded by pea gravel and sealed at the top with bentonite and concrete.

⁶ British Standard (2011). "Investigation of Potentially Contaminated Sites – Code of Practice." BS10175:2011.

⁷ British Standards (2002) Geotechnical investigation and testing – Identification and Classification of Soil. Part 1: Identification and description. BS EN ISO 14688-1:2002.

⁸ British Standard (2015). "Code of Practice for Ground Investigations". BS5930:2015.

⁹ CIRIA (2007). "Assessing Risks Posed by Hazardous Ground Gases to Buildings." CIRIA C665.

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 investigation¹⁰.

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 Tiger photoionisation detector (PID). The on-site monitoring was carried out in line CIRIA C665¹¹ 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.

Suites and Contaminants	No. Samples	Location & Depth	Justification
Metals / metalloids, pH, water soluble sulphate, speciated PAHs, SOM and asbestos screen.	12	WS101 0.3-1.0m WS102 0.0-1.0m WS103B 1.2-1.0m WS104 0.0-0.8m WS105 0.0-1.0m WS106 0.15-1.0m TP101 0.0-0.2m TP101 0.2-1.2m TP102 0.0-0.30m TP102 0.3-1.0m TP103 0.0-0.9m TP104 0.2-1.2m	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.

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; PAH=polycyclic aromatic hydrocarbons; SOM=Soil Organic Matter.

3.3.2 Water Sampling / Leaching Testing

A low risk was identified in the preliminary contamination conceptual model for controlled waters (pollutant linkage 4) and further action was only recommended if significant soil contamination was identified on site. Based on the ground conditions encountered, LKC did not consider testing to be required. This is discussed further in Section 6.4.

¹⁰ EA (2000). "Technical Aspects of Site Investigation. Volumes 1 & 2 Text Supplements Research and Development Technical Report." P5-065/Tr.

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

3.4 Gas Monitoring

Gas monitoring was not carried out as part of this investigation.

A low risk was identified in the preliminary contamination conceptual model for gas (pollutant linkage 3) and further action was only recommended if significant organic / putrescible material was identified on site. Based on the ground conditions encountered, LKC did not consider gas monitoring to be required. This is discussed further in Section 6.3.

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.
- Shear Vane tests (giving undrained shear strength) were performed in the window sample boreholes (to a maximum depth of 3mbgl) and trial pits at approximately 1m intervals, within the natural clay strata.

Shear vanes tests were not always possible due to the friable or gravel rich nature of some of the clay deposits.

The SPT and shear vane readings are provided within the profile logs (Appendix B).

3.5.2 *Laboratory Geotechnical Testing*

Soil samples taken during the investigation were collected in 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 D. Table 3-3 shows the geotechnical testing undertaken.

Suites and Contaminants	No. Samples	Location	Justification
Atterberg Limits (plasticity testing)	4	WS106 1.0-2.0m WS101 1.0-2.0m TP102 1.0-2.0m TP104 1.0-2.0m	A selection of clay samples across the site were tested for Atterberg Limits to assess their shrinkability potential.

Table 3-3. Summary of geotechnical testing undertaken.

4 GROUND CONDITIONS

4.1 Geology – Generalised Sequence

The ground conditions beneath the site were variable. Made ground was recorded in approximately half of the holes. Made ground generally comprised clayey sand or gravelly clay with ash, clinker, rare brick and pottery. Natural ground generally comprised firm to stiff sandy gravelly clay with bands of sand, coal fragments and sandstone cobbles.

A summary section of the logs is provided in Plate 4-1, with additional comments below. Profile logs are presented in Appendix B.

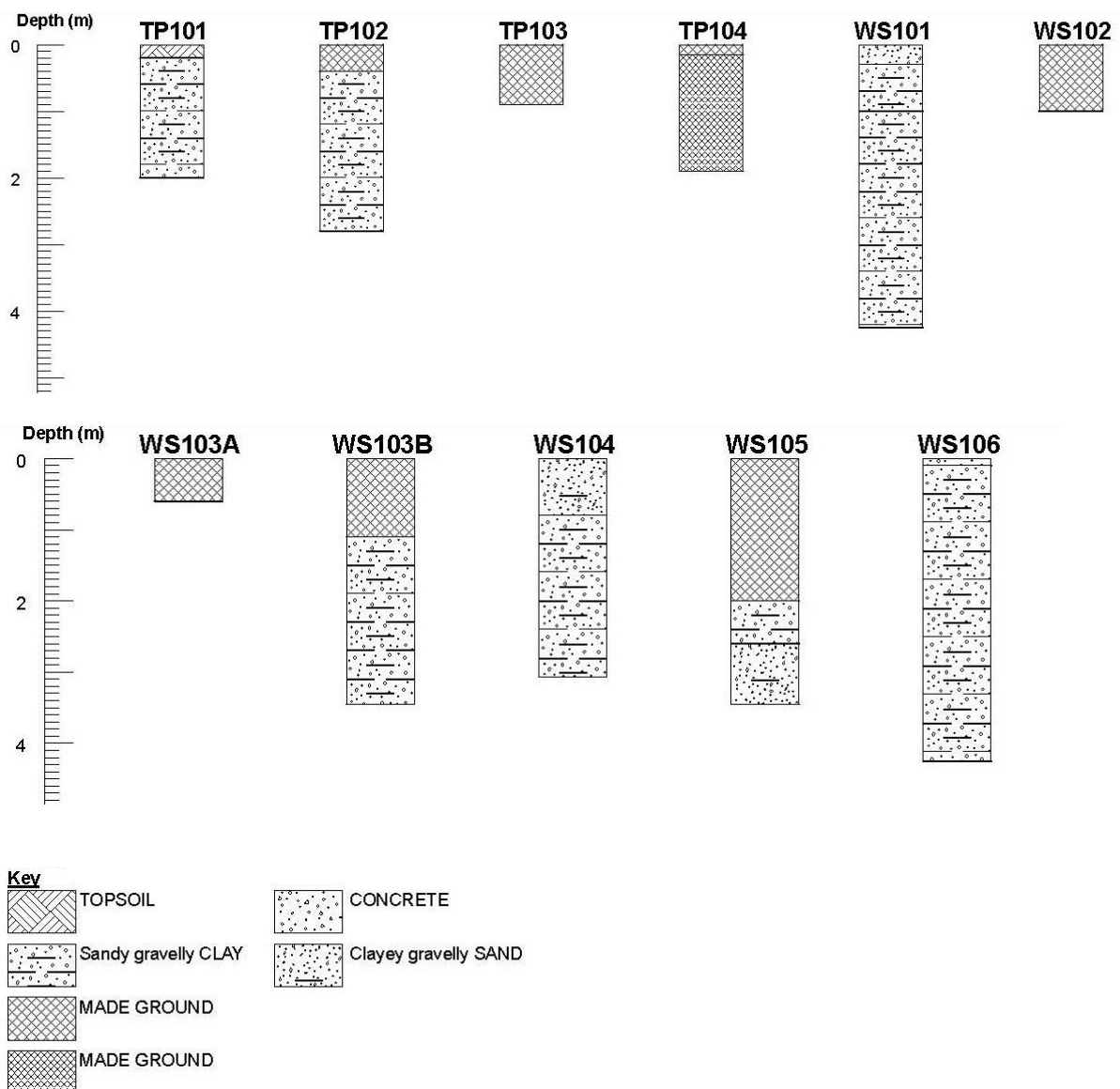


Plate 4-1: Summary of ground conditions.

TP101, TP103 and TP104 were terminated due to services in the base of the trial pit. TP102 was terminated on possible weathered bedrock. In TP102, timber was noted at 0.30mbgl and sandstone flags were noted at 0.30-0.40mbgl.

The following boreholes were all terminated due to refusal on possible weathered sandstone bedrock: WS101 at 4.25mbgl, WS102 at 1.0mbgl, WS103B at 3.45mbgl, WS104 at 3.07mbgl, WS105 at 3.45mbgl and WS106 at 3.23mbgl. WS103A was terminated as 0.60mbgl due to services. This was relocated to WS103B.

No visual / olfactory evidence of hydrocarbons or volatile contaminants in any locations.

4.2 Groundwater

4.2.1 Groundwater Levels

Groundwater strikes were recorded during the investigation in trial pits and boreholes. In addition, groundwater monitoring within the borehole wells has been undertaken on one occasion.

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?
				Max	Base		
WS101	Dry	1.0-3.0 (C)	1	0.66	3.36	N	N
WS102	Dry	Not installed	-	-	-	N	N
WS103A	Dry	Not installed	-	-	-	N	N
WS103B	3.00	Not installed	-	-	-	N	N
WS104	Dry	1.0-3.0 (C)	1	0.42	2.94	N	N
WS105	Dry	1.0-2.5 (MG/S)	1	1.78	2.55	N	N
WS106	Dry	1.0-3.0 (C)	1	1.12	2.92	N	N
TP101	0.80	-	-	-	-	N	N
TP102	0.80	-	-	-	-	N	N
TP103	0.90	-	-	-	-	N	N
TP104	1.50	-	-	-	-	N	N

Table 4-2: Summary of water strike depths within boreholes and trial pits.

Response Zones:

MG=Made Ground; C=Clay.

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 4-2 and provided within the profile logs in Appendix B.

Approximate Depth (mbgl)	SPT 'N' Values				
	WS101	WS103B	WS104	WS105	WS106
1-2	11 (C)	5 (C)	17 (C)	3 (MG)	7 (C)
2-3	15 (C)	20 (C)	22 (C)	8 (C)	20 (C)
3-4	19 (C)	50 (C)	50 (C)	50 (C)	50 (C)
4-5	50 (C)	-	-	-	-
GW Level	0.66	-	0.42	1.78	1.12

Table 4-2: Summary of SPT (N) values.

Notes:

C=Clay; MG=Made Ground

Groundwater level based on strikes during investigation and monitoring data.

4.3.2 Shear Vanes

Hand shear vane readings, recording undrained shear strength (USS), were taken within the clay strata. The results are summarised in Table 4-3 and provided within the profile logs in Appendix B.

Approximate Depth (mbgl)	Average Undrained Shear Strength (kN/m ²)		
	TP101	TP102	TP104
0-1	55	-	38
1-2	130	28	50
2-3	-	36	-
3-4	-	-	-
GW Level	0.80	0.80	1.5

Table 4-3: Summary of average trial pit hand shear vane readings.

Approximate Depth (mbgl)	Average Undrained Shear Strength (kN/m ²)				
	WS101	WS103B	WS104	WS105	WS106
0-1	-	-	-	-	-
1-2	68	-	-	-	-
2-3	66	64	82	40	74
3-4	70	-	112	-	-
GW Level	0.66	-	0.42	1.78	1.12

Table 4-4: Summary of average window sample hand shear vane readings.

Notes:

Groundwater level based on strikes during investigation and monitoring data.
Shear vane readings can be influenced by coarse material including coarse silt.

4.4 Geotechnical Laboratory Testing

4.4.1 Atterberg Limits

Representative samples of natural clay were subjected to Atterberg Limits (plasticity) and Moisture Content testing. Results are presented in Appendix D and summarised in Table 4-5.

Table 4-5 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 (%)
TP102	1.0-2.0	15	40	14	26	CL	87	22.62
TP104	1.0-2.0	18	38	14	24	CL	91	21.84
WS101	1.0-2.0	17	40	15	25	CL	80	20.00
WS106	1.0-2.0	16	36	13	23	CL	84	19.32

Table 4-5: Summary of plasticity index testing.

The modified plasticity index is between 19% and 23%. This characterises the clay as having a low to medium volume change potential.

4.4.2 Sulphate and pH

Water soluble sulphate and pH tests were carried out on soil samples. Full results are presented in Appendix C and summarised in Table 4-6.

Strata	pH	Sulphate (g/l)
Made Ground	4.6-8.3	<0.01-0.033
Natural	5.2-8.5	<0.01-0.03

Table 4-6: Summary of pH and sulphate results.

5 GEOTECHNICAL ASSESSMENT

Proposed Development	-An extension to the existing café to create a visitor information centre. The demolition of existing buildings for the use of open space. Remodel and redevelopment of the existing farm house. The development of a new roof over the existing dog training area. Relocation of liquefied petroleum gas (LPG) tanks.
General Ground conditions / Geotechnical Testing	-Maximum investigation depth 4.25mbgl. -Made Ground generally was recorded between 0.4 to 2.0mbgl. However natural ground existed at the surface (or under a thin layer of concrete) in four of the holes. -SPTs in made ground N=3 at 1.2mbgl. -Sandy gravelly CLAY to >4.25mbgl. SPTs N=5-11 at 1mbgl, N=8-22 at 2m, N=19-50 at 3-5mbgl. -Possible weathered sandstone bedrock encountered between 1.00 and 4.25mbgl. -Groundwater at 0.42-1.5mbgl. Artesian groundwater encountered in WS103B at 3.45mbgl
Allowable Bearing Pressure	55-75kN/m ² at 1.0-3.0mbgl, 140kn/m2 at 3.0mbgl in the sandy gravelly clay.
Anticipated Foundation Type	Traditional shallow foundations recommended from approximately 3mbgl or where weathered sandstone bedrock is encountered shallower. If soft ground is encountered, foundations may need to be deepened / widened or ground replaced with compacted granular material.
Concrete Requirements	-Based on BRE Digest 2005 ¹² – DS-1 AC-1 recommended.
Services	-Numerous services run through the site. -Services may need to re-routed.
Temporary support of excavation	May be required; however, trial pits were generally recorded as stable.
Plasticity	Consideration will need to be given to the shrink / swell of the clay strata if it is to be used as a founding strata, particularly where trees/hedges are present. Foundations may need to be deepened. A low to medium volume change potential has been calculated for the site.

¹² BRE (2005). "Concrete in Aggressive Ground." Special Digest 1.

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 (CLR11¹³). 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^{14,15}. The recent change to the contaminated land guidance has changed the evaluation of risk from 'minimal' (referred to as Health Criteria values (HCVs))¹⁶ 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 S4ULs¹⁷. 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^{18,19,20,21}.

If contaminants are not present as C4SLs and S4ULs then LKC will use ATRISK SSVs or CL:AIRE GACs²². 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 PAHs^{23,24} and

¹³ EA (2004). "Model Procedures for the Management of Land Contamination." R&D Publication CLR 11.

¹⁴ Defra (2014). "SP1010: Development of Category 4 Screening Levels and Assessment of Land Affected by Contamination – Policy Companion Document."

¹⁵ CL:AIRE (2013). "SP1010: Development of Category 4 Screening Levels and Assessment of Land Affected by Contamination – Final project Report."

¹⁶ EA (2008). "Human Health Toxicological Assessment of Contaminants in Soils." Science Report – SC050021/SR2.

¹⁷ LQM (2014). "The LQM/CIEH S4ULs for Human Health Risk Assessment."

¹⁸ EA (2008). "Updated Technical Background to the CLEA Model." Science Report – SC050021/SR3.

¹⁹ EA (2008). "Human Health Toxicological Assessment of Contaminants in Soils." Science Report – SC050021/SR2.

²⁰ EA (2008). "A Review of Body Weight and Height Data used within the Contaminated Land Exposure Assessment Model (CLEA)." Project SC050021/Technical Review 1.

²¹ EA (2009). "Compilation of Data for Priority Organic Pollutants for Derivation of Soil Guideline Values." Science report SC050021/SR7.

²² CL:AIRE (2009). "The Soil Generic Assessment Criteria for Human Health Risk Assessment."

²³ EA (2002). "Contaminants in Soils: Collation of Toxicological Data and Intake Values for Humans. Benzo[a]pyrene." R&D Publication TOX2.

²⁴ USEPA (1984). "Health Effects Assessment of Polycyclic Aromatic Hydrocarbons (PAHs). EPA 540/1-86-013."

naphthalene the most volatile and soluble²⁵. 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 negligible²⁶. For B(a)P to be used as a surrogate marker it should follow the profile described by the HPA (2008)²⁷ and CL:AIRE (2013). Naphthalene will be treated separately using the LQM S4ULs.

The proposed development is for a continued commercial end use, therefore the assessment criteria for commercial use has been used.

All criteria have been generated using the CLEA V1.06 model²⁸ 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 E. ATRISK SSVs and CL:AIRE GACs were not required for this dataset and have not been included.

B(a)P as Surrogate Marker

An assessment of the data should be undertaken to confirm B(a)P is a suitable surrogate marker by assessing the ratios of carcinogenic PAHs to BaP. However, as the majority of the PAHs were recorded as less than detection limits, the assessment could not be undertaken.

6.2.2 Soil Results Comparison against Assessment Criteria

All analysis sheets are presented in Appendix C.

Results have been compared to the relevant assessment criteria and no elevated contaminants were identified. Additionally no asbestos was identified in any soil samples analysed.

As no significant concentrations of petroleum hydrocarbons were identified in any of the soil samples a hazard index (HI) as described by the Environment Agency²⁹ technical report (to examine the potential additivity of toxicological effects between the petroleum hydrocarbon fractions) has not been undertaken as part of this assessment.

6.2.3 Direct Contact Risk – Pollutant Linkage 1

Contaminants of concern were not recorded at concentrations exceeding screening criteria. Additionally no asbestos was identified in any soil samples.

The probability of none volatile contamination affecting site users is unlikely. With a medium consequence, the risk is considered to be low and remediation is not required.

As a precaution construction workers should be and vigilant for any suspected ACM during groundworks (discussed further in Section 9.1).

²⁵ EA (2003). "Review of the Fate and Transport of Selected Contaminants in the Soil Environment." Draft technical report P5- 079/TR1.

²⁶ CL:AIRE (2013). "SP1010: Development of Category 4 Screening Levels and Assessment of Land Affected by Contamination – Final project Report."

²⁷ HPA (2010). "HPA Contaminated Land Information Sheet: Risk Assessment Approaches for Polycyclic Aromatic Hydrocarbons (PAHs)." Version 3.

²⁸ EA (2008). "CLEA Software (Version 1.05) Handbook." Science Report – SC050021/SR4.

²⁹ EA (2005). "The UK Approach for Evaluating Human Health Risks from Petroleum Hydrocarbons in Soils." Science Report P5-080/TR3.

6.2.4 Risk from Inhalation of Vapours – Pollutant Linkage 2

No visual / olfactory evidence of volatile contaminants was identified during the investigation.

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 with respect to pollutant linkage 2.

6.3 Gas Risk Assessment (Pollutant Linkage 3)

Gas monitoring was not carried out as part of this assessment. The PRA identified a low risk and only recommended gas monitoring if a significant depth of organic / putrescible material was identified.

No organic / putrescible material was encountered on site. Given the ground conditions encountered, LKC considers the probability of gas posing a risk to site users as unlikely. The consequence is severe, which gives a moderate / low risk. Given the known ground conditions, LKC considers there to be a low risk and no further action is required with respect to pollutant linkage 3.

6.4 Controlled Water Assessment (Pollutant Linkage 4)

The PRA identified a low risk with respect to controlled waters as no significant source of mobile contamination was anticipated.

The site investigation did not identify any significant sources of likely mobile contamination within the soils. This confirms an unlikely probability of onsite contamination affecting controlled waters. With a medium consequence the risk is anticipated to be low 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 site was classified as DS-1 AC-1.

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 sulphate resistant concrete is not 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 contamination³⁰. Only contaminants 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, chlorinated compounds, BTEX compounds, phenols, cresols, ethers, nitrobenzene, ketones, aldehydes and amines.

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

³⁰ UU(2011). "United Utilities Water Supplementary Guidance for the Selection of Water Pipes in Land Potentially Affected by Contamination."

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 BS3882³¹.

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 6.2-6.5. 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 6-7.

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 8.

³¹ BS (2015). "Specifications for Topsoil and Requirements for Use." BS3882:2015.

Pollutant Linkage	Pathway	Receptor	Contaminant	Probability	Consequence	Risk	Assessment
PL1	- Dermal contact. - Inhalation of soil, fibres and dust. - Ingestion of soils. - Windblown dust.	- Future site users. - Offsite receptors.	- None volatile contaminants	Unlikely	Medium	Low	- Unlikely probability as no contaminants of concern were identified at concentrations exceeding screening criteria. Risk considered to be low. - Recommendation: No remediation required ^{*1} .
PL2	- Inhalation of vapours. - Migration through permeable strata and preferential pathways.	- Future site users. - Offsite receptors.	Volatile Contaminants	Unlikely	Medium	Low	- Unlikely probability as no elevated volatile contaminants across the site. Risk considered to be low. - Recommendation: No remediation required.
PL3	- Inhalation of gas. - Migration through permeable strata and preferential pathways. - Explosion in confined spaces.	- Future site users. - Buildings. - Offsite land users.	- Carbon dioxide and methane.	Unlikely	Severe	Moderate / Low	- No gas monitoring undertaken as no significant depth of organic or putrescible material identified. - Unlikely probability of ground gas and risk considered to be low. - Recommendation: No remediation required.
PL4	- Surface Run-off. - Migration through permeable strata and preferential pathways - Perched waters migration.	- Groundwater (Secondary Aquifer). - Surface water (Brook Bottom Brook).	Mobile contaminants	Unlikely	Medium	Low	- No elevated contaminants therefore unlikely probability of mobile contamination. Risk considered to be low. - Recommendation: No remediation required.
PL5	- Sulphate attack on concrete.	- Building structure.	- Sulphate	Unlikely	Mild	Very Low	- Unlikely probability as no elevated sulphate identified in soils or groundwater. Risk considered very low. - Recommendation: No remediation required.
PL6	- Ingestion of tainted water supply.	- Future site users (via potable water).	Organic Contaminants	Unlikely	Medium	Low	- No elevated contaminants identified. - Recommendation: Barrier piping unlikely to be required. However this will need to be confirmed once UU risk assessment undertaken.
PL7	- Direct Contact (plant uptake).	- Flora.	Phytotoxic Contaminants	Unlikely	Minor	Very Low	- No elevated contaminants identified. - Recommendation: No remediation required.

Table 6-7: Revised Contamination Conceptual Model.

Notes

^{*1} Although no ACM identified, contractors should be vigilant during earthworks of any potential ACM. This is discussed further in Section 9.

7 WASTE DISPOSAL ASSESSMENT

The soil contamination results as presented in Appendix C have been used to help determine the disposal route should any material be earmarked for off-site disposal.

As an initial screen the soil results were inputted into '**HAZWASTEONLINE**'. This is a web-based facility that allows an assessment of contaminant soils and classifies the soils as either hazardous or non-hazardous waste.

It is understood that **HAZWASTEONLINE** has been designed to cover the European Waste Catalogue code number 17 05 03 "soil and stones containing dangerous substances" and follows current guidance^{32,33,34,35,36}.

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

The results show that all the samples tested are classified as **NON-HAZARDOUS WASTE**. The output sheets are provided in Appendix F.

³² EA (2013). "Hazardous Waste: Interpretation of the Definition and Classification of Hazardous Waste". Technical Guidance WM3. 1st Edition 2015.

³³ The Hazardous Waste Directive, (HWD, Council Directive 91/689/EC).

³⁴ European Waste Catalogue, 2002 (EWC 2002, Commission Decision 2000/532/EC) as amended by Commission Decision 2001/118/EC, 2001/119/EC and Council Decision 2001/573/E.

³⁵ List of Wastes (England) Regulations 2005.

³⁶ Approved Supply List (Eighth Edition), 2002. ISBN: 0 7176 2368 8.

8 CONCLUSIONS

8.1 Geotechnical

Traditional shallow foundations are likely to be suitable founded in sandy gravelly clay at 3.0mbgl or weathered sandstone bedrock if shallower. However deepening of foundations may be required if localised softer strata is observed. Consideration of effects of trees also needs to be considered.

Temporary supports of excavations may be required.

Detailed design should be carried out by structural engineer.

No sulphate resistant concrete is required (DS-1 AC-1).

8.2 Contamination Assessment

A revised contamination conceptual model has been produced by LKC which is summarised in Table 8-1 below (more detailed model provided in Section 5).

	Pollutant Linkage	Risk	Recommendations
1	Contaminants posing a risk to site users via dermal contact, ingestion and inhalation (of soil, dust and fibres).	Low	-None volatile contamination Recommendations: Remediation not required.
2	Volatile contaminants posing a risk to site users via the inhalation of vapours.	Low	-No evidence of volatile contamination identified. Recommendations: No remediation required.
3	Gas posing a risk to buildings and site users via the migration of gas into building causing explosion and asphyxiation.	Moderate / Low	-No gas monitoring undertaken as no significant depth of organic or putrescible material identified. -Low risk assumed. Recommendations: No remediation required.
4	Mobile contamination posing a risk to controlled waters via migration through permeable strata.	Low	-No elevated soil contaminants; therefore, unlikely probability of mobile contamination and no groundwater sampling was required. Recommendations: No remediation required.
5	Sulphate posing a risk to building via direct contact (sulphate attack).	Very Low	-No elevated sulphate identified (DS-1 AC-1). Recommendations: Sulphate resistant concrete not required.
6	Organic contaminants posing a risk to water pipes.	Low	-No organic contamination identified. Recommendations: UU risk assessment to be completed. The site will <u>not</u> likely require barrier piping.
7	Phytotoxic metals posing a risk to flora via root uptake.	Very Low	-No phytotoxic metals above generic criteria. Recommendations: No remediation required.

Table 8-1: Summary Risk Table.

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.

Phase	PL	Remediation Requirements	Validation Requirements
Pre-Construction	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 C733³⁷.	Log of work undertaken including photographs. Details of any sampling undertaken and validation of any potential additional remedial work.
Build-Phase Construction	6	<u>Potable Water Pipes</u> It is recommended that a Water Pipeline Assessment is undertaken once the location and depth of potable water pipes are known. Unlikely that barrier pipe will be required.	Complete UURA.
Other Considerations		<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: 1,000 tonnes (c. 600³) of non-hazardous soil 5,000 tonnes (c. 3,000m³) of natural sand and gravels. 50,000 tonnes (c. 25,000m³) of bituminous material to be used in roadways. 5,000 tonnes (c. 3,000m³) of crushed concrete / stone. 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 a 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.	

Table 9-1: Remediation and validation requirements.

³⁷ CIRIA (2014). "Asbestos in Soil and Made Ground: A Guide to Understanding and Managing Risks". C733.

9.2 Validation of Subsoil / Topsoil

Chemical validation of all imported soils to be used on site in soft landscaping areas should be undertaken. Imported soils should be accompanied by a certificate of analysis and source details.

A summary of the required imported material sampling requirements are presented in Table 9-2. 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 to ensure suitability for use.

Material Type	Source	Suite of Analysis	Sampling Rate*
Topsoil	Greenfield / Site won	Suite A	1 sample per 50m³
	Brownfield / Unknown	Suite B	
Subsoil	Brownfield / Unknown	Suite B	1 sample per 150m³
	Site won natural material	Suite A	
	Physical Stone Break Layer	First Generation i.e. quarried sand (subsoil) or stone (break layer)	No testing is required. Certification of material provenance is required.
Recycled Stone (6F2 / screened)		Suite B	1 sample per 500m³

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.

*Minimum sampling rate of 3 samples per source.

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 BS3882³⁸). LKC advise this information is provided by the supplier before material is imported onto site.

Imported material to be used in landscaping will be compared against commercial criteria (as used in the contamination risk assessment (Section 6-1)). Appropriate remedial target criteria are presented in Appendix E.

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:

- Verification testing of all imported soil for soft landscaping areas (if required).
- Details of any unexpected contamination identified onsite, suitably risk assessed and / or validated.
- Provision of disposal tickets if any material is to be removed offsite to a licence recycling facility.

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.

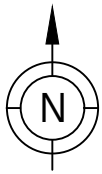
³⁸ BS (2015). "Specifications for Topsoil and Requirements for use." BS3882:2015.

FIGURES



Figure 1: Site Location Plan, Bleakholt Animal Sanctuary, Bury

Drawn: July 2017 Scale: 1:25,000 @ A4 (see scale bar)



KEY

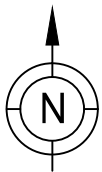


Sampling Locations and features annotated by LK Consult Ltd are approximate and are based upon observed measurements unless otherwise stated. Do not scale from this drawing and work from marked dimensions only. All dimensions and features should be confirmed on site by the Contractor. Where this drawing 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: Bleakholt Animal Sanctuary			
Site: Bleakholt Animal Sanctuary, Bury			
Title: Site Boundary Plan			
Job No.: LKC 17 1207	Scale (See Scale Bar): 1:1250 @ A4	Figure: 2	Revision:
Drawn By: AC	Checked By: PP	Drawn: Jul 2017	

Extract from: Bradshaw Gass & Hope LLP
Drawing Ref: Location Plan, No.1865.08.SK01 (May 2017)



**Current LPG
Tank Location**

phase 3
refurbishment and remodeling of the existing farm house building to accommodate office, training room, classrooms etc, with new entrance structure providing greater clarity of entry point into the reception.
The creation of strong internal dog zoning with new 18No. of standard kennels and new low level planting in the middle to reduce kennel stress.
Existing tanks to be relocated to the back of the kennels.

phase 1
remodeling and extension of the existing cafe to create a visitor information centre inclusive of a shop type facility to support the Bleakholt Animal Sanctuary.
Create of an enhanced visitor journey following arrival at the Sanctuary.

phase 2
demolishing of the existing front and back kennels and create the available areas as a central open space or possible site for an attraction (eg children's play area or alternative activity space).
Existing path from the car parking to Sanctuary altered to form more direct sight lines to the new attraction area.

**Proposed LPG
Tank Location**

phase 4
Provide new road over existing dog training area.
Remove one of the dog runs and provide new path for dog walker access.

KEY

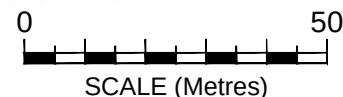
 Site Boundary

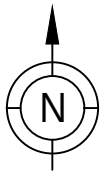
Sampling Locations and features annotated by LK Consult Ltd are approximate and are based upon observed measurements unless otherwise stated. Do not scale from this drawing and work from marked dimensions only. All dimensions and features should be confirmed on site by the Contractor. Where this drawing 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: Bleakholt Animal Sanctuary			
Site: Bleakholt Animal Sanctuary, Bury			
Title: Proposed Site Use			
Job No.: LKC 17 1207	Scale (See Scale Bar): 1:1250 @ A4	Figure: 3	Revision: 1
Drawn By: AC	Checked By: PP	Drawn: Sep 2017	

Extract from: Bradshaw Gass & Hope LLP
Drawing Ref: Master Plan As Proposed Option 1, No.1865.08.301, Rev:B (17/05/2017)





**Current LPG
Tank Location**

**Proposed LPG
Tank Location**

phase 3
refreshment and remodeling of the existing farm house building to accommodate office, training room, classrooms etc. with new entrance structure providing greater clarity of entry point into the reception.
The creation of strong internal dog zoning with new 18No. of standard kennels and new low level planting in the middle to reduce kennel stress.
Existing tanks to be relocated to the back of the kennels.

phase 1
remodeling and extension of the existing cafe to create a visitor information centre inclusive of a shop type facility to support the Bleakholt Animal Sanctuary.
Create of an enhanced visitor journey following arrival at the Sanctuary.

phase 2
demolishing of the existing front and back kennels and create the available area as a central open space or possible site for an attraction (eg children's play area or alternative activity space).
Existing path from the car parking to Sanctuary altered to form more direct sight lines to the new attraction area.

phase 4
Provide new roof over existing dog training area.
Remove one of the dog runs and provide new path for dog walker access.

KEY



Site Boundary



Window Sample Borehole (WS)



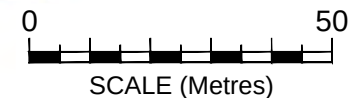
Trial Pit (TP)

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: Bleakholt Animal Sanctuary			
Site: Bleakholt Animal Sanctuary, Bury			
Title: Site Investigation Location Plan			
Job No.: LKC 17 1207	Scale (See Scale Bar): 1:1250 @ A4	Figure: 4	Revision:
Drawn By: AC	Checked By: RC	Drawn: Apr 2018	

Extract from: Bradshaw Gass & Hope LLP
Drawing Ref: Master Plan As Proposed Option 1, No.1865.08.301, Rev:B (17/05/2017)



SCALE (Metres)

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 552³⁹. 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 result 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.

³⁹ 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

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

Bleakholt Animal Sanctuary, Bury

Number
WS101**Excavation Method**

Drive-in Windowless Sampler

Dimensions**Ground Level (mOD)****Client**

Bleakholt Animal Sanctuary

Job
Number
LKC 17 1207**Location****Dates**

28/02/2018

Project Contractor

D&I

Sheet
1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.00-0.30	D1				(0.30)	Grass over dark brown clayey gravelly SAND. Sand is fine to medium. Gravel is fine to medium and subangular comprising sandstone.			
0.30-1.00	D2				0.30	Soft to firm consistency medium strength dark brown gravelly sandy CLAY with rare coal fragments. Sand is fine to medium. Gravel is fine to coarse and subangular comprising sandstone.			
1.00	SV 68 kPa		3,4/3,3,2,3		1.00	Firm to stiff consistency medium strength brown mottled grey slightly gravelly sandy CLAY with occasional coal fragments. Sand is fine to medium. Gravel is fine to coarse and subangular to subrounded comprising sandstone.			
1.00-2.00	B3								
1.20-1.65	SPT N=11								
2.00-2.45	SPT N=15		4,3/4,4,4,3		(3.25)	Firm consistency clay by 2.40mbgl.			
2.00	SV 66 kPa								
3.00-3.45	SPT N=19		3,3/4,4,4,7			Very sandy layer noted at 3.30-3.50mbgl.			
3.00	SV 70 kPa								
4.00-4.25	SPT 50/100		3,3/8,12,23,7		4.25	Stiff consistency clay by 3.80mbgl.			
						Complete at 4.25m			

RemarksRefusal at 4.25mbgl on possible weathered sandstone bedrock.
Borehole dry.**Scale**
(approx)

1:40

Logged
By

HM

Figure No.

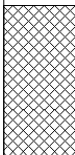
LKC 17 1207.WS101



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

Site Bleakholt Animal Sanctuary, Bury	Number WS102
Client Bleakholt Animal Sanctuary	Job Number LKC 17 1207
Project Contractor D&I	Sheet 1/1

Excavation Method Drive-in Windowless Sampler		Dimensions		Ground Level (mOD)	
Location		Dates 28/02/2018		Project Contractor D&I	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)
0.00-1.00	D1				(1.00) 1.00
					MADE GROUND: Grass over blackish brown slightly silty sandy gravelly clay with rare pottery fragments. Sand is fine to medium. Gravel is fine to coarse and subangular comprising sandstone. Complete at 1.00m



Water

Remarks Refusal at 1.00mbgl on possible weathered sandstone bedrock.	Scale (approx) 1:50	Logged By HM
	Figure No. LKC 17 1207.WS102	

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

Bleakholt Animal Sanctuary, Bury

Number
WS103A**Excavation Method**

Drive-in Windowless Sampler

Dimensions**Ground Level (mOD)****Client**

Bleakholt Animal Sanctuary

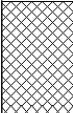
Job Number
LKC 17 1207**Location****Dates**

28/02/2018

Project Contractor

D&I

Sheet
1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
						MADE GROUND: Grass over blackish brown clayey sand with occasional ash, clinker and rare brick and pottery fragments. Sand is fine to coarse. Gravel is fine to coarse and subangular comprising sandstone.		
					0.60	Complete at 0.60m		

Remarks

Terminated at 0.60mbgl due to presence of service cable not detected by CAT Scanner and relocated.

Scale (approx)

1:40

Logged By

HM

Figure No.

LKC 17 1207.WS103A

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

Bleakholt Animal Sanctuary, Bury

Number
WS103B**Excavation Method**

Drive-in Windowless Sampler

Dimensions**Ground Level (mOD)****Client**

Bleakholt Animal Sanctuary

Job Number
LKC 17 1207**Location****Dates**

28/02/2018

Project Contractor

D&I

Sheet
1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-1.00	D1				(1.10)	MADE GROUND: Grass over blackish brown clayey gravelly SAND with occasional ash, clinker and rare pottery fragments. Sand is fine to coarse. Gravel is fine to coarse and subangular comprising sandstone.		
1.20-1.65 1.20-2.00	SPT N=5 D2		1,1/2,1,1,1		1.10	Firm to stiff consistency medium strength blackish grey slightly sandy slightly gravelly CLAY with rare coal fragments. Sand is fine to medium. Gravel is fine to coarse and subangular to subrounded comprising sandstone. Becoming firm consistency with depth.		
2.00-2.45 2.00 2.00-3.00	SPT N=20 SV 64 kPa B3		14,10/6,4,4,6		(2.35)			
3.00-3.45	SPT N=50		Water strike(1) at 3.00m. 8,9/10,10,14,16		3.45	Complete at 3.45m		V ₁

RemarksArtesian groundwater noted at approximately 3.00mbgl and rising rapidly. Borehole sealed.
Refusal at 3.45mbgl on possible weathered sandstone bedrock.**Scale (approx)**

1:40

Logged By

HM

Figure No.

LKC 17 1207.WS103B



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

Site Bleakholt Animal Sanctuary, Bury	Number WS104
Client Bleakholt Animal Sanctuary	Job Number LKC 17 1207
Project Contractor D&I	Sheet 1/1

Excavation Method Drive-in Windowless Sampler		Dimensions		Ground Level (mOD)	
Location		Dates 28/02/2018		Project Contractor D&I	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)
0.00-0.80	D1				(0.80)
0.80-1.80	D2				0.80
1.20-1.65	SPT N=17		2,3/3,4,5,5		
2.00-2.45 2.00 2.00-3.00	SPT N=22 SV 82 kPa B3		5,4/3,4,5,10		(2.27)
3.00-3.07 3.00	SPT SV 112 kPa		4,9/12,13,13,12		3.07
Complete at 3.07m					

Remarks Borehole dry. Refusal at 3.07mbgl on sandstone cobble.	Scale (approx) 1:40	Logged By HM
	Figure No. LKC 17 1207.WS104	

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

Bleakholt Animal Sanctuary, Bury

Number
WS105**Excavation Method**

Drive-in Windowless Sampler

Dimensions**Ground Level (mOD)****Client**

Bleakholt Animal Sanctuary

Job
Number
LKC 17 1207**Location****Dates**

28/02/2018

Project Contractor

D&I

Sheet
1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.00-1.00	D1					MADE GROUND: Grass over dark brown gravelly sandy CLAY with rare ash, clinker and coal fragments. Sand is fine to medium. Gravel is fine to coarse and subangular comprising sandstone.			
1.20-1.65	SPT N=3		1,1/1,0,1,1		(2.00)				
2.00-2.45 2.00 2.00-2.60 2.00-2.60	SPT N=8 SV 40 kPa B3 D2		1,1/1,0,1,6		2.00 (0.60)	Firm consistency low to medium strength dark greyish brown slightly sandy very gravelly CLAY with rare coal fragments. Sand is fine to medium. Gravel is fine to coarse and subangular comprising sandstone.			
2.60-3.00	B4				2.60	Loose to dense dark orangish brown slightly gravelly slightly clayey SAND (possible weathered sandstone). Sand is fine to coarse. Gravel is fine to medium and subrounded comprising sandstone. Becoming very gravelly with depth.			
3.00-3.45	SPT N=50		3,4/12,14,14,10		(0.85) 3.45	Complete at 3.45m			

RemarksBorehole dry.
Refusal at 3.45mbgl on possible weathered sandstone bedrock.
No shear vane readings taken due to gravelly / sandy nature of strata.**Scale**
(approx)

1:40

Logged
By

HM

Figure No.

LKC 17 1207.WS105

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

Bleakholt Animal Sanctuary, Bury

Number
WS106**Excavation Method**

Drive-in Windowless Sampler

Dimensions**Ground Level (mOD)****Client**

Bleakholt Animal Sanctuary

Job
Number
LKC 17 1207**Location****Dates**

28/02/2018

Project Contractor

D&I

Sheet
1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
0.15-1.00	D1				(0.10) 0.10	MADE GROUND: Concrete.			
1.00-2.00	B2					Soft to stiff consistency medium strength dark orange brown grey mottled slightly gravelly slightly sandy CLAY with rare coal fragments. Sand is fine to medium. Gravel is fine to coarse and subangular comprising sandstone. Soft to firm consistency clay noted from 1.00mbgl to 1.50mbgl. Less grey mottling with depth.			
1.20-1.65	SPT N=7		1,1/1,1,2,3			Very thin layer of sand and gravel noted from 0.10-0.15mbgl. Wet layer noted from 1.00-1.50mbgl.			
2.00-2.45	SPT N=20				(3.13)				
2.00	SV 74 kPa		6,3/5,5,5,5						
2.00-3.00	B3								
3.00-3.23	SPT 50/80		25,25/50		3.23	Very gravelly at 2.80-3.00mbgl. Wet layer noted from 3..00-3.20mbgl.			
						Complete at 3.23m			

Remarks

Refusal at 3.23mbgl on sandstone cobble.

Scale
(approx)

1:40

Logged
By

HM

Figure No.

LKC 17 1207.WS106



LK CONSULT LTD

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

Site

Bleakholt Animal Sanctuary, Bury

**Trial Pit
Number
TP101**

Excavation Method

Trial Pit

Dimensions

1.0x2.0x2.0m

Ground Level (mOD)

Client

Bleakholt Animal Sanctuary

Job Number

LKC 17 1207

Location

Dates

14/03/2018

Project Contractor

D&I

Sheet

1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.20	D1				(0.20)	TOPSOIL: Grass over dark brown gravelly silty SAND with frequent rootlets. Sand is fine to medium. Gravel is fine to medium and subrounded comprising sandstone.		
0.20-1.20	D2				0.20			
0.50	SV 55 kPa				(1.80)	Firm to stiff consistency medium to high strength orangish brown grey mottled slightly sandy gravelly CLAY with occasional bands of sand, rare coal fragments and rare subangular cobbles of sandstone. Sand is fine to medium, Gravel is fine to coarse and angular to subrounded comprising sandstone and mudstone.		
1.50	SV 130 kPa				2.00	Complete at 2.00m		



Remarks

Trial hole terminated due to presence of services.
Seap of water noted at 0.80mbgl.
Trial pit stable.

Scale (approx)

1:40

Logged By

HM

Figure No.

LKC 17 1207.TP101

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

Bleakholt Animal Sanctuary, Bury

**Trial Pit
Number****TP102****Excavation Method**

Trial Pit

Dimensions

1.0x2.0x2.8m

Ground Level (mOD)**Client**

Bleakholt Animal Sanctuary

**Job
Number**

LKC 17 1207

Location**Dates**

14/03/2018

Project Contractor

D&I

Sheet

1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.30	D1				(0.40)	MADE GROUND: Blackish brown clayey SAND and GRAVEL. Sand is fine to coarse. Gravel is fine to medium and angular to subrounded comprising sandstone and mudstone. Timber noted at 0.30mbgl. Sandstone flags noted at 0.30-0.40mbgl. Soft to firm consistency low strength orangish brown grey mottled slightly gravelly slightly sandy CLAY with rare coal fragments. Sand is fine to medium. Gravel is fine to coarse and angular to subrounded comprising sandstone and mudstone. Rare cobbles to sandstone noted with depth.		
0.40-1.00	D2				0.40			
1.00 1.00-2.00	SV 28 kPa B3				(2.40)			
2.00	SV 36 kPa				2.80			
						Complete at 2.80m		

**Remarks**Trial pit noted to be unstable towards the top.
Seap of water noted at 0.80mbgl.
Refusal at 2.80mbgl on possible weathered bedrock.**Scale (approx)**

1:40

Logged By

HM

Figure No.

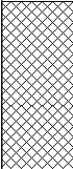
LKC 17 1207.TP102



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

Site Bleakholt Animal Sanctuary, Bury	Trial Pit Number TP103
Client Bleakholt Animal Sanctuary	Job Number LKC 17 1207
Project Contractor D&I	Sheet 1/1

Excavation Method Trial Pit	Dimensions 1.0x2.0x0.9m	Ground Level (mOD)
	Location	Dates 14/03/2018

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.00-0.90	D1				(0.90) 0.90	MADE GROUND: Grass over dark brown gravelly sandy CLAY with rare ash, clinker and coal fragments. Sand is fine to medium. Gravel is fine to coarse and subangular comprising sandstone. Complete at 0.90m		



Remarks Trial pit terminated at 0.90mbgl due to the presence of services at base of pit. Trial pit noted to be dry and unstable.		
Scale (approx) 1:40	Logged By HM	Figure No. LKC 17 1207.TP103

 LK CONSULT LTD Eton Business Park, Eton Hill Road, Radcliffe, M26 2ZS Tel: 0161 763 7200 web: www.thelkgroup.com					Site Bleakholt Animal Sanctuary, Bury		Trial Pit Number TP104			
Excavation Method Trial Pit		Dimensions 1.0x2.0x1.9m		Ground Level (mOD)		Client Bleakholt Animal Sanctuary		Job Number LKC 17 1207		
		Location		Dates 14/03/2018		Project Contractor D&I		Sheet 1/1		
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water	
0.00-0.15	D1				(0.15)	MADE GROUND: Dark brown sandy GRAVEL with occasional ash. Sand is fine to coarse. Gravel is fine to medium and subangular comprising sandstone.				
0.20-1.20	D2					MADE GROUND: orangish brown grey mottled slightly sandy gravelly CLAY with rare coal fragments. Sand is fine to medium. Gravel is fine to coarse and angular to subrounded comprising sandstone and mudstone.				
1.00 1.00-2.00	SV 38 kPa B3				(1.75)	Layer of reddish brown sand noted at 1.70-1.80mbgl.				
1.50	SV 50 kPa				1.90	Complete at 1.90m				
						Remarks Trial pit terminated at 1.90mbgl due to presence of services at base of trial pit. Seap of water noted at 1.50mbgl. Trial pit noted to be unstable.				
						Scale (approx) 1:40		Logged By HM		Figure No. lkc 17 1207.TP104

APPENDIX C

CERTIFICATE OF ANALYSIS - SOIL

Final Report

Report No.:	18-07634-1		
Initial Date of Issue:	26-Mar-2018		
Client	LK Consult		
Client Address:	Unit 29 Eton Business Park Eton Hill Road Radcliffe Manchester Lancashire M26 2ZS		
Contact(s):	Rosemary Cummings Contaminated Land		
Project	LKC 17 1207 Bleakholt Animal Sanctuary		
Quotation No.:		Date Received:	20-Mar-2018
Order No.:	736008	Date Instructed:	20-Mar-2018
No. of Samples:	6		
Turnaround (Wkdays):	5	Results Due:	26-Mar-2018
Date Approved:	26-Mar-2018		
Approved By:			
			
Details:	Robert Monk, Technical Manager		

Results - Soil

Client: LK Consult	Chemtest Job No.:		18-07634	18-07634	18-07634	18-07634	18-07634	18-07634
Quotation No.:	Chemtest Sample ID.:		594316	594317	594318	594319	594320	594321
	Client Sample ID.:		TP101	TP101	TP102	TP102	TP103	TP104
	Sample Type:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):		0.0	0.2	0.0	0.3	0.0	0.2
	Bottom Depth (m):		0.2	1.2	0.3	1.0	0.9	1.2
	Date Sampled:		14-Mar-2018	14-Mar-2018	14-Mar-2018	14-Mar-2018	14-Mar-2018	14-Mar-2018
	Asbestos Lab:		COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD				
ACM Type	U	2192		N/A	-	-	-	-
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	7.8	12	8.1	15
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones	Stones	Stones
Soil Texture	N	2040		N/A	Sand	Clay	Sand	Clay
pH	U	2010		N/A	8.5	5.5	7.7	5.2
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	0.018	< 0.010	< 0.010	< 0.010
Arsenic	U	2450	mg/kg	1.0	7.7	4.7	7.0	6.9
Cadmium	U	2450	mg/kg	0.10	0.11	< 0.10	< 0.10	< 0.10
Chromium	U	2450	mg/kg	1.0	19	18	25	25
Copper	U	2450	mg/kg	0.50	15	16	22	24
Mercury	U	2450	mg/kg	0.10	0.10	< 0.10	< 0.10	< 0.10
Nickel	U	2450	mg/kg	0.50	23	26	31	37
Lead	U	2450	mg/kg	0.50	33	14	25	16
Selenium	U	2450	mg/kg	0.20	< 0.20	< 0.20	< 0.20	< 0.20
Vanadium	U	2450	mg/kg	5.0	19	16	23	24
Zinc	U	2450	mg/kg	0.50	59	60	80	72
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	U	2625	%	0.40	1.1	1.2	1.5	1.7
Naphthalene	U	2800	mg/kg	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
Acenaphthene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	2800	mg/kg	0.10	0.20	< 0.10	< 0.10	< 0.10
Anthracene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	2800	mg/kg	0.10	0.15	< 0.10	< 0.10	< 0.10
Pyrene	U	2800	mg/kg	0.10	0.28	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	N	2800	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0

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
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"

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.co.uk

Final Report

Report No.: 18-06067-1

Initial Date of Issue: 09-Mar-2018

Client LK Consult

Client Address: Unit 29 Eton Business Park
Eton Hill Road
Radcliffe
Manchester
Lancashire
M26 2ZS

Contact(s): Rosemary Cummings
Contaminated Land

Project LKC 17 1207 - Bleakholt Animal
Sanctuary, Bury

Quotation No.:		Date Received:	05-Mar-2018
Order No.:	735976	Date Instructed:	05-Mar-2018
No. of Samples:	6		
Turnaround (Wkdays):	5	Results Due:	09-Mar-2018
Date Approved:	09-Mar-2018		

Approved By:



Details: Martin Dyer, Laboratory Manager

Results - Soil

Client: LK Consult	Chemtest Job No.:				18-06067	18-06067	18-06067	18-06067	18-06067	18-06067
Quotation No.:	Chemtest Sample ID.:				586779	586780	586781	586782	586783	586784
	Client Sample ID.:				WS101	WS102	WS103B	WS104	WS105	WS106
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):				0.30	0.00	1.20	0.00	0.00	0.15
	Bottom Depth (m):				1.00	1.00	2.00	0.80	1.00	1.00
	Date Sampled:				28-Feb-2018	28-Feb-2018	28-Feb-2018	28-Feb-2018	28-Feb-2018	28-Feb-2018
	Asbestos Lab:				COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY	COVENTRY
Determinand	Accred.	SOP	Units	LOD						
ACM Type	U	2192		N/A	-	-	-	-	-	-
Asbestos Identification	U	2192	%	0.001	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	13	27	24	9.9	8.3	15
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown
Other Material	N	2040		N/A	Stones	Stones	Stones	Stones	Stones	Stones
Soil Texture	N	2040		N/A	Sand	Sand	Sand	Sand	Sand	Sand
pH	U	2010		N/A	7.7	5.8	7.1	7.6	8.3	4.8
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Arsenic	U	2450	mg/kg	1.0	6.9	23	17	5.9	4.4	5.9
Cadmium	U	2450	mg/kg	0.10	0.17	0.44	0.31	0.11	< 0.10	< 0.10
Chromium	U	2450	mg/kg	1.0	21	18	19	19	22	20
Copper	U	2450	mg/kg	0.50	20	51	37	17	13	17
Mercury	U	2450	mg/kg	0.10	< 0.10	0.40	0.30	< 0.10	< 0.10	< 0.10
Nickel	U	2450	mg/kg	0.50	23	20	19	25	28	18
Lead	U	2450	mg/kg	0.50	27	390	140	12	15	12
Selenium	U	2450	mg/kg	0.20	< 0.20	0.40	0.41	< 0.20	< 0.20	< 0.20
Vanadium	U	2450	mg/kg	5.0	18	31	27	18	22	19
Zinc	U	2450	mg/kg	0.50	160	180	85	52	54	38
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	U	2625	%	0.40	4.5	9.0	10	1.1	1.7	0.72
Naphthalene	U	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	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	2800	mg/kg	0.10	< 0.10	0.68	0.52	< 0.10	< 0.10	< 0.10
Anthracene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	2800	mg/kg	0.10	< 0.10	2.2	0.97	< 0.10	0.16	< 0.10
Pyrene	U	2800	mg/kg	0.10	< 0.10	2.0	0.86	< 0.10	0.17	< 0.10
Benzo[a]anthracene	U	2800	mg/kg	0.10	< 0.10	1.1	0.27	< 0.10	< 0.10	< 0.10
Chrysene	U	2800	mg/kg	0.10	< 0.10	1.4	0.33	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	2800	mg/kg	0.10	< 0.10	1.9	0.40	< 0.10	< 0.10	< 0.10
Benzo[k]fluoranthene	U	2800	mg/kg	0.10	< 0.10	0.59	0.13	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	2800	mg/kg	0.10	< 0.10	1.3	0.24	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2800	mg/kg	0.10	< 0.10	0.91	0.18	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	0.16	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2800	mg/kg	0.10	< 0.10	0.98	0.26	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	N	2800	mg/kg	2.0	< 2.0	13	4.2	< 2.0	< 2.0	< 2.0

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
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

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- I/S Insufficient Sample
- U/S Unsuitable Sample
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- < "less than"
- > "greater than"

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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
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- 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.co.uk

APPENDIX D

CERTIFICATE OF ANALYSIS – GEOTECHNICAL



TEST REPORT

Client LK Consult Ltd

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

Contract LKC 17 1207 -
Bleakholt Animal Sanctuary

Job Number MRN 3100/88
Date of Issue 03 April 2018
Page 1 of 3

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.



MURRAY RIX

33C Vauxhall Ind. Estate, Greg Street
Reddish, Stockport SK5 7BR
TEL 0161 475 0870 FAX 0161 475 0871



TEST CERTIFICATE

LIQUID AND PLASTIC LIMIT

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

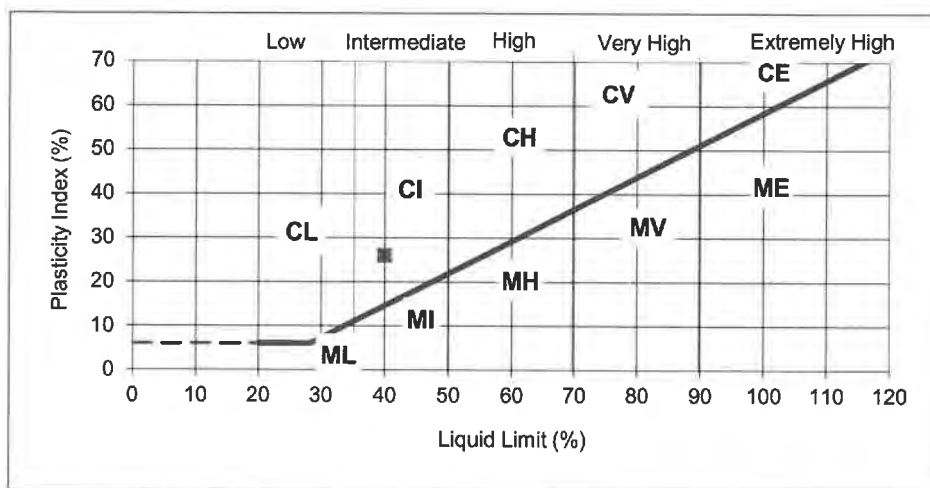
MOISTURE CONTENT METHOD BS 1377: PART 2: 1990 Clause 3.2

CLIENT	LK Consult Ltd
SITE	Bleakholt Animal Sanctuary, Bury
JOB NUMBER	MRN 3100/88

SAMPLE LABEL	TP102 / 1.0-2.0m	DATE SAMPLED	14-Mar-18
SAMPLE No.	75781	DATE RECEIVED	23-Mar-18
DATE TESTED	23-Mar-18	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	40	14	26	87



REMARKS

Sample tested after wet sieving

SIGNED

NAME

Page 2 of 3

O.P. Davies

(Deputy Laboratory Manager)

DATE

03-Apr-18

MURRAY RIX

33C Vauxhall Ind. Estate, Greg Street
Reddish, Stockport SK5 7BR
TEL 0161 475 0870 FAX 0161 475 0871



TEST CERTIFICATE

LIQUID AND PLASTIC LIMIT

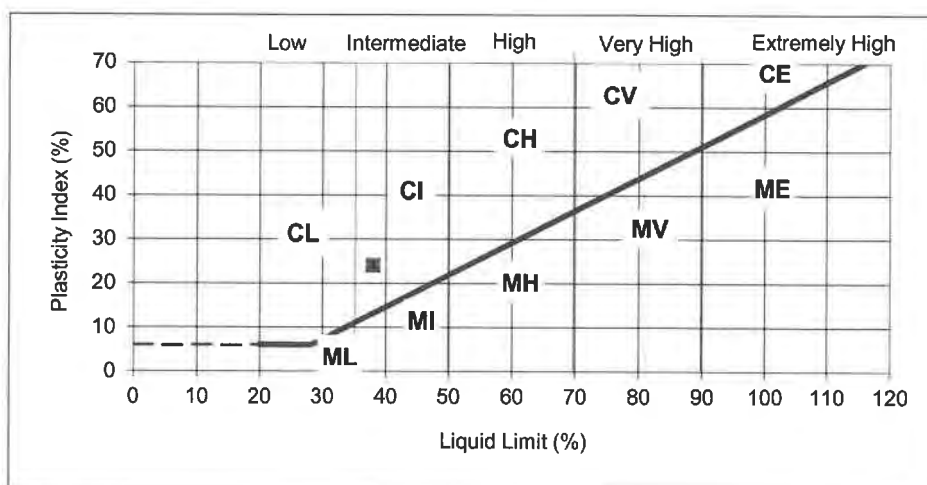
BS 1377: PART 2: 1990 Clause 4.4 ONE POINT METHOD & Clause 5.3
MOISTURE CONTENT METHOD BS 1377: PART 2: 1990 Clause 3.2

CLIENT	LK Consult Ltd
SITE	Bleakholt Animal Sanctuary, Bury
JOB NUMBER	MRN 3100/88

SAMPLE LABEL	TP104 / 1.0-2.0m	DATE SAMPLED	14-Mar-18
SAMPLE No.	75782	DATE RECEIVED	23-Mar-18
DATE TESTED	23-Mar-18	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 (%)
18	38	14	24	91



REMARKS

Sample tested after wet sieving

SIGNED

NAME

Page 3 of 3

O.P. Davies

(Deputy Laboratory Manager)

DATE

03-Apr-18



TEST REPORT

Client LK Consult Ltd

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

Contract LKC 16 1207 -
Bleakholt Animal Sanctuary,
Bury

Job Number MRN 3100/84
Date of Issue 19 March 2018
Page 1 of 3

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.



MURRAY RIX

33C Vauxhall Ind. Estate, Greg Street
Reddish, Stockport SK5 7BR
TEL 0161 475 0870 FAX 0161 475 0871



TEST CERTIFICATE

LIQUID AND PLASTIC LIMIT

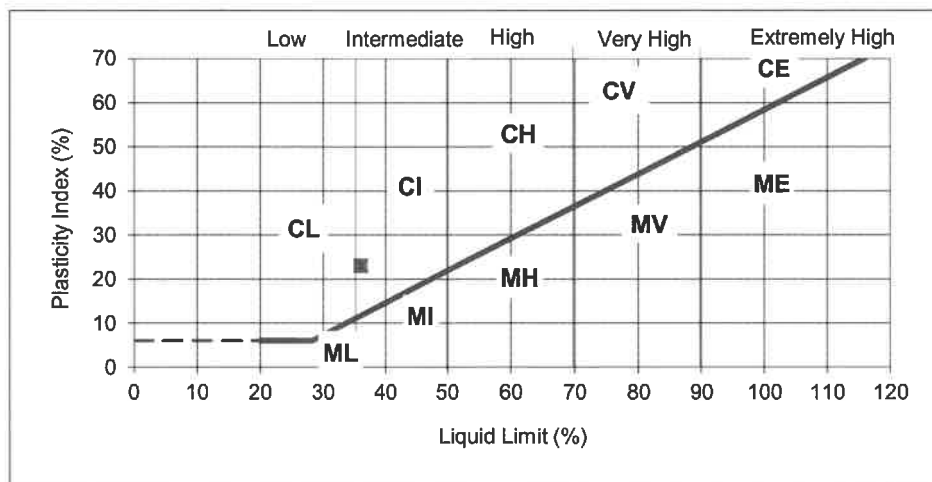
BS 1377: PART 2: 1990 Clause 4.4 ONE POINT METHOD & Clause 5.3
MOISTURE CONTENT METHOD BS 1377: PART 2: 1990 Clause 3.2

CLIENT	LK Consult Ltd
SITE	Bleakholt Animal Sanctuary, Bury
JOB NUMBER	MRN 3100/84

SAMPLE LABEL	WS106 / 1.00-2.00m	DATE SAMPLED	28-Feb-18
SAMPLE No.	75475	DATE RECEIVED	05-Mar-18
DATE TESTED	06-Mar-18	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 (%)
16	36	13	23	84



REMARKS

Sample tested after wet sieving

SIGNED

NAME O.P. Davies DATE 19-Mar-18
Page 2 of 3 (Deputy Laboratory Manager)

MURRAY RIX

33C Vauxhall Ind. Estate, Greg Street
Reddish, Stockport SK5 7BR
TEL 0161 475 0870 FAX 0161 475 0871



TEST CERTIFICATE

LIQUID AND PLASTIC LIMIT

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

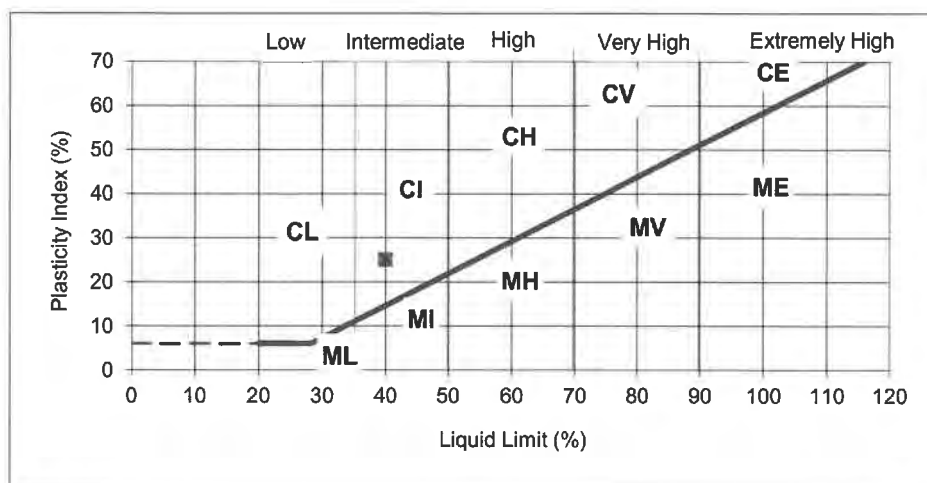
MOISTURE CONTENT METHOD BS 1377: PART 2: 1990 Clause 3.2

CLIENT	LK Consult Ltd
SITE	Bleakholt Animal Sanctuary, Bury
JOB NUMBER	MRN 3100/84

SAMPLE LABEL	WS101 / 1.00-2.00m	DATE SAMPLED	28-Feb-18
SAMPLE No.	75476	DATE RECEIVED	05-Mar-18
DATE TESTED	06-Mar-18	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 (%)
17	40	15	25	80



REMARKS

Sample tested after wet sieving

SIGNED

NAME

Page 3 of 3

O.P. Davies

(Deputy Laboratory Manager)

DATE

19-Mar-18

APPENDIX E

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).

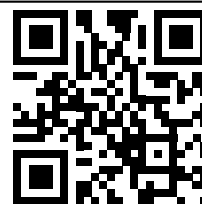
^{dir} = S4uls based on threshold protective of direct skin contact with phenol (brackets long term exposure for illustration purposes).

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

APPENDIX F

HAZWASTE ONLINE

Waste Classification Report



22FSD-9FMAJ-SG3MB

Job name

Bleakholt Animal Sanctuary

Description/Comments

Project

LKC 17 1207

Site

Bleakholt Animal Sanctuary, Bury

Waste Stream Template

LK SUITE 1 - 5

Classified by

Name:

Colin Crompton

Date:

11/04/2018 14:21:11 UTC

Telephone:

0161 763 7200

Company:

LK Group
Unit 29, Eton Business Park
Eton Hill Rd, Radcliffe
Manchester
M26 2ZS

Report

Created by: Colin Crompton

Created date: 11/04/2018 14:21 UTC

Job summary

#	Sample Name	Depth [m]	Classification Result	Hazard properties	Page
1	WS101	1.00	Non Hazardous		3
2	WS102	1.00	Non Hazardous		5
3	WS103B	2.00	Non Hazardous		7
4	WS104	0.80	Non Hazardous		9
5	WS105	1.00	Non Hazardous		11
6	WS106	1.00	Non Hazardous		13
7	TP101	0.2	Non Hazardous		15
8	TP101[1]	1.2	Non Hazardous		17
9	TP102	0.3	Non Hazardous		19
10	TP102[1]	1.0	Non Hazardous		21
11	TP103	0.9	Non Hazardous		23
12	TP104	1.2	Non Hazardous		25

Appendices

Appendix A: Classifier defined and non CLP determinands

Appendix B: Rationale for selection of metal species

Page

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Appendices	Page
Appendix C: Version	29

Classification of sample: WS101

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

Sample details

Sample Name:	LoW Code:
WS101	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
1.00 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				6.9 mg/kg	1.32	9.11 mg/kg	0.000911 %		
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium oxide }				0.17 mg/kg	1.142	0.194 mg/kg	0.0000194 %		
	048-002-00-0	215-146-2	1306-19-0							
3	chromium in chromium(III) compounds { chromium(III) oxide }				21 mg/kg	1.462	30.693 mg/kg	0.00307 %		
		215-160-9	1308-38-9							
4	copper { dicopper oxide; copper (I) oxide }				20 mg/kg	1.126	22.518 mg/kg	0.00225 %		
	029-002-00-X	215-270-7	1317-39-1							
5	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							
6	nickel { nickel chromate }				23 mg/kg	2.976	68.454 mg/kg	0.00685 %		
	028-035-00-7	238-766-5	14721-18-7							
7	lead { lead chromate }			1	27 mg/kg	1.56	42.115 mg/kg	0.0027 %		
	082-004-00-2	231-846-0	7758-97-6							
8	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<0.2 mg/kg	2.554	<0.511 mg/kg	<0.0000511 %		<LOD
	034-002-00-8									
9	vanadium { divanadium pentaoxide; vanadium pentoxide }				18 mg/kg	1.785	32.133 mg/kg	0.00321 %		
	023-001-00-8	215-239-8	1314-62-1							
10	zinc { zinc chromate }				160 mg/kg	2.774	443.863 mg/kg	0.0444 %		
	024-007-00-3									
11	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
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							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
16	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-581-5	85-01-8								
17	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-371-1	120-12-7								
18	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-912-4	206-44-0								
19	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-927-3	129-00-0								
20	benzo[a]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-033-00-9	200-280-6	56-55-3								
21	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-048-00-0	205-923-4	218-01-9								
22	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-034-00-4	205-911-9	205-99-2								
23	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-036-00-5	205-916-6	207-08-9								
24	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-032-00-3	200-028-5	50-32-8								
25	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-893-2	193-39-5								
26	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-041-00-2	200-181-8	53-70-3								
27	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-883-8	191-24-2								
Total:									0.0637 %		

Key

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

Classification of sample: WS102

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

Sample details

Sample Name:	LoW Code:
WS102	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
1.00 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				23 mg/kg	1.32	30.367 mg/kg	0.00304 %		
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium oxide }				0.44 mg/kg	1.142	0.503 mg/kg	0.0000503 %		
	048-002-00-0	215-146-2	1306-19-0							
3	chromium in chromium(III) compounds { chromium(III) oxide }				18 mg/kg	1.462	26.308 mg/kg	0.00263 %		
		215-160-9	1308-38-9							
4	copper { dicopper oxide; copper (I) oxide }				51 mg/kg	1.126	57.42 mg/kg	0.00574 %		
	029-002-00-X	215-270-7	1317-39-1							
5	mercury { mercury dichloride }				0.4 mg/kg	1.353	0.541 mg/kg	0.0000541 %		
	080-010-00-X	231-299-8	7487-94-7							
6	nickel { nickel chromate }				20 mg/kg	2.976	59.525 mg/kg	0.00595 %		
	028-035-00-7	238-766-5	14721-18-7							
7	lead { lead chromate }			1	390 mg/kg	1.56	608.328 mg/kg	0.039 %		
	082-004-00-2	231-846-0	7758-97-6							
8	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.4 mg/kg	2.554	1.021 mg/kg	0.000102 %		
	034-002-00-8									
9	vanadium { divanadium pentaoxide; vanadium pentoxide }				31 mg/kg	1.785	55.341 mg/kg	0.00553 %		
	023-001-00-8	215-239-8	1314-62-1							
10	zinc { zinc chromate }				180 mg/kg	2.774	499.346 mg/kg	0.0499 %		
	024-007-00-3									
11	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
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							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
16	phenanthrene	201-581-5	85-01-8		0.68 mg/kg		0.68 mg/kg	0.000068 %			
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		2.2 mg/kg		2.2 mg/kg	0.00022 %			
19	pyrene	204-927-3	129-00-0		2 mg/kg		2 mg/kg	0.0002 %			
20	benzo[a]anthracene	601-033-00-9	200-280-6		1.1 mg/kg		1.1 mg/kg	0.00011 %			
21	chrysene	601-048-00-0	205-923-4		1.4 mg/kg		1.4 mg/kg	0.00014 %			
22	benzo[b]fluoranthene	601-034-00-4	205-911-9		1.9 mg/kg		1.9 mg/kg	0.00019 %			
23	benzo[k]fluoranthene	601-036-00-5	205-916-6		0.59 mg/kg		0.59 mg/kg	0.000059 %			
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		1.3 mg/kg		1.3 mg/kg	0.00013 %			
25	indeno[123-cd]pyrene	205-893-2	193-39-5		0.91 mg/kg		0.91 mg/kg	0.000091 %			
26	dibenz[a,h]anthracene	601-041-00-2	200-181-8		0.16 mg/kg		0.16 mg/kg	0.000016 %			
27	benzo[ghi]perylene	205-883-8	191-24-2		0.98 mg/kg		0.98 mg/kg	0.000098 %			
Total:									0.114 %		

Key

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

Classification of sample: WS103B

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

Sample details

Sample Name:	LoW Code:
WS103B	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
2.00 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				17 mg/kg	1.32	22.446 mg/kg	0.00224 %		
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium oxide }				0.31 mg/kg	1.142	0.354 mg/kg	0.0000354 %		
	048-002-00-0	215-146-2	1306-19-0							
3	chromium in chromium(III) compounds { chromium(III) oxide }				19 mg/kg	1.462	27.77 mg/kg	0.00278 %		
		215-160-9	1308-38-9							
4	copper { dicopper oxide; copper (I) oxide }				37 mg/kg	1.126	41.658 mg/kg	0.00417 %		
	029-002-00-X	215-270-7	1317-39-1							
5	mercury { mercury dichloride }				0.3 mg/kg	1.353	0.406 mg/kg	0.0000406 %		
	080-010-00-X	231-299-8	7487-94-7							
6	nickel { nickel chromate }				19 mg/kg	2.976	56.549 mg/kg	0.00565 %		
	028-035-00-7	238-766-5	14721-18-7							
7	lead { lead chromate }			1	140 mg/kg	1.56	218.374 mg/kg	0.014 %		
	082-004-00-2	231-846-0	7758-97-6							
8	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				0.41 mg/kg	2.554	1.047 mg/kg	0.000105 %		
	034-002-00-8									
9	vanadium { divanadium pentaoxide; vanadium pentoxide }				27 mg/kg	1.785	48.2 mg/kg	0.00482 %		
	023-001-00-8	215-239-8	1314-62-1							
10	zinc { zinc chromate }				85 mg/kg	2.774	235.802 mg/kg	0.0236 %		
	024-007-00-3									
11	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
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							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
16	phenanthrene	201-581-5	85-01-8		0.52 mg/kg		0.52 mg/kg	0.000052 %			
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		0.97 mg/kg		0.97 mg/kg	0.000097 %			
19	pyrene	204-927-3	129-00-0		0.86 mg/kg		0.86 mg/kg	0.000086 %			
20	benzo[a]anthracene	601-033-00-9	200-280-6	56-55-3	0.27 mg/kg		0.27 mg/kg	0.000027 %			
21	chrysene	601-048-00-0	205-923-4	218-01-9	0.33 mg/kg		0.33 mg/kg	0.000033 %			
22	benzo[b]fluoranthene	601-034-00-4	205-911-9	205-99-2	0.4 mg/kg		0.4 mg/kg	0.00004 %			
23	benzo[k]fluoranthene	601-036-00-5	205-916-6	207-08-9	0.13 mg/kg		0.13 mg/kg	0.000013 %			
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5	50-32-8	0.24 mg/kg		0.24 mg/kg	0.000024 %			
25	indeno[123-cd]pyrene	205-893-2	193-39-5		0.18 mg/kg		0.18 mg/kg	0.000018 %			
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		0.26 mg/kg		0.26 mg/kg	0.000026 %			
Total:									0.058 %		

Key

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

Classification of sample: WS104

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

Sample details

Sample Name:	LoW Code:
WS104	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.80 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
1	arsenic { arsenic trioxide }				5.9 mg/kg	1.32	7.79 mg/kg	0.000779 %			
	033-003-00-0	215-481-4	1327-53-3								
2	cadmium { cadmium oxide }				0.11 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 }				19 mg/kg	1.462	27.77 mg/kg	0.00278 %			
		215-160-9	1308-38-9								
4	copper { dicopper oxide; copper (I) oxide }				17 mg/kg	1.126	19.14 mg/kg	0.00191 %			
	029-002-00-X	215-270-7	1317-39-1								
5	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								
6	nickel { nickel chromate }				25 mg/kg	2.976	74.407 mg/kg	0.00744 %			
	028-035-00-7	238-766-5	14721-18-7								
7	lead { lead chromate }			1	12 mg/kg	1.56	18.718 mg/kg	0.0012 %			
	082-004-00-2	231-846-0	7758-97-6								
8	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<0.2 mg/kg	2.554	<0.511 mg/kg	<0.0000511 %			<LOD
	034-002-00-8										
9	vanadium { divanadium pentaoxide; vanadium pentoxide }				18 mg/kg	1.785	32.133 mg/kg	0.00321 %			
	023-001-00-8	215-239-8	1314-62-1								
10	zinc { zinc chromate }				52 mg/kg	2.774	144.256 mg/kg	0.0144 %			
	024-007-00-3										
11	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %			<LOD
	024-001-00-0	215-607-8	1333-82-0								
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								

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
16	phenanthrene	201-581-5	85-01-8		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
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		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
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		<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		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
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
Total:									0.0321 %		

Key

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

Classification of sample: WS105

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

Sample details

Sample Name:	LoW Code:
WS105	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
1.00 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				4.4 mg/kg	1.32	5.809 mg/kg	0.000581 %		
	033-003-00-0	215-481-4	1327-53-3							
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 }				22 mg/kg	1.462	32.154 mg/kg	0.00322 %		
		215-160-9	1308-38-9							
4	copper { dicopper oxide; copper (I) oxide }				13 mg/kg	1.126	14.637 mg/kg	0.00146 %		
	029-002-00-X	215-270-7	1317-39-1							
5	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							
6	nickel { nickel chromate }				28 mg/kg	2.976	83.335 mg/kg	0.00833 %		
	028-035-00-7	238-766-5	14721-18-7							
7	lead { lead chromate }			1	15 mg/kg	1.56	23.397 mg/kg	0.0015 %		
	082-004-00-2	231-846-0	7758-97-6							
8	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<0.2 mg/kg	2.554	<0.511 mg/kg	<0.0000511 %		<LOD
	034-002-00-8									
9	vanadium { divanadium pentaoxide; vanadium pentoxide }				22 mg/kg	1.785	39.274 mg/kg	0.00393 %		
	023-001-00-8	215-239-8	1314-62-1							
10	zinc { zinc chromate }				54 mg/kg	2.774	149.804 mg/kg	0.015 %		
	024-007-00-3									
11	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
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							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
16	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-581-5	85-01-8								
17	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-371-1	120-12-7								
18	fluoranthene				0.16 mg/kg		0.16 mg/kg	0.000016 %			
		205-912-4	206-44-0								
19	pyrene				0.17 mg/kg		0.17 mg/kg	0.000017 %			
		204-927-3	129-00-0								
20	benzo[a]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-033-00-9	200-280-6	56-55-3								
21	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-048-00-0	205-923-4	218-01-9								
22	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-034-00-4	205-911-9	205-99-2								
23	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-036-00-5	205-916-6	207-08-9								
24	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-032-00-3	200-028-5	50-32-8								
25	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-893-2	193-39-5								
26	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-041-00-2	200-181-8	53-70-3								
27	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-883-8	191-24-2								
Total:									0.0343 %		

Key

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

Classification of sample: WS106

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

Sample details

Sample Name:	LoW Code:
WS106	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
1.00 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				5.9 mg/kg	1.32	7.79 mg/kg	0.000779 %		
	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 }				20 mg/kg	1.462	29.231 mg/kg	0.00292 %		
		215-160-9	1308-38-9							
4	copper { dicopper oxide; copper (I) oxide }				17 mg/kg	1.126	19.14 mg/kg	0.00191 %		
	029-002-00-X	215-270-7	1317-39-1							
5	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							
6	nickel { nickel chromate }				18 mg/kg	2.976	53.573 mg/kg	0.00536 %		
	028-035-00-7	238-766-5	14721-18-7							
7	lead { lead chromate }			1	12 mg/kg	1.56	18.718 mg/kg	0.0012 %		
	082-004-00-2	231-846-0	7758-97-6							
8	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<0.2 mg/kg	2.554	<0.511 mg/kg	<0.0000511 %		<LOD
	034-002-00-8									
9	vanadium { divanadium pentaoxide; vanadium pentoxide }				19 mg/kg	1.785	33.919 mg/kg	0.00339 %		
	023-001-00-8	215-239-8	1314-62-1							
10	zinc { zinc chromate }				38 mg/kg	2.774	105.418 mg/kg	0.0105 %		
	024-007-00-3									
11	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
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							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
16	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-581-5	85-01-8								
17	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-371-1	120-12-7								
18	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-912-4	206-44-0								
19	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-927-3	129-00-0								
20	benzo[a]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-033-00-9	200-280-6	56-55-3								
21	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-048-00-0	205-923-4	218-01-9								
22	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-034-00-4	205-911-9	205-99-2								
23	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-036-00-5	205-916-6	207-08-9								
24	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-032-00-3	200-028-5	50-32-8								
25	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-893-2	193-39-5								
26	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-041-00-2	200-181-8	53-70-3								
27	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-883-8	191-24-2								
Total:									0.0264 %		

Key

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

Classification of sample: TP101

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

Sample details

Sample Name:	LoW Code:
TP101	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.2 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				7.7 mg/kg	1.32	10.167 mg/kg	0.00102 %		
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium oxide }				0.11 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 }				19 mg/kg	1.462	27.77 mg/kg	0.00278 %		
		215-160-9	1308-38-9							
4	copper { dicopper oxide; copper (I) oxide }				15 mg/kg	1.126	16.888 mg/kg	0.00169 %		
	029-002-00-X	215-270-7	1317-39-1							
5	mercury { mercury dichloride }				0.1 mg/kg	1.353	0.135 mg/kg	0.0000135 %		
	080-010-00-X	231-299-8	7487-94-7							
6	nickel { nickel chromate }				23 mg/kg	2.976	68.454 mg/kg	0.00685 %		
	028-035-00-7	238-766-5	14721-18-7							
7	lead { lead chromate }			1	33 mg/kg	1.56	51.474 mg/kg	0.0033 %		
	082-004-00-2	231-846-0	7758-97-6							
8	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<0.2 mg/kg	2.554	<0.511 mg/kg	<0.0000511 %		<LOD
	034-002-00-8									
9	vanadium { divanadium pentaoxide; vanadium pentoxide }				19 mg/kg	1.785	33.919 mg/kg	0.00339 %		
	023-001-00-8	215-239-8	1314-62-1							
10	zinc { zinc chromate }				59 mg/kg	2.774	163.675 mg/kg	0.0164 %		
	024-007-00-3									
11	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
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							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
16	phenanthrene	201-581-5	85-01-8		0.2 mg/kg		0.2 mg/kg	0.00002 %			
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		0.15 mg/kg		0.15 mg/kg	0.000015 %			
19	pyrene	204-927-3	129-00-0		0.28 mg/kg		0.28 mg/kg	0.000028 %			
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		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
24	benzo[a]pyrene; benzo[def]chrysene	601-032-00-3	200-028-5		<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
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
Total:									0.0358 %		

Key

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

Classification of sample: TP101[1]

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

Sample details

Sample Name:	LoW Code:
TP101[1]	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
1.2 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				4.7 mg/kg	1.32	6.206 mg/kg	0.000621 %		
	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 }				18 mg/kg	1.462	26.308 mg/kg	0.00263 %		
		215-160-9	1308-38-9							
4	copper { dicopper oxide; copper (I) oxide }				16 mg/kg	1.126	18.014 mg/kg	0.0018 %		
	029-002-00-X	215-270-7	1317-39-1							
5	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							
6	nickel { nickel chromate }				26 mg/kg	2.976	77.383 mg/kg	0.00774 %		
	028-035-00-7	238-766-5	14721-18-7							
7	lead { lead chromate }			1	14 mg/kg	1.56	21.837 mg/kg	0.0014 %		
	082-004-00-2	231-846-0	7758-97-6							
8	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<0.2 mg/kg	2.554	<0.511 mg/kg	<0.0000511 %		<LOD
	034-002-00-8									
9	vanadium { divanadium pentaoxide; vanadium pentoxide }				16 mg/kg	1.785	28.563 mg/kg	0.00286 %		
	023-001-00-8	215-239-8	1314-62-1							
10	zinc { zinc chromate }				60 mg/kg	2.774	166.449 mg/kg	0.0166 %		
	024-007-00-3									
11	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
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							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
16	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-581-5	85-01-8								
17	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-371-1	120-12-7								
18	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-912-4	206-44-0								
19	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-927-3	129-00-0								
20	benzo[a]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-033-00-9	200-280-6	56-55-3								
21	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-048-00-0	205-923-4	218-01-9								
22	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-034-00-4	205-911-9	205-99-2								
23	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-036-00-5	205-916-6	207-08-9								
24	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-032-00-3	200-028-5	50-32-8								
25	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-893-2	193-39-5								
26	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-041-00-2	200-181-8	53-70-3								
27	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-883-8	191-24-2								
Total:									0.034 %		

Key

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

Classification of sample: TP102

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

Sample details

Sample Name:	LoW Code:
TP102	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.3 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				7 mg/kg	1.32	9.242 mg/kg	0.000924 %		
	033-003-00-0	215-481-4	1327-53-3							
2	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 }				25 mg/kg	1.462	36.539 mg/kg	0.00365 %		
		215-160-9	1308-38-9							
4	copper { dicopper oxide; copper (I) oxide }				22 mg/kg	1.126	24.77 mg/kg	0.00248 %		
	029-002-00-X	215-270-7	1317-39-1							
5	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							
6	nickel { nickel chromate }				31 mg/kg	2.976	92.264 mg/kg	0.00923 %		
	028-035-00-7	238-766-5	14721-18-7							
7	lead { lead chromate }			1	25 mg/kg	1.56	38.995 mg/kg	0.0025 %		
	082-004-00-2	231-846-0	7758-97-6							
8	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<0.2 mg/kg	2.554	<0.511 mg/kg	<0.0000511 %		<LOD
	034-002-00-8									
9	vanadium { divanadium pentaoxide; vanadium pentoxide }				23 mg/kg	1.785	41.059 mg/kg	0.00411 %		
	023-001-00-8	215-239-8	1314-62-1							
10	zinc { zinc chromate }				80 mg/kg	2.774	221.932 mg/kg	0.0222 %		
	024-007-00-3									
11	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
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							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
16	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-581-5	85-01-8								
17	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-371-1	120-12-7								
18	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-912-4	206-44-0								
19	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-927-3	129-00-0								
20	benzo[a]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-033-00-9	200-280-6	56-55-3								
21	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-048-00-0	205-923-4	218-01-9								
22	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-034-00-4	205-911-9	205-99-2								
23	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-036-00-5	205-916-6	207-08-9								
24	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-032-00-3	200-028-5	50-32-8								
25	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-893-2	193-39-5								
26	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-041-00-2	200-181-8	53-70-3								
27	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-883-8	191-24-2								
Total:									0.0454 %		

Key

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

Classification of sample: TP102[1]

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

Sample details

Sample Name:	LoW Code:
TP102[1]	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
1.0 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				6.9 mg/kg	1.32	9.11 mg/kg	0.000911 %		
	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 }				25 mg/kg	1.462	36.539 mg/kg	0.00365 %		
		215-160-9	1308-38-9							
4	copper { dicopper oxide; copper (I) oxide }				24 mg/kg	1.126	27.021 mg/kg	0.0027 %		
	029-002-00-X	215-270-7	1317-39-1							
5	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							
6	nickel { nickel chromate }				37 mg/kg	2.976	110.122 mg/kg	0.011 %		
	028-035-00-7	238-766-5	14721-18-7							
7	lead { lead chromate }			1	16 mg/kg	1.56	24.957 mg/kg	0.0016 %		
	082-004-00-2	231-846-0	7758-97-6							
8	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<0.2 mg/kg	2.554	<0.511 mg/kg	<0.0000511 %		<LOD
	034-002-00-8									
9	vanadium { divanadium pentaoxide; vanadium pentoxide }				24 mg/kg	1.785	42.844 mg/kg	0.00428 %		
	023-001-00-8	215-239-8	1314-62-1							
10	zinc { zinc chromate }				72 mg/kg	2.774	199.739 mg/kg	0.02 %		
	024-007-00-3									
11	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
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							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
16	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-581-5	85-01-8								
17	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-371-1	120-12-7								
18	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-912-4	206-44-0								
19	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-927-3	129-00-0								
20	benzo[a]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-033-00-9	200-280-6	56-55-3								
21	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-048-00-0	205-923-4	218-01-9								
22	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-034-00-4	205-911-9	205-99-2								
23	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-036-00-5	205-916-6	207-08-9								
24	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-032-00-3	200-028-5	50-32-8								
25	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-893-2	193-39-5								
26	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-041-00-2	200-181-8	53-70-3								
27	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-883-8	191-24-2								
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
- CLP: Note 1 Only the metal concentration has been used for classification

Classification of sample: TP103

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

Sample details

Sample Name:	LoW Code:
TP103	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
0.9 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				14 mg/kg	1.32	18.485 mg/kg	0.00185 %		
	033-003-00-0	215-481-4	1327-53-3							
2	cadmium { cadmium oxide }				0.24 mg/kg	1.142	0.274 mg/kg	0.0000274 %		
	048-002-00-0	215-146-2	1306-19-0							
3	chromium in chromium(III) compounds { chromium(III) oxide }				20 mg/kg	1.462	29.231 mg/kg	0.00292 %		
		215-160-9	1308-38-9							
4	copper { dicopper oxide; copper (I) oxide }				39 mg/kg	1.126	43.91 mg/kg	0.00439 %		
	029-002-00-X	215-270-7	1317-39-1							
5	mercury { mercury dichloride }				0.11 mg/kg	1.353	0.149 mg/kg	0.0000149 %		
	080-010-00-X	231-299-8	7487-94-7							
6	nickel { nickel chromate }				22 mg/kg	2.976	65.478 mg/kg	0.00655 %		
	028-035-00-7	238-766-5	14721-18-7							
7	lead { lead chromate }			1	160 mg/kg	1.56	249.57 mg/kg	0.016 %		
	082-004-00-2	231-846-0	7758-97-6							
8	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<0.2 mg/kg	2.554	<0.511 mg/kg	<0.0000511 %		<LOD
	034-002-00-8									
9	vanadium { divanadium pentaoxide; vanadium pentoxide }				28 mg/kg	1.785	49.985 mg/kg	0.005 %		
	023-001-00-8	215-239-8	1314-62-1							
10	zinc { zinc chromate }				220 mg/kg	2.774	610.312 mg/kg	0.061 %		
	024-007-00-3									
11	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
12	naphthalene				0.24 mg/kg		0.24 mg/kg	0.000024 %		
	601-052-00-2	202-049-5	91-20-3							
13	acenaphthylene				0.13 mg/kg		0.13 mg/kg	0.000013 %		
		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				0.11 mg/kg		0.11 mg/kg	0.000011 %		
		201-695-5	86-73-7							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
16	phenanthrene				0.99 mg/kg		0.99 mg/kg	0.000099 %		
		201-581-5	85-01-8							
17	anthracene				0.34 mg/kg		0.34 mg/kg	0.000034 %		
		204-371-1	120-12-7							
18	fluoranthene				1.8 mg/kg		1.8 mg/kg	0.00018 %		
		205-912-4	206-44-0							
19	pyrene				2 mg/kg		2 mg/kg	0.0002 %		
		204-927-3	129-00-0							
20	benzo[a]anthracene				1 mg/kg		1 mg/kg	0.0001 %		
	601-033-00-9	200-280-6	56-55-3							
21	chrysene				1.3 mg/kg		1.3 mg/kg	0.00013 %		
	601-048-00-0	205-923-4	218-01-9							
22	benzo[b]fluoranthene				1.3 mg/kg		1.3 mg/kg	0.00013 %		
	601-034-00-4	205-911-9	205-99-2							
23	benzo[k]fluoranthene				0.49 mg/kg		0.49 mg/kg	0.000049 %		
	601-036-00-5	205-916-6	207-08-9							
24	benzo[a]pyrene; benzo[def]chrysene				0.84 mg/kg		0.84 mg/kg	0.000084 %		
	601-032-00-3	200-028-5	50-32-8							
25	indeno[123-cd]pyrene				0.49 mg/kg		0.49 mg/kg	0.000049 %		
		205-893-2	193-39-5							
26	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %		<LOD
	601-041-00-2	200-181-8	53-70-3							
27	benzo[ghi]perylene				0.62 mg/kg		0.62 mg/kg	0.000062 %		
		205-883-8	191-24-2							
Total:								0.0991 %		

Key

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

Classification of sample: TP104

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

Sample details

Sample Name:	LoW Code:
TP104	Chapter:
Sample Depth:	17: Construction and Demolition Wastes (including excavated soil from contaminated sites)
1.2 m	Entry:
	17 05 04 (Soil and stones other than those mentioned in 17 05 03)

Hazard properties

None identified

Determinands

Moisture content: 0% No Moisture Correction applied (MC)

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.	Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number							
1	arsenic { arsenic trioxide }				7.6 mg/kg	1.32	10.034 mg/kg	0.001 %		
	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 }				30 mg/kg	1.462	43.847 mg/kg	0.00438 %		
		215-160-9	1308-38-9							
4	copper { dicopper oxide; copper (I) oxide }				30 mg/kg	1.126	33.777 mg/kg	0.00338 %		
	029-002-00-X	215-270-7	1317-39-1							
5	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							
6	nickel { nickel chromate }				34 mg/kg	2.976	101.193 mg/kg	0.0101 %		
	028-035-00-7	238-766-5	14721-18-7							
7	lead { lead chromate }			1	18 mg/kg	1.56	28.077 mg/kg	0.0018 %		
	082-004-00-2	231-846-0	7758-97-6							
8	selenium { selenium compounds with the exception of cadmium sulphoselenide and those specified elsewhere in this Annex }				<0.2 mg/kg	2.554	<0.511 mg/kg	<0.0000511 %		<LOD
	034-002-00-8									
9	vanadium { divanadium pentaoxide; vanadium pentoxide }				29 mg/kg	1.785	51.77 mg/kg	0.00518 %		
	023-001-00-8	215-239-8	1314-62-1							
10	zinc { zinc chromate }				74 mg/kg	2.774	205.287 mg/kg	0.0205 %		
	024-007-00-3									
11	chromium in chromium(VI) compounds { chromium(VI) oxide }				<0.5 mg/kg	1.923	<0.962 mg/kg	<0.0000962 %		<LOD
	024-001-00-0	215-607-8	1333-82-0							
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							

#	Determinand			CLP Note	User entered data	Conv. Factor	Compound conc.		Classification value	MC Applied	Conc. Not Used
	CLP index number	EC Number	CAS Number								
16	phenanthrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		201-581-5	85-01-8								
17	anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-371-1	120-12-7								
18	fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-912-4	206-44-0								
19	pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		204-927-3	129-00-0								
20	benzo[a]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-033-00-9	200-280-6	56-55-3								
21	chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-048-00-0	205-923-4	218-01-9								
22	benzo[b]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-034-00-4	205-911-9	205-99-2								
23	benzo[k]fluoranthene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-036-00-5	205-916-6	207-08-9								
24	benzo[a]pyrene; benzo[def]chrysene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-032-00-3	200-028-5	50-32-8								
25	indeno[123-cd]pyrene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-893-2	193-39-5								
26	dibenz[a,h]anthracene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
	601-041-00-2	200-181-8	53-70-3								
27	benzo[ghi]perylene				<0.1 mg/kg		<0.1 mg/kg	<0.00001 %			<LOD
		205-883-8	191-24-2								
Total:									0.0467 %		

Key

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

Appendix A: Classifier defined and non CLP determinands

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

Conversion factor: 1.462

Description/Comments: Data from C&L Inventory Database

Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>

Data source date: 17/07/2015

Risk Phrases: R61 , R60 , R50/53 , R43 , R42 , R38 , R37 , R36 , R22 , R20

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

■ **dicopper oxide; copper (I) oxide** (EC Number: 215-270-7, CAS Number: 1317-39-1)

CLP index number: 029-002-00-X

Description/Comments: M-factor for long-term aquatic hazard not included as per paragraph (5), ATP9

Data source: Regulation (EU) 2016/1179 of 19 July 2016 (ATP9)

Additional Risk Phrases: N R50/53 >= 0.25 % , N R50/53

Additional Hazard Statement(s): None.

Reason for additional Hazard(s) Statement(s)/Risk Phrase(s):

10/10/2016 - N R50/53 >= 0.25 % risk phrase sourced from: WM3 v1 still uses ecotoxic risk phrases

10/10/2016 - N R50/53 risk phrase sourced from: WM3 v1 still uses ecotoxic risk phrases

■ **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: 17/07/2015

Risk Phrases: R38 , R37 , R36 , R27 , R26 , R22

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

■ **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: 17/07/2015

Risk Phrases: N R51/53 , N R50/53 , R38 , R37 , R36

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

■ **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: 06/08/2015

Risk Phrases: N R50/53

Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400

■ **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: 06/08/2015

Risk Phrases: N R50/53 , R43 , R40 , R38 , R37 , R36 , R22

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

■ **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: 17/07/2015

Risk Phrases: N R50/53 , R43 , R38 , R37 , R36

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

■ **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: 21/08/2015

Risk Phrases: N R50/53 , Xn R22

Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , Acute Tox. 4 H302

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

Description/Comments: Data from C&L Inventory Database; SDS Sigma Aldrich 2014
Data source: <http://echa.europa.eu/web/guest/information-on-chemicals/cl-inventory-database>
Data source date: 21/08/2015
Risk Phrases: N R50/53 , Xi R36/37/38
Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400 , STOT SE 3 H335 , Eye Irrit. 2 H319 , Skin Irrit. 2 H315

■ **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: 06/08/2015
Risk Phrases: R40
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: 23/07/2015
Risk Phrases: N R50/53
Hazard Statements: Aquatic Chronic 1 H410 , Aquatic Acute 1 H400

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}

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

copper {dicopper oxide; copper (I) oxide}

Reasonable case CLP species based on hazard statements/molecular weight and insolubility in water. Industrial sources include: oxidised copper metal, brake pads, pigments, antifouling paints, fungicide. (edit as required) Worst 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)

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)

lead {lead chromate}

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

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

Harmonised group entry used as most reasonable case. Pigment cadmium sulphoselenide not likely to be present in this soil. No evidence for the other CLP entries: sodium selenite, nickel II selenite and nickel selenide, to be present in this soil. (edit as required)

vanadium {divanadium pentaoxide; vanadium pentoxide}

Most conservative species.

zinc {zinc chromate}

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

chromium in chromium(VI) compounds {chromium(VI) oxide}

Worst case CLP species based on hazard statements/molecular weight. Industrial sources include: production stainless steel, electroplating, wood preservation, anti-corrosion agents or coatings, pigments (edit as required)

Appendix C: Version

HazWasteOnline Classification Engine: **WM3 1st Edition, May 2015**

HazWasteOnline Classification Engine Version: 2018.88.3517.7191 (31 Mar 2018)

HazWasteOnline Database: 2018.88.3517.7191 (31 Mar 2018)

This classification utilises the following guidance and legislation:

WM3 - Waste Classification - May 2015

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

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

2nd ATP - Regulation 286/2011/EC of 10 March 2011

3rd ATP - Regulation 618/2012/EU of 10 July 2012

4th ATP - Regulation 487/2013/EU of 8 May 2013

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

5th ATP - Regulation 944/2013/EU of 2 October 2013

6th ATP - Regulation 605/2014/EU of 5 June 2014

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

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

7th ATP - Regulation 2015/1221/EU of 24 July 2015

8th ATP - Regulation (EU) 2016/918 of 19 May 2016

9th ATP - Regulation (EU) 2016/1179 of 19 July 2016

10th ATP - Regulation (EU) 2017/776 of 4 May 2017

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

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

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

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